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Digital Banking and Customer Satisfaction in the Nigeria Financial System

[1]Clement Adewole, [2]Blessing Akpamida & [3]Seyi Adeoye
[1,2&3]Department of Banking and Finance,
University of Jos

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Abstract

Customer satisfaction is a key term in measuring how well banks are meeting or exceeding customers' expectations. The purpose of this study is to examine the extent to which digital banking has affected customer satisfaction in the Nigeria Financial System. It sought to achieve this by determining: if perception of complexity of machines affected the repeated usage of digital banking platforms; if the choice of location of devices/services affected the repeated usage of digital banking platforms; if cost of transaction affected the repeated usage of digital banking platforms; and if security of service affected the repeated usage of digital banking platforms in the Nigeria Financial System. The study scope is limited to students of University of Jos and small and medium size enterprises within the Jos metropolis Plateau state, as it is believed they have a high exposure and access to digital banking service. The study utilized a descriptive survey design using a sample size of 400 customers, selected using convenience sampling technique. The Spearman rank correlation matrix was used for the data analysis to determine relationships between the various constructs developed for the survey design. Results at a significance of .05 found p-values of .003, .012, .001and .002, and a rejection of all four null hypotheses. Findings of the study established that there is a significant relationship between: complexity of machines and repeated usage of digital banking platforms; choice of location of devices/services and repeated usage of digital banking platform; cost of transaction and repeated usage of digital banking platforms; security of service and repeated usage of digital banking platforms. The study recommended that banks should create better satisfaction for customers by enhancing user-friendliness of digital platforms, cater to location preferences, prioritize security measures, minimise transaction costs and ensure continuous improvement of bank technologies.

Keywords: *Digital Banking and Customer Satisfaction*

Corresponding Author: **Clement Adewole**

Background to the Study

Globally, digital banking has gained widespread fame, as it was quickly adopted by banks and other financial institutions who desires to remains at the fore front in the face of competition. The introduction of Digital banking into the Nigerian banking industry was necessitated by the structural adjustment programmes(SAP), which led to an increase in the use of digital banking services, as private banks invested in technology to differentiate themselves from their competitors (Bokpin2013).Digital banking adoption provides means through which banks can beat the competition and become more diversified and revolutionized, in order to provide customers various choices of accessing banking services. Digital banking provides customers with the convenience of accessing banking services from anywhere at any time. A study published in the International Journal of Management Science and Engineering Management found that convenience was and still is the primary driver of customer adoption of digital banking services. Service quality provide by digital banks allows customers perceived digital banking to be faster and more efficient than traditional banking channels (Xie, Guo, and Huang, 2015). Customers are critical stakeholders in the banking industry, and their satisfaction, loyalty, feedback, and continuous patronage are essential for the success of banks. As a crucial source of revenue for banks study found that banks' profitability is positively correlated with customer satisfaction When customers are satisfied it leads to increased customer referrals, use of more banking products, and retaining of their accounts (Hussain & Ali, 2014).

Customer satisfaction (CSAT) is a measure of how well company's products, services, and overall customer experience meet customer expectations (Franklin 2022). It can be viewed in terms of repeated usage of a particular products or services; it can be attested that individual's keep doing things that satisfied them. Customer satisfaction can also be defined as the percentage of total customers whose reported experience with the firm, it's products or it services (rating) exceed specific satisfaction goals (Farris, Paul; 2010). Further definition of customer satisfaction is a term generally used to measure a customer perception of companies' products. The usual measure of satisfaction involves a survey with a set of statement using a likert techniques scale (west brook1980).

The introduction of next-generation technologies, such as application programming interfaces (API), artificial intelligence (AI), machine learning, and robotics, is demanded to bring the customer experience to a new level of convenience (Mishra 2020; Carbo-Valverde et al. 2020a). In this case, the focus is digital banking and customers' satisfaction. Customers do not need to make financial transactions at the bank but only use their gadgets. This is also a good impact on post-COVID-19 life because digital banking has reduced direct interaction. However, the adoption of the new technology is dependent on customer's perception of these new technologies. According to the technology acceptance model, perceived ease of use affects customer's choice otherwise and limits them from experiencing the conveniences such platforms can offer. The perception of the complexity of machines such as the ATMs and POS might determine how a frequent customer uses them. These complexities might be there due to our stance in technology acceptance. Customer perception of bank machines can significantly impact their satisfaction and loyalty towards banks. Customers can be influenced

by factors such as convenience, reliability, service quality and security. Customers perceive bank machines to be convenient and reliable with high service quality; if they are easy to use, provide fast transactions, provide relevant and accurate information, minimize transaction errors and have location flexibility (Nunnally and Awuah, 2018). Another factor that influences the perception of bank machine is Security. Bank machines is perceived to be secure if it has effective security features such as PIN-based authentication, encryption and fraud detection (Ozkan-Tektas and Bilgihan 2017). Customers are more likely to use banks machines that have a good reputation for reliability, convenience, high service quality and security (Dabholkar and Bagozzi, 2002).

According to Vasya and Patrick (2006) the development of information technology has led to major changes in the way services are delivered to the customers. Nowadays, customers are using more and more self-service options, which are more convenient and faster. (Kumar, 2014). With the increased use of digital banking platforms owing to the convenience and speed of transactions it offers, it is still worthy to note that the choice of location of these devices or services automatically affects customer's despondency to use it. The perceived ease of use is drawn to cover the choice of locations of digital banking platforms, as customers would discontinue the use of such if they are inconvenienced. Customers are more satisfied when bank machines are located in accessible places, such as shopping malls, train stations, and airports. (Laukkanen, Pasanen, and Karjaluoto, 2013). Proximity of bank machine to customer reduces inconvenienced and time-consuming trip, it's availability in secured places or other public area with high security create customer satisfaction and better patronage of digital products (Nunnally and Awuah, 2018). A study published in the Journal of Financial Services Marketing found that customers are less satisfied when bank machines are unavailable or located in isolated and unsecured places, leading to frustration and inconvenience (Dabholkar and Bagozzi, 2002). Banks must prioritize accessibility, proximity, security, and availability to ensure that customers have a positive experience when using bank machines, leading to increased satisfaction and loyalty.

Ganguli and Roy (2011) argue that Digital platforms can offer standardized products which ensure that customers experience less difference in services offered across branches. Digital banking, therefore, gives a competitive advantage to banks by reducing human interactions in their delivery. This, therefore, brings efficiency and cost-cutting advantages to banks, but despite the above there are still difficulties in the of digital banking services which can be boiled down to the problem of financial illiteracy, lack of technical know-how and late adoption of technology. Digital banking platforms gives way to teething problems ranging from security concerns by the users, integrity of bank services and more. The security and integrity of digital products and services are crucial for ensuring customer satisfaction. Without adequate protection measures, customer data can be compromised, leading to financial losses, identity theft, and damage to reputation. Therefore, banks must implement robust security measures to protect their customers' information and ensure the integrity of their digital products and services. One study found that customers are more likely to trust companies that prioritize data security and are willing to pay a premium for products and services that offer increased security measures (Kim and Lee, 2004). To ensure the security

and integrity of digital products and services, the implementation of measures such as encryption of customer data to prevent unauthorized access, two-factor authentication requiring customers to provide additional information or a secondary password to access their accounts, regular software updates to address known security vulnerabilities, employee training on how to identify and prevent security breaches, Regular security audits become essential. Banks that prioritize the security and integrity of their digital products and services can enhance customer satisfaction and loyalty while avoiding costly data breaches and legal consequences.

The role of digital banking in today's banking industry continues to change and creates both challenges and opportunities for banks. In the year 2018, the Central Bank of Nigeria reported that the number of active bank accounts in Nigeria increased by 7.3 million in 2017 alone, partially due to the adoption of digital banking platforms. The report also notes that digital banking platforms are more cost-effective for banks and customers, leading to reduced transaction costs and fees, which may encourage more individuals to open accounts and utilize these services. In addition to cost-effectiveness, digital banking also offers minimal system downtimes as there are only few instances of failed transaction as compared to the traditional banking (Akinola 2018). This study would look at four metrics that can be used to assess customer satisfaction and its effects on the repeated usage of digital banking platforms.

Statement of the Problem

As the environment changes, so too does consumers' behaviour. Customer satisfaction is a key term in measuring how well banks are meeting or exceeding customers' expectations (Thuli and Bharadwaj, 2009). Demands and expectations continue to evolve, often fuelled by experiences outside financial services, and consumers are increasingly developing relationships with multiple service providers. When customers' expectations are met, their satisfaction increases, and this is a key part in increasing loyalty in the customer base and enhance bank profitability (Skinner, 2014). For there to be customer loyalty, there must be customer satisfaction first. Without customer satisfaction, the customers will want to look elsewhere (Thuli and Bharadwaj, 2009).

In the Nigerian Financial system, some digital banking software is not easy to use due to poor interfaces, making it difficult to navigate the platforms. Digital banking requires Smartphone; laptop, and internet access, individual living in remote area cannot afford these devices. Also, limited digital literacy, lack of trust, language barriers, security concern like fraud and privacy, lack of awareness regarding digital banking services and its benefits, all these are the main factors which has been highlighted as hurdle in the way to adoption of digital banking among Nigerians. Customers can become dissatisfied, as result they may share their experience with others either through word of mouth or leaving negative reviews online thereby leading to poor patronage, brand disloyalty etc. It becomes important for banks to address customers' dissatisfaction promptly and effectively, as it can impact customer, loyalty, retention and overall business success. Digital banking with its potential to exacerbate the problem of poor financial inclusion in the economy due to poor internet access and required devices for digital banking to ensure digital banking promotes financial inclusion, banks and financial institution

should consider the needs and limitation of their targeted audience, offer digital literacy training, provide services in multiple languages, prioritize security and privacy, and build trust through transparent and reliable operations. Government can work to provide internet access and promote digital literacy programs to improve access to financial services in the economy. According to the previous researchers in the different areas, it shows that customer satisfaction in commercial banks is still a challenge in most parts of the world and Nigeria is no exception. It is against this backdrop that this study examined digital banking and customer satisfaction in the Nigeria financial system.

Objectives of the Study

The main research objective of the study is to know the effect of digital banking on customer satisfaction in Nigeria; the specific objectives are as follows.

1. To examine if perception of complexity of machines affects the repeated usage of digital banking platforms.
2. To examine if choice of location of devices/services affects the repeated usage of digital banking platforms.
3. To examine if cost of transaction affects the repeated usage of digital banking platforms.
4. To examine if security of service affects the repeated usage of digital banking platforms.

Research Questions

Based on the above objectives the research questions are thus.

1. What is the effect of perception of complexity of machines on the repeated usage of digital banking platforms?
2. What is the effect of choice of location of devices/services on the repeated usage of digital banking platforms?
3. What is the effect of cost of transaction on the repeated usage of digital banking platforms?
4. What is the effect of security of service on the repeated usage of digital banking platforms?

Research Hypothesis

In line with the research questions and objectives, four hypotheses stated in a null form would be tested.

Ho_1- There is no significant effect between Perception of complexity of machines and the repeated usage of digital banking platforms.

Ho_2- There is no significant effect between Choice of location of devices/services and the repeated usage of digital banking platforms.

Ho_3- There is no significant effect between cost of transaction and the repeated usage of digital banking platforms.

Ho_4- There is no significant effect between Security of service and the repeated usage of digital banking platforms.

Literature Review

This chapter discusses the term "Digital banking" and "Customer satisfaction" and various digital banking platforms. The chapter would look at four metrics that can be used to assess customer satisfaction and its effects on the repeated usage of digital banking platforms. The concepts, models and theories which are relevant in the field of customer satisfaction have been discussed in order to facilitate analysis and understanding of the research questions.

Figure 1: Conceptual Review

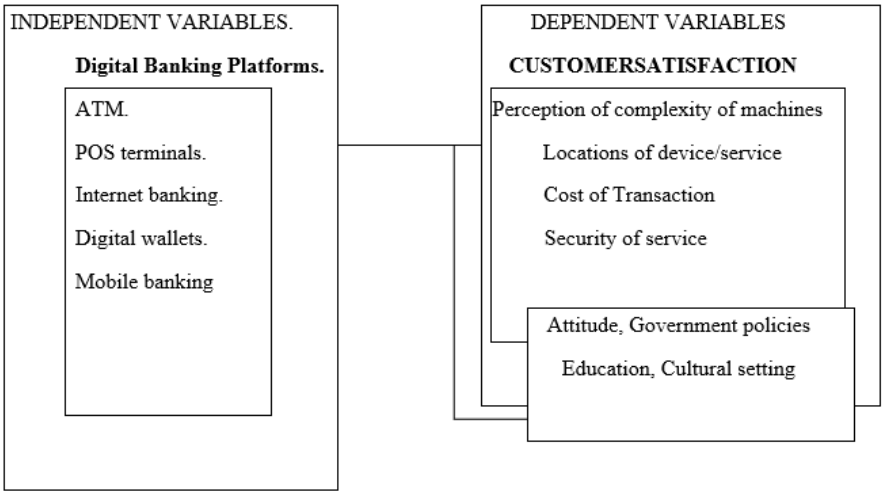


Figure 1 shows the conceptual model, encompassing the major variables and their possible patterns with respect to influence on each other and how as a whole they in turn influence customer satisfaction in banks as it pertains to digital banking. The conceptual framework in figure 2.1 identifies the independent variables which is Digital banking platforms namely ATM, POS terminal, Internet banking, Digital wallets and Mobile banking. Figure 2.1 identifies other intervening variables such attitude which plays a major role in decision making of an individual. If attitude is unfavourable, then it may work on the expected satisfaction that could be derived from using a particular digital platform. Education can also impact on whether the customers embrace digital banking culture is another aspect. A cultural setting of a particular environment can affect the adoption of digital banking. Government policies may also be in favour or against adoption of some aspects of technology being implemented. If legislation is unfavourable people may be sceptical about embracing the technology in question thereby impacting on customer satisfaction. Overall, the adoption of digital banking is peculiar to everyone.

Digital Banking

Today, digital banking is more important than ever in managing your finances. Digital banking simply means managing all your banking transactions either on your mobile phone, your iPad or your computer. Digital banking can also be described as the digitalization of all traditional banking activities that were historically available to customers when physically

inside of a bank branch. This includes activities like money deposits, withdrawals, and transfers, checking/saving account management, loan management, bills payment and account services (Don, 2016). From the practitioner's point of view, digital banking is the providing of banking/financial services through self-service channels with very limited or no branch support. Interest and mobile banking services are the most crucial elements of digital banking.

Similarly, Digital Banking is the automation of traditional banking services. Digital banking enables a bank's customers to access banking products and services via an electronic/online platform. Digital banking means to digitize all of the banking operations and substitute the bank's physical presence with an everlasting online presence, eliminating a consumer's need to visit a branch. According to Gomber, Koch, and Siering (2017), digital banking encompasses a magnitude of new banking products, banking/financial businesses, banking and finance-related software, and novel forms of customer communication and interaction delivered by financial technology companies and innovative financial service providers. Digital banking includes all products, services, technology and infrastructure that enable individuals and companies to have access to payments, savings, and credit facilities via the internet without the need to visit brick and mortar branch (Ozili, 2018).

ATMs

An automated teller machine or automatic teller machine (ATM) is an electronic computerized telecommunications device that allows a financial institution's customers to directly use a secure method of communication to access their bank accounts, order or make cash withdrawals (or cash advances using a credit card) and check their account balances without the need for a human bank teller (or cashier in the UK). Automated Teller Machine is a key component of digital banking that provides customers with 24/7 access to their bank accounts and various financial services.

Point of Sale (POS) Terminals

Rouse (2011) define POS terminal as a computerized replacement for a cash register but with the ability to record and track customer orders, process credit and debit cards, connect to other systems in a network and manage inventory. The POS terminal allows real time online access to funds and information by a debit or credit card holder. It has many features given that it is fast, reliable and secure.

Internet Banking

Internet banking, also known as online banking or e-banking, is a service offered by banks and financial institutions that allows customers to conduct financial transactions and manage their accounts over the internet.

Mobile Banking

Okiro and Ndungu (2013) define Mobile banking (m-banking) as, provision and availing of banking and financial services through the help of mobile telecommunication devices. Mobile banking, also known as m-banking or mobile financial services, refers to a service offered by

banks and financial institutions that allows customers to perform financial transactions and manage their accounts using their mobile devices, such as smartphones or tablets.

Digital Wallets

A digital wallet, also known as an e-wallet, is a software application or service that allows users to securely store, manage, and use their digital assets, such as cash, credit cards, loyalty cards, and personal identification documents, on their mobile devices or computers.

Customer Satisfaction

According to Maxham (2014), customer satisfaction is the ability of a service provider or an organization to accomplish the business, emotional, and psychological need of its customers. In the words of Oliver (2010), customer satisfaction is the summary psychological state resulting when the emotion surrounding disconfirmed expectations is coupled with the consumer's prior feelings about the consumption experience. Hunt (2011) defined customer satisfaction as an evaluation rendered that the consumption and customers' experience was at least as good as it was supposed to be.

Perception of Complexity of Machines

The perception of complexity of machines in digital banking varies among individuals and may depend on factors such as age, experience with technology, and comfort level with digital interfaces. A study by the Federal Reserve Board found that older adults generally perceive digital banking technology to be more complex than younger adults. This perception may be due to factors such as reduced cognitive abilities, less experience with technology, and a preference for more traditional banking methods (Federal Reserve Board, 2018).

Location of devices or services

The location of devices and services in digital banking has been the subject of much research. A study conducted by McKinsey and Company found that customers preferred to use digital banking services on their mobile devices rather than on desktop computers. The study also found that customers preferred to use digital banking services from the comfort of their own homes (McKinsey and Company, 2019). J.D. Power found that customers were more likely to use digital banking services when they were on the go or away from home. The study found that mobile banking apps were particularly popular for checking account balances and transferring money (J.D. Power, 2021).

Cost of transaction in Digital banking

Cost of transaction in digital banking refers to the fees charged by banks for the use of their digital banking services. These fees can include charges for online transfers, bill payments, ATM usage, and other digital banking transactions. While many banks offer some digital banking services for free, others may charge fees for certain types of transactions or for using their digital banking platform. The cost of these transactions can impact customers' satisfaction with their digital banking experience.

Security of Service

Internet banking offers many benefits, but there is still a large group of customers who refuse to accept these services because of certain security concerns (Kuisma, Laukkanen, and Hiltunen, 2007). Internet banking security has been found to be one of the most important issues for customers to take advantage of digital banking (Laforte and Li, 2005). It was concluded that several factors influence the digital banking adoption process. Security is one of the main factors that is constantly mentioned as a critical factor in the success of digital banking services (Abu-Shanab and Pearson, 2007), (Abu-Shanab, Pearson, and Setterstrom, 2010). Digital banking inadequate security may result in financial losses and negative feedback.

Theoretical Review

Diffusion Innovation Theory

Diffusion of innovation theory attempts to explain and describe the mechanisms of how new inventions in this case internet banking, ATMs, POS terminals, mobile banking and digital wallets, is adopted and becomes successful (Clarke, 1995). Sevcik (2004) stated that not all innovations are adopted even if they are good, it may take a long time for an innovation to be adopted. He further stated that resistance to change may be a hindrance to diffusion of innovation although it might not stop the innovation it will slow it down. Rogers (1995) identified five critical attributes that greatly influence the rate of adoption. These include relative advantage, compatibility, complexity, and observability. According to Rogers, the rate of adoption of new innovations will depend on how an organization perceives its relative advantage, compatibility, observability and complexity.

If banks in Nigeria observe the benefits of digital banking, they will adopt these innovations given other factors such as the availability of the required resources. These banks will do their best to ensure that their presence is felt in the industry and meet the gap that technology would easily address. Adoption of such innovations will be faster in organizations that have internet access and information technology departments than in organizations without. Diffusion Innovation theory cause a pro-innovation bias in that it promotes innovations. That is to say "the rate of adoption of successful innovation can be researched. "While it promotes successful diffusions which can easily be identified and investigated it does not sufficiently account for unsuccessful diffusion which normally does not leave visible traces that can easily be studied.

Technology Acceptance Model (Tam)

Technology Acceptance Model (TAM) is an information systems theory that models how users adapt and accept the use of a technology. The theory was originally put forward by Davis F. (1986) as espousing the tendency to employ technological knowhow in providing financial services solutions. TAM according to Lim and Ting (2012) explains the perception towards new technology (which) has a direct effect to its functionality as well as the simplicity of the system. The model deals with customers' values and perception of the new technology and not necessarily its real usage. Davis F. (1986) had premised his findings on three causative factors, namely the Perceived Ease of Use of the technology (PEOU), Perceived Usefulness (PU) and

Perceived Attitude (PA) towards the use of the technology which ultimately affect their individual preferences. Sebastian (2011) is of the opinion that the technology acceptance theory is the most widely used theory in explaining the acceptance of any information technology by the users, electronic payment system inclusive. Holden and Kash (2010) in their work on the technological acceptance theory discovered that the adoption of technology such as electronic payment system is significantly influenced by the perceived usefulness of the technology.

Perceived ease of use and usefulness are key themes in customer satisfaction concept, it goes to show the rate at which customers who are satisfied with a particular product and in this case digital product and services would continually use such given its attributable qualities. Research carried out have measured customer satisfaction while identifying the link between their satisfaction and various measures such as ease, usefulness and attitude towards new technology.

Empirical Review

Muluka (2018) noticed that banks have been forced to deleverage and identify alternative sources of value because of increased regulations and competitive challenges, this has led to the introduction of digital banking where technology is mostly embraced while carrying transactions. The study investigated the influence of digital banking on customer satisfaction a case of National Bank of Kenya Bungoma County, the objective of the study is to determine the influences of speed of transactions, to assess influences of accessibility, to determine influences of adaptability of digital banking and to establish how affordability of digital banking influences Customer Satisfaction case of National Bank of Kenya, Bungoma County. The target population for the study was bank customers and banking staff from National Bank in Bungoma County. The study utilized a sample size of 417 with 42 respondents being part of the pilot study undertaken. Descriptive survey design was undertaken; data was collected using a triangulation of methods including questionnaires, interview schedules and document reviews. Analysis was undertaken with the aid of Statistical Package for Social Sciences where both descriptive and correlation analysis were performed. The findings of the study established that there was a strong positive correlation between speed of transactions and customer satisfaction ($r=0.749$, $p< 0.01$), Accessibility of digital banking was positively correlated with customer satisfaction ($r=0.865$, $p< 0.01$), adaptability of digital banking and customer satisfaction was also correlated ($r=0.789$, p $p< 0.01$), and lastly there was a negative significant effect between affordability and customer satisfaction ($r= -.216$, $p<0.01$). the study recommends that there is need by banks to invest more on robust reliable systems to reduce incidents of failed transactions and transactional errors in ATMs, Mobile banking and POS terminals, need to come up with an application that can be used to enhance digital banking, facilitation of ICT skills so that technology can be embraced and lastly there is need to carry out customer satisfaction surveys to establish how customers are adapting to technology.

Cajetan (2018) examined customers' perceptions of digital banking, customer experience, satisfaction, loyalty, and financial performance in UK banks. The research consisted of a survey of UK bank customers' perceptions of the above themes; use of banks' financial reports

to obtain financial performance ratios, Multivariate Factor Analysis, Structural Equation Modelling, and ANOVA tests to explore research hypotheses on the effects among the study factors. The findings of the study revealed that the main factors which determine customer experience in digital banking are service quality, functional quality, perceived value, employee-customer engagement, perceived usability and perceived risk. The study also found out that there is a significant effect among customer experience, satisfaction and loyalty, which is related to financial performance.

Mohan, Kumar and Rao (2021) study investigate influencing customer to use Digital Banking Services in Twin Cities of Telengana State. The banking business is rapidly changing. Digital banking is becoming part of our daily lives. And it's the best way to create value for customers. It allows users to do financial transactions without having to visit a bank. With digital banking, brick-and-mortar banking has become a click away. Cheques and other paper transactions are replaced by digital transactions. By presenting the benefits of digital banking services to clients, advancements in computer, smart phone, internet, information, and communication technologies can attract customers. This report describes digital banking services. Aims to investigate factors influencing customers' impression of digital banking services, satisfaction and preference. A survey of 100 digital banking customers using percentage and factor analysis was done after constructing a structured questionnaire. The results show that people of all ages prefer digital banking to traditional. Customers use cell phones to complete digital banking. These customers are pleased with digital banking services because they are convenient and widespread. These include the study's consequences, recommendations for improving digital banking services, and future research directions.

Methodology

Research Design

The study used descriptive survey design Kinnear and Gray (1992) describes the survey design as a method that involves collecting information from members of a target population by considering the status of that population with respect to one or more variables. The researcher used a descriptive survey design because it is concerned with describing the characteristics or attributes of the sample, such as their attitudes, behaviours, or demographic information, without making any causal inferences or predictions. It involved collection of information by administering survey questionnaires to customers considering respondents' status.

Method of Data Collection

The research instrument used to collect empirical data (primary data) from the field is the questionnaire. The questionnaires were distributed, data was collected from respondent and five days was given to fill out the questionnaire so that the respondent can have ample time to reflect on the items on the questionnaire to enable valid responses.

Sources of Data

The method used in Collection of data for any research work depends on the nature of the research carried out. The source of data must also be relevant to the objective of the study. In this research work, the researcher will be making use of questionnaires and the focus is strictly

based on questions about customers' perception of complexity of the machine, the Location of device/service, Cost of Transactions and Security of service so as to understand their digital banking experience. Primary data is relevant to the research question being investigated as it can provide accurate, detailed insight and information for the researcher.

Population of the Study

According to Kerlinger and Lee (2000), the population of the study is the total set of individuals or objects that possess some common observable characteristic. As a result of being objective, the researcher settled on the entire number of customers using Automated Teller Machine (ATMs), Point of Sales (POS) Mobile banking. As of November 2020, the Central Bank of Nigeria (CBN) reported that there were over 36 million bank accounts linked to digital payment channels in Nigeria, including mobile banking, internet banking, and USSD banking. Therefore, the researcher used 36 million as the population study which is the total customers using ATMs, POS, and Digital Banking Channels.

Sampling Size Determination

According to Mugenda and Mugenda (1999) a sample is a group of persons or items selected from the population that will be subjected to the study and is usually a representative of the entire population. From the above population, Using the sample size determination calculation formula of Yamane, the sample size a sample size of 400 was selected. This sample size is supported by Amin (2005) who states that population size beyond a certain point about N=5,000, the population is almost irrelevant and the sample size of 400 is adequate. Hence based on Yamane and Amin's recommendation, a sample of 400 customers was selected. A sample of 400 customers was selected using convenience sampling technique to reach the 400 customers who were representative of the entire population.

$$n = \frac{N}{1 + Ne2}$$

$$n = \frac{36000000}{1 + 36000000 \times 0.05^2 = 399.99 \approx 400}$$

Where n = sample size

N = population size = 36,000,000
e = error (0.05) reliability level 95%
or; e = level of precision always set the value of 0.05

Therefore, the researcher uses the sample size of 400.

Validity and Reliability

Best and Kahn (2003), agrees that an instrument is valid when it measures what it claims to measure. These means, validity is the extent to which an instrument measures what it purports to measure. From the data collected from the study instrument, the researcher will be able to assess and rate on the validity of the instrument with the help of my supervisor and experts. The feedback from my supervisor and expert helps in modifying the instruments.

Method of Data Analysis

The responses obtained therefore were analysed and tested using statistical techniques such as tabulations, frequency distribution tables and percentages. The hypotheses were tested using the Spearman's rank correlation matrix to obtain the significance and the effect between the constructs of the study. This method of data analysis was used because of the nature of the data as it measures the strength and direction of association between two ranked variables. There is need to establish the effect between the factors used in the study constructs.

The formula for Spearman's rank coefficient is:

$$\rho = 1 - \frac{6\Sigma\, d_i^2}{n(n^2 - 1)}$$

ρ = Spearman's rank correlation coefficient

di = Difference between the two ranks of each observation

n = Number of observations

The Spearman Rank Correlation can take a value from +1 to -1 where,

i. A value of +1 means a perfect association of rank.
ii. A value of 0 means that there is no association between ranks.
iii. A value of -1 means a perfect negative association of rank.

Estimation and Results

Table 1: Questionnaire administered and Retrieved

Variables	Responses	Percentages (%)	Cumulative Percentages
Returnable	326	81.5%	81.5%
Non-Returnable	74	18.5%	100.0%
Total	400	100.00%	-

Source: Field survey (2023)

400 copies of questionnaire were issued, however, only 326 representing 81.5% of the sample which is satisfactory. Thus, the analysis is based on 326 responses.

Table 2: Descriptive Statistics per Factor

Factor: Perception of Complexity of Machine

Statistic	Value
Mean	4.4069
95% Confidence Interval for Mean	Lower Bound: 4.2239, Upper Bound: 3.5899
5% Trimmed Mean	4.4521
Median	5.0000
Variance	21.243
Standard Deviation	2.11490
Minimum	2.00
Maximum	6.00
Range	5.00
Interquartile Range	2.00
Skewness	-1.525
Kurtosis	-1.546

Factor: Location of Device/Service

Statistic	Value
Mean	4.8897
95% Confidence Interval for Mean	Lower Bound: 3.7133, Upper Bound: 4.0660
5% Trimmed Mean	4.9885
Median	5.0000
Variance	2.154
Standard Deviation	2.07443
Minimum	2.00
Maximum	6.00
Range	5.00
Interquartile Range	2.00
Skewness	-2.174
Kurtosis	2.003

Factor: Cost of transaction

Statistic	Value
Mean	3.5379
95% Confidence Interval for Mean	Lower Bound: 3.3564, Upper Bound: 4.7194
5% Trimmed Mean	4.5958
Median	5.0000
Variance	2.223
Standard Deviation	2.10567
Minimum	2.00
Maximum	6.00
Range	5.00
Interquartile Range	2.00
Skewness	-1.597
Kurtosis	-1.433

Factor: Security and Services

Statistic	Value
Mean	4.4069
95% Confidence Interval for Mean	Lower Bound: 4.2239, Upper Bound: 3.5899
5% Trimmed Mean	4.4521
Median	5.0000
Variance	2.243
Standard Deviation	2.11490
Minimum	2.00
Maximum	6.00
Range	5.00
Interquartile Range	2.00
Skewness	-1.525
Kurtosis	-1.546

Source: Field survey (2023)

Perception of Complexity of Machine: Mean: 4.4069. The respondents, on average, perceive the digital banking platform to be moderately complex. The 95% confidence interval suggests that the true mean falls between 4.2239 and 4.5899. The 5% trimmed mean, which excludes extreme values, is 4.4521, indicating a similar perception of complexity. The median value of 5.0000 suggests that half of the respondents find the platform to be more complex, while the other half find it less complex. The variance of 21.243 and a standard deviation of 2.11490 indicate a relatively high level of variability in responses. The skewness of -1.525 and kurtosis of -1.546 suggest a distribution that is negatively skewed and platykurtic, meaning it has thinner tails than a normal distribution.

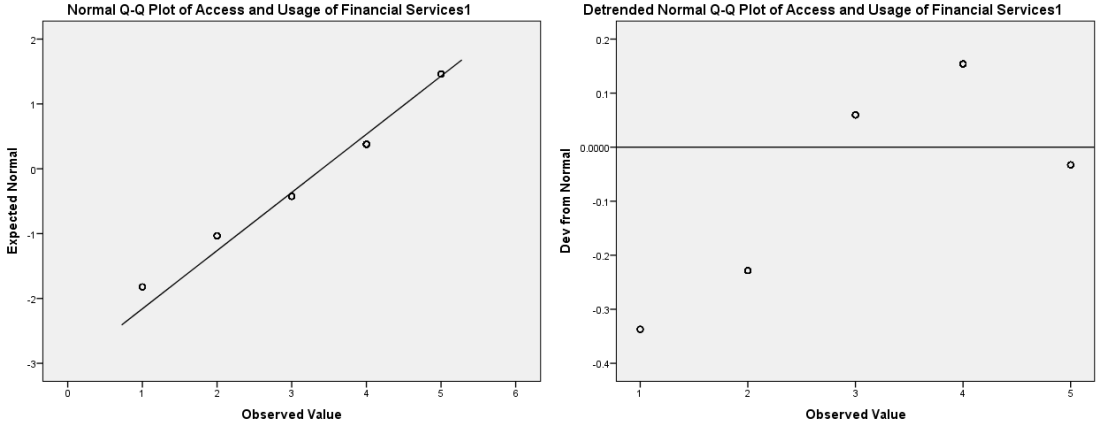
Location of Device/Service: Mean: 4.8897. The respondents, on average, perceive the availability and proximity of digital banking devices or services to be high. The 95% confidence interval suggests that the true mean falls between 3.7133 and 4.0660. The 5% trimmed mean, which excludes extreme values, is 4.9885, indicating a similar perception of the location factor. The median value of 5.0000 suggests that half of the respondents perceive the availability and proximity to be higher, while the other half perceive it to be lower. The variance of 2.154 and a standard deviation of 2.07443 indicate a moderate level of variability in responses. The skewness of -2.174 and kurtosis of 2.003 suggest a distribution that is highly negatively skewed and leptokurtic, meaning it has fatter tails than a normal distribution.

Cost of transaction: Mean: 3.5379 The respondents, on average, perceive the cost of transactions on the digital banking platform to be moderate. The 95% confidence interval suggests that the true mean falls between 3.3564 and 3.7194. The 5% trimmed mean, which excludes extreme values, is 3.5958, indicating a similar perception of transaction cost. The median value of 5.0000 suggests that half of the respondents find the transaction cost to be higher, while the other half find it lower. The variance of 2.223 and a standard deviation of 2.10567 indicate a moderate level of variability in responses. The skewness of -1.597 and kurtosis of -1.433 suggest a distribution that is negatively skewed and platykurtic.

Security and Services: Mean: 4.4069. The respondents, on average, perceive the security measures and services provided by the digital banking platform to be moderate. The 95% confidence interval suggests that the true mean falls between 4.2239 and 4.5899. The 5% trimmed mean, which excludes extreme values, is 4.4521, indicating a similar perception of security and services. The median value of 5.0000 suggests that half of the respondents find the security and services to be better, while the other half find them to be worse. The variance of 2.243 and a standard deviation of 2.11490 indicate a moderate level of variability in responses. The skewness of -1.525 and kurtosis of -1.546 suggest a distribution that is negatively skewed and platykurtic.

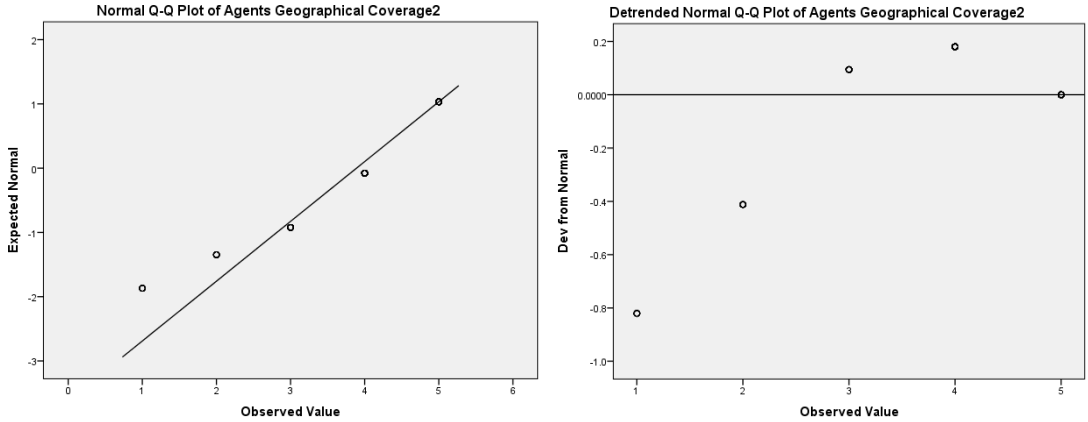
Pre-Diagonistic Teat

Figure 2: Perception of Complexity of Machine Normality test



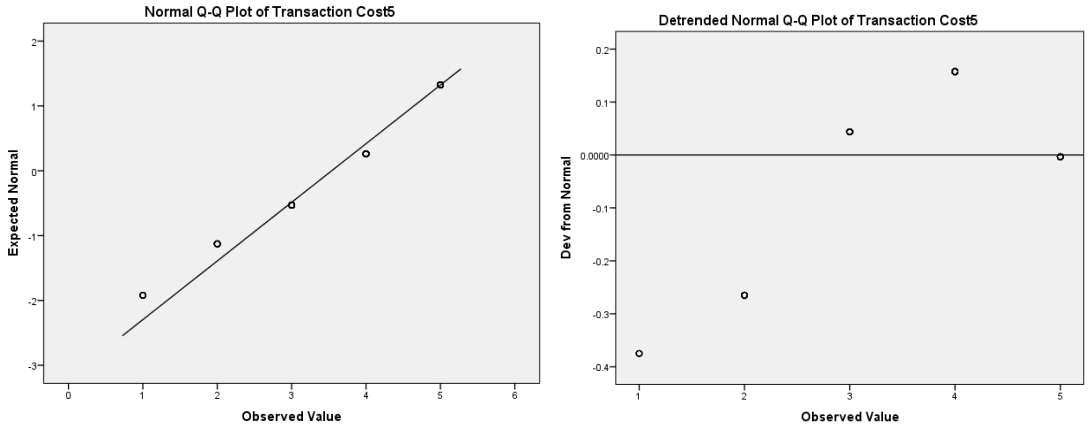
The normality test conducted on the perception of complexity of the machine revealed that the variable is not normally distributed. The QQ plot displayed deviations from the theoretical normal quartiles on both extremes, indicating that the observations do not follow a normal distribution. Therefore, we can conclude that the variable is ordinal rather than continuous.

Figure 3: Location of Device/Service Normality test



The normality test conducted on the location of device/service indicated that the variable is not normally distributed. The QQ plot showed significant deviations from the theoretical normal quartiles on both extremes. Consequently, we can conclude that the variable is ordinal rather than normally distributed.

Figure 4: Cost of Transaction Normality test



The normality test performed on cost of transaction showed that the variable is not normally distributed. Although the QQ plot displayed some deviations from the theoretical normal quartiles, the test did not provide strong evidence to reject the null hypothesis. Therefore, we can conclude that the variable is ordinal, suggesting that observations deviate from a normal distribution.

Figure 5: Security and Services Normality test

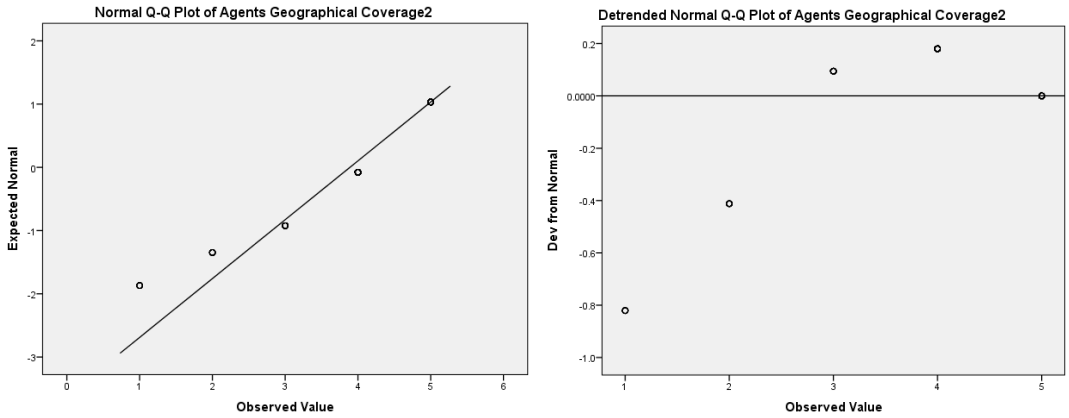


Figure 4: The normality test conducted on the Security of Ser vices demonstrated that the variable is not normally distributed. The QQ plot revealed considerable deviations from the theoretical normal quartiles on both extremes. Therefore, we can conclude that the variable is ordinal, implying that observations do not adhere to a normal distribution.

Test of Hypotheses

From the last chapter it was concluded that the hypotheses would be tested using the Spearman's rank correlation. Hypotheses one to four would be tested in order to determine the effect digital banking and customer satisfaction in the Nigeria financial system. Digital banking proxy by digital banking platform while. Customer satisfaction is measure by perception of complexities of machine, choice of Location of device/service, cost of transaction and Security of service.

Ho_1- There is no significant effect between Perception of complexity of machines and the repeated usage of digital banking platforms.

Table 3: Spearman rho first Hypothesis Test.

Correlations				
			Digital banking platform	Perception of complexity of machine
Spearman's rho	Digital banking platform	Correlation Coefficient	1.000	.322**
		Sig. (2-tailed)	.	.003
		N	326	326
	Perception of complexity of machine	Correlation Coefficient	.322	1.000
		Sig. (2-tailed)	.003	.
		N	326	326

**. Correlation is significant at the 0.05 level.

The Spearman rho correlation showed a significant and positive effect between perception of Complexity of machines and digital Banking platform. With a significant value of .003 and coefficient of .322.

Decision: *There is a significant effect between* perception of Complexity of machines and the repeated usage of digital banking platform in the Nigerian Financial system.

Ho_2- There is no significant effect between Choice of location of devices/services and the repeated usage of digital banking platforms.

Table 4: Spearman rho second hypothesis test.

			Digital banking platform	Location of device/service
Spearman's rho	Digital banking platform	Correlation Coefficient	1.000	.256**
		Sig. (2-tailed)	.	.012
		N	326	326
	Location of device/service	Correlation Coefficient	.256	1.000
		Sig. (2-tailed)	.012	.
		N	326	326

**. Correlation is significant at the 0.05 level.

The Spearman rho correlation showed a significant and positive effect between choice of location of device/service and digital Banking platform. With a significant value of .012 and coefficient of .256.

Decision: *There is a significant effect between* choice of Locations of device /service and the repeated usage of digital banking platform in the Nigerian Financial system.

Ho_3- There is no significant effect between cost of transaction and the repeated usage of digital banking platforms.

Table 5: Spearman rho third Hypothesis Test.

Correlations				
			Digital banking platform	Cost of transaction
Spearman's rho	Digital banking platform	Correlation Coefficient	1.000	.365**
		Sig. (2-tailed)	.	.001
		N	326	326
	Cost of transaction	Correlation Coefficient	.365**	1.000
		Sig. (2-tailed)	.001	.
		N	325	326

**. Correlation is significant at the 0.05 level.

The Spearman rho correlation showed a significant and positive effect between cost of transaction and digital banking platform, with a significant value of .001 and correlation coefficient of .365.

Decision: *There is a significant effect between* cost of transaction and the repeated usage of digital banking platform in the Nigerian Financial system.

Ho_4- There is no significant effect between Security of service and the repeated usage of digital banking platforms.

Table 6: Spearman rank fourth hypothesis test.

Correlations				
			Digital banking platform	Security of service
Spearman's rho	Digital banking platform	Correlation Coefficient	1.000	.341**
		Sig. (2-tailed)	.	.002
		N	326	326
	Security of service	Correlation Coefficient	.341	1.000
		Sig. (2-tailed)	.002	.
		N	326	326

**. Correlation is significant at the 0.05 level.

The Spearman rho correlation showed a significant and positive effect between cost of transaction and digital banking platform, with a significant value of .002 and correlation coefficient of .341.

Decision: There is a significant effect between Security of service and the repeated usage digital banking platform in the Nigerian Financial system.

Findings

Based on the hypotheses of this study, the following are the preliminary findings;

1. There is a significant effect between perception of Complexity of machines and the repeated usage of digital banking platform in the Nigerian Financial system.
2. There is a significant effect between perception of Complexity of machines and the repeated usage of digital banking platform in the Nigerian Financial system.
3. There is a significant effect between cost of transaction and the repeated usage of digital banking platform in the Nigerian Financial system.
4. There is a significant effect between Security of service and the repeated usage digital banking platform in the Nigerian Financial system.

Discussion of Findings

The research topic is investigating the factors affecting the repeated usage of digital banking platforms is highly important in today's financial landscape. The estimated spearman rank correlation was used to analyse the effect digital banking and customer satisfaction in the Nigeria financial system. The study findings provide valuable insights into the effects between various factors and the repeated usage of these platforms.

The study revealed a significant and positive effect between the perception of complexity of machines and the repeated usage of digital banking platforms. This led to the rejection of the null hypothesis that assumes no significant effect between the perception of complexity and repeated usage, and the acceptance of the alternative hypothesis that assumes a significant effect. The findings indicate that as the complexity of machines increases, customers' satisfaction with digital banking and their likelihood of repeated usage also increase. The study of Kofoworola et al., (2022) found a significant effect between the variables used in the case of the study as a significant effect exists between perception of complexity of machines and the repeated usage of digital banking platforms.

Furthermore, the study showed a significant and positive effect between the choice of location of devices/services and the repeated usage of digital banking platforms. This led to the rejection of the null hypothesis that assumes no significant effect, and the acceptance of the alternative hypothesis that assumes a significant effect. The findings highlight the importance of convenient and accessible locations of devices and services in influencing customer satisfaction and repeated usage of digital banking. Mohan, et al., (2021) supports this finding as they established that customers use digital banking platforms that are readily accessible to them.

However, the study revealed a significant and positive effect between the choice of cost of transactions and the repeated usage of digital banking platforms. This led to rejection of the null hypothesis and accepting the alternative hypothesis. The findings suggest that there is enough evidence to conclude a significant effect between the cost of transactions and repeated usage of digital Banking platform in the Nigeria financial system. The findings of the study are in line with the studies of (Owoloja et al., 2020; Ahenkora, 2020; Zourari Abdelhedi, 2021; and Mosa, 2022) who all found a positive impact between digital banking platform and the satisfaction of customers.

Lastly, the study showed a significant positive correlation between the security of service and repeated usage of digital banking platform in the Nigeria financial system. This led to the rejection of the null hypothesis that assumes no significant effect, and the acceptance of the alternative hypothesis that assumes a significant effect. The findings indicate that as the security of digital banking services improves repeated usage of digital Banking platform. Bhatt and Nagar (2021) established the fact that the degree at which various digital banking platform offers quality and good services, customers are inclined to keep using and engaging in those platforms. The study recommended that banks should pay adequate attention to their digital banking services to reduced incidences of customers' failed transactions.

Conclusion

The main research objective of the study is to know the effect of digital banking on customer satisfaction in Nigeria.

Firstly, it is evident that the perception of complexity significantly impacts the user experience in digital banking. Users who perceive digital banking platforms as complex may encounter difficulties in navigating through the system and conducting transactions. To enhance user adoption and satisfaction, it is crucial to simplify the user interface and provide clear instructions and guidance throughout the banking process.

Furthermore, the proximity and availability of digital banking devices and services play a role in shaping user perceptions. Users who have easy access to digital banking facilities, such as ATMs and point-of-sale systems, exhibit a greater inclination towards adopting digital banking. Therefore, ensuring widespread availability of such infrastructure can contribute to increased usage and convenience for users.

Moreover, the cost of transactions emerges as a significant factor influencing user satisfaction in digital banking. Lower transaction costs compared to traditional banking methods serve as a strong motivator for users to embrace digital banking. Transparent communication and disclosure of transaction costs are essential to foster trust and establish customer loyalty in the digital banking realm.

Lastly, the security of service represents a critical concern for users engaging in digital banking. Users highly value banks that prioritize the security of their digital products and provide comprehensive information about the security measures implemented and potential risks involved. Implementing robust security measures, such as two-factor authentication and encryption protocols, can significantly enhance user confidence and trust in digital banking platforms.

Recommendations

1. Enhance User Education: Provide comprehensive and user-friendly educational resources to help users understand and navigate digital banking platforms. Clear instructions and tutorials can help alleviate the perception of complexity and increase user confidence in using the services.

2. Improve User Interface: Simplify the user interface and design intuitive navigation flows. Minimize the number of steps required to complete transactions and ensure that key features and functions are easily accessible. Conduct user testing and gather feedback to continuously improve the user experience.
3. Expand Digital Banking Infrastructure: Increase the availability and accessibility of digital banking devices and services. Install more ATMs and POS systems in convenient locations to provide users with easy access to digital banking services, thereby promoting adoption and usage.
4. Strengthen Security Measures: Prioritize the implementation of robust security measures to protect user data and transactions. Enable two-factor authentication and provide information about security protocols and measures in a clear and easily understandable manner. Regularly update and monitor security systems to stay ahead of evolving threats.

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