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## **Impact of Digital Payment Technologies on Selected Banking Institutions in Nigeria**

***By***

**Yahaya Ismail<sup>1</sup>, El-Yaqub, Ahmad B.<sup>2\*</sup>, Chukwuemeka Ifegwu Eke<sup>3</sup>**

Department of Economics University of Abuja<sup>1,2\*,3</sup>

**Abstract:** This study examines the impact of digital payment technologies on selected Nigerian banks, including Zenith Bank, Access Bank, GT Bank, and First Bank. Using a structured questionnaire and a sample of 200 respondents from Gwagwalada, FCT-Abuja, the research found that digital payment systems enhance transaction speed, lower operational costs, and improve banking efficiency. These technologies also promote financial inclusion by expanding access to banking services, particularly for the unbanked. However, their effect on overall customer satisfaction remains moderate. The study recommends further investment in advanced digital payment systems, regular system upgrades, and improved accessibility through user-friendly interfaces, financial literacy initiatives, and tailored credit solutions.

**Keywords:** Digital payment technologies, banking institutions, financial inclusion, Transaction speed, operational efficiency, customer satisfaction, Nigeria.

## 1.0 Introduction

The evolution of digital payment technologies has significantly transformed the banking sector, particularly in emerging economies like Nigeria. With the increasing adoption of financial technology (FinTech) solutions, traditional banking institutions have had to integrate digital payment systems to enhance customer experience, improve efficiency, and remain competitive (Adebayo & Olayemi, 2021). This shift towards digital payments has been driven by factors such as the rapid growth of internet penetration, the proliferation of mobile devices, and the demand for seamless financial transactions (Osakwe & Okeke, 2022). As a result, banks in Nigeria, including Zenith Bank, Access Bank, GT Bank, and First Bank, have embraced various digital payment innovations such as mobile banking, internet banking, and contactless payment methods.

Digital payment technologies provide a range of benefits for both banks and customers, including enhanced financial inclusion, reduced transaction costs, and increased convenience (Ezugwu, 2020). By leveraging these technologies, banks can offer faster and more secure financial services, thereby improving customer satisfaction and retention (El-Yaqub, Musa & Ismail, 2024). Moreover, the integration of digital payments enables banks to expand their market reach, particularly in underserved areas where traditional banking infrastructure is limited (Okon & Udoh, 2021). Despite these advantages, challenges such as cybersecurity threats, regulatory constraints, and infrastructural limitations continue to hinder the full potential of digital payment adoption in Nigeria's banking sector (El-Yaqub & Ismail, 2025).

The Nigerian banking sector has witnessed a steady increase in the adoption of digital payment technologies, largely influenced by government policies and the regulatory framework set by the Central Bank of Nigeria (CBN) (Adeleke, 2021). Initiatives such as the Cashless Policy and the Payment System Vision 2025 have played a crucial role in encouraging banks to innovate and expand their digital payment offerings (Ogunleye & Salawu, 2022). Additionally, partnerships between banks and FinTech companies have facilitated the development of new digital financial solutions that cater to the evolving needs of consumers and businesses (Ismail, Musa & Magaji, 2024). These collaborations have contributed to a more robust financial ecosystem and a shift towards a cashless economy in Nigeria.

Despite the significant progress in digital payment adoption, there are still concerns regarding security risks and digital fraud in the banking industry. Cybercrime remains a major challenge, as hackers continuously seek vulnerabilities in digital banking platforms to exploit customers and financial institutions (El-Yaqub, Ismail & Bappayo, 2024; Oladimeji & Adeoye, 2023). As such, Nigerian banks have been investing in advanced cybersecurity measures, including multi-factor authentication, encryption technologies, and artificial intelligence-driven fraud detection systems, to enhance the security of digital transactions (Balogun & Fashola, 2021). However, ensuring the widespread trust and confidence of customers in digital payment systems remains a critical task for banks (El-Yaqub, Ismail & Eke, 2024).

This study aims to examine the impact of digital payment technologies on selected banking institutions in Nigeria, specifically Zenith Bank, Access Bank, GT Bank, and First Bank. By analyzing the benefits, challenges, and future prospects of digital payments, the study will provide insights into how these financial institutions are leveraging technology to drive operational efficiency and improve service delivery. The findings of this research will contribute to the existing literature on digital banking while offering policy recommendations for enhancing the adoption and security of digital payment systems in Nigeria's banking sector.

## 2.0 Literature Review and Theoretical Framework

### 2.1 Conceptual Review

#### 2.1.1 Digital Payment Technologies

Digital payment technologies encompass various electronic methods for conducting financial transactions without the need for physical cash. These technologies include mobile wallets, contactless payments, cryptocurrencies, and online banking, all of which enhance convenience, speed, and security in financial transactions (Zhao et al., 2021). The rise of fintech innovations, such as blockchain and biometric authentication, has further strengthened digital payment systems, making them more accessible and reliable (Kumar & Gupta, 2020). As digital transactions continue to grow globally, businesses and consumers benefit from seamless, real-time payments that contribute to the digital economy's expansion. However, challenges such as cybersecurity risks and financial inclusivity remain

critical concerns that need to be addressed to ensure the sustainable adoption of digital payment technologies.

### 2.1.2 Banking Institutions

Banking institutions play a crucial role in the financial system by providing essential services such as deposits, loans, investment opportunities, and payment processing, which facilitate economic stability and growth (Mishkin, 2020). These institutions, including commercial banks, credit unions, and investment banks, serve individuals, businesses, and governments by managing financial transactions and allocating capital efficiently (Saunders & Cornett, 2019). With advancements in financial technology, banks have increasingly adopted digital banking solutions, enhancing customer accessibility and operational efficiency. However, regulatory compliance, cybersecurity threats, and economic fluctuations remain challenges that banking institutions must address to maintain financial stability and trust.

## 2.2 Theoretical Review

### 2.2.1 Theory of Financial Innovations

The Theory of Financial Innovations explores how new financial instruments, technologies, and institutions emerge to improve market efficiency, reduce transaction costs, and address gaps in the financial system. According to this theory, financial innovation is driven by factors such as regulatory changes, technological advancements, and evolving investor needs (Tufano, 2003). These innovations, including derivatives, cryptocurrencies, and fintech solutions, enhance liquidity, risk management, and capital allocation, ultimately contribute to economic growth. However, financial innovations can also introduce new risks, such as systemic instability and market manipulation, necessitating appropriate regulatory oversight (Lerner & Tufano, 2011). Understanding this theory helps policymakers and market participants balance innovation with financial stability.

## 2.3 Empirical Review

Ismail, Musa and Magaji (2025) examine the impact of financial inclusion on the performance, productivity, and sustainability of Small and Medium Enterprises (SMEs) in rural areas of the Federal Capital Territory (FCT), Abuja, Nigeria. Using logistic regression analysis, the study finds that financial services significantly enhance SME performance, with an odds ratio of 1.379, and boost productivity and sustainability with odds ratios of 159 and 0.65, respectively. Each result is statistically significant ( $p < 0.05$ ), indicating a strong positive relationship between access to finance and SME success in rural FCT. These findings underscore the vital role of financial inclusion in supporting rural SME growth and resilience. Recommendations include expanding financial services access, implementing financial literacy programs, and promoting digital finance solutions to address specific challenges faced by rural SMEs. This

study highlights the importance of inclusive financial policies for fostering economic development and strengthening SMEs in underserved areas

Sali (2020) conducted a study on the Varying Impacts of Electronic Banking on the Banking Industry. The research reviewed several publications to discuss the effects of electronic banking on the sector. Using qualitative research methods, the study aimed to understand how electronic banking influences the banking business, especially in relation to addressing cybercrime concerns. Findings from the study revealed that electronic banking significantly improves efficiency and customer satisfaction but also poses challenges related to cybersecurity risks. The research concluded that while electronic banking offers many benefits to the banking sector, there is a need for stronger cybersecurity measures to mitigate the risks associated with cybercrime and ensure secure financial transactions.

Ahmadu, (2021) conducted a study on the Effects of Electronic Banking on Growth of Deposit Money Banks in Nigeria. The study looked at how the development of deposit money banks in Nigeria was impacted by electronic banking. Data were acquired from secondary sources using the Central Bank of Nigeria's yearly reports and statistics bulletins. The entire value of online and mobile banking was used to measure electronic banking, while the value of total deposits and the total assets of Nigeria's deposit money institutions were used to assess growth. The analysis shows that there are favorable connections between internet banking and total assets, mobile banking, and total deposits, but no significant correlations between internet banking and total assets, total deposits, or mobile banking. It is therefore recommended that banks that want to enhance their deposit growth performance must offer numerous goods/services through mobile phones in an effective, efficient and cost-effective manner.

Adeniran and Ogunleye (2022) conducted a study titled "Impact of Digital Payment Technologies on Banking Performance in Nigeria". The research adopted a quantitative research design with a focus on the banking sector in Nigeria. They specified the model to examine the relationship between digital payment adoption (as an independent variable) and banking performance indicators (such as profitability, customer satisfaction, and operational efficiency). The data analysis was performed using Ordinary Least Squares (OLS) regression. The findings revealed that digital payment technologies positively impacted the operational efficiency and customer satisfaction of banks, though profitability was less significantly affected. The study concluded that banks should increase their investments in digital payment technologies to enhance their competitiveness in the Nigerian market.

Okorie and Ogbuefi (2023) investigated "The Impact of Digital Payment Technologies on Customer Experience in Nigerian Banks". The study employed a mixed-method research design, combining both qualitative and

quantitative approaches. They specified a model that examined how digital payment technologies (such as mobile banking apps and e-wallets) influenced customer experience in Nigerian banks, focusing on convenience, trust, and service delivery. The method of data analysis included both thematic analysis for qualitative data and OLS regression for quantitative data. Their findings revealed that the adoption of digital payment technologies significantly improved customer experience by providing more convenient and secure transaction methods. The study recommended that banks continue to upgrade their digital platforms to meet the growing demand for seamless customer service.

Adebayo and Salami (2021) examined "Digital Payment Adoption and its Impact on the Profitability of Banks in Nigeria". They utilized a longitudinal research design, which tracked the financial performance of banks over a five-year period, following the adoption of various digital payment systems. The researchers specified a profitability model that included variables such as return on assets (ROA) and return on equity (ROE), with digital payment systems as the independent variable. The data were analyzed using fixed-effects regression. Their findings demonstrated that digital payment adoption positively influenced the profitability of banks, especially those that integrated advanced payment technologies such as contactless payments and mobile wallets. They concluded that banks could improve their financial performance by strategically investing in digital payment technologies.

Akinyemi and Olorunfemi (2023) explored "The Influence of Digital Payment Technologies on the Competitive Advantage of Banks in Nigeria". The study employed a causal-comparative research design to determine how digital payment technologies impacted banks' competitive advantage. The researchers specified a model that included digital payment systems (mobile payments, online transfers) as independent variables and banks' market share and customer retention as dependent variables. The data analysis was conducted using regression analysis and correlation techniques. Their findings revealed that banks that adopted advanced digital payment technologies gained a significant competitive advantage by attracting more customers and improving customer retention rates. The study concluded that embracing innovative digital payment systems is critical for banks to maintain a competitive edge in the Nigerian banking sector.

Eze and Nwachukwu (2022) examined "The Impact of Mobile Payments on Banking Efficiency in Nigeria". The research utilized a descriptive survey research design with a focus on Nigerian banks' use of mobile payment platforms. The model was structured to assess the relationship between mobile payment adoption and banking efficiency, particularly in the areas of transaction speed and customer satisfaction. The data analysis was conducted using descriptive statistics and regression analysis. The results demonstrated a positive impact of mobile payment systems on banking efficiency, reducing

transaction times and enhancing customer satisfaction. The study recommended that Nigerian banks should continue expanding their mobile payment platforms to improve service delivery and efficiency.

## 2.4 Gap in Literature

While a substantial body of research has been conducted on the impacts of electronic banking and digital payment technologies on various aspects of the banking sector, there remains a noticeable gap regarding the long-term implications of these technologies on the security infrastructure of financial institutions, particularly in developing economies like Nigeria. Despite the recognition of cybersecurity risks in studies such as Sali (2020), which highlights the challenges associated with cybercrime in electronic banking, little attention has been paid to how these risks evolve with the adoption of more sophisticated technologies. Additionally, existing studies primarily focus on the immediate effects of digital payment systems on customer satisfaction, profitability, and competitive advantage (Adeniran & Ogunleye, 2022; Okorie & Ogbuefi, 2023), but there is a lack of research on how these technologies influence the resilience of banking institutions to cyber threats over time. This gap presents an opportunity for future research to explore how banks can balance technological advancement with enhanced cybersecurity measures, ensuring sustainable growth and protecting consumer trust in an increasingly digital financial ecosystem.

## 3.0 Methodology

This chapter outlines the research methodology utilized in the study. It discusses the research design, with a particular focus on the rationale behind its selection. Additionally, it covers the study's population, the sample size, and the sampling techniques used. The methods of data collection are detailed, along with the procedures for data analysis and presentation employed in the study.

### 3.1 Research Design

Research design specifies the methods and procedures for conducting a particular study. Thus, the research design adopted in this research is survey design which includes the use of questionnaires to collect views of workers in Deposit Money Banks in Gwagwalada, FCT. Abuja.

Kimani (2016) notes that the research collects data from members of a population and helps the researcher get the existing phenomena surveyed by asking individuals about their perceptions, attitudes, behaviour and values.

### 3.2 Model Specification

The study will employ a multiple regression model to analyze the impact of digital payment technologies on the operational efficiency, financial inclusion, customer satisfaction, and service delivery of Zenith Bank, Access Bank, GT Bank, and First Bank. The model is specified as:

The model is stated as:

$$OE = f(DPT, FI \text{ and } CS) \dots\dots\dots (3.1)$$

$$OE = \beta_0 + \beta_1 DPT + \beta_2 FI + \beta_3 CS + \mu \dots\dots\dots (3.3)$$

Where:

OE = Operational Efficiency

DPT = Digital Payment Technologies

FI = Financial Inclusion

CS = Customer Satisfaction

$\beta_0$  = Constant term

$\beta_1, \beta_2, \beta_3, \beta_4$  = Coefficients of the independent variables

$\mu$  = Error term

### 3.3 Area of the study

This study is carried out in Gwagwalada Area Council of FCT. Gwagwalada town is about 45 km away from the Federal Capital City (FCC). It is one of the six Area Council headquarters of the FCT. The town lies in the downstream of River Usuma and located between latitude 8° 55' and 9° 00'N and longitudinal 7° 00' and 7° 05'E (Ishaya and Abaje, 2019). The centrality of this town in relation to other Area Councils headquarters makes it influential and important in various socio-economic activities (Ishaya and Abaje, 2019).

### 3.3 Source of Data

The data used for this study were obtained from Primary sources as follows.

Primary Sources: This is an original way of gathering information. We used questionnaire and oral interview.

### 3.4 Population of the study

According to Cooper and Schinder (2019), a population is the total collection of elements about which we wish to make interferences. The people of this study are the customers, management and staff of Deposit Money Banks in Gwagwalada Area Council, FCT. Abuja.

### 3.5 Sample Size and Sampling Procedure

The sample size for this study consisted of two hundred (200) respondents made up of twenty-five respondents from Deposit Money Banks (Zenith Bank, Access Bank, GT Bank and First Bank) in Gwagwalada Area Council that was drawn randomly. The sampling procedure used in this study was a simple random sampling technique. Simple random sampling is the basic sampling technique where we select a group of subjects (a sample) for study from a larger group (a population), each individual is chosen entirely by chance and each member of the population has an equal chance of been included in the sample Abraham, (2019).

S/N	Names of Banks	No. of Respondents
1.	Zenith Bank	50
2.	Guaranty Trust Bank (GTB)	50
3.	Access Bank	50
4.	First Bank	50
<b>Total</b>		<b>200</b>

### 3.6 Instrument for Data Collection

The research instrument that was used by the researcher in collecting useful information on this topic is questionnaire titled: impact of digital payment technologies on selected banking Institutions in Nigeria (Zenith Bank, Access Bank, GT Bank and First Bank).

In this study, the questionnaire that will be used by the researcher will be highly structured and it contains close ended questions close to elicit relevant reaction from their respondents. It will also be carefully designed to accommodate two sections.

The questionnaire was designed by the researcher. The questionnaire is made up of two sections; section A and B. Section A is centered on personal information about the respondents e.g. sex, age, marital status and level of education. While section B dealt with questions concerning the impact of digital payment technologies on selected banking Institutions in Nigeria (Zenith Bank, Access Bank, GT Bank and First Bank).

### 3.7 Method of Data Collection

The questionnaire was distributed to the staff and customers of Deposit Money Banks in Gwagwalada. The copies of the questionnaire will be collected back at the same day, after which the staff and customers have answered the questions given to them by the researcher.

### 3.8 Validation of the Instrument

Cooper and Schindler (2020) and note that pretesting helps not only to discover the research team and discovering the respondent's reactions to the questions. The research will use face and content method of validation to ensure validity of the research questionnaires the set of drafted question was sent to the research supervisor, who ensured that the questions were clearly appropriate and covered the research objective.

### 3.9 Reliability of Instrument

This research project will adopt the test-retest method which is a measure of reliability obtained by administering the same test twice at 2-weeks interval to 5 respondents each week. Respondent from the first and second administration will be correlated in order to evaluate the test for stability over time and correlation coefficient 0.87% was obtained. This ensured internal consistency of the questionnaire and affirmed the responses from the selected sample.

### 3.10 Method of Data Presentation and Analysis

In treating and analyzing of data collected extensive use of table and percentage was paramount. The data collected will be presented in table and analyzed with percentage.

### 3.11 Test of Hypotheses

In this study, hypotheses will be formulated in line with the chapter one. We subject these hypotheses to test using the Chi-square non-parametric statistical tool using SPSS Software.

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square			
Likelihood Ratio			
Linear-by-Linear Association			
N of Valid Cases			

4.0 Data Presentation, Analysis and Interpretation

The purpose of this chapter is to present, analyse and interpret the results of the field survey and use them to answer the research question which the researcher has set out to solve in the course of this study. The analysis

of data collected from the respondents was treated in two sections: the demographic data of the participants in Section A and the data relating to research questions in Sections B on the topic “effect of currency devaluation on the performance of small and medium scale enterprises in Gwagwalada.

4.1 Presentation of Data

The result of the analysis of the study was done in line with the research questions. The results are presented in tables, and the interpretation follows immediately after. Demographic data analysis are presented in the table below.

4.2 Data Presentation and Results

Section A: Demographic Data

Table 1: Gender Distribution of Respondents

S/N	Gender	Response Score	Percentage (%)
1.	Male	147	73.5%
2.	Female	53	26.5%
Total		200	100%

Source: Field Survey, 2025.

The gender distribution of the respondents shows a clear majority of males, accounting for 73.5% of the total respondents, with 147 males participating in the survey.

On the other hand, females make up 26.5% of the respondents, totalling 53 females.

Table 2: Educational Qualification of Respondents

Formal Education	Frequency (f)	Percentage (%)
1. NCE	16	8.0%
2. B. A/B. Ed	159	79.5%
3. Postgraduate Degree	25	12.5%
Total	200	100%

Source: Field Survey, 2025.

The educational qualification distribution of the respondents shows that the majority of participants have a Bachelor’s degree (B.A/B.Ed), comprising 79.5% of the total respondents, with 159 individuals holding this qualification. The second largest group is those with a Postgraduate degree, accounting for 12.5% of the respondents, totalling 25 individuals. A smaller group,

8.0%, has the National Certificate in Education (NCE), which represents 16 respondents.

Research Question 1: How have digital payment technologies influenced the operational efficiency of Zenith Bank, Access Bank, GT Bank and First Bank?

Table 3: How digital payment technologies influenced the operational efficiency of Zenith Bank, Access Bank, GT Bank and First Bank.

N=200		SA	A	D	SD	Mean	Decision
S/N	Items						
6	Digital payment technologies improve transaction speed	132	78	46	10	4.32	Accepted
7	Reduce operational costs	70	100	12	18	3.06	Accepted
8	Enhance customer satisfaction	94	92	6	8	3.36	Accepted
9	Improve data management	54	78	44	24	2.81	Accepted
10	Reduce errors in transactions	44	80	68	8	2.80	Accepted
Overall Mean							Accepted

Source: Field Survey, 2025.

Table 3 reveals the influence of digital payment technologies on the operational efficiency of Zenith Bank, Access Bank, GT Bank, and First Bank, based on respondents' ratings. The item "Digital payment technologies improve transaction speed" has the highest means of 4.32, showing strong agreement that these

technologies significantly enhance transaction speed. "Reduce operational costs" follows with a mean of 3.06, indicating moderate agreement that digital payments help lower costs. The mean for "Enhance customer satisfaction" is 3.36, also reflecting positive feedback.

However, the items "Improve data management" and "Reduce errors in transactions" have lower mean scores of 2.81 and 2.80, respectively, showing more modest agreement on their impact. Despite these lower scores, all items received mean scores above 2.5, signaling general acceptance that digital payment technologies contribute positively to operational efficiency in the banks. The

overall mean score suggests that respondents agree with the positive influence of digital payment technologies on banking operations.

Research Question 2: What is the impact of digital payment technologies on the financial inclusion efforts of these Banks?

**Table 4:** Impact of digital payment technologies on the financial inclusion efforts of these Banks  
N=200

S/N	Items	SA	A	D	SD	Mean	Decision
11	Expand access to banking services	104	90	4	2	3.48	Accepted
12	Improve financial literacy	108	64	20	8	3.36	Accepted
13	Increase the inclusion of unbanked populations	94	100	4	2	3.43	Accepted
14	Promote financial inclusion in rural areas	108	70	12	10	3.38	Accepted
15	Enhance access to credit facilities	90	104	2	4	3.40	Accepted
Overall Mean							Accepted

Source: Field Survey, 2025.

Table 4 presents the impact of digital payment technologies on the financial inclusion efforts of Zenith Bank, Access Bank, GT Bank, and First Bank. The highest mean score of 3.48 is for the item "Expand access to banking services", indicating strong agreement that these technologies have significantly enhanced access to banking services. "Improve financial literacy" follows with a mean of 3.36, showing positive agreement, though slightly less enthusiastic.

The item "Increase the inclusion of unbanked populations" has a mean score of 3.43, suggesting that respondents believe digital payment technologies have moderately improved financial inclusion for the unbanked. Similarly, "Promote financial inclusion in rural

areas" and "Enhance access to credit facilities" received mean scores of 3.38 and 3.40, respectively, indicating positive effects on financial inclusion efforts, though slightly lower than the first item. Overall, with all items having mean scores above 3.0, the respondents accept that digital payment technologies positively impact the financial inclusion efforts of the banks. The overall means reflects a consensus that these technologies have contributed to expanding access to financial services.

Research Question 3: How do digital payment technologies affect customer satisfaction and service delivery in Zenith Bank, Access Bank, GT Bank and First Bank?

**Table 5:** Effect of digital payment technologies on customer satisfaction and service delivery in Zenith Bank, Access Bank, GT Bank and First Bank

S/N	Items	SA	A	D	SD	Mean	Decision
16	Improve the speed of service delivery	100	86	10	4	3.41	Accepted
17	Enhance customer satisfaction	60	70	50	20	2.85	Accepted
18	Ensure convenience in service access	40	76	60	24	2.66	Accepted
19	Increase the accuracy of transactions	80	110	6	4	3.38	Accepted
20	Reduce customer waiting time	74	96	10	20	3.12	Accepted
Overall Mean							Accepted

Source: Field Survey, 2025.

Table 5 shows the effect of digital payment technologies on customer satisfaction and service delivery in Zenith Bank, Access Bank, GT Bank, and First Bank. The item "Improve the speed of service delivery" has the highest means of 3.41, indicating strong agreement that digital payment technologies significantly enhance the speed of service delivery. "Increase the accuracy of transactions" follows with a mean of 3.38, showing positive agreement on the role of these technologies in improving transaction accuracy.

The item "Enhance customer satisfaction" has a mean of 2.85, suggesting moderate agreement that digital payment technologies contribute to customer satisfaction. "Reduce customer waiting time" and "Ensure

convenience in service access" received mean scores of 3.12 and 2.66, respectively, indicating that while respondents generally agree that these technologies help reduce waiting times and improve service convenience, the impact is perceived as slightly weaker. Overall, the mean scores above 2.5 indicate that digital payment technologies are seen as positively influencing customer satisfaction and service delivery, with all items accepted as contributing factors to improved banking services.

### 4.3 Summary of Major Findings

- Objective one examined how digital payment technologies influenced operational efficiency. The findings show that digital payment technologies enhance transaction speed and

- reduce operational costs, significantly improving efficiency. However, their impact on data management and error reduction is modest.
- ii. Objective two assess their impact on financial inclusion efforts. The findings reveal that digital payment technologies have expanded access to banking services, particularly for unbanked populations, through improved financial literacy and credit facilities.
  - iii. Objective Three tries to determine their effect on customer satisfaction and service delivery. The findings indicate improved transaction speed and reduced waiting times, enhancing delivery service, though the overall impact on customer satisfaction remains moderate.

#### 4.4 Discussion of Findings

Table 3 reveals the influence of digital payment technologies on the operational efficiency of Zenith Bank, Access Bank, GT Bank, and First Bank, based on respondents' ratings. The item "Digital payment technologies improve transaction speed" has the highest mean of 4.32, showing strong agreement that these technologies significantly enhance transaction speed. "Reduce operational costs" follows with a mean of 3.06, indicating moderate agreement that digital payments help lower costs. The mean for "Enhance customer satisfaction" is 3.36, also reflecting positive feedback. However, the items "Improve data management" and "Reduce errors in transactions" have lower mean scores of 2.81 and 2.80, respectively, showing more modest agreement on their impact. Despite these lower scores, all items received mean scores above 2.5, signaling general acceptance that digital payment technologies contribute positively to operational efficiency in the banks. The overall mean score suggests that respondents agree with the positive influence of digital payment technologies on banking operations. This finding is in line with Abu, Halilu & Olukoga, (2019) on E-banking payments system and commercial banks performance in Nigeria. E-cheque.

Table 4 presents the impact of digital payment technologies on the financial inclusion efforts of Zenith Bank, Access Bank, GT Bank, and First Bank. The highest mean score of 3.48 is for the item "Expand access to banking services", indicating strong agreement that these technologies have significantly enhanced access to banking services. "Improve financial literacy" follows with a mean of 3.36, showing positive agreement, though slightly less enthusiastic. The item "Increase the inclusion of unbanked populations" has a mean score of 3.43, suggesting that respondents believe digital payment technologies have moderately improved financial inclusion for the unbanked. Similarly, "Promote financial inclusion in rural areas" and "Enhance access to credit facilities" received mean scores of 3.38 and 3.40, respectively, indicating positive effects on financial inclusion efforts, though slightly lower than the first item. Overall, with all items having mean scores above 3.0, the respondents accept that digital payment technologies positively impact the financial inclusion efforts of the banks. The overall mean reflects a consensus that these technologies have contributed to expanding access to financial services. This finding resonates with the work of Nwankwo & Eze (2018) in their study, Problem and Prospect of Digital payments in a Cashless Economy applied a descriptive research design.

Finally, table 5 shows the effect of digital payment technologies on customer satisfaction and service delivery in Zenith Bank, Access Bank, GT Bank, and First Bank. The item "Improve the speed of service delivery" has the highest means of 3.41, indicating strong agreement that digital payment technologies significantly enhance the speed of service delivery. "Increase the accuracy of transactions" follows with a mean of 3.38, showing positive agreement on the role of these technologies in improving transaction accuracy. The item "Enhance customer satisfaction" has a mean of 2.85, suggesting moderate agreement that digital payment technologies contribute to customer satisfaction. "Reduce customer waiting time" and "Ensure convenience in service access" received mean scores of 3.12 and 2.66, respectively, indicating that while respondents generally agree that these technologies help reduce waiting times and improve service convenience, the impact is perceived as slightly weaker. Overall, the mean scores above 2.5 indicate that digital payment technologies are seen as positively influencing customer satisfaction and service delivery, with all items accepted as contributing factors to improved banking services. This finding correlates with the findings of Obiekwe & Anyanwaokoro (2017) who investigated the Effect of Digital payment Methods (EPM) on the profitability of commercial banks in Nigeria.

#### 5.0 Conclusion and Recommendation

This study concludes that digital payment technologies significantly enhance the operational efficiency, financial inclusion, and customer satisfaction of Zenith Bank, Access Bank, GT Bank, and First Bank. These technologies improve transaction speed, broaden access to banking services, and streamline operations. However, challenges such as cybersecurity risks, high implementation costs, inadequate infrastructure, and staff training needs persist. To address these, the study recommends improving cybersecurity, investing in modern infrastructure, providing comprehensive staff training, and promoting customer education, which are vital for ensuring the sustainable growth and successful adoption of digital payment systems in Nigeria's banking sector.

The study recommends that banks invest in advanced digital payment technologies to streamline operations, reduce transaction times, and lower costs, while regularly upgrading systems to enhance efficiency. To promote financial inclusion, banks should improve accessibility for unbanked and underserved populations through user-friendly platforms, financial literacy programs, and tailored credit options. Additionally, banks should focus on expanding digital payment access to rural and underserved areas, ensuring services are easily accessible. Finally, optimizing transaction speed and reducing waiting times, along with enhancing user experience through personalized services, would improve overall customer satisfaction.

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