

Digital Payment System and Performance of Deposit Money Banks in Enugu State

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Abstract

This study evaluated the relationship between digital payment systems and the performance of deposit money banks in Enugu State. Specifically, the study sought to examine the relationship between online transfers and customer retention and to ascertain the relationship between online bill payments and income generation among deposit money banks in Enugu State. The study focused on three selected banks within Enugu metropolis, namely First Bank Plc, United Bank for Africa (UBA), and Zenith Bank Plc. The study population was reported as 320, and the entire population was considered for the study because of its relatively small size. A survey research design was adopted, and 252 copies of the questionnaire were duly completed and returned. Data were presented and analysed using mean scores, while the hypotheses were examined using the one-sample Kolmogorov–Smirnov test with the aid of the Statistical Package for the Social Sciences (SPSS). The results showed that the Kolmogorov–Smirnov test for responses relating to online transfers and customer retention yielded a Z-value of 9.071 ($p < .001$), while the test for responses relating to online bill payments and income generation yielded a Z-value of 10.646 ($p < .001$). These results indicated statistically significant differences between the observed response distributions and the specified uniform distribution. The study concluded that digital payment systems are important to the performance of deposit money banks in Enugu State. It recommended that banks should improve the reliability, speed, and transparency of online transfer services by minimising transaction delays and failures and providing timely and accurate transaction notifications. Banks should also intensify customer education on the convenience, accessibility, and security of online bill payment platforms.

Keywords: Earnings management; discretionary accruals; loan loss provisions; accrual quality; financial statement reporting quality; deposit money banks; panel data; Nigeria.

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Introduction

The evolution of digital technology has brought significant transformation to the global financial industry, leading to the adoption of digital payment systems as a core strategy to enhance banking services. In Nigeria, Deposit Money Banks (DMBs) have increasingly embraced digital payment technologies as a response to customer demand for faster, secure, and more convenient financial transactions (Nnadi et al., 2024). These technologies, ranging from Point of Sale (POS) systems, mobile banking applications, Automated Teller Machines (ATMs), to Internet banking platforms, have reshaped the way banks conduct business and interact with customers. In Enugu State, the banking sector has witnessed a growing trend in the use of digital payment platforms to improve operational efficiency and customer satisfaction. The strategic application of digital banking tools has enhanced banks' capacity to serve larger populations, reduce queues, and minimize errors in financial processing (Okeke & Eze, 2020). The continuous increase in the number of mobile banking users in Enugu is indicative of customers' preference for convenient and accessible banking, especially among the younger, tech-savvy demographic (Nnadi et al., 2024). These changes reflect a global shift where physical bank presence is being complemented, or even replaced by digital channels. Nevertheless, while the benefits of digital payment systems are extensive, the implementation process is often challenged by infrastructural limitations, cybersecurity risks, regulatory constraints, and inconsistent power supply, all of which are common in many parts of Nigeria (Okwor et al., 2024). Cyber threats in particular have become a major concern for banks as they expand their digital footprints. Financial institutions must therefore adopt robust security frameworks to guard against fraud and enhance customer trust.

Several studies have affirmed the significant impact of digital banking on the performance of DMBs. For instance, electronic payment methods such as mobile transfers and internet banking have been linked to increased bank profitability, improved customer loyalty, and greater financial inclusion (Ogbuji & Eze, 2017). However, the degree of impact varies among banks, depending on the extent of technological adoption, staff capacity, and customer awareness. In Enugu State, some banks have successfully leveraged digital platforms to gain a competitive edge, while others continue to struggle with outdated systems and low customer enrollment in digital services. Moreover, the role of the external environment cannot be overlooked. Political stability and regulatory policies significantly influence the growth and efficiency of digital payment systems in the banking sector. A study by Ugoani emphasized that fluctuating government policies, political instability, and economic downturns pose threats to the sustainability of banking operations, especially for banks heavily reliant on digital infrastructure. The situation in Enugu State is no exception, where delays in policy implementation and inconsistencies in regulation often hinder innovation, (Ugoani, 2021).

Interestingly, the outbreak of the COVID-19 pandemic accelerated the adoption of digital payment systems across Nigerian banks. With lockdowns and movement restrictions in place, both customers and financial institutions had to rely on digital channels for transactions. Cloud accounting significantly enhanced customer service and improved the overall financial performance of banks during the pandemic Chukwunwike, Ozondu, and Ojukwu (2024). This shift not only revealed the adaptability of banks in times of crisis but also highlighted the resilience of digital infrastructure in sustaining banking operations. In addition to cloud accounting, newer innovations such as digital

signatures and smart contracts have been found to streamline operations, reduce processing time, and eliminate errors in documentation. It was discovered that the integration of digital signatures in banks operating in Enugu State led to a notable improvement in operational efficiency, particularly in areas such as customer onboarding and contract verification. This suggests that digital tools, when effectively implemented, can significantly reduce administrative bottlenecks and enhance productivity (Mbah, 2025).

Despite the progress made, the FinTech ecosystem in Nigeria remains underdeveloped in comparison to global standards. Research by Okwor indicates that infrastructural gaps and limited access to broadband internet continue to undermine the full potential of digital banking systems. These challenges are more pronounced in sub-urban and rural areas within Enugu State, where some customers remain skeptical or unaware of digital banking options due to low digital literacy levels. Hence, there is a growing need for banks and government agencies to collaborate on digital literacy campaigns and technological investments to bridge this gap, (Okwor et al., 2024). Given this background, this study seeks to critically assess the relationship between digital payment systems and the performance of Deposit Money Banks in Enugu State. The goal is to explore how the adoption of digital platforms influences operational efficiency, customer satisfaction, and financial performance. In doing so, this research will contribute to the ongoing discourse on digital transformation in the Nigerian banking sector and provide practical recommendations for policymakers bank managers, and other stakeholders committed to achieving optimal banking performance through digital innovation. Based on this, the study aimed to examine the digital payment system and performance of deposit money banks in Enugu State.

Statement of the Problem

Digital payment systems have become essential tools in the modern banking environment, helping banks improve service delivery, increase financial inclusion, and enhance operational efficiency. In today's digital economy, Deposit Money Banks rely heavily on technology-driven platforms such as mobile banking, online transactions, POS systems, and ATM services to meet the demands of customers and remain competitive. In Enugu State, these systems are especially important as customers increasingly expect fast, secure, and seamless financial services.

Despite the wide adoption of digital payment systems, many Deposit Money Banks in Enugu State still struggle with inconsistent service delivery, frequent transaction failures, poor network infrastructure, and low digital literacy among customers. These challenges hinder the smooth operation and performance of banks, resulting in customer dissatisfaction and reduced profitability. Moreover, issues such as cybercrime, inadequate investment in digital infrastructure, and lack of proper staff training continue to affect the effectiveness of these systems. This situation raises concerns about whether the growing investment in digital banking is translating into measurable improvements in the performance of banks in the region.

If these problems are not properly addressed, banks may continue to experience operational inefficiencies, customer attrition, and a decline in trust. Over time, this could weaken the competitive advantage of Deposit Money Banks in Enugu State and reduce their ability to attract and retain customers. Additionally, the banking sector may fail to contribute effectively to the broader goals of financial inclusion and economic development in the state.

Therefore, it is critical to investigate these issues to provide relevant insights and policy recommendations that can enhance digital banking performance in the region. Based on this, the study aimed to examine the digital payment system and performance of deposit money banks in Enugu State.

Objective of the Study

The general objective of the study was to examine the digital payment system and performance of deposit money banks in Enugu State. Specifically, the objectives are to:

- i. Examine the relationship between online transfer and customer retention of Deposit Money Banks in Enugu State
- ii. Ascertain the relationship between online bill payments and income generation of Deposit Money Banks in Enugu State

Research Questions

- i. What is the relationship between online transfer and customer retention of Deposit Money Banks in Enugu State?
- ii. What is the relationship between online bill payments and income generation of Deposit Money Banks in Enugu State?

Statement of Hypotheses

- i. Online transfer has relationship with the customer retention of Deposit Money Banks in Enugu State
- ii. Online bill payments has relationship with the income generation of Deposit Money Banks in Enugu State

Scope of the Study

The study was based on the Digital payment system and performance of deposit money banks in Enugu State. The key variables of the study were divided into two which are the dependent and independent variables. The independent variable for the study was Digital payment system while its components were online transfer and online bill payments. The dependent variable was performance while its components as used in the study were, customer retention and income generation. The geographical scope of the study was in Enugu State.

Review of Related Literature

Conceptual Review

Digital

The term "digital" refers to the representation of information using discrete signals, typically in binary form, where data is expressed as sequences of 0s and 1s. This method contrasts with analog representation, which uses continuous signals to convey information. Digital technology encompasses a wide array of applications, including computing devices, communication systems, and various forms of media (Beal, 2024). Digital platforms have become integral to modern society, serving as online ecosystems where users can interact, collaborate, and access services. These platforms leverage digital technologies such as the internet and software applications to create value by connecting people and facilitating transactions (Harvard Business School, 2024).

Payment System

A payment system is the infrastructure, including institutions, instruments, rules, and procedures, that facilitates the transfer of value between parties, enabling the exchange of goods and services. The payment system, which consists of the set of rules, institutions, and technical mechanisms for the transfer of money, is an integral part of the monetary system in such an economy. As such, the safe and efficient operation of the payment system is of concern to both market participants and public officials, especially central bankers.

Digital Payment System

Digital payment systems facilitate electronic transactions, enabling payments online or in person using various methods like credit/debit cards, e-wallets, and mobile payments, offering convenience and speed. A digital payment, sometimes called an electronic payment, is the transfer of value from one payment account to another using a digital device or channel. This definition may include payments made with bank transfers, mobile money, QR codes, and payment instruments such as credit, debit, and prepaid cards. Digital payments can be partially digital, primarily digital, or fully digital, (Betterthancash,2025),

In recent years, digitalization of payments and financial services has accelerated in many developing countries due to the diffusion of information and communication technology. This has promoted financial inclusion which is known to stimulate economic growth (Fabregas and Yokossi, 2022; Qiu, 2022; Aguilar et al., 2024), curb poverty (Aker et al., 2016), and bridge gender (Suri and Jack, 2016) and education (Grohmann and Menkhoff, 2018) divides, (Aurazo,et al.,(2024).

Components of Digital Payment System

The digital payment components include : fund transfer apps ,Online transfer, network infrastructure, governance and instruments like ewallets, mobile banking, prepaid cards, and platform-based transfers, Online bill payments such as UPI (Mahesh A. et al. (2022). Camenisch et al. (1997) outline the classic three-party, three-phase model of digital payments (payer, payee, bank; withdrawal, payment, deposit), applicable to online systems.

Online transfer

Online transfer, also known as Electronic Funds Transfer (EFT), refers to the digital movement of money from one bank account to another without the need for physical exchange of cash or paper documents. This process enables individuals and businesses to conduct financial transactions over the internet, offering a convenient and efficient alternative to traditional methods. In Nigeria, online transfers can be categorized into intra-bank transfers, which occur within the same financial institution, and inter-bank transfers, which involve different banks. Intra-bank transfers are typically processed internally, resulting in quicker transaction times, while inter-bank transfers may require coordination between multiple financial entities, potentially leading to slightly longer processing periods. The adoption of online transfer systems has been instrumental in enhancing the accessibility and speed of financial services, thereby promoting financial inclusion and economic growth (Chukwu, 2021).

Online bill payments

Online bill payments involve the electronic settlement of financial obligations through internet-based platforms, allowing consumers to pay for services such as utilities, telecommunications, and subscriptions without the need for physical cash or checks. In Nigeria, platforms like e-BillsPay facilitate these transactions by providing a seamless interface between billers and the banking public. This system enables users to authorize payments directly from their bank accounts, ensuring timely and accurate processing. The convenience of online bill payments reduces the reliance on in-person transactions, minimizes errors associated with manual processing, and offers users the flexibility to manage their finances remotely. As digital literacy and internet penetration continue to grow, online bill payments have become an integral component of the modern financial ecosystem, enhancing the efficiency of payment systems and contributing to the overall development of the economy (Nwankwo, Odekina & Eze, 2022).

Performance

Performance, in a business context, refers to the effectiveness with which an organization meets its objectives and utilizes its resources to generate desired outcomes. It encompasses various dimensions, including financial results, operational efficiency, and market competitiveness. Financial performance, specifically, is a measure of a firm's ability to leverage its assets to produce revenue and profits. This assessment often involves analyzing financial statements to evaluate metrics such as profitability, liquidity, and solvency. A comprehensive understanding of performance allows organizations to identify strengths and areas for improvement, informing strategic decisions and fostering sustainable growth (Agwu, 2018).

Components of Bank Performance

The performance of deposit money banks can be assessed using various financial and non-financial indicators. Financial performance indicators include return on assets (ROA), return on equity (ROE), and net interest margin (NIM), which are used to evaluate profitability. Efficiency indicators include the cost-to-income ratio, operating expenses relative to total assets, and turnaround time for core banking processes. Income generation is another important indicator of bank performance, as it reflects the bank's ability to generate revenue from its operations. Productivity indicators, such as revenue per employee and branch transaction throughput, can also be used to assess how effectively a bank utilises its resources.

Kaplan and Norton (1992) introduced the Balanced Scorecard as a framework for measuring organisational performance across four perspectives: financial, customer, internal business processes, and learning and growth. Kaplan and Norton (1996, 2001) further developed this approach to emphasise the alignment of performance measurement with organisational strategy. Within the banking sector, Hossain and Ahamed (2021) examined financial performance using profitability indicators, including return on assets, return on equity, and net interest margin. Similarly, the works of Queenchiku Ngozi (2016) and Ha Nguyen (2023) may provide additional perspectives on bank performance, subject to verification of their specific publications and findings.

Customer retention is another relevant non-financial indicator because it reflects a bank's ability to maintain relationships with existing customers. In the context of digital payment systems, customer retention and income

generation are particularly relevant to evaluating bank performance. Accordingly, this study focuses on customer retention and income generation to examine the relationship between online transfers and customer retention and between online bill payments and income generation among deposit money banks in Enugu State.

Customer retention

Customer retention in the banking sector refers to the strategies and practices employed by financial institutions to maintain their existing customer base and encourage continued engagement with their products and services. It involves building and nurturing long-term relationships with clients to prevent them from switching to competitors. Effective customer retention strategies may include personalized services, responsive customer support, loyalty programs, and the continuous enhancement of product offerings. High retention rates are indicative of customer satisfaction and trust, which are critical for the stability and profitability of banks. By focusing on customer retention, banks can reduce acquisition costs, increase lifetime value, and gain a competitive edge in the market (Nwankwo et al., 2022).

Income generation

Income generation refers to the process by which individuals or organizations produce earnings through various activities or investments. In the context of financial institutions, income-generating products are designed to create steady revenue streams, often through interest-bearing assets, fees, or other financial services. For example, banks may offer income-generating bonds or shares that provide returns over time. These products not only contribute to the institution's profitability but also offer value to customers seeking investment opportunities. Effective income generation strategies are essential for financial stability and growth, enabling institutions to reinvest in their operations, expand services, and enhance their market position (Nwankwo, Odekina & Eze, 2022).

Conceptual Framework

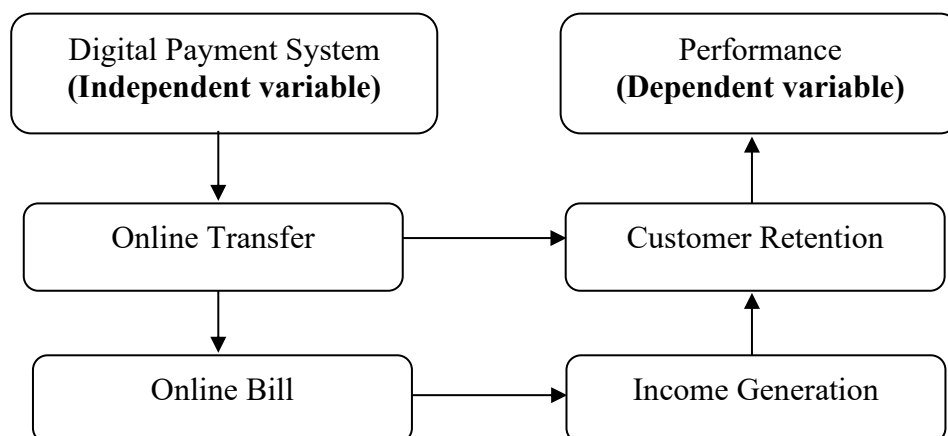


Fig. 1: Digital Payment System and Performance

Source: Author's Model, 2026

The diagram above shows the linkages between the various components of Digital Payment system and Performance of Deposit Money Banks. The diagram shows that Online transfer have a high chance of improving the customer retention of Deposit Money Banks, thereby increasing productivity ratios and Online bill payment on fulfilling the needs within the organization will lead to greater increase of income generation of Deposit Money Banks. The end product of these will culminate in the improved organizational performance.

Theoretical Framework

- i. Technology Acceptance Model (TAM) - Fred Davis in 1986
- ii. Diffusion of Innovation Theory (DOI) - Everett Rogers in 1962

The Technology Acceptance Model (TAM) anchors the study, as it directly addresses why customers adopt digital payment systems and how their adoption affects bank performance. It offers a solid framework for understanding customer behavior in the context of digital banking.

Technology Acceptance Model (TAM)

Developed by Fred Davis in 1986, TAM explains how users come to accept and use new technologies. It suggests that perceived ease of use and perceived usefulness are key factors influencing the adoption of technology. In your study, TAM helps to explain how customers' perceptions of digital payment systems in banks influence their usage and, consequently, the performance of banks.

Diffusion of Innovation Theory (DOI)

Diffusion of Innovation Theory (DOI) explains how new ideas and technologies spread within a social system. It identifies different adopter categories (innovators, early adopters, early majority, late majority, laggards) and emphasizes the role of communication channels and time in the diffusion process. This theory provides insights into how digital payment systems gain acceptance and affect banking performance in Enugu State.

Empirical Framework

Online transfer and customer retention

Kawamoto et al. (2023) conducted a study on Determinants of success of mobile payments as innovations: an exploratory study based on the extant literature, the m-pesa, alipay, and nubank cases, and the opinion of experts .An important fact related to mobile payments is that adopters have already reached the majority group in more than 40 countries. Despite the growth of mobile payments, only a small portion of the related literature has focused on the topic from an organizational point of view. To fill this gap, this paper seeks to identify the main success determinants of firms operating in the segment, looking for relevant characteristics of organizations that are successful in this competitive arena. The investigation carried out a triangulation with the results of a literature review, a case study, and the answers given by a questionnaire applied to a group of specialists from private organizations and the public sector. The results suggest that companies with organic and flexible structures, open communication qualities, and decentralized decision processes increase their chances of success. Furthermore, the

results also show that, given non-impeditive regulations, critical mass and the provision of different services other than the payment choice should be considered by firms operating in the mobile payment segment.

Shaikh et al. (2023) conducted a study on Mobile money as a driver of digital financial inclusion. The paper presents a conceptual model based on the stimulus-organism-response paradigm. We propose that the mobile money agent characteristics are the stimuli, that the mobile money customer is the organism, and that the response of the organism to the stimuli is continuous usage, which leads to financial inclusion in the developing country of Ghana. The continuous usage of mobile money services by customers encourages more engagement experiences and advocacy intentions. We provide empirical evidence suggesting that mobile money agent credibility and service quality stimulate customer empowerment. Furthermore, we argue that for the less financially empowered customer segment, mobile money agent credibility provides the needed impetus for the continuous usage of mobile money services Yunus, Abdulrafiu, Abdulmumin,

Opefola and Hanafi (2023) examined the impact of financial inclusion on the performance of banks in Nigeria. Specifically, the study examines how banking performance is affected by ATMs, branch network, number of bank accounts and location of sales terminals. The study used all DBMs in Nigeria between 2013 and 2018 using data compiled on the basis of least squares. The results of the study show that the effect of ATMs, banking location, towers, performance of bank depository (ATM, BET and POS on ROA of DBMs) in Nigeria is positive and significant by 0.05. It is concluded that FI applications have proven to have a significant impact in improving customer satisfaction and bank profitability

Ihenyen and Yeitaribo (2024) examined the extent cashless policy can lead to improvement in small business enterprises in Bayelsa State. A descriptive survey design was adopted in the study and a sample size of four (400) respondents which comprised small business traders, civil servants and students in Bayelsa State. The data generated were subjected to different statistical tests such as descriptive, correlation analysis and inferential tests. The data gathered were finally analyzed using regression analysis via SPSS version 26. The study found that Digital payment instruments, Cash withdrawal limits and Naira notes redesign policy affect small business enterprises in the State.

Online bill payments and income generation

Ehiedu et al. (2023) examined the effect of e-payment system (EPS) on the efficiency of banks in Nigeria. Specific objectives are to determine the implication of mobile payment, Automated Teller Machine(ATM) and POS on the efficiency of Nigerian banks, by collating data Central Bank of Nigeria (CBN), from the year 2012 to 2016. A linear regression analysis was used via SPSS to carry out the analysis, at a significance level of 0.05. The result of the analysis obtained a P-Value significance of 0.333 which connotes that there is no discernible effect of EPS on the efficiency of banking in Nigeria.

Okoro (2023) examined the impact of selected e-payment instruments on the intermediation efficiency of the Nigerian economy. Using time series data of 2006 – 2011 the study employed multiple regression technique in the analysis of the sourced data. Employing intermediation efficiency indicator (the ratio of currency outside bank to

broad money supply) as a dependent variable, while the automated teller machine (ATM), point of sales (PoS), Mobile and Internet service values were used as the independent variables, the following findings were made: that there is significant relationship between ATM, PoS, Internet service values and the intermediation efficiency of the Nigerian economy. However, the study also reveals that there is no significant relationship between Mobile service value and intermediation efficiency of the Nigerian economy within the period under study.

Pueblos and Timoteo (2023) investigated the impact of e-payment platforms among selected micro entrepreneurs in Taguig City and to identify the determinants for enhanced guidelines for the collection and disbursement process using the e-payment system. A quantitative method of research and exploratory design with the use of a survey questionnaire was employed. The study found that an effective-payment platform is characterized by its ease of learning, control, and navigation, as well as the ability to increase the security of financial transactions. Moreover, the study revealed that e-payment platforms can help increase sales, enhance collection convenience, and simplify salary disbursements. However, the study also identified technical problems as the most common issues encountered in using e-payment platforms.

Oyolola et al. (2023) conducted a study on effects of electronic customer relationship management (ECRM) on the customer retention of deposit money banks (DMBs) in Dutsin-Ma, Nigeria, using responses obtained from 380 customers of the three DMBs operating in the study area. The study adopts a cross-sectional survey research design, a structured questionnaire as a means for data collection and multiple regression techniques as the main method of data analysis with the aid of the statistical package for social sciences (SPSS) version 25. Results confirm that ECRM proxies: pre-transaction, at-transaction and customer feedbacks and complaints management (post-transaction) features of ECRM have a significant and positive effect on the customer retention of DMBs in Dutsin-Ma.

Ali-Momoh (2023) looked at the impact of mobile banking, automated teller machines, and point of sale on the performance of small and medium-sized businesses in the state of Ekiti. Primary data were used in the investigation. A questionnaire was used to collect data. Both regression analysis and correlation were used in the investigation. The study's conclusions showed that point of sale had a favorable and significant impact on the performance of SMEs in Ekiti State. The study also demonstrates that the adoption of automated teller machines by SMEs' operators has a favorable and notable impact on their performance. The study also demonstrated that the performance of SMEs in Ekiti State is positively and significantly impacted by the use of mobile banking services.

Okolie and Eze (2023) investigated the impact of electronic banking on the performance of financial institutions in Nigeria. The study adopted the ex-post facto research design, wherein data from First Bank Plc were collected for a cumulative period of twenty-eight years – 1994 to 2007 for pre-adoption era and 2008 to 2021 for post-adoption era. Comparative analysis was used for test of hypotheses, wherein the mean of the performance indicators are compared between pre- and post- adoption era. Findings revealed that there is significant difference in the effect of pre adoption era and post adoption era of electronic banking on net profit margin (NPM) of First Bank Plc.

Gap in Empirical Review

Most studies carried out were outside digital payment system and performance of deposit money banks in Enugu State and did not focus to the best of my knowledge on online transfer and customer retention; and online bill payments and income generation of Deposit Money Banks in Enugu State. Most of the studies reviewed and analysed their data through descriptive survey design, Spearman Rank Order Correlation Coefficient, Total Population Sampling Technique, both Descriptive and Inferential Statistical Techniques, Cross-Sectional Survey Design, Statistics of Regression Analysis with the aid of Statistical Package for Social Sciences, Random Sampling Technique and Purposive and Random Sampling Techniques respectively while the present study made use of Z-test to test the hypotheses. From these few mentioned reviewed literature, it was evidenced that only few of the studies were carried out in South East, Nigeria. The study therefore, aimed at contributing to literature by examining the digital payment system and performance of deposit money banks in Enugu State.

Methodology

Research Design

Research design serves as a road map or plan or action showing what and how the researcher carried out step by-step procedure of accomplishing the research endeavour. For the study, the descriptive sample survey was employed as the researcher's strategy for answering research questions using empirical data. It is a research design where a sample of population or item is chosen and data collected, analyzed and reported based on the sample.

Area of the study

The area of the study was Enugu State, Nigeria. The regional offices of the three selected banks were used in the study. They are: First bank, Okpara Avenue main and second Okpara Avenue branch, Zenith, Bank, Okpara avenue, and United Bank of Africa (UBA), Okpara Avenue. These banks were chosen because they have international authorization. Finally, the Enugu state was chosen as the geographical area of this study because the researcher is from the Enugu state and strongly believes that charity begins at home.

Sources of Data

Sources of data for the study were primary and secondary sources.

Primary Sources of data

The primary of sources of data were staff of the banks understudy with the use of use of structured questionnaire administered on the respondents.

Secondary source of Data

The researcher's secondary data were obtained from many sources, including literature, industry surveys, compilations from computerized databases and information systems, computerized or mathematical models of environmental processes and other established sources (textbooks, journals internet, websites, internal records).

Population of the Study

The target population of the study consists of 21 registered deposit money banks in Enugu State, Nigeria out of which three(3) banks were selected for the study. The 21 banks comprise of seven (7) international banks and fourteen (14) national banks. The banks were selected because of their national coverage. The total population for the study was two hundred and sixty seven (267). (See table 3.1 for population distribution of the relevant deposit money banks under study). For ease of questionnaire administration and proximity, the regional offices of these selected banks in the state capital were used for the collection of data.

Table 1. Population of the banks understudy

S/N	Names of the Banks	Staff Strength	Percent
1	First Bank	100	38
2	United Bank of Africa (UBA)	69	26
3	Zenith Bank	98	37
Total		267	100

Source: Human Resources Department of the selected Financial Institutions in May, 2026

Sample Size Determination

The whole population was used due to small number

Sampling Technique

Sampling technique refers to the statistical and research means used to arrive at the sample. It is the strategy a researcher adopts in order to arrive at a good representative of the population (Uzoagulu 2011). To determine the sample for the study, the random sampling technique was applied since the population used is a homogenous one.

Instrument for Data Collection

Given the objectives and the nature of the study, the study made use of questionnaire administration. The questionnaires were designed and administered on the selected respondents in the banks in Enugu state, Nigeria.

Validity of the Instrument

The face and content validity of the instrument was censured by giving out copies of the questionnaire to some experts in research in the Department of Business Administration, that reviewed the content items of the questionnaire for clarity of words, contents coverage, relevance, and effectiveness in measuring the variables under study. The researcher also gave other validators some copies and requested them to assist her in using their expertise to validate the instrument regarding its clarity, appropriateness of language used and of instruction to the

respondents. In the end, some of the items were modified, discarded and new ones introduced. Thus, an instrument with better items emerged which the study utilized in collecting the much-needed data for the study.

Reliability of the Instrument

A test method of reliability was adopted for the study in which 10 copies of the questionnaire were distributed to the two (2) selected banks; five copies to each bank. The instrument was administered for the second time after two weeks and the outcome was subjected to consistency test using Chronbach's Alpha Coefficient testing tool.

The formula is as follows:

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	10	100.0
	Excluded	0	0
	Total	10	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	No. of Items
.91	10

Scale reliabilities were calculated using Cronbach's Alpha; the result obtained was 0.91. This shows that the internal consistency of the scale is good for the purpose of this study because it is 0.91 which was good.

Methods of Data Analysis

Data were collected, coded, grouped into frequencies, and arranged into tables for ease of reference. Data from the questionnaire were collected and analyzed using simple percentages and mean. To determine the nature and strength of relationship between the research variables, Z – test was used to test the hypotheses with aid of Special Package for Statistical Software (SPSS). For the 5-point likert scale questions, the scale and decision rule stated below was used in analysing the findings.

Scale

Strongly Agree (SA)	-	5
Agree (A)		4
Neutral (N)	-	3
Disagree (D)	-	2
Strongly Disagree (SD)	-	1

Decision Rule

If Mean > 3.0, the respondents agree

If mean $\leq$ 3.0, the respondents disagree

Z test, Pearson correlation coefficient, (F-statistics), and regression analysis were used to test the hypotheses, determine the nature, and strength of the research variables.

Z –Test

$$Z = \frac{\bar{X} - \mu}{\frac{\sigma}{\sqrt{n}}}$$

Where;

$\bar{X}$ = Population mean

μ = Sample mean

σ = Standard deviation

n = Sample size

Data Presentation and Analyses

In this chapter, data relating to the study were presented, analyzed and interpreted. However, this section commenced with the questionnaire distributed and returned.

Distribution and Return of Questionnaire

Table 2. Distribution and Return of the Questionnaire

Firms	Distributed	No Returned	Percent	No. not Returned	Percent
First Bank	100	95	36	5	2
United Bank of Africa (UBA)	69	62	23	7	3
Zenith Bank	98	95	95	3	1
Total	267	252	94	15	6

Source: Field Survey, 2026

Table 2 indicated that total copies of questionnaire distributed were 267, the number of the questionnaire returned was 252 which constitute 94 percent of the respondents, and the number not returned was 15 representing 6 percent of the respondents. This implies that the number of the questionnaire returned was more than those not returned. Hence the researcher made use of the returned questionnaire for data analyse

Data Presentation

The relationship between online transfer and customer retention of Deposit Money Banks in Enugu State

Table 3. Responses on the relationship between online transfer and customer retention of Deposit Money Banks in Enugu State

		5 SA	4 A	3 N	2 DA	1 SD	ΣFX	- X	SD	Decision
1	Customers value the ease and speed of online transfers, which strengthens their loyalty to the bank	500 100 39.7	164 41 16.3	225 75 29.8	38 19 7.5	17 17 6.7	985 252 100%	3.75	1.243	Agree
2	Secure online banking services, and addressing customer concerns proactively retains the customers	695 139 55.2	164 41 16.3	60 20 7.9	34 17 6.7	35 35 13.9	988 252 100%	3.92	1.467	Agree
3	E-money transfer services contribute to customer satisfaction, which in turn positively impacts customer loyalty and retention	550 110 43.7	164 41 16.3	183 61 24.2	34 17 6.7	23 23 9.1	954 252 100%	3.79	1.316	Agree

4	Customer technology adoption positively influences customer retention.	590	304	60	18	29	1001	3.97	1.316	Agree
		118	76	20	9	29	252			
		46.8	30.2	7.9	3.6	11.3	100%			
5	Customers value the convenience and speed of internet banking, which strengthens their loyalty to the bank	720	196	36	20	37	1009	4.00	1.452	Agree
		144	49	12	10	37	252			
		57.1	19.4	4.8	4.0	14.7	100%			
Total Grand mean and standard deviation								3.886	1.3588	

Source: Field Survey, 2026

In Table 3, 141 respondents out of 252 representing 56.0 percent agreed that Customers value the ease and speed of online transfers, which strengthens their loyalty to the bank with mean score 3.75 and standard deviation of 1.243. Secure online banking services, and addressing customer concerns proactively retains the customers 180 respondents representing 71.5 percent agreed with mean score of 3.92 and standard deviation of 1.467. E-money transfer services contribute to customer satisfaction, which in turn positively impacts customer loyalty and retention 151 respondents representing 60.0 percent agreed with mean score of 3.79 and standard deviation of 1.316. Customer technology adoption positively influences customer retention 194 respondents representing 77.0 percent agreed with mean score of 3.97 and 1.316. Customers value the convenience and speed of internet banking, which strengthens their loyalty to the bank 193 respondents representing 76.5 percent agreed with a mean score of 4.00 and standard deviation 1.452.

The relationship between online bill payments and income generation of Deposit Money Banks in Enugu State
Table 4: Responses on the relationship between online bill payments and income generation of Deposit Money Banks in Enugu State

Banks in Kenya State		5	4	3	2	1	ΣFX	-	SD	Decision
		SA	A	N	DA	SD		X		
1	Online bill payments, facilitate more frequent and convenient transactions, potentially leading to higher interest income	435	336	36	66	36	909	3.61	1.434	Agree
		87	84	12	33	36	252			
		30.5	33.3	4.8	13.1	14.3	100%			
2	Online bill payments increases transaction volume, reducing operational costs, and fostering customer loyalty	485	376	36	12	43	952	3.78	1.422	Agree
		97	94	12	6	43	252			
		38.5	37.3	4.8	2.4	17.1	100%			
3	Electronic banking channels reduce the need for physical branches and staff, leading to lower operational costs for DMBs.	640	396	36	8	9	1089	4.32	.917	Agree
		128	99	12	4	9	252			
		50.8	39.3	4.8	4.8	3.6	100%			
4	Online bill payments make banking services more accessible to a wider population which lead to increased revenue	555	484	21	20	3	1083	4.30	.805	Agree
		111	121	7	10	3	252			
		44.0	48.0	2.8	4.0	1.2	100%			
5	Electronic payment systems streamline processes, reduce errors, which lead to increased efficiency and profitability.	440	444	21	60	13	978	3.93	1.148	Agree
		88	114	7	30	13	252			
		34.9	45.2	2.8	11.9	5.2	100%			
Total Grand mean and standard deviation								3.988	1.1452	

Source: Field Survey, 2023

In Table 4, 171 respondents out of 252 representing 63.8 percent agreed that online bill payments, facilitate more frequent and convenient transactions, potentially leading to higher interest income with mean score 3.61 and standard deviation of 1.434. Online bill payments increases transaction volume, reducing operational costs, and

fostering customer loyalty 191 respondents representing 75.8 percent agreed with mean score of 3.78 and standard deviation of 1.422. Electronic banking channels reduce the need for physical branches and staff, leading to lower operational costs for DMBs 227 respondents representing 60.1 percent agreed with mean score of 4.32 and standard deviation of .917. Online bill payments make banking services more accessible to a wider population which lead to increased revenue 232 respondents representing 92.0 percent agreed with mean score of 4.30 and .805. Electronic payment systems streamline processes, reduce errors, which lead to increased efficiency and profitability 202 respondents representing 801 percent agreed with a mean score of 3.93 and standard deviation 1.148.

Test of Hypotheses

Test of Hypotheses one: Online transfer has relationship with the customer retention of Deposit Money Banks in Enugu State

One-Sample Kolmogorov-Smirnov Test						
		Customers value the ease and speed of online transfers, which strengthens their loyalty to the bank	Secure online banking services, and addressing customer concerns proactively retains the customers	E-money transfer services contribute to customer satisfaction, which in turn positively impacts customer loyalty and retention	Customer technology adoption positively influences customer retention.	Customers value the convenience and speed of internet banking, which strengthens their loyalty to the bank
N		252	252	252	252	252
Uniform Parameters ^{a,b}	Minimum	1	1	1	1	1
	Maximum	5	5	5	5	5
Most Extreme Differences	Absolute	.397	.552	.437	.520	.571
	Positive	.067	.139	.091	.115	.147
	Negative	-.397	-.552	-.437	-.520	-.571
Kolmogorov-Smirnov Z		6.299	8.756	6.929	8.252	9.071
Asymp. Sig. (2-tailed)		.000	.000	.000	.000	.000

a. Test distribution is Uniform.

b. Calculated from data.

Decision Rule

If the calculated Z-value is greater than the critical Z-value (i.e $Z_{cal} > Z_{critical}$), reject the null hypothesis and accept the alternative hypothesis accordingly.

Result

With Kolmogorov-Smirnon Z – value ranges from $6.299 < 9.071$ and on Asymp. Significance of 0.000, the responses from the respondents as display in the table is normally distributed. This affirms the assertion of the most of the respondents that Online transfer had significant positive relationship with the customer retention of Deposit Money Banks in Enugu State

Decision

Furthermore, comparing the calculated Z- value ranges from $6.299 < 9.071$ against the critical Z- value of 0.000 (2-tailed test at 95 percent level of confidence) the null hypothesis were rejected. Thus the alternative hypothesis was accepted which states that Online transfer had significant positive relationship with the customer retention of Deposit Money Banks in Enugu State

Test of Hypotheses Two: Online bill payments has relationship with the income generation of Deposit Money Banks in Enugu State

One-Sample Kolmogorov-Smirnov Test

		Online bill payments, facilitate more frequent and convenient transactions, potentially leading to higher interest income	Online bill payments increases transaction volume, reducing operational costs, and fostering customer loyalty	Electronic banking channels reduce the need for physical branches and staff, leading to lower operational costs for DMBs.	Online bill payments make banking services more accessible to a wider population which lead to increased revenue	Electronic payment systems streamline processes, reduce errors, which lead to increased efficiency and profitability.
N		252	252	252	252	252
Uniform Parameters ^a _b	Minimum	1	1	1	1	1
	Maximum	5	5	5	5	5
Most	Absolute	.429	.508	.651	.671	.552
Extreme	Positive	.143	.171	.036	.012	.052
Differences	Negative	-.429	-.508	-.651	-.671	-.552
Kolmogorov-Smirnov Z		6.803	8.063	10.331	10.646	8.756
Asymp. Sig. (2-tailed)		.000	.000	.000	.000	.000

a. Test distribution is Uniform.

b. Calculated from data.

Decision Rule

If the calculated Z-value is greater than the critical Z-value (i.e $Z_{cal} > Z_{critical}$), reject the null hypothesis and accept the alternative hypothesis accordingly.

Result

With Kolmogorov-Smirnon Z – value ranges from $6.803 < 10.646$ and on Asymp. Significance of 0.000, the responses from the respondents as display in the table is normally distributed. This affirms the assertion of the most of the respondents that Online bill payments had significant positive relationship with the income generation of Deposit Money Banks in Enugu State

Decision

Furthermore, comparing the calculated Z- value ranges from $6.803 < 10.646$ against the critical Z- value of 0.000 (2-tailed test at 95 percent level of confidence) the null hypothesis were rejected. Thus the alternative hypothesis was accepted which states that Online bill payments had significant positive relationship with the income generation of Deposit Money Banks in Enugu State

Discussion of findings

Online transfer had significant positive relationship with the customer retention of Deposit Money Banks in Enugu State

From the result of hypotheses one, the calculated Z- value ranges from $6.299 < 9.071$ against the critical Z- value of 0.000 which implies that online transfer had significant positive relationship with the customer retention of Deposit Money Banks in Enugu State. In the support of the result in the literature review, Kawamoto,et al.,(2023) conducted

a study on Determinants of success of mobile payments as innovations: an exploratory study based on the extant literature, the m-pesa, alipay, and nubank cases, and the opinion of experts. The results suggest that companies with organic and flexible structures, open communication qualities, and decentralized decision processes increase their chances of success. Shaikh, et al., (2023) conducted a study on Mobile money as a driver of digital financial inclusion. The continuous usage of mobile money services by customers encourages more engagement experiences and advocacy intentions. We provide empirical evidence suggesting that mobile money agent credibility and service quality stimulate customer empowerment.

Online bill payments had significant positive relationship with the income generation of Deposit Money Banks in Enugu State

From the result of hypotheses two, the calculated Z- value ranges from $6.803 < 10.646$ against the critical Z- value of 0.000 which implies that online bill payments had significant positive relationship with the income generation of Deposit Money Banks in Enugu State. In the support of the result in the literature review, Ehiedu, et al.,(2023) examined the effect of e-payment system (EPS) on the efficiency of banks in Nigeria. The result of the analysis obtained a P-Value significance of 0.333 which connotes that there is no discernible effect of EPS on the efficiency of banking in Nigeria. Okoro (2023) examined the impact of selected e-payment instruments on the intermediation efficiency of the Nigerian economy. Findings were made: that there was significant relationship between ATM, PoS, Internet service values and the intermediation efficiency of the of Nigerian economy.

Summary of Findings, Conclusion, Recommendations and Contribution to Knowledge

Summary of Findings

Based on the results, the following findings were proffered

- i. Online transfer had significant positive relationship with the customer retention of Deposit Money Banks in Enugu State, $Z(9.071, P. >.05)$.
- ii. Online bill payments had significant positive relationship with the income generation of Deposit Money Banks in Enugu State, $Z(10.646, P. >.05)$.

Conclusion

The study concluded that online transfer and online bill payments had significant positive relationship with the customer retention and income generation of Deposit Money Banks in Enugu State. Digital payment systems have become an integral part of banking in Enugu State, contributing positively to the performance and growth of Deposit Money Banks. While the benefits are evident in terms of increased efficiency, customer reach, and revenue, there remain significant challenges that must be addressed. Continuous investment in digital infrastructure, enhanced cybersecurity, and public education on digital banking will be crucial in ensuring the long-term viability and success of digital financial services in the region.

Recommendations

Based on the findings, the following recommendations were proffered:

- i. Deposit Money Banks in Enugu State should prioritize the improvement of real-time transaction reliability and transparency. By ensuring that online transfers are consistently processed without delays, failures, or errors and by promptly notifying customers with accurate transaction updates banks can build greater trust and satisfaction. This will not only enhance the user experience but also encourage long-term loyalty, as customers are more likely to remain with banks that offer fast, dependable, and transparent digital services.
- ii. Banks should intensify customer education and awareness campaigns on the benefits and security of online bill payment platforms. This includes highlighting the convenience, time-saving aspects, and 24/7 accessibility of online banking, while also addressing security concerns through clear and accessible information.

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