

The State of e-Banking Implementation in Nigeria: A Post-Consolidation Review

¹Ayo, C. K., ²Adewoye J. O., and ¹Oni A. A.

¹Department of Computer and Information Sciences, Covenant University,
Ota, Nigeria.

²Department of Management Sciences, Ladoke Akintola University of Technology,
Ogbomoso, Nigeria.

Corresponding Author: Ayo, C.K

Abstract

The most widely used e-Banking instrument in Nigeria is e-Payment, particularly the automatic teller machine (ATM) card. However, with the adoption of e-Banking by all the banks in Nigeria, the volume of cash in circulation has continued to increase pre-and-post bank recapitalization/consolidation exercise. Furthermore, some of the 25 banks that survived the exercise were found lately to have depleted their capital base and have lost credibility before the consumers, e-Banking implementation notwithstanding.

Therefore, in this paper, we review the state of e-Banking implementation in Nigeria and evaluate the influence of trust on the adoption of e-Payment using an extended technology acceptance model (TAM). Similarly, we investigate organizational reputation, perceived risk and perceived trust in the management of banks as a factor for enhancing customer loyalty.

The findings in this work reveal that perceived ease of use and perceived usefulness are not only antecedent to e-banking acceptance, they are also factors to retain customers to the use of e-banking system such as organizational reputation, perceived risk and trust.

Keywords: e-banking, e-payment, consolidation, tam, trust, reputation and risk

INTRODUCTION

The continuous advances in the internet technology have brought huge impact on business operations and have in particular brought about a paradigm shift in banking operations. In a bid to catch up with global development, improve the quality of service delivery, and reduce transaction cost, Nigerian banks have invested greatly in technology, and have widely adopted electronic and telecommunication networks for delivering a wide range of value-added products and services. The Nigerian banking industry went through a consolidation exercise that left Nigeria with 25 banks out of 89 banks previously in existence. As noted by Chiemeké et al., (2006), the ability of 25 banks to satisfy and retain their customers in the post-consolidation era will no doubt depend largely on the development of their Information Technology (IT) infrastructure. Within the last decade, all the banks have transformed from manual to automated systems involving the use of various e-banking and e-payment systems. In 2008, the use of e-payment system in Nigeria accounted for N360 billion worth of transactions. The banks' investment in IT infrastructure has been corroborated by users' acceptance of the systems despite their concern about network security and security of the system (Adesina and Ayo, 2010).

Investigation on consumers' acceptance of e-Banking in Nigeria based on technology acceptance model (TAM) revealed that banks customers, who are active users of e-banking system use it because it is convenient, easy to use, saves time and meets their transaction needs (Adesina and Ayo, 2010). With the adoption of e-banking, customers have been encouraged to use banking services more effectively. E-banking helps banks to increase speed, shorten processing periods, improve the flexibility of business transactions and reduce costs associated with having personnel serve customers physically.

However, with the adoption of e-banking by all the banks in Nigeria and its concomitant advantages, the volume of cash in circulation has continued to increase pre-and-post consolidation exercise. Furthermore, some of the 25 banks that survived the recapitalization/consolidation exercise were found lately to have depleted their capital base and have lost credibility before the consumers, e-Banking implementation notwithstanding.

The objectives of this paper include: to review the state of e-Banking implementation in Nigeria and evaluate the influence of trust on the adoption of e-Payment using an extended technology acceptance model (TAM); and to investigate the organizational reputation, perceived risk and perceived trust in the

management of banks as a factor for enhancing customer loyalty.

REVIEW OF LITERATURE

E-banking in Nigeria

Electronic banking is the provision of banking services to customers through Internet technology (Daniel, 1999). Through the use of IT, banks now employ different channels such as internet technology, video banking technology, telephone banking, Automated Teller Machine, and WAP technology to deliver their services. Report on e-banking system in Nigeria reveals that e-payment machinery, especially the card technology, is presently enjoying the highest popularity in Nigeria banking market. According to interswitch statistics, Nigeria has 30million ATM card holders who conduct over 100 million transactions on the machines every month. Nigeria's 24 banks operate over 9,000 ATM machines across the country's 36 states and Federal Capital Territory. Also to enhance effective security measure, banks have since early this year been upgrading their ATM cards from the magnetic stripe to the Euro-Visa-Master card standard, popularly known as Verve Card (www.businessdayonline.com). This latter technological device is more fraud resistant because all the data of the customer are recorded on the chip. The union of technology and finance has recorded huge success and has impacted on financial transactions. E-banking system has become the main technology-driven revolution in conducting financial transactions. However, banks have made huge investments in telecommunication and electronic systems, users have also been validated to accept e-banking system as useful and easy to use (Adesina and Ayo, 2010).

The Adoption of E-banking

There is a rich body of literature on e-banking services and their adoption but little has been done about its continual usage and how to keep customers loyal to electronic financial transaction. This section provides an overview of information system adoption, factors determining customers' acceptance of e-banking and introduces the concept of customer loyalty (continual use). A framework relating loyalty to important antecedents and a number of moderating variables is introduced. Literature on adoption and acceptance of e-banking diffusion of innovation (DOI) and technology acceptance model (TAM) are proven evidences.

The theory of diffusion of innovation is a model developed to predict factors influencing adoption of information system (Rogers 1995). Literature in IT diffusion emphasizes the importance of perceived relative advantage and improved organizational performance as enablers of adoption of new innovation. According to Rogers (1995), the greater the perceived relative advantage, the faster the adoption. The diffusion of innovation theory posits that potential

adopters evaluate an innovation based on innovation attributes such as relative advantage, compatibility, complexity (ease of use), trialability, and observability. All the attributes were found to be positively related to its rate of adoption, while the perceived complexity of an innovation is negatively related to its rate of adoption (Rogers, 1995).

TAM on the other hand posits that user's attitude towards and acceptance of a new information system is important to the successful adoption of the information system (Davis, 1989). It posits that attitude towards a particular system is based on two major constructs: perceived usefulness and perceived ease of use. The quality, effectiveness and success of a system can only be validated by its level of users' acceptance through its ability to satisfy their needs (Pikkarainen et al., 2004). Muniruddeen (2007) investigated factors responsible for users' acceptance of e-banking in Malaysia using extended technology acceptance model. The report showed that e-banking is accepted based on its perceived usefulness (PU) and perceived ease of use (PEOU). It also indicated that perceived security and privacy are the main concerns while using Internet banking. Reid and Levy. (2008), Pikkarainen et al (2004), and Karjaluoto et al (2002) also found that perceived usefulness and perceived ease of use are main factors that influence customers' acceptance of e-banking. Ayo et al. (2007) conducted a survey of electronic banking product and service in Nigeria and found that all the banks have at least one particular form of electronic service including e-banking service, Internet banking service, and m-banking. Though, various e-banking systems have been implemented and accepted by customer, e-payment remains the most widely used of the e-banking solutions (Adesina and Ayo, 2010).

To improve the investigative power of TAM, several other constructs have been added to extend it because it alone may not sufficiently predict users' acceptance in a dynamic environment as e-banking. Examples of such constructs include: perceived risk, perceived security and privacy, perceived enjoyment, Internet connectivity, and trust (Adesina and Ayo, 2010; Reid and Levy, 2008, Pikkarainen et al., 2004; and Karjaluoto et al., 2002, Muniruddeen 2007, Klopping and McKinney, 2004). Building on these empirically validated views, the TAM is suitable for determining e-commerce but may not fully determine the users' intention to adopt a technology. We propose to examine the customers' perception on e-banking system in Nigeria based on perceived risk, perceived trust, and organizational reputation.

Trust, Perceived Risk and E-banking

Trust is defined as an individual's reliance on another party under conditions of dependence and risk (Currall and Judge, 1995). Risk on the other hand is a function of the probability that a hazard will arise and the

consequences of the hazard. An individual's trust behavior depends on the nature of the consequences (Schneider 1998). In a high consequences environment such as electronic banking, risk avoidance behavior may arise since reducing risk takes precedence over cost savings. The relationship between trust and risk is made clear according to the work of Mayer et al. (1995): trust is the willingness to assume risk, while trust behavior is the assumption of risk. According to Lewicki and Binker (1995), trust develops over time. The level of trust an individual has in an object would be different depending on when trust is assessed. Furthermore, if the level of trust surpasses the threshold of perceived risk, then the trustor will engage in a risk taking relationship. Trust in both the bank merchant and electronic channels are important given that there is some risk involved in using electronic channels for financial transaction.

Studies have identified lack of trust as one of the main impediments to customers usage of online financial application (Wong et al., 2009; Flavian et al., 2006; Luarn and Lin, 2005; Mukherjee and Nath, 2003). Tan and Teo (2000) also found risk toward using the Internet as one of the factors influencing intentions to adopt Internet banking services. The research findings of Vatanasombut et al. (2008) and Kassim et al. (2006) showed that trust does not only affect the intent to use e-banking but serves as an antecedent to commitment to e-banking. Vatanasombut et al., 2008; Casalo et al., 2007; Lichtenstein et al., 2006; Rexha et al., 2003), found that trust played a key role in continued use of e-banking. Furthermore, trust is also noted as a useful tool in reducing the perceived risk that consumers feel is present in an online environment (Pavlou, 2003).

Organisation Reputation

All the adoption model (like TAM, theory of planned behavior (TPB), and theory of reasoned action (TRA)) were developed for studying technology adoption in developed countries, however, technology adoption in developing countries might be different from those of developing countries as the challenges are different in various contexts (Molla and Licker, 2005). Considering Technology-Organization-Environment (T-O-E) framework by Tornatzky and Fleischer (1990), three factors are important for any technology or innovation adoption diffusion process: technology context, organizational context and environmental context. Technology context includes both internal and external technologies applicable for firm. Organizational context includes resources (capital and human), organizational scope and size. Environment context includes both the direct and indirect roles of competitors, industry associations, and the governments. Following this, Tan and Teo (2000) adopted organisation reputation as one of the factors for determining adoption of Internet banking in Singapore. Their investigation found that organisation reputation

of the bank is most important in choosing an Internet banking service in Singapore. The variety of services offered and familiarity with the bank are also important criteria. The size of the bank is another consideration.

RESEARCH MODEL AND HYPOTHESIS

A study using questionnaire as research instrument was carried to examine factors fostering customers' loyalty to patronize banks and continued use of e-banking channels. Based on existing studies a research framework was formulated consisting: perceived usefulness, perceived ease of use, perceived risk, trust, and organisation reputation. The continued intention to use e-banking services is considered as a dependent variable in its relation to the above mentioned variables.

Perceived usefulness refers to "the degree to which a person believes that using a particular system would enhance his or her job performance"(Davis et al., 1989). A number of studies have found perceived usefulness to affect adoption of and intention to continue to use e-banking services (Adesina and Ayo, 2010; Al-Sukkar and Hasan, 2005; Kamel and Hassan, 2003; Kolodinsky and Hogarth, 2001; Kolodinsky, et al., 2004; Ravi et al., 2007; and Vatanasombut et al., 2008). Thus, the first hypothesis will be formulated as follows:

H1: There is a positive relationship between customers' perceived usefulness of e-banking system and their continued intention to use it.

Perceived ease of use refers to "the degree to which a person believes that using a particular system would be free of effort"(Davis et al., 1989; Mathieson, 1991). The effect of perceived ease of use on adoption of and intention to continue using e-banking services was supported in a number of studies (Adesina et al., 2010; Al-Sukkar et al., 2005; El-Kasheir et al., 2009; Kamel and Hassan, 2003; Kolodinsky et al., 2004; Muniruddeen 2007; Ravi et al., 2007; and Vatanasombut et al., 2008). Thus, the second hypothesis will be formulated as follows:

H2: There is a positive relationship between customers' perceived ease of use of e-banking and their continued intention to use it.

Perceived Risk: Using applications involving the use of Internet entails some risks. Perceived risk in the field of e-banking can be defined as: "the potential for loss in the pursuit of a desired outcome of using e-banking services" (Pavlou, 2003 and Featherman and Pavlou, 2002). The perception of the relatively high risk associated with performing financial transactions via electronic means may hinder users (Kamel and Hassan, 2003). The effect of perceived risk on adoption and post adoption of e-banking was supported by Eriksson et al. (2008); Jaruwachirathanakul and Fink, (2005); Kolodinsky et al. (2004); Lin (2008); and

Vatanasombut et al. (2008). Thus, the third hypothesis will be formulated as follows:

H3: There is a positive relationship between customers' perceived risk and their continued intention to use the e-banking system.

Kim et al. (2000), distinguished trust in e-channel and trust in the firm from trusting behavior. Reyald et al. (2009) identified the components of online security as trust, confidence, reliability, risk on online transactions and reputation of online financial service providers. A consumer does not need to risk anything in order to trust; however, a consumer must take a risk in order to engage in trusting behavior (Mayer et al., 1995). Specifically, initial trust between parties will not be based on any kind of experience with the other party. Rather, it will be based on an individual's propensity-to-trust, Research on the impact of trust on e-banking usage confirm that loyalty of e-banking customers is directly affected by satisfaction and trust in an online bank (Floh and Treiblmaier, 2006; Reid and Levy, 2008). Thus, the following hypothesis will be formulated:

H4: Trusts in e-banking channels have positive relationship with customers' intention to continue using e-banking.

According to Tan and Teo (2000), organisation reputation is important in choosing Internet banking. Thus, the fifty hypothesis will be formulated as follows:

H5: There is a positive relationship between customers' perceived organizational reputation and their intention to use e-banking services.

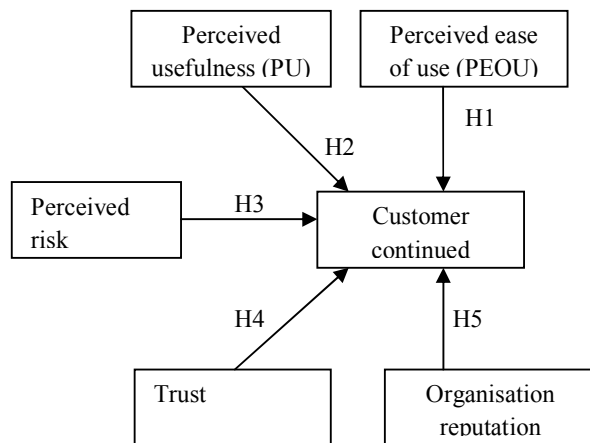


Figure 1: Research Model and Hypothesis

RESEARCH METHOD

Survey research strategy is the main strategy used in this study. Data was collected based on the concepts defined in the research model and hypothesis tested.

The empirical study employed a questionnaire designed to collect data for testing the reliability and validity of the model and research hypotheses. The questionnaire was divided into three sections. The first section consists of demographic profile of the respondent. The third section of the questionnaire includes measures of variables to be studied, including perceived usefulness, perceived ease of use, behavioral continued intention, perceived risk, trust and organisation reputation. For all model constructs, the participants were asked to indicate their perception on five-point Likert-style responses ranged from 1 = "strongly disagree," through 3 = "neutral," to 5 = "strongly agree".

The research population includes bank customers who are using e-banking services. With purposive sampling method, a total of 500 questionnaires were distributed in Lagos and Ogbomoso in Nigeria and 425 questionnaires were returned. We set a critical standard to define the "valid questionnaire". A questionnaire having more than 10 items clicked continually in the same score was considered to be invalid. Incompletely filled questionnaires were also considered invalid. Although the critical standard reduced the number of questioners, it could improve the quality of valid questionnaires and 56 of them were incomplete. The remaining 369 valid and complete questionnaires were used for the quantitative analysis. It represented a useable response rate of 74%. The data collected was analyzed using the statistical package for social sciences (SPSS) version 15.0. The reliability of data collected was validated using cronbach alpha. The data was also analyzed based on statistical description, correlation and model fit to test the hypothesis.

ANALYSIS OF RESULT

There were 35.5% female and 64.5% male respondents. Almost all the respondents fall within active age of life, 21-30 (19.2%), 31-40 (45.5%), and 41-50 (23.3%). The majority of the respondents possess a university degree or above (68.8%). In terms of occupation, the respondents revealed a quite even distribution: civil service (16%), Trading (11%), education (21%), manufacturing (13%), IT and telecommunication (8.4%), student (13.3%). Furthermore, more than half of the respondents earned between N50, 000 and N150,000 (58%) (\$1 = N150).

E-banking Services Usage

Assessment of e-banking services usage of the respondent showed that ATM is the most widely used of all e-banking services. ATM card users recorded 324 accounting for 87.8% of the respondent. A good number of the respondents 244 (66.1%) indicated to be using SMS banking while half (55.3%) of the respondents were Internet banking users. PC banking recorded the lowest level of usage (27.4%) by the respondents. Table 1 presents the statistical distribution of the e-banking services usage of the respondents.

Automated teller machine, SMS banking, and Internet banking were also evaluated as most convenient e-banking system (table 2).

Table 1: E-banking usage of respondent

Phone banking		
	freq	percent
User	192	52
Non users	177	48
Internet banking		
Users	204	55.3
Non users	165	44.7
Electronic card		
Users	157	42.5
Non users	212	57.5
ETF		
Users	158	42.8
Non users	211	57.2
ATM		
Users	324	87.8
Non users	45	12.2
Online banking		
Users	176	47.7
Non users	193	52.3
PC banking		
Users	101	27.4
Non users	268	72.6
SMS banking		
Users	244	66.1
Non users	125	33.8

Table 2: Customers' evaluation of convenience of e-banking service

Banking service	High		Average		Low	
	freq	percent	freq	percent	freq	percent
ATM	192	52	13	2	36	12
SMS banking	145	39	11	4	10	7
Internet banking	136	37	11	4	11	9
Telephone banking	130	35	10	7	13	2
Electronic card	107	29	11	2	15	0
Online banking	99	27	11	4	15	5
ETF	88	24	10	2	17	9
PC banking	54	15%	10	7	20	8

Customers were asked to rate the impact of consolidation on banks services and convenience brought as a result of capitalization as either high, average or low.

Customers were also asked to indicate their perception about consolidation on banks services and trust in the banking system. Analysis of the responses showed that most of the respondents believed that consolidation has brought about improved services and increased trust in Nigeria banking system. 169 (46%) of the respondent have had course to change banks for reasons such as reliability, trustworthiness, reputation, and good management. Analysis of their response showed that reliability and trustworthiness are customers' preference for patronizing a bank, see table 3.

Table 3: Respondent perspective on consolidation

Capitalization brought about convenience	Freq	Percent
High	104	28.2
Average	211	57.2
Low	42	11.4
No response	12	3.3
Quality of banking services		
High	111	30.3
Average	224	61.2
Low	19	5.2
No response	12	3.3
Consolidation brought improved service		
Yes	281	76.2
No	66	17.9
Not sure	22	6.0
Consolidation brought trust		
Yes	218	59.2
No	80	21.7
Not sure	70	19.0
Course to change bank		
Yes	169	45.8
No	200	54.2

The Measurement Model

Reliability is an assessment of the degree of consistency between multiple measurements of a variable (Pallant, 2004). Cronbach's alpha was used to assess the internal consistency of the entire scale. According to Pallant (2004), reliability scores greater than 0.70 are acceptable. As all of the items had an alpha above the standard guideline of 0.70, the scales can be used for analysis with acceptable reliability.

The correlation analysis was carried out to examine the relationship between the constructs. The results of the correlation analysis showed that there is significant correlation between all variables except reputation and perceived ease of use. Correlation analysis was also used to test the discriminant validity of the data. Discriminant validity refers to the degree to which two

conceptually similar concepts are distinct (Pallant, 2004). This was achieved by comparing the Cronbach alpha coefficient for each variable is with its correlation with other variables (Sharma and Patterson, 1999). The correlation matrix of all research variables together with alpha coefficients for each variable is presented in table 4.

Although there is significant correlation at 0.01 significant level between many of the variables, yet all of these correlations are lower than alpha coefficients. For example, trust and perceived ease of use are

correlated ($r = 0.474$). At the same time, alpha coefficients for both variables are 0.811 and 0.05 respectively. This means that respondents can discriminate between the two variables although they are correlated. Thus, we can infer that for all research variables, respondents can discriminate between different variables. Only perceived risk was observed to have negative significant correlation with continued intention to use e-banking.

Table 4: Reliability and Correlation analysis of the research variables

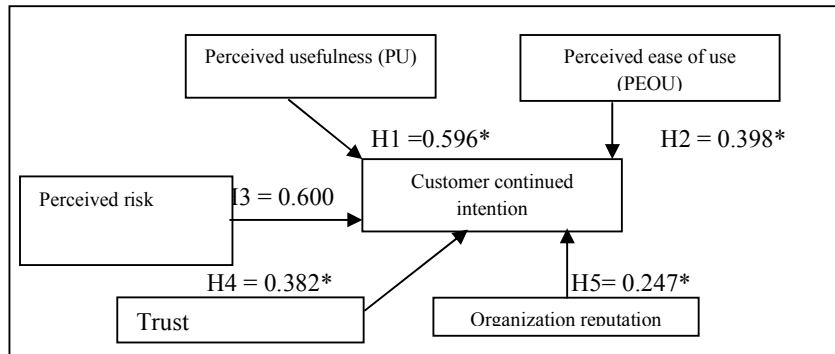
Variables	Alpha	Risk	Trust	PU	PEOU	Reputation	CI
Risk	0.799	1					
Trust	0.811	0.410**	1				
PU	0.803	0.197**	0.403**	1			
PEOU	0.805	0.643**	0.342**	0.194**	1		
Reputation	0.812	0.168**	0.474**	0.301**	0.111*	1	
CI	0.801	-0.642**	0.340**	0.629**	0.455**	0.227**	1

* and ** are indication of level of significance which represents 1% and 5%, respectively

HYPOTHESIS TESTING

The five hypotheses presented earlier were tested collectively using the structural equation modeling. Path analysis using model fit was used to measure the influence of explanatory variables along each separate path. This is appropriate for finding the degree to which variation of a given effect is determined by a particular cause. Path analysis is a multivariate analytical methodology for empirically examining sets of relationships in the form of linear causal models (Duncan, 1986; Li, 1975). The overall model fit shows

that a combination of the entire model constructs ($R^2 = 0.687$, Adjusted $R^2 = 0.683$, $df = 5$, $\alpha = 0.173$, $F = 159.576$, $Pvalue = 0.000$) has significant effect on consumers' intention to continue to use e-banking system. Also, the individual path analysis shows that all the principal constructs in the model have significant effect on intention to continue to use. Therefore, the five hypotheses are supported. The path coefficients and overall model fit indices of research model are drawn as shown in figure 2.



*p<0.001

Figure 2: Path coefficient of the model

DISCUSSION AND CONCLUSION

This paper presented an empirical review of e-banking implementation in Nigeria. The model formulated evaluated perceived risk, trust, perceived usefulness, perceived ease of use and organisation reputation as antecedent to behavioral intention to continue using e-banking solution. Model construct for hypotheses one, two, four, and five were found to be significant predictor of intention to continue to use e-banking services ($p < .000$). This provides support for the four hypotheses. Conversely, perceived risk was found to not have any significant effect on continued intention.

Thus the third hypothesis is not supported.

With respect to the significant effect of trust in this finding, we would therefore recommend that more attention is paid to trust-building actions in the industry. The results of many surveys suggest incorporating trust-building measures into online customer relationships. Greater improvement on trust such as secured processing and transmission of highly confidential information can be helpful steps in increasing electronic customer retention. Customers' trust in the medium majorly stands for the bank's capability to securely transfer and store confidential personal information. Organisation reputation again constitutes one of the major factors in operating account with a bank. Customers' perception of the organizations reputation is based on the organisation solvency, reliability and ability of the banks in following due process.

Most research works on e-banking usage have validated the significance of perceived ease of use and perceived usefulness on customers' acceptance of e-banking. The finding in this work reveals that perceived ease of use and perceived usefulness are not only antecedent to e-banking acceptance, they are also factors to retain customers to the use of e-banking system such as organizational reputation, perceived risk and trust.

LIMITATION AND SUGGESTION

This study was conducted in the southern part of the country, study from another part of the country may reveal a different result due to cultural differences. Also the sample was limited to major cities where level of literacy is relatively high. Another limitation relates to variables included in the model. The consumer behaviour literature points out to the fact that satisfaction and service quality may be important determinant of future behavioural intentions. Including these two variables represent a better opportunity to understand the complexities of consumer behaviour in high technology self-services such as e-banking. Future research in examining e-banking and continued usage should overcome these limitations.

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