

# DIGITAL BANKING ADOPTION IN NIGERIA: THE PLACE OF TECHNOLOGY ACCEPTANCE MODEL

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**Abstract:** *Abstract: This paper considered the adoption of digital banking in Nigeria focusing on mobile banking and internet banking with a conceptual framework that extends Technology Acceptance Model. The model of this study incorporated additional variables that would stimulate the usage of digital banking in Nigeria. These conceptual framework variables include perceived usefulness, ease of use, security and banking regulations. Questionnaires were administered electronically and the set quota of 25 respondents per bank totaling 250 was met. Cronbach's alpha test showed that the instrument had a value greater than 0.70 which implied that the research instrument was reliable. Purposeful sampling technique was used for sampling size estimation of the descriptive and inferential statistics while the author utilized multiple regression method to analyze the data. The result of the research revealed that motivation for adoption of digital banking proxied by (perceived usage, ease of use, security and banking regulation) significantly affected mobile banking ( $AdR^2 = 0.255$ ;  $F = 8.357$ ;  $p\text{-value} = 0.000$ ), as well as internet banking ( $AdR^2 = 0.270$ ;  $F = 8.960$ ;  $p\text{-value} = 0.000$ ). The study therefore concluded that TAM variables in addition to security and banking regulations have statistically significant positive impact on the adoption of digital banking platforms (mobile banking and internet banking). The study therefore recommends that TAM should consider external influencing factors peculiar to the working environments as cardinal to the adoption of technology besides the TAM's recognized variables.*

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*Keywords: Mobile Banking, TAM, Internet Banking, Perceived usefulness, Ease of use & Banking regulation*

*JEL Classification: E42, E58, O14*

## 1. INTRODUCTION

The introduction and adoption of digital banking and other payments solutions have witnessed

remarkable growth in recent years. Many factors have been attributed to this development which include; governments' actions geared towards financial inclusion; rise in the penetration of cell phone; and financial institutions' customers demand for improved system of payments. (Patnam & Yao, 2020; Aron, 2018; Mbiti & Weil, 2015). In addition, lack of adequate facilities to support traditional banking processes offers the drive for speedy adoption of digital banking services in emerging countries. The current, dynamic and technology driven space is constantly stimulating the business environment to witness digital revolution.

Digitalization, has twofold purpose with respect to banking industry; it facilitates the service offering to customers through electronic channels such as Automated Teller Machine (ATM), Website, PoS and reduces their cost to serve through the reduction in the number of staff and business locations. In recent years, the financial services sector in Nigeria predominantly banking institutions have witnessed revolution in digitalization which has informed improvement in mobile and internet banking. The traditional banking services have been displaced with modern technologies to match the demands of globalization. (Gabor & Brooks, 2016; Abbasi & Weigand, 2017).

Yip and Bocken (2018) affirm that in banking, digitalization involves various aspect of banking operations and services including electronic statement of account generation, mobile payments services and e-archiving of documents. The adoption of digital innovation by customers in the banking sector is increasingly gaining traction with continuous evolvement of different solutions like mobile banking and internet banking. The number of regular transactions done through the digital banking platform globally in 2019 was approximated to be US2, billion as families and organizations majorly leverage digital payment platforms for payment of tuition fees, settlement of utility bills, foreign trade settlement, electronic commerce and for savings (Global System for Mobile Communication Association GSMA, 2019). Some banks' customers of equally carry out other nonpayment transactions on the mobile banking platform including account balance enquiry and transaction history enquiry (Total System Services TYSY, 2018).

Internet banking was the general innovative alternate banking platform provided by banks in Nigeria to support the conventional banking services in the wake of technology disruption towards the late 1990s and the early 2000s in the financial sector. Subsequently the acceptance of internet banking as the major alternate platform for customers to primarily consummate their fund transfer transactions gained traction. Over time, more service offerings were introduced on internet banking such as account statement generation and bills payment. The introduction of Global System for

Communication (GSM) in Nigeria in 2001 facilitated the emergence of mobile banking few years after GSM was introduced in Nigeria. Ever since, there has been speedy growth in the transformation of banking services via alternate channels. Today, in addition internet banking, the mobile banking platform is regarded as digital platform because other non-transactional dynamic service offerings have been introduced on these platforms such as ability to open accounts, apply for loans, pay bills and buy airtime.

Glavee-Geo, Shaikh, and Karjaluoto (2017) confirm that TAM is among the best known users' acceptance of technology models. TAM has two significant variables which are perceived usefulness (PU) meaning individuals understanding of how useful a system improve job performance and ease of use (EU) signifying the level of user-friendliness of the system. According to Kaur, Ali, Hassan and Al-Emran (2021) several scholars are of the opinion that the primary TAM disregard the effect of external variables like culture and accessibility to technology facilities on the rate which people adopt technology usage. Banu et al (2019) in addition to EU which is a TAM variable, they acknowledged self-efficacy as a primary drivers responsible for the adoption of technology in India. Whereas, aside the two variables identified by TAM as influencing adoption of technology, Tobbin (2012) recognized economic factor and trust as relevant variables that motivate people without accounts in banks to adopt mobile banking. However, some scholars including Benbasat and Barki (2007) have criticized the theory stating that it failed to serve the purpose for which it was propounded. In the same vein, Pijpers (2001); Laugasson et al (2016); Napitupulu (2017); Torres and Gerhart (2017) are of the view that TAM is of little practical importance especially when considered under the impact of social influences, ease of access, managerial beliefs and the increasing resort to e-governance. It is therefore inferable from positions of the critics and supporters of the TAM above, that the application of the model across different geographical and cultural environments is not limited to the original factors identified for technology adoption. Hence, there are other factors peculiar to the environment where TAM is to be applied that should be considered.

Previous studies relating to adoption of digital banking carried out by He et al. (2019); Alalwan et al. (2017); Szopiński (2016); Montazemi and Qahri-Saremi (2015) have predominantly focused on internet banking riding on Technology Acceptance Model (TAM) by examining user perception on usefulness and ease of use as major drivers influencing the desire of customers on the usage of internet banking platform. There have been other efforts using the TAM to validate the variables influencing adoption of mobile banking platforms (Gao & Owolabi, 2008; Agu, Simon & Onwuka, 2016; Rasheed & Noori, 2016; Oluwaseun, 2016) However, there is dearth of study leveraging TAM variables (ease of use, perceived usefulness) as factors influencing the acceptance of the combination

of internet banking and mobile banking. In addition to the TAM variables as earlier mentioned, this study will attempt to expand TAM model by testing the impacts of security and Central Bank of Nigeria (CBN) banking regulations such as cashless policy on the acceptance of digital banking channels by customers particularly in Nigeria. Therefore, this study will measure the adoption of digital banking (Dependent variable) with internet banking and mobile banking, while the TAM model variables influencing adoption of technology which are; Perceived usefulness and Ease of use will be added to security and banking regulations (Independent Variables) Therefore; DV= Internet banking, Mobile Banking while IV= Perceived usefulness, ease of use, security and banking regulations.

The rest of this research paper is arranged accordingly like this; Section 2 shows an examination of extant literature from the standpoint of conceptual development, theoretical framework and empirical reviews. Section 3 and 4 consider the methodology adopted, results and discussion of research findings while the conclusion and recommendations emanating from the study are underscored in section 5.

## **2. REVIEW OF RELATED LITERATURE**

### **Digital Banking**

Digital banking is the buzz word which is referred to as electronic banking. It is identified as the process or form of delivering banking services and products through different electronic platforms to the customers. Digital banking can also include home banking, virtual banking and cyber banking in addition to various banking activities that can be carried out outside of the physical bank location (Rajan and Saranya, 2018). Digital banking includes provision of opportunities in the digital age through infrastructure (Adelowo, 2015).

Electronic banking (now referred to as digital banking) is a concept that can be related to driving banking operations with higher level of technology and electronic mediums which include laptops, mobile phones, internet, automated teller machines and other electronic platforms (CBN, 2003).

There are various platforms used to carry out digital banking, they include:

### **Internet Banking**

This is a digital banking platform that rides on internet to enable customers carry out their banking transactions. Various gadgets like laptops, desktop computers are used to consummate the transactions when they are accessible to internet (Ngango, Mbabazize, Shukla, 2015). Customer's transactions from initiation to completion are carried out anytime of the day without manual intervention leveraging the internet. With internet access, bank's websites are also used to publicize

their products and services. Reduction in cost to serve customer is another benefit to the bank.

### **Mobile Banking**

Mobile banking is defined by Drexelius and Herzig (2001) as leveraging the mobile gadget to carry out banking related transactions. Mobile banking platform is another digital banking platform that resides on mobile phone. Customers are able to carry out banking transactions on their phone without any need to visit the bank. Such banking services that customers can enjoy using mobile banking platform include funds transfer, account balance enquiry and bills payment. Transactions can be carried out at the convenience of the customer. Mobile banking is also referred to as 'motion banking'. (Ayodele, 2015).

### **Electronic Point of Sale (PoS) Machine**

**Point of Sale** electronic device is considered as a virtual replacement for transactions carried out in cash. The device can keep record of customers purchase and deposit transactions. (Kingsley et al, 2020). **Point of Sale** is a type of digital payment terminal that allows customers to check their balance, pay for items and services and perform funds transfer transactions without necessarily carrying physical cash. (Ikpefan et al 2018) Primarily, **Point of Sale enhances** movement of fund **virtually and provides** support to the merchants to view customers' transaction status (Adebayo, Osayinlusi, & Adekeye, 2017; Olanipekun, Brimah, & Akanni, 2013). **Point of Sale** transaction value grew by 9,747 percent, from 48 **billion naira (124.8 million US dollars) to 4.7 trillion naira (11.4 billion US dollars) between 2016 and 2020** while volume of transaction went up by 929% from 63.7 million naira in 2016 to 655.7 million naira in 2020 (NIBSS, 2021: Komolafe 2017) The growth in the value and volume of PoS transactions as presented above further strengthens the impact that the cashless policy has on the adoption of the platform for transactions in Nigeria

### **Automated Teller Machines (ATM)**

**Automated Teller Machine is another digital platform that can perform** various banking related transactions such as funds transfer, withdrawal of cash, balance enquiry and account opening, account information update and transaction limit set up. The enhancement of the transaction features of ATM **have evolved over time. Automated Teller Machine when introduced in Nigeria in 1989 was primarily used for cash withdrawal purposes (Kingsley et al, 2020). However, owing to digitalization and continuous business process automation improvement, ATM has become a one stop shop to carry out nearly all traditional banking related transactions.**

Ikpefan et al (2018) described ATM as a telecommunication appliance supported with high technology that gives customers the opportunity to conduct their banking transactions in the general space independent of bank officials. ATM till date remains a major component of the CBN's cashless

policy projected to reduce banks cash handling and managing cost to the tune of over N200 billion. According to Ikpefan et al (2018) from the record they obtained from NIBSS, it was reported that as at the end of 2017 the number of ATMs in the country against what was required and specified by the CBN had a shortfall of approximately 72 percent.

## **2.1 Banking Regulation**

Central Bank of Nigeria is the regulator of banks in Nigeria saddled with the supervision of the banking sector in addition to maintaining the country's reserve externally, stimulate the economy monetarily and serve as the lender of last resort to the government. Over time, CBN roll out policies and regulations and ensure that banks comply.

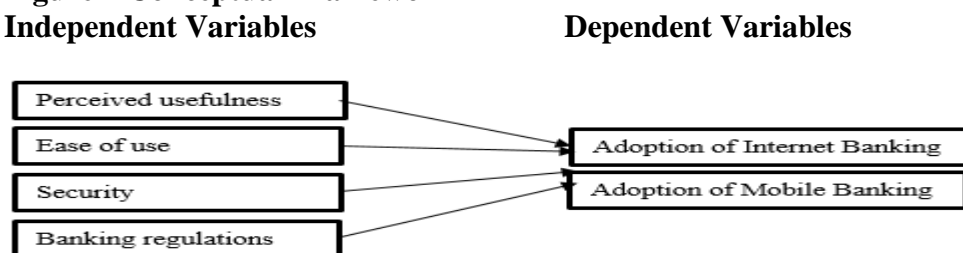
### **Cashless Policy**

Cashless policy was introduced as one of the financial regulations in Nigeria owing to rising dominance of cash in the economy with attendant increase in the amount that is spent on cash administration within the banking sector. (Ezuwore-Obodoekwe, Eyisi, Emengini, & Alio, 2014; & Eniang-Esien, & Ekpe, 2019). Odior and Banuso (2019) confirmed that cashless policy was supported by the Bankers Committee which include the CBN, Discount houses and Deposit Money Banks. Based on the record from statistical bulletin of Central Bank of Nigeria (2012), 99% of transactions carried out by customers within the banking network in Nigeria as at the end of 2011 were cash related. Moreover, Lamikanra (2012) and Eboh (2011) confirmed that the total currency handling charge in Nigeria in 2009 was approximately ₦115 billion (about USD 300 million). It was estimated that by 2012 this amount will be more than ₦190 billion (USD 499 million) therefore the needed intervention in 2012 for cashless policy implementation.

## **2.2 Security**

The importance of the security of customers' information and fund when using digital banking platforms cannot be overemphasized. Security in the perspective of digital banking involves protection of customers' data and assurance that it will not be shared unless authorized by the customers. As seen from different studies on banking, security is cardinal to granting permission to implement internet banking. (Johanson 2016; Howcroft et al., 2002). Customers nurse the fear of insecurity when they perceive that their transactions are exposed to third parties without their authorization (Demirdogen, 2010). Security issue may also be linked to attack on the digital platforms by hackers (Bazgosha et al, 2012)

**Figure 1 Conceptual Framework**



*Researchers model framework*

## 2.3 Empirical Review

The review of similar studies from developing countries such as India, Malaysia and Ghana, shows the need for the expansion of TAM as some researchers opined that the model fails to recognize the effect of external factors such as the availability of infrastructural facilities and culture on customers' pattern of adopting digital banking. Confirmation from the study conducted by Sukkar and Hassan (2005) underscores the importance of incorporating variables such as customer culture and bank's technical quality to the TAM influencers to make it more applicable within the developing countries context. Similarly, Tobbin (2012) recognized two extra factors namely economic and trust in addition to TAM drivers that are important to customers without bank accounts in Ghana when they are adopting the mobile platform for banking services. From the viewpoint of some personnel working in bank within the Indian environment, social influence, self-efficacy and technological facility were identified as addition to TAM variables (Banu et al. 2019)

Giovanis, et al. (2012), conducted a study on bank's customers in Greece, using partial least square to model structured equation and TAM theoretical framework to confirm factors influencing the use of internet banking and it was discovered that perceived usefulness, perceived ease of use, perceived risk with compatibility of service influence their adoption of the platform. Al-Fahim, (2012) also concluded using model equation that is structured those students in higher institutions in Malaysia adopt the usage of internet banking because of the influence of TAM variables in addition to perceived risk and trust.

Using multiple regression method Kesharwani and Radhakrishna (2013) conducted a research on people using internet banking in India and concluded that green concerns and security in addition to TAM variables facilitate their adoption of electronic banking platform. Whereas, Bashir and Madhavaiah (2015) confirmed from their study on the university students in India that apart from the TAM variables, social effect and enjoyment contribute to the reasons why they adopt internet banking. Trust, security and website characteristics are the factors that influence the usage of digital

banking by bank's clients in Malaysia based on the study conducted by Jalil et al. (2014). According to Fadare et al. (2016) when they carried out a study in Malaysia to investigate the factors influencing the usage of digital banking channels, they confirmed five different risks which include; performance, social, time, financial and security risks are responsible for the usage of digital banking platform by university students.

Boateng et al (2016) based on their research carried in Ghana using structure equation modeling observed that websites' societal feature, trust, compatibility, automated customer services and ease of use are factors that influence bank's customers to use online platforms.

In Nigeria, Agu, Simon and Onwuka, (2016) examined customers of banks and their disposition towards the usage of mobile banking platform, the study revealed that the rate at which the aged people adopted mobile banking was more the rate at which people within the middle age adopted same.

Leveraging the rate of adoption and usage of Information Communication Technology (ICT) in addition to the available infrastructure to confirm the degree of readiness of Nigerians towards the implementation cashless policy and ecommerce, it was recommended in the study conducted by Kehinde and Adelowo (2016) that policy on ICT should be properly implemented in addition to public-private sectors collaboration to engender online business and support CBN policy on cashless economy.

### **3. THEORETICAL FRAMEWORK**

As indicated in the topic, this study is underpinned by the Technology Acceptance Theory (TAT) which was developed in its original form by Davis in 1989 (Phuangthong & Malisawan, 2005). The theory which is otherwise called the technology acceptance model (TAM) has proven to be a powerful model which provides insights as to the ease with which users accept and adopt technology for their individual and organizational use. The theory assumes rational decision making on the part of intending and current adopters of technology (Estriegana et al., 2019; Scherer et al., 2020).

The theory came up as an upgrade of the theory of reasoned behavior by instituting that perceived usefulness and ease of use have the potential to influence the behavior of users and ultimately the real usage of a given new technology (Lu et al 2003). Davis reasoned that the best way to increase technology usage was by improving the acceptance of the technology. This can be measured by requesting the potential users to indicate their intent to make use the technology product such as



internet banking.

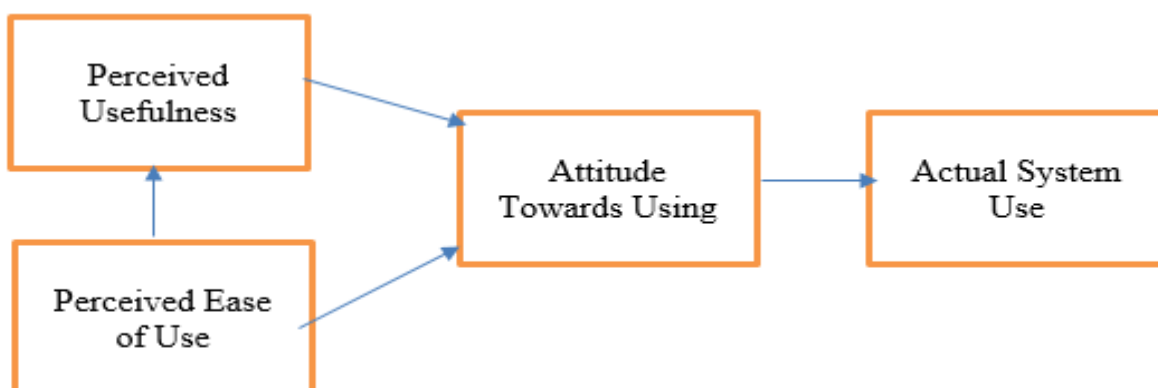
Thus, the theory assumes the existence of two (2) primary intervening principles or factors that a rational user will consider when presented with the opportunity of choosing a fresh technology: perceived ease of use (PEOU) and perceived usefulness (PU) with attitude towards usage (ATU) as the combined principle. Perceived usefulness (PU) may be described as “the degree to which the user believes that the use of a particular information system leads to improved performance” whereas Perceived ease-of-use (PEOU) - demonstrates “the degree to which the individual believes that the use of a particular information system does not require more personal effort.”

However, attitude towards the use of technology show “the degree to which an individual links a particular system with his work.” Both the perceived usefulness (PU) and perceived ease of-use (PEOU) are possible influencing variables. With respect to ATU, they can be taken as the attributes controlling prospective attitude and decides the intents that eventually result to the actual conduct or actual usage (Zhonggen & Xiaozhi, 2019).

Some previous studies have shown the applicability of the theory to several information systems and technology products: medical services (Portz et al, 2019), computer aided learning (Tsai 2015, Munir et al, 2021), information management (Enu-Kwesi and Opoku 2019), sports and body fitness (Drehlich et al, 2020) with relative high degree of positive outcomes. However, some scholars including Pijpers (2001); Laugasson et al (2016); Napitupulu (2017); Torres and Gerhart (2017) have criticized the theory as being of little practical importance especially when considered under the impact of social influences, ease of access, managerial beliefs and the increasing resort to e-governance.

Figure 2

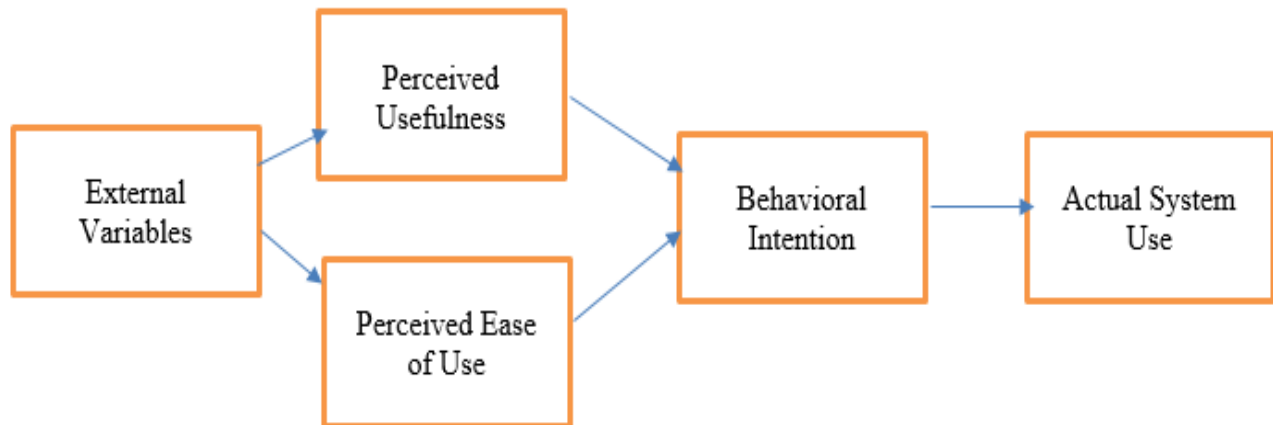
Original TAM by Fred Davis



Source: Davis (1985)

Figure 3

TAM version of Venkatesh & Davis



Source: Venkatesh and Davis (1996)

#### 4. METHODOLOGY

This study used field research design adopting both descriptive and analytical approach. This approach was used for similar studies by Pikkarainen T., et al (2004); Munoz-Leiva, Climent-Climent and Leibana-Cabanillas (2017); Sahaimi and Bin Abu Hassan (2018) which centers on the level of acceptance of new technologies in the bank by relevant data were collected using quantitative survey. The population of study included customers across different 23 Deposit Money Banks (DMBs) in Nigeria listed on CBN website as at June 2021. A questionnaire which contained close-ended questions was developed for the purpose of this study to source for information from respondents. The questionnaire was validated using both content and face validity method. The answers were classified according to five Likert scale for data or information extraction.

The first session contained data involving research variables. Questionnaires were deployed electronically to respondents across different DMBs customers. Sample data were analyzed using descriptive statistical analyses to review the finding which includes mean, tables, variance, standard deviation, and graphs. Quantitative statistical analysis was performed on the data using Statistical Package for Social Science (SPSS). In a similar study conducted by Mueni (2017), SPSS was used to analyse how digitalization influence Kenyan commercial banks. Additionally, in testing the hypotheses, SPSS was utilized and also used check if relationship exists between 4 variables:

perceived usefulness, ease of use, security, banking regulations, and adoption of digital banking (Mobile Banking and Internet Banking). SPSS is effective in data management especially when the data options' range is wide. In addition to the descriptive statistical analyses, inferential Statistics such as regression and correlation analysis were used.

### Model Specification

In order to estimate the influence of perceived usefulness, ease of use, security and banking regulations on the adoption of mobile banking and internet banking, two models are specified. In the first model, the dependent variables are Mobile banking and internet banking to capture issues of digital banking adoption

#### Model one

$$MB = \beta_0 + \beta_1 PU + \beta_2 EU + \beta_3 SE + \beta_4 BR + \varepsilon \quad (1)$$

Where

MB= Mobile banking

PU=Perceived usefulness

EU=Ease of use

SE=Security

BR=Banking regulations

$\varepsilon$  = Error term

#### Model two

$$IB = \beta_0 + \beta_1 PU + \beta_2 EU + \beta_3 SE + \beta_4 BR + \varepsilon \quad (2)$$

While all other independent variables remain as defined above. *IB* represents Internet banking as dependent variable in equation (2) for the second model

The apriori expectations regarding the impacts of independent variables is that they will influence the adoption of digital banking.

Therefore,  $\beta_1 \rightarrow \beta_4 > 0$  (the coefficients will show positive sign of effects)

## 5. DISCUSSIONS AND FINDINGS

**Table 1: Descriptive Statistic Table**

|    | N<br>Statistic | Minimum<br>Statistic | Maximum<br>Statistic | Mean<br>Statistic | Std. Deviation<br>Statistic | Skewness<br>Statistic | Kurtosis<br>Statistic |
|----|----------------|----------------------|----------------------|-------------------|-----------------------------|-----------------------|-----------------------|
| PU | 250            | 3.00                 | 5.00                 | 4.3216            | .28709                      | -.705                 | .123                  |
| EU | 250            | 2.00                 | 5.00                 | 4.4510            | .61023                      | -1.389                | 2.630                 |
| SE | 250            | 3.00                 | 5.00                 | 4.2081            | .51686                      | -.745                 | -.786                 |
| BR | 250            | 3.00                 | 5.00                 | 4.1473            | .58710                      | -.901                 | -.165                 |

|    |     |      |      |        |        |        |       |
|----|-----|------|------|--------|--------|--------|-------|
| MB | 250 | 3.00 | 5.00 | 4.2209 | .79202 | -.921  | .982  |
| IB | 250 | 2.00 | 5.00 | 4.4713 | .50700 | -1.901 | 3.165 |

**Source: Field Survey, 2021**

Table above provides an overview on the data set gathered through questionnaire administered as efforts were made to explain the major attributes of the data. Primarily the objective is to ascertain the degree to which perceived usefulness, ease of use, security and banking regulations affects the adoption of mobile banking and internet banking in Nigeria DMBs. The Table above highlights the essential statistical components of the research data that are being examined comprising the standard deviation, mean, skewness, kurtosis maximum values and minimum values. This descriptive statistic provides a background history for the gathered data 'attributes. The extreme and lowest values give signs of substantial disparities which are revealed by the variation that exist among the two variables' values that are being considered as shown by the difference between the two values that are being considered at the time of the study, minimum statistic shows that the worse decision made by respondents on the objective was "Disagree" for question on EU which is on a Likert-Scale of 2. The maximum statistic shows that some respondent strongly agreed with all the questions asked. The skewness shows negative all through illustrating that (extremity of the left tails) the data sets shows that the data is not normally distributed because data sets somewhat sustains non-normality as it is less than the threshold of 0. Also in relation to kurtosis, all the measures are platykurtic in nature (i.e. thinner than normal). The mean statistic however shows that all the respondents' response for all questions is "Agreed" on the average with a Likert scale of 5.

**Table 2: Regression estimate for Model 1**

| Variable             | Model 1     |           |         |        |
|----------------------|-------------|-----------|---------|--------|
|                      | Coefficient | Std Error | t-Stat. | Prob.  |
| Constant             | 0.616       | 0.735     | 0.838   | 0.404  |
| Perceived Usefulness | 0.515       | 0.167     | 3.084   | 0.003* |
| Ease of use          | 0.171       | 0.139     | 1.230   | 0.222  |
| Security             | 0.040       | 0.139     | 0.288   | 0.774  |
| Banking regulation   | 0.112       | 0.172     | 0.650   | 0.517  |
| R <sup>2</sup>       | 0.290       |           |         |        |
| Adj. R <sup>2</sup>  | 0.255       |           |         |        |
| S.E of Reg           | 0.713       |           |         |        |
| F-Statistic          | 8.357       |           |         |        |
| Prob.(F-Stat)        | 0.000*      |           |         |        |

Dependent Variable: MB

\*5% level of significance

Source: Researcher's SPSS output 2021.

**Main Model & A priori expectation**

$$MB = \alpha_1 + \beta_1 PU + \beta_2 EU + \beta_3 SE + \beta_4 BR + \mu_{it}$$

$$MB = 0.616 + 0.515PU + 0.171EU + 0.040SE + 0.112BR$$

Table 2 indicates the result of multiple regression in model 1 signifying the existence of a positive relationship between motivation for the use of Mobile Banking including all our exogenous variables. This is specified with the symbol and size of the constants for PU which is  $\beta_1 = 0.515 > 0$ . The outcome is in tandem with our *a priori* expectation with EU, SE and BR having coefficients of 0.171, 0.040 and 0.112 accordingly. These coefficients are more than zero (0) hence aligning with our *a priori* expectation.

Based on the multiple regression estimates on the table above, the *Adj. R<sup>2</sup>* indicates that roughly 25.5% variation in the motivation for using MB can be traced to the impact of our four independent variables whilst the balance 74.5% changes in relation to the corresponding dependent variable are induced by other components outside the research model.

Moreover, the constants revealed that changes in PU leads to a positive change (increase) in the motivation for MB usage, this is the same situation for all of the independent variables. Considering the separate effect of our independent variables on the motivation for the use of MB, we observed that only perceived usefulness (PU) has a significant positive effect on motivation in using MB. While other variables individually have no significant effect on the explained variable. Equally *F-Statistic* p-value indicated 0% for our independent variables indicating that the outcome of the multiple regression is statistically significant since the (the p-value) is lower than the accepted 5% level of significance, for this research hence revealing that the impacts of all our explanatory variables on motivation for the use of MB is statistically significant. This outcome supports the result of the research carried out by Jalil et al. (2014)

Therefore, from the above multiple regression estimates, all our explanatory variables have significant and positive impact on motivation for using MB. Thus, the null hypothesis is rejected.

**Table 3: Regression estimate of Model 2**

| Variable             | Model 2     |           |         |       |
|----------------------|-------------|-----------|---------|-------|
|                      | Coefficient | Std Error | t-Stat. | Prob. |
| Constant             | 1.164       | 0.708     | 1.645   | 0.104 |
| Perceived Usefulness | 0.083       | 0.161     | 0.518   | 0.606 |
| Ease of use          | 0.465       | 0.134     | 3.481   | 0.001 |
| Security             | 0.055       | 0.166     | 0.329   | 0.743 |
| Banking regulation   | 0.287       | 0.134     | 2.140   | 0.035 |
| R <sup>2</sup>       | 0.304       |           |         |       |
| Adj. R <sup>2</sup>  | 0.270       |           |         |       |
| S.E of Reg           | 0.68632     |           |         |       |
| F-Statistic          | 8.960       |           |         |       |
| Prob.(F-Stat)        | 0.000*      |           |         |       |

Dependent Variable: IB

\*5% level of significance

Source: Researcher's SPSS output 2021.

**Main Model & A priori expectation**

$$IB = \alpha_1 + \beta_1 PU + \beta_2 EU + \beta_3 SE + \beta_4 BR + \mu_{it}$$

$$IB = 1.164 + 0.082PU + 0.465EU + 0.287SE + 0.055BR$$

Table 3 indicates the result of multiple regression in model 2 signifying the existence of a positive relationship between all the exogenous variables and the dependent variable. This is specified with the symbol and size of the constants for PU that is  $\beta_1 = 0.082 > 0$ . The outcome is in tandem with our *a priori* expectation with EU, SE and BR having coefficients of 0.465, 0.287 and 0.055 accordingly. These coefficients are more than zero (0) hence aligning with our *a priori* expectation.

Based on the multiple regression estimates on the table above, the *Adj. R<sup>2</sup>* indicates that roughly 27% changes in the motivation for using IB can be traced to the impact of our four independent variables whilst the balance 73% changes in relation to the corresponding dependent variable are induced by other components outside the research model.

Moreover, the constants revealed that changes in each of the exogenous will cause a positive change (increase) in the motivation for using internet banking. Considering the separate effect of our independent variables on the motivation for the use of IB, we found out that only EU and BR have a significant positive effect on the motivation for the use of internet banking. While other variables individually, have no significant effect on the motivation for the use of IB. Equally *F-Statistic* p-value indicated 0% for our independent variables indicating that the outcome of the multiple regression is statistically significant since the (the p-value) is lower than the accepted 5% level of significance, for this research hence revealing that the impacts of all our explanatory variables on motivation for the use of IB is statistically significant. This outcome indicates that banking regulation on cashless policy contributes to the adoption of internet banking in Nigeria. This can be attributed to the limited regulatory threshold of funds transfer transaction that customers can carry out at the banks' physical location owing to cashless policy. Whilst customers can use both mobile and internet platforms to carry out higher threshold, internet banking threshold is higher than that of the mobile banking threshold in most banks.

Therefore, from the above multiple regression estimates, our explanatory variables have a positive and significant effect on the motivation for the use of internet banking. Thus, we may reject the null hypothesis.

**Table 4: Summary of Reliability Test**

| <i>Variable</i>             | <i>Reliability Statistics (Cronbach's Alpha)</i> |
|-----------------------------|--|
| <i>Mobile Banking</i>       | <i>0.868</i>                                     |
| <i>Internet Banking</i>     | <i>0.892</i>                                     |
| <i>Perceived Usefulness</i> | <i>0.790</i>                                     |
| <i>Ease of Use</i>          | <i>0.845</i>                                     |
| <i>Security</i>             | <i>0.813</i>                                     |

|                        |              |
|------------------------|--------------|
| <b>Bank Regulation</b> | <b>0.858</b> |
|------------------------|--------------|

From the table above, the Cronbach's alpha test across the variables are above 0.70, hence indicating that the research instrument used is very reliable

## 6. CONCLUSION AND RECOMMENDATIONS

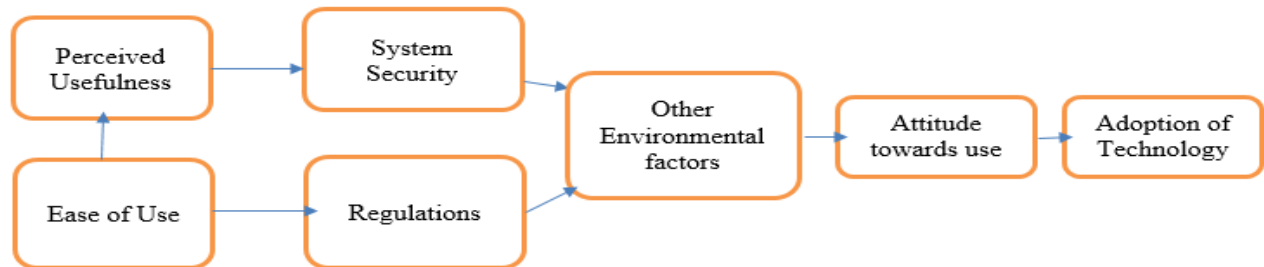
The study concludes that the model adopted for this study is applicable in part to the Nigeria situation as most of the reasons for the adoption of digital banking **is outside the variable given** by the TAM model. This result aligns with Giovanis, et al. (2012) based on their study in Greece which concluded that in addition to the TAM variables risk and compatibility of service impact the adoption of digital banking platform. In the same vein, the study of Kesharwani and Radhakrishna (2013) in India confirmed the inadequacy of the TAM models variables as their findings showed that green concerns and security are additional key variables to TAM variables that contribute to the usage of internet banking in India

This study uncovers the importance of digital banking system in Nigeria banking industry, most especially the embracing of technology in the industry. The study reveals the various areas in which the use of technology through (mobile banking and internet banking) has overtaken manual system of working in banks, this cut across all departments and activities of the banks thus shifting traditional banking activities to the digital platforms. The use of digital banking platforms is not without limitations such as exposing customers also to additional layers of risk such as security risk when using these platforms. Furthermore, banking regulations and policies in Nigeria which include cashless policy have lent support to the adoption of these alternate banking channels for customers to consummate their transactions.

Therefore, the study concluded that importance of the use of digital platforms in banking industries cannot overemphasize. But that is not to say it has no disadvantages. Fraudsters that hack into system unethically remained the biggest problem of digital banking system in Nigeria, this makes security for the use of mobile and internet banking to be a key determinant. This is responsible for some customers of the bank not to be ready to use either mobile banking application or internet banking facilities despite the banking regulations on cashless policy. Whereas most respondents though affirmed that, they use these facilities because they have no option than to use it, not really because of its usefulness. However, all the exogenous variables of this study have a significant effect on our independent variables.

The study recommends that the TAM model variables include cultural and the working environment of the technology adopting nations. Hence recommending the following revised model for TAM .

Figure 4. Revised TAM model



2021 Researcher's Revised TAM model

The regulators should help to ensure customers confidence level will be improved, so ensure proper use of the tools for banking regulations to achieve the cashless policy in the industry and economy at large.



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