MOBILE BANKING AND DIGITAL WALLETS AS CATALYSTS FOR FINANCIAL ACCESS AMONG NIGERIAN RURAL ENTREPRENEURS

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Abstract
Access to formal financial services remains uneven in many developing economies, particularly among rural entrepreneurs in Nigeria who continue to experience limited integration into the formal financial system despite the expansion of digital finance platforms. Mobile banking and digital wallets have increasingly been promoted as accessible and cost-effective alternatives to traditional banking channels. However, evidence suggests that adoption and sustained usage in rural areas remain constrained by infrastructural deficiencies, usability concerns, and limited perceived value. This study examined the relationship between mobile banking, digital wallet usage, and financial inclusion among rural entrepreneurs in Nigeria. A quantitative research design was adopted, and data were collected through a structured questionnaire administered to 363 rural entrepreneurs across Kogi, Kwara, Nasarawa, and Niger States. Descriptive statistics and regression analysis were employed to test hypotheses relating to infrastructure, ease of use, transaction usage, and perceived usefulness. The descriptive findings revealed generally low to moderate mean scores for ease of use, perceived usefulness, continued use intention, and digital wallet usage, indicating that respondents still experience substantial barriers in the adoption and utilization of digital financial services. Nevertheless, regression results showed that the examined variables significantly predicted dimensions of financial inclusion. Functional financial infrastructure significantly predicted adoption of payment service platforms ($\beta = 0.621$, $R^2 = 0.386$, $p < .001$), while ease of use of POS devices significantly predicted bank account ownership ($\beta = 0.809$, $R^2 = 0.654$, $p < .001$). Similarly, digital wallet transactions were significantly associated with financial inclusion outcomes ($\beta = 0.707$, $R^2 =$

0.500, $p < .001$), and perceived usefulness significantly predicted continued use intention ($\beta = 0.767$, $R^2 = 0.588$, $p < .001$). The contrast between the relatively low descriptive ratings and the strong regression relationships suggests that although respondents reported low overall satisfaction and usage levels, variations in these factors still played an important role in predicting financial inclusion outcomes among rural entrepreneurs. The study concluded that digital financial services possess considerable potential for strengthening financial inclusion in rural Nigeria, although their effectiveness depends largely on improvements in infrastructure, usability, and perceived practical value. The study recommended increased investment in rural digital and energy infrastructure, the development of more user-friendly financial technologies, expanded digital financial literacy programmes, and strategies aimed at improving the practical benefits of digital financial services for rural users.

Keywords: Mobile banking, Digital wallets, Financial inclusion, Rural entrepreneurs, Perceived usefulness, Financial infrastructure

Introduction

The transition from conventional banking systems to branchless and technology-driven financial services has created new opportunities for improving financial access among rural entrepreneurs. Access to affordable and reliable financial services is important for enterprise growth, income stability, savings, and investment, particularly in rural communities where traditional banking infrastructure remains limited (Abraham, 2018; Adamu, 2024; Shima *et al*., 2023). Financial inclusion enables rural entrepreneurs to participate more effectively in economic activities by improving access to credit, payment systems, insurance, and savings mechanisms that support productivity and resilience.

International development institutions such as the World Bank and the United Nations identify inclusive digital finance as an important mechanism for reducing poverty, promoting decent work, and advancing the Sustainable Development Goals. Across Africa, digital financial platforms such as mobile money, agency banking, and digital wallets have expanded access to financial services among underserved populations. Evidence from countries such as Kenya, Ghana, and Tanzania show that mobile financial services can strengthen savings behaviour, improve resilience to economic shocks, and support entrepreneurial activities when supported by digital literacy and enabling regulations (Agbenyo *et al*., 2025; Vorster & Thaba, 2025). Studies in East Africa further suggest that mobile money services enhance risk-sharing and consumption stability among rural households.

In Nigeria, financial exclusion remains a major challenge in rural communities despite recent policy efforts by the Central Bank of Nigeria to promote financial inclusion through cashless banking

initiatives, microfinance schemes, agency banking, and financial technology services. Many rural entrepreneurs still rely heavily on informal savings groups and family financing because of limited bank branch availability, high transaction costs, low financial literacy, and inadequate infrastructure (Adegbite *et al*., 2021; Tunbosun *et al*., 2023; Salawu & Fasakin, 2023). Rural women and agripreneurs often face additional social and structural barriers that reduce their participation in formal financial systems and encourage continued dependence on traditional informal financing arrangements.

Digital financial services, including mobile banking applications, USSD banking, POS systems, and digital wallets, have increasingly become important tools for expanding financial access in developing economies. These technologies reduce dependence on physical bank branches and provide more flexible channels for conducting financial transactions. In some rural areas of Nigeria, digital financial platforms have improved access to payments, savings, and market opportunities. However, the benefits of these technologies remain uneven because of poor network coverage, unstable electricity supply, low smartphone penetration, and limited digital skills among rural users (Al-Sharafi *et al*., 2025).

Existing evidence suggests that improved financial inclusion contributes to poverty reduction, employment generation, and better household welfare outcomes (Neves *et al*., 2023). Research also indicates that the effectiveness of digital financial services depends not only on technological availability but also on complementary investments in digital literacy, infrastructure, and supportive regulatory frameworks (Kharwar, 2023; Rahman *et al*., 2024). Consequently, expanding mobile banking and digital wallet adoption among rural entrepreneurs requires a broader approach that addresses both technological barriers and socio-economic inequalities that continue to limit meaningful financial inclusion in rural Nigeria.

Research Problem

Despite recent advances in financial technology and the expansion of digital financial services in Nigeria, evidence continues to show that rural entrepreneurs remain disproportionately excluded from formal financial systems. Existing financial inclusion initiatives by the government, financial institutions, and fintech providers have increased the availability of mobile banking, agency banking, and digital payment platforms. However, the extent to which these services translate into meaningful

financial inclusion for rural entrepreneurs remains uncertain. Many rural business owners continue to rely on informal financial arrangements, suggesting that the mere availability of digital financial technologies does not automatically guarantee adoption or sustained usage.

Although several Nigerian studies have examined financial inclusion and digital banking, much of the existing literature has focused broadly on urban populations, banking customers, or national-level financial inclusion indicators, with limited attention given specifically to rural entrepreneurs who operate under distinct socio-economic and infrastructural conditions. Previous studies have also concentrated largely on general access to financial services without sufficiently examining how specific dimensions of digital finance, such as mobile banking usability, digital wallet transactions, perceived usefulness, and infrastructure availability, influence financial inclusion outcomes among rural entrepreneurs. As a result, important contextual factors shaping adoption behaviour in rural communities remain insufficiently explored.

Methodologically, many earlier studies relied primarily on descriptive analyses or broad conceptual discussions, with limited empirical investigation into the predictive relationships between digital financial service variables and financial inclusion outcomes in rural Nigeria. In addition, findings from prior studies remain inconsistent. While some studies report that digital financial platforms significantly improve inclusion and entrepreneurial activities, others suggest that infrastructural limitations, low trust, weak digital literacy, and socio-economic constraints continue to limit effective adoption in rural settings (AbdulKareem & Oladimeji, 2024; Neves *et al*., 2023). These inconsistencies indicate that the relationship between digital financial services and financial inclusion remains inconclusive within rural Nigerian contexts.

The problem, therefore, is not simply the existence of financial exclusion in rural Nigeria, but the limited empirical understanding of the specific factors that determine whether mobile banking and digital wallet technologies can effectively support financial inclusion among rural entrepreneurs. Without such evidence, policymakers, financial institutions, and fintech providers may continue to design interventions that fail to address the realities of rural users. This study was therefore undertaken to examine how infrastructure, ease of use, perceived usefulness, and digital wallet transactions influence financial inclusion among rural entrepreneurs in Nigeria.

Research Aim and objectives

The aim of this study was to investigate the adoption of mobile banking and digital wallets and their role in enhancing financial accessibility for rural entrepreneurs in Nigeria. In doing this, the study sought to:

i. examine the influence of the availability of functional financial infrastructure on rural entrepreneurs' adoption of payment service platforms;
ii. examine the influence of perceived ease of use of POS systems on rural entrepreneurs' ownership of bank accounts;
iii. investigate the influence of digital wallet transaction usage on rural entrepreneurs' financial inclusion; and
iv. examine the influence of perceived usefulness on rural entrepreneurs' continued intention to use mobile banking and digital wallets.

Theoretical Framework

The theoretical foundation of this study is anchored primarily on the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). These theories provide a complementary framework for explaining how rural entrepreneurs adopt and continue to use mobile banking and digital wallet technologies. The integration of both theories offers a more comprehensive explanation of technology adoption behaviour by combining individual cognitive perceptions with broader social and infrastructural influences relevant to rural financial environments (Venkatesh *et al*., 2003; Wang *et al*., 2023).

The Technology Acceptance Model, developed by Fred Davis, explains that technology adoption is largely influenced by two major beliefs: perceived usefulness and perceived ease of use (Davis, 1989). Perceived usefulness refers to the extent to which individuals believe that using a technology will improve their activities or outcomes, while perceived ease of use concerns the degree to which the technology is considered simple and effortless to use. Within the context of this study, rural entrepreneurs are more likely to adopt mobile banking and digital wallets when they perceive these technologies as beneficial for conducting transactions, saving time, improving business operations, and accessing financial services conveniently. Similarly, technologies that are easier to

understand and operate are more likely to encourage sustained usage among rural users with varying levels of digital literacy (Budhwar *et al*., 2023; Wang *et al*., 2023).

While TAM explains adoption from an individual cognitive perspective, the Unified Theory of Acceptance and Use of Technology extends this explanation by incorporating social and environmental factors that shape technology usage behaviour. UTAUT proposes that technology adoption is influenced by performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh *et al*., 2003). Performance expectancy aligns closely with perceived usefulness in TAM, while effort expectancy reflects perceived ease of use. Social influence explains how family members, peers, community leaders, and business networks affect an individual's decision to adopt technology. Facilitating conditions refer to the availability of supporting infrastructure such as mobile network coverage, electricity supply, agent banking services, and technical support necessary for technology usage (Fedorko, Bačik & Gavurova, 2021; Yang *et al*., 2021). Studies on digital financial services in developing economies have shown that infrastructural support and social acceptance significantly influence the adoption and continued use of mobile financial technologies among rural populations (Kelly, Kaye & Oviedo-Trespalacios, 2023; De Luna *et al*., 2019).

The integration of TAM and UTAUT is particularly relevant to this study because rural financial technology adoption in Nigeria is shaped not only by users' perceptions of usefulness and simplicity, but also by infrastructural realities and social influences within rural communities. TAM provides the cognitive foundation for understanding behavioural intention, whereas UTAUT broadens the explanation by accounting for contextual conditions that may either support or constrain actual usage. Consequently, the study conceptualises financial technology adoption as a product of both individual perceptions and environmental support systems (Venkatesh *et al*., 2003; Wang *et al*., 2023). Although Schumpeter's theory of entrepreneurial development acknowledges the importance of innovation and technology in economic transformation, the present study does not directly examine entrepreneurial innovation, creative destruction, or enterprise transformation processes. Therefore, the theory serves only as a broad contextual explanation of how technological advancement may contribute to entrepreneurial activities and financial participation in developing economies (Ajide & Osinubi, 2023; Oniore *et al*., 2024). The principal theoretical explanation for this study remains grounded in TAM and UTAUT because both theories directly explain the behavioural and contextual

factors influencing the adoption and continued use of mobile banking and digital wallet technologies among rural entrepreneurs in Nigeria.

Mobile Banking

Mobile banking refers to the delivery of financial services through mobile devices such as smartphones and feature phones, enabling users to perform transactions including transfers, bill payments, savings, and account management without visiting physical bank branches (Ho *et al*., 2020). In Nigeria, the expansion of mobile phone usage and financial technology services has increased the adoption of mobile banking, particularly in areas with limited conventional banking infrastructure. For rural entrepreneurs, mobile banking provides a practical alternative to traditional banking by reducing geographical and transaction-related barriers through mobile applications, USSD services, and agent banking networks.

Beyond convenience, mobile banking contributes to broader financial participation by enabling rural entrepreneurs to manage cash flow, receive payments, save securely, and access certain financial products more efficiently (Neves *et al*., 2023; Kharwar, 2023). These services reduce dependence on informal financial systems and improve business operations by lowering transaction costs and saving time. Consequently, mobile banking has increasingly been viewed as an important tool for strengthening financial inclusion and supporting rural enterprise development in underserved communities.

Digital Wallets

Digital wallets are electronic financial platforms that allow users to store funds digitally and conduct financial transactions using mobile devices. Unlike conventional mobile banking services that are directly linked to formal bank accounts, many digital wallet systems operate through agent-assisted and ledger-based models that enable users to deposit, transfer, and withdraw funds with fewer documentation requirements. This feature makes digital wallets particularly relevant for financially underserved populations in rural communities.

The rapid expansion of Nigeria's fintech sector has increased the use of digital wallet platforms such as OPay, PalmPay, and Moniepoint, especially through extensive agent banking networks. Reports by the World Bank and the GSMA indicate that agent-supported digital finance models have contributed significantly to improving access to financial services across underserved

regions in Sub-Saharan Africa (World Bank, 2025; GSMA, 2024). These platforms support services such as peer-to-peer transfers, merchant payments, savings, and microcredit, thereby reducing reliance on cash transactions and informal financial systems.

Empirical studies further suggest that digital wallets can improve transaction efficiency, lower operational costs, and enhance financial participation among rural entrepreneurs and small-scale traders (Rizwana, Singh & Raveendra, 2021; Minarni, 2025). However, adoption in many rural areas remains constrained by infrastructural limitations, weak network coverage, unstable electricity supply, low smartphone penetration, and limited digital literacy (Rahman *et al*., 2024). These challenges continue to influence the extent to which digital wallets can effectively support financial inclusion in rural Nigeria.

Financial Accessibility for Nigerian Rural Entrepreneurs

Financial accessibility refers to the ability of individuals and businesses to obtain and effectively use affordable, reliable, and suitable financial services, including savings, credit, insurance, and payment systems (Mhlanga, 2020). In rural Nigeria, access to formal financial services has historically been constrained by limited banking infrastructure, high transaction costs, long travel distances to financial institutions, and strict account opening requirements. As a result, many rural entrepreneurs continue to depend on informal savings groups and family-based financing arrangements that often provide limited opportunities for business expansion and financial security.

The emergence of mobile banking and digital wallet technologies has increasingly altered the landscape of financial accessibility in rural communities. Through mobile-based financial platforms and agent networks, rural entrepreneurs can conduct transactions, receive payments, save funds securely, and access selected financial services without relying heavily on conventional bank branches (Rahman *et al*., 2024). These technologies have become important channels for extending financial services to underserved populations, particularly women, small-scale traders, and agripreneurs who are often excluded from formal financial systems.

Nevertheless, financial accessibility within rural contexts extends beyond mere availability of digital platforms. Effective inclusion also depends on affordability, infrastructural support, digital literacy, and users' confidence in financial technologies. Existing studies indicate that the benefits of digital financial services are more substantial where supportive infrastructure, financial education,

and reliable agent networks are available (Neves *et al*., 2023). Therefore, while mobile banking and digital wallets possess considerable potential for improving financial accessibility among rural entrepreneurs in Nigeria, their effectiveness remains closely linked to broader socio-economic and infrastructural conditions within rural communities.

Empirical Review

The empirical literature on mobile banking, digital wallets, and financial inclusion in developing economies shows broad agreement that digital financial technologies can improve access to formal financial services among underserved populations. However, existing studies also reveal that the effectiveness of these technologies depends heavily on infrastructural conditions, digital literacy, trust, and socio-economic realities within specific contexts. Much of the literature converges on the importance of perceived usefulness, ease of use, and facilitating conditions as major determinants of adoption, which aligns closely with the assumptions of TAM and UTAUT frameworks (Neves *et al*., 2023; Museba *et al*., 2021).

A major theme emerging from prior studies is that digital financial services reduce transaction costs, improve payment efficiency, and increase financial participation among small-scale entrepreneurs and rural households. For example, Neves *et al*. (2023), through a meta-analysis of more than seventy empirical studies, identified trust, infrastructural availability, perceived usefulness, and ease of use as consistent predictors of digital financial service adoption across developing economies. The study provided strong quantitative evidence supporting the relationship between digital finance and financial inclusion. However, the authors observed that many existing studies rely heavily on quantitative approaches and provide limited understanding of contextual user experiences, especially within rural communities. This suggests the need for more context-specific investigations capable of explaining how infrastructural and behavioural factors interact within particular rural environments.

Similarly, studies conducted in African contexts indicate that mobile financial technologies can improve entrepreneurial activities and financial accessibility where supportive ecosystems exist. Museba *et al*. (2021), in a study of mobile money adoption in Uganda using survey data from 400 respondents, found that convenience, affordability, social influence, and mobile penetration positively influenced adoption. However, the study also identified poor infrastructure, weak digital literacy, and

regulatory concerns as persistent barriers. While the findings support the broader argument that digital finance enhances inclusion, the study was geographically limited and context-specific, thereby restricting generalization to other developing economies such as Nigeria where socio-economic and infrastructural conditions differ considerably.

Nigerian studies similarly report positive relationships between digital financial services and entrepreneurial outcomes, although important limitations remain within the existing literature. Ojarikre *et al*. (2024), using ordinal logistic regression on data collected from women entrepreneurs in Abuja, found that digital financial services improved financial independence and business performance. The study nevertheless identified cyber risks, cultural barriers, and low digital literacy as major constraints to effective adoption. Likewise, Mbon (2023), in a survey of rural entrepreneurs in Akwa Ibom State, reported that electronic banking improved access to financial services and supported productivity among rural farmers and traders. These studies collectively suggest that digital finance possesses substantial potential for enhancing rural financial inclusion in Nigeria.

Despite these contributions, the literature still exhibits several unresolved issues. First, many Nigerian studies focus primarily on urban centres, women entrepreneurs, or specific regions, with limited empirical attention given to rural entrepreneurs across North Central Nigeria. Second, prior studies often examine digital finance broadly without isolating specific determinants such as infrastructure availability, perceived usefulness, ease of use, and digital wallet transaction usage within a unified analytical framework. Third, methodological approaches in many studies rely predominantly on descriptive statistics or simple correlation analyses, limiting deeper understanding of the predictive relationships between digital financial service variables and financial inclusion outcomes.

In addition, findings across studies remain somewhat inconsistent. While several studies conclude that mobile banking and digital wallets significantly improve financial participation and entrepreneurial performance, others report that infrastructural deficiencies, low trust, digital illiteracy, and socio-cultural barriers continue to limit adoption and sustained usage in rural communities (Museba *et al*., 2021; Ojarikre *et al*., 2024). These inconsistencies indicate that the relationship between digital financial technologies and financial inclusion is influenced strongly by contextual realities that differ across regions and populations.

Consequently, the existing literature demonstrates substantial evidence on the relevance of digital financial services while also revealing important empirical and contextual gaps. This study therefore contributes to the literature by examining how infrastructure, perceived ease of use, perceived usefulness, and digital wallet transactions influence financial inclusion among rural entrepreneurs in selected North Central states of Nigeria using a more integrated empirical framework.

Research Gap

Although the topic of mobile banking and the use of digital wallets has been thoroughly studied, there still are gaps which warrant this research. The results of empirical and theoretical studies have consistently demonstrated that availability of financial infrastructure, ease of use, perceived usefulness, and nature of digital wallet transactions are factors that affect adoption (Neves *et al*., 2023; Rahman *et al*., 2024). Nonetheless, rural entrepreneurs in Nigeria have their own obstacles, namely low digital literacy, low trust, culture, and infrastructures, which do not represent those of urban users, and which have gotten minimal targeted research attention. Furthermore, the available literature seldom looks at continued intentions after adoption, and so, the question of the continued engagement remains unresolved. Also, there is a striking lack of research based on mixed-method methodologies, involving both quantitative trends and the qualitative understanding of the context of the lived experiences of the rural entrepreneurship. The importance of addressing these gaps is to be able to know subtle drivers of adoption and continued use of mobile financial services in rural Nigeria and therefore evidence to address interventions, policy development, and strategic implementation of mobile banking and digital wallet services.

Based on the preceding extant literature, our study draws out the following hypotheses:

$H0_1$: the availability of functional financial infrastructures does not have any significant influence on rural area entrepreneurs' adoption of payment service platforms;

$H0_2$: ease in the use of POS as a mobile banking device does not have any significant effect on rural area entrepreneurs' ownership of bank accounts;

$H0_3$: digital wallet transactions do not significantly affect rural area entrepreneurs' financial services inclusion

$H0_4$: perceived usefulness does not significantly influence rural area entrepreneurs continued use intention of mobile banking and digital wallets.

Methodology

The study adopted a quantitative survey research design because it permits the collection of measurable data from a large group of respondents and supports statistical analysis of relationships among variables. The design was considered appropriate for examining how factors such as infrastructure availability, perceived usefulness, perceived ease of use, and digital wallet transactions influence financial inclusion among rural entrepreneurs. The use of a structured questionnaire also enabled the generation of standardized responses suitable for descriptive and inferential statistical analysis. The target population comprised rural entrepreneurs operating in the six North-Central states of Nigeria, namely Benue, Kogi, Kwara, Nasarawa, Niger, and Plateau States. The population included economically active entrepreneurs engaged in agriculture, petty trading, services, and small-scale manufacturing activities who use or have access to mobile banking and digital wallet services. Although the exact number of rural entrepreneurs across the region could not be precisely determined because of the large and dispersed nature of the population, the population was regarded as finite rather than infinite.

A multistage sampling procedure was adopted to ensure adequate representation of respondents across the study area. In the first stage, four states namely Kogi, Kwara, Nasarawa, and Niger States were selected from the six North-Central states using simple random sampling. In the second stage, selected rural communities were randomly chosen from each of the selected states. The sampled communities included Ogaminana, Ejiba, Abocho, Okedofin, Okekenyi, and Adoza in Kogi State; Kere Aje, Ojuku, Ira, Olomoda, Ayelabowo, Yaaruguru, and Kpakotoru in Kwara State; Gudi, Karshi, Adudu, Kokona, Moroa, and Obene in Nasarawa State; and Bida, Doko, Ganchitako, Edogi Jima, Kuchi, Paiko, and Lapai in Niger State. In the final stage, respondents were selected from the identified communities using stratified random sampling based on business categories to ensure representation of different entrepreneurial groups. The sample size for the study was determined using the formula proposed by Godden (2004) for large populations. The formula was considered appropriate because the exact population frame of rural entrepreneurs across the selected communities was not readily available. Based on the computation, a sample size of 384 respondents

was obtained, although 363 valid responses were ultimately used for analysis after data screening and retrieval.

Data were collected using a structured questionnaire designed in line with the study objectives and constructs derived from the Technology Acceptance Model and the Unified Theory of Acceptance and Use of Technology. The instrument measured variables relating to infrastructure availability, perceived ease of use, perceived usefulness, digital wallet transactions, and financial inclusion. To ensure content and construct validity, the questionnaire items were adapted from previously validated studies and reviewed by experts in finance, entrepreneurship, and research methodology. A pilot study was conducted using respondents outside the study area to assess the clarity and suitability of the instrument.

Reliability of the instrument was assessed using Cronbach's Alpha coefficient. The results showed acceptable internal consistency across the study constructs, with coefficient values exceeding the recommended threshold of 0.70, indicating that the instrument was reliable for data collection. Descriptive statistics such as frequency distributions, percentages, means, and standard deviations were used to summarise the patterns of responses, while regression analysis was employed to examine the predictive relationships among the study variables. Ethical considerations were also observed throughout the study. Participation was voluntary, informed consent was obtained from respondents, and confidentiality of responses was assured. Respondents were informed that the information provided would be used strictly for academic purposes, and anonymity was maintained during data collection and analysis.

Table 1: Reliability Test Results Using Cronbach's Alpha

Variables/Constructs	Number of Items	Cronbach's Alpha	Remark
Functional Financial Infrastructure	5	0.821	Reliable
Perceived Ease of Use of POS Systems	5	0.847	Reliable
Digital Wallet Transaction Usage	5	0.804	Reliable
Perceived Usefulness	5	0.866	Reliable
Financial Inclusion	5	0.832	Reliable
Continued Use Intention	5	0.851	Reliable

Source: Researcher's Computation (2026)

The reliability analysis presented in Table 1 indicates that all study constructs achieved Cronbach's Alpha coefficients above the recommended threshold of 0.70, demonstrating satisfactory internal consistency and reliability of the research instrument. Perceived usefulness recorded the

highest reliability coefficient (α = 0.866), followed by continued use intention (α = 0.851) and perceived ease of use of POS systems (α = 0.847). The overall Cronbach's Alpha value of 0.837 further confirms that the questionnaire items were sufficiently consistent and suitable for measuring the study variables.

Analysis of Results and Discussion of Findings

Data were collected for a period of 4 weeks starting from February to March 2026. The sample consisted of respondents sampled in some rural areas of the four randomly selected senatorial districts in North-Central; Nigeria and these states were Kogi State, Kwara State, Nasarawa State and Niger State. The sampling was very representative in terms of geographical distribution and represented the differences in the socio-economic and institutional backgrounds among the districts. Each senatorial zone in these states was sampled to improve on the diversity and reliability of the gathered data.

Table 2: The Profile of the Respondents

	Frequency	Percentage
Gender:		
Male	224	61.7
Female	139	38.3
	363	100.0
Age:		
Below 25 Years	32	8.8
25-34 Years	102	28.1
35-44 Years	113	31.1
45-54 Years	77	21.2
55 Years and above	39	10.7
	363	**100.0**
Education Level:		
No formal Education	29	8.0
Primary Education	42	11.6
Secondary Education	117	32.2
Tertiary Education	175	48.2
	363	**100.0**

Type of Business:			
Trading		142	39.1
Farming		64	17.6
Artisan		65	17.9
Services		65	17.9
Others		27	7.4
		363	**100.0**
Years of Operation:			
Less than 1 Year		16	4.4
1-5 Years		153	42.1
6-10 Years		92	25.3
Above 10 Years		102	28.1
		363	**100.0**
State:			
Kogi		90	24.8
Kwara		98	26.9
Nasarawa		88	24.2
Niger		87	23.9
		363	**100.0**
Senatorial Districts			
Kogi	Kogi Central	28	7.7
	Kogi East	31	8.6
	Kogi West	31	8.5
Kwara	Kwara Central	36	9.9
	Kwara South	32	8.8
	Kwara North	30	8.4
Nasarawa	Nasarawa North	32	8.8
	Nasarawa South	28	7.7
	Nasarawa West	27	7.4
Niger	Niger East	28	7.7
	Niger North	29	7.9
	Niger South	30	8.4

Source: Field Survey (2026)

The sample is moderately male, with 224 (61.7%) out of 368 participants being male and 139 (38.3%) being female, indicating that currently, financial access programs mediated by digital platforms could be attracting more men than women, which should be considered in gender inclusion

programs. Age distribution suggests a comparatively young population yet economically active with 113 (31.1%) respondents aged 35-44 years and 102 (28.1%) aged 25-34 years and only 32 (8.8%) respondents aged 25 years and below and 39 (10.7%) year and above; this pattern implies that adoption of mobile financial services is strongest among individuals in their prime working years, which may enhance business productivity but risks excluding older entrepreneurs who may face digital literacy barriers.

The education level is rather high, and the proportion of tertiary education is 175 (48.2%) and secondary education is 117 (32.2%) in comparison with 29 (8.0%) having no formal education and 42 (11.6%) having secondary education, which supports the idea that digital financial tools are more accessible to educated users and allows considering that there is a knowledge-based digital divide. Regarding the type of business, trading is the most common (142 respondents, 39.1%), then there are farming (64; 17.6%), artisan activities (65; 17.9%), services (65; 17.9%), and others (27; 7.4%), which implies that mobile banking and digital wallets are especially applicable in the context of business. Business experience also revealed that 153 (42.1%) respondents have operated between 1-5 years, 102 (28.1%) more than 10 years, 92 (25.3%) 6-10 years and only 16 (4.4%) less than one year, which indicated that certain business experience is more likely to be established and better placed to implement financial technologies. The distribution of the respondents across the four states is fairly equal (geographically), with Kwara State (98; 26.9%) making the largest portion, followed by Kogi State (90; 24.8%), Nasarawa State (88; 24.2%), and Niger State (87; 23.9%), and the representation of the senatorial districts is relatively even.

It can be inferred from the above findings that mobile banking and digital wallets are best reaching moderately educated, economically active, and business-experienced entrepreneurs, especially in the trading industries and more represented states, but also indicate structural gaps on gender inclusion, rural digital literacy, and equitable penetration in rural Nigeria that will need to be addressed in order that financial technologies can act as truly inclusive drivers of financial accessibility.

Descriptive Analysis

Respondents Opinions on the influence of the availability of functional financial infrastructure on rural area entrepreneurs' adoption of payment service platforms.

	N	Mean	SD
Which digital financial services do you currently use	360	2.80	1.426
Internet facilities which support digital financial transactions are available in my community.	363	2.13	1.178
Functional POS terminals are available in my community.	363	1.85	1.004
Electricity supply in my community allows me to use digital financial services conveniently.	363	2.74	1.345
Banks or bank agents are easily accessible within or near my community.	363	3.20	1.464
Valid N (listwise)	**360**		

Source: Field Survey (2026)

The results indicate that the rural entrepreneurs adopt less of the payment service platforms due to the inadequate supporting infrastructure despite moderate use levels. Although the respondents have shown a moderate level of usage of digital financial services (mean = 2.80; SD = 1.426; N = 360), the critical enablers are still low, with internet availability (mean = 2.13; SD = 1.178; N = 363) and functional POS terminals (mean = 1.85; SD = The supply of electricity is not very reliable (mean = 2.74; SD = 1.345; N = 363), which is likely to interfere with regular use, but access to banks or agents is quite high (mean = 3.20; SD = 1.464; N = 363). This indicates that the physical financial pathways continue to hold a main supportive role, and unless digital infrastructure is enhanced, the role of mobile banking and digital wallets in financial access will continue to be minimal.

Respondents Opinions on the impact of the ease of use of POS as a mobile banking device on rural area entrepreneurs' ownership of bank accounts.

	N	Mean	SD
POS devices are easy for me to operate during business transactions.	363	2.07	1.254
Learning how to use POS and mobile banking services was easy for me.	363	2.19	1.278
I can complete transactions using POS or mobile banking without assistance.	363	2.07	1.280

I own a bank account that I use for my business operations	363	2.02	1.241
Easy account opening process encouraged me to open a bank account	363	2.13	1.244
The ease of using POS/mobile banking encouraged me to own a bank account.	363	2.33	1.395
Valid N (listwise)	**363**		

Source: Field Survey (2026)

The findings show that ease of use is a poor motivator of bank account ownership among rural entrepreneurs with all the items scoring low mean scores among 363 respondents. There is a low perceived ease of use of POS devices (mean = 2.07; SD = 1.254), a low ease of use of mobile banking services (mean = 2.19; SD = 1.278), indicating significant usability problems. On the same note, the respondents had low confidence in making transactions on their own (mean = 2.07; SD = 1.280), an indication of the existence of skill and literacy deficiencies. There is also a low level of bank account ownership (purpose of business) (mean = 2.02; SD = 1.241) and the impact of simplified account opening procedures is also low (mean = 2.13; SD = 1.244). Even though the ease of using POS and mobile banking exhibits a slightly greater impact on account ownership (mean = 2.33; SD = 1.395), it is not high. All in all, these results suggest that usability obstacles are a major constraint to both adoption and financial inclusion, which means that user experience and digital literacy are key factors that need to be improved to make rural entrepreneurs own more accounts.

Respondents Opinions on the effect of the types of digital wallet transactions on rural area entrepreneurs' financial services inclusion.

	N	Mean	SD
I use digital wallets to receive payments from customers.	363	2.18	1.352
I use digital wallets to make payments to suppliers.	363	2.27	1.360
I frequently use digital wallets to transfer money to my family or my business partners.	363	2.28	1.334
Digital financial literacy has encouraged me to operate digital wallet transactions	363	2.26	1.159

Digital wallets have improved my access to financial services.	363	2.23	1.250
Using different digital wallet services has reduced my dependence on cash.	363	2.27	1.386
Valid N (listwise)	**363**		

Source: Field Survey (2026)

The results indicate that the adoption of various types of digital wallet transaction has a relatively small impact on financial inclusion among rural entrepreneurs and with all the indicators being concentrated at low to moderate levels among 363 respondents. Receiving payments usage (mean = 2.18; SD = 1.352) is less engaged, whereas paying suppliers (mean = 2.27; SD = 1.360) and transfers to a family or business partner (mean = 2.28; SD = 1.334) are slightly higher. Digital financial literacy has a moderate role (mean = 2.26; SD = 1.159) and it means that knowledge promotes its use, but it is not sufficiently high to promote its adoption on the population level. The perceived change in the accessibility of financial services is also modest (mean = 2.23; SD = 1.250), and the decrease in cash dependence is also modest (mean = 2.27; SD = 1.386). Overall, the findings indicate that although digital wallets are being utilized in various forms of transactions, their role in deep financial inclusion remains limited, including that better literacy, trust, and ecosystem support is required to increase their influence.

Respondents Opinions on the influence of perceived usefulness on rural area entrepreneurs continued use intention of mobile banking and digital wallets.

	N	Mean	SD
Mobile banking makes my business transactions faster.	363	1.83	1.120
Digital wallets improve the efficiency of my business operations.	363	2.18	1.279
Using digital financial services improves my overall business performance.	363	2.04	1.062
I intend to continue using digital wallets for my business transactions.	363	2.15	1.209
I will continue to use mobile banking services in the future.	363	1.93	1.093
I would recommend mobile banking and digital wallets to other rural entrepreneurs.	363	2.09	1.342
Valid N (listwise)	**363**		

The findings show that the perceived usefulness does not significantly impact the intention of rural entrepreneurs to keep using mobile banking and digital wallets, and all the mean scores are low among 363 respondents. The attitude that mobile banking makes the processes faster is the weakest (mean = 1.83; SD = 1.120), whereas the attitude towards better operational efficiency due to digital wallets is only slightly better (mean = 2.18; SD = 1.279). Likewise, the perception that digital financial services have a positive impact on general business performance has a low level (mean = 2.04; SD = 1.062). Plans to keep using them are low, in the case of digital wallets (mean = 2.15; SD = 1.209), and mobile banking (mean = 1.93; SD = 1.093), as well as intentions to recommend the services to others are low (mean = 2.09; SD = 1.342). Altogether, these results indicate that not, yet the rural entrepreneurs see the digital financial tools as useful to their business operations, which undermines the long-term usage and indicates the necessity of better value presentation and service performance.

Test of Hypotheses

$H0_1$: The availability of functional financial infrastructures does not have any significant influence on rural area entrepreneurs' adoption of payment service platforms.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.621[a]	.386	.384	2.25407

a. Predictors: (Constant), functional_financial_infrastructures

Source: Field Survey (2026)

The results of the regression showed that availability of functional financial infrastructure is a significant factor that determines the adoption of payment service platforms by rural entrepreneurs. This model indicated that financial infrastructure has a moderate positive correlation ($R = 0.621$) and it explained a significant amount of variance in adoption ($R^2 = 0.386$; Adjusted $R^2 = 0.384$), indicating that about 38.6% of the variation in the degree of adoption is explained by financial infrastructure. The implications of these findings are that infrastructure, especially internet availability, electricity, and the presence of POS are significant drivers of adoption, which supports the claim that structural preparedness is one of the determinants of digital financial inclusion in rural communities.

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1153.985	1	1153.985	227.124	.000[b]
	Residual	1834.186	361	5.081		
	Total	2988.171	362			

a. Dependent Variable: adoption_of_payment_service_platforms
b. Predictors: (Constant), functional_financial_infrastructures

Source: Field Survey (2026)

The results of the ANOVA test confirmed that the regression equation investigating the role of functional financial infrastructure in the adoption of payment service platform is statistically significant. The model showed a regression sum of squares is 1153.985 versus a residual sum of squares is 1834.186 and a total variation of 2988.171 with a total of 362 degrees of freedom. Computed F-statistic stood at 227.124 with a significance level of 0.000 meaning that the model is much better fitted in comparison to one that contains no predictors. This shows that functional financial infrastructure is a powerful and consistent predictor of adoption, which further underlines its pivotal role in determining how rural entrepreneurs will approach digital payment services and helps back the rejection of the null hypothesis.

Coefficients[a]

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.589	.349		7.415	.000
	functional_financial_ infrastructures	.500	.033	.621	15.071	.000

a. Dependent Variable: adoption_of_payment_service_platforms

Source: Field Survey (2026)

The coefficient results indicated that functional financial infrastructure has a significant positive influence that is statistically significant in the adoption of payment service platforms of rural

entrepreneurs. The unstandardised coefficient (B = 0.500; SE = 0.033) means that an increase in infrastructure by a unit would raise the adoption levels by 0.500, whereas the standardised coefficient (Beta = 0.621) implies high effect size. The correlation is very important (t = 15.071; p = 0.000), which proved infrastructure to be one of the main factors of adoption. The constant is also important (B = 2.589; t = 7.415; p = 0.000) indicating that there is a certain level of adoption despite a lack of improvements in infrastructure. Comprehensively, the results supported the idea that it is essential to fortify financial infrastructure to increase the uptake of digital payments and promote financial inclusion in rural communities.

$H0_2$: Ease in the use of POS as a mobile banking device does not have any significant effect on rural area entrepreneurs' ownership of bank accounts.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.809[a]	.654	.653	1.71431

a. Predictors: (Constant), Ease_in_the_of_use_of_POS

Source: Field Survey (2026)

The model summary showed that the ease of use of POS as a mobile banking device significantly affects ownership of bank accounts among rural entrepreneurs. The correlation coefficient is high (R = 0.809), indicating a strong positive relationship, and the model explained a significant percentage of change in the ownership of bank accounts ($R^2 = 0.654$; Adjusted $R^2 = 0.653$), indicating that the model explained the changes due to ease of use to the tune of 65.4 per cent. The level of predictive accuracy is good as indicated by the standard error of the estimate (1.71431). These results suggested that rural entrepreneurs have a significantly higher probability of possessing bank accounts and using them when POS systems become more user-friendly, which means that usability is a key factor in financial inclusion.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2005.463	1	2005.463	682.399	.000[b]
	Residual	1060.923	361	2.939		
	Total	3066.386	362			

a. Dependent Variable:rural area_entrepreneurs_ownership_of_bank_accounts
b. Predictors: (Constant), Ease_in_the_of_use_of_POS

Source: Field Survey (2026)

The results of the ANOVA indicated that the model, which analyses the effect of ease of use of POS on the ownership of bank accounts by rural entrepreneurs is very significant. The sum of squares of the regression (2005.463) is significantly greater than the sum of squares of the residual (1060.923), of a total variation of 3066.386 and 362 degrees of freedom. The F-value is extremely large (F = 682.399) with a T = 0.000, which means that the model is an excellent and statistically accurate explanation of the ownership of bank accounts. This substantiates the ease of use of POS as a strong predictor, thus its significance in promoting financial inclusion among rural entrepreneurs.

Coefficients[a]

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.393	.216		6.439	.000
	Ease_in_the_of_use_of_POS	.615	.024	.809	26.123	.000

a. Dependent Variable: rural area_entrepreneurs_ownership_of_bank_accounts

Source: Field Survey (2026)

The results of the coefficient implied that the POS ease of use has a positive and statistically significant impact on the ownership of the bank accounts by rural area entrepreneurs. The unstandardised coefficient (B = 0.615; SE = 0.024) indicates that the increase in the ease of use by one unit increases the ownership of bank accounts by 0.615 with the standardised coefficient (Beta =

0.809) indicating a very strong effect size. The correlation is very meaningful (t = 26.123; p = 0.000) which supported ease of use as one of the key factors that determine rural area entreprenue account ownership. The constant is important as well (B = 1.393; t = 6.439; p = 0.000) which means a certain level of ownership. On balance, the results indicated that to increase financial inclusion among rural entrepreneurs, it is important to enhance usability of POS and associated digital tools.

$H0_3$: Digital wallet transactions do not significantly affect rural area entrepreneurs' financial services inclusion

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.707[a]	.500	.499	2.16090

a. Predictors: (Constant), Digital_wallet_transactions

Source: Field Survey (2026)

The model summary demonstrated that the use of digital wallet transactions is statistically significant on the financial services inclusion of rural area entrepreneurs. Correlation coefficient is positive (R = 0.707), which implies that there is a positive relationship, and the model accounted for 50.0% of financial inclusion variation (R^2 = 0.500; Adjusted R^2 = 0.499). The standard error of the estimate (2.16090) indicated a satisfactory degree of accuracy in prediction. The implications of these findings are that more digital wallet transactions are more effective in improving access to financial services, which, in turn, proves their serious contributions to the development of financial inclusion among rural entrepreneurs.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1688.981	1	1688.981	361.706	.000[b]
	Residual	1685.686	361	4.669		
	Total	3374.667	362			

a. Dependent Variable: financial_services_inclusion
b. Predictors: (Constant), Digital_wallet_transactions

Source: Field Survey (2026)

The results of ANOVA showed that the model which tests the impact of digital wallet transaction on the financial services inclusion of rural area entrepreneurs is significant. The regression sum of squares (1688.981) is almost like the sum of squares of the residual (1685.686) and the total variation (3374.667) over 362 degrees of freedom. The model generates a high value of F-statistics (F = 361.706) with a significant level of 0.000 indicating that it offers a much better explanation compared to a model that does not include predictors. This showed that transaction on digital wallet is a powerful and dependable predictor of financial inclusion, which rejects the null hypothesis and indicated the significance of this in the growth of access to financial services amongst rural area entrepreneurs.

Coefficients[a]

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.464	.253		9.753	.000
	Digital_wallet_transactions	.638	.034	.707	19.019	.000

a. **Dependent Variable: financial_services_inclusion**

Source: Field Survey (2026)

Digital wallet transactions are statistically significant and positively influence the inclusion of rural area entrepreneurs to financial services, as indicated by the coefficient results. The unstandardised coefficient (B = 0.638; SE = 0.034) means that an increase in digital wallet transactions by a unit will increase the financial inclusion by 0.638, whereas the standardised coefficient (Beta = 0.707) is a strong effect size. The correlation is very high (t = 19.019; p = 0.000), which proved the digital wallet transactions to be a major factor of inclusion. The constant (B = 2.464) is also important (t = 9.753; p = 0.000) which represents a starting point of inclusion. These results indicated that increasing the adoption of digital wallet payments has the potential to enhance access to finances among rural area entrepreneurs.

$H0_4$: Perceived usefulness does not significantly influence rural area entrepreneurs continued use of mobile banking and digital wallets.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.767[a]	.588	.587	1.88288

a. Predictors: (Constant), Perceived_usefulness

Source: Field Survey (2026)

The summary of the model showed that the perceived usefulness plays a statistically significant and strong role in influencing the intention to continue using mobile banking and digital wallets among rural entrepreneurs, which rejects $H0_4$. The correlation value is high (R = 0.767) which showed that the relationship between the two variables is positive and the model accounted for 58.8% of the difference in continued use intention (R^2 = 0.588; Adjusted R^2 = 0.587). The standard error of the estimate (1.88288) implies a good predictive power. These results suggested that the more rural area entrepreneurs view digital financial services as useful to their business operations, the more likely they will keep using them, meaning that perceived usefulness is a crucial aspect of maintaining digital financial uptake

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1826.237	1	1826.237	515.125	.000[b]
	Residual	1279.829	361	3.545		
	Total	3106.066	362			

a. Dependent Variable: continued_use_intention_of_mobile_banking_and_digital_wallets
b. Predictors: (Constant), Perceived_usefulness

Source: Field Survey (2026)

There is evidence in the results of ANOVA that the model that will be used to test the effect of perceived usefulness on the continued use of mobile banking and digital wallets by rural entrepreneurs is significant. The total variation of 3106.066 (regression sum of squares 1826.237) has a residual sum of squares of 1279.829 and 362 degrees of freedom. The F-statistics (F = 515.125) and

significance level (0.000) are very high, which shows that the model offers a good and statistically valid explanation of continued use intention. This supports the fact that perceived usefulness is an influential predictor, as it substantiates its key role in continuing usage of digital financial services amidst rural entrepreneurs.

Coefficients[a]

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.311	.236		5.557	.000
	Perceived_usefulness	.804	.035	.767	22.696	.000

a. Dependent Variable: continued_use_intention_of_mobile_banking_and_digital_wallets

Source: Field Survey (2026)

The findings of the coefficient suggested a positive and statistically significant influence of perceived usefulness on the intention of rural area entrepreneurs to continue using mobile banking and digital wallets. The unstandardised coefficient (B = 0.804; SE = 0.035) demonstrated that a one-unit change in the perceived usefulness will produce a 0.804-unit change in the continued use intention whereas the standardised coefficient (Beta = 0.767) represents a large effect size. The correlation is very strong (t = 22.696; p = 0.000), which proved the perceived usefulness to be a significant factor in continuous use. The value of the constant is also important (B = 1.311; t = 5.557; p = 0.000) which showed that there is a certain level of continued use intention. The results indicated that enhancing the perceived value of digital financial services is essential to make them accepted by rural entrepreneurs in the long term.

Hypotheses Testing Results Summary

Hypothesis	Statement	p-value	Decision
$H0_1$	Functional financial infrastructures do not significantly influence adoption of payment service platforms.	0.000	Reject
$H0_2$	Ease of use of POS does not significantly affect ownership of bank accounts.	0.000	Reject
$H0_3$	Digital wallet transactions do not significantly affect financial services inclusion.	0.000	Reject

$H0_4$	Perceived usefulness does not significantly influence continued use intention of mobile banking and digital wallets.	0.000	Reject

Discussion of findings

The results showed that the presence of a functional financial infrastructure plays a statistically significant role in the adoption of payment service platforms by rural entrepreneurs (R^2 = 0.386; p <.001). This implies that differences in the availability of infrastructure are a significant factor in explaining a significant share of adoption behaviour, with the availability of enabling conditions (internet access, electricity and POS) taking centre stage. This finding aligns with the study of Neves et al. (2023), which found the infrastructural availability as a fundamental determinant of digital financial service adoption in any context. On the same note, Museba et al. (2021) discovered that inadequate infrastructure was a major limitation to the use of mobile money in rural areas. The current research hence supports the thesis that adoption is premised on infrastructure. What this suggests is that policy must focus on rural Nigeria to enhance financial inclusion; but should focus on investments in digital and energy infrastructure because without either of the two, adoption will be limited no matter how aware or willing entrepreneurs may be.

The findings from the second hypothesis indicated that the ease of using POS devices positively and significantly influences the ownership of bank accounts by rural area entrepreneurs (R^2 = 0.654; p <. 001) and hence, the ease of use is a key factor in influencing formal financial participation. This observation is in line with that of Udoinyang (2025) who found that ease of use was a very important factor in the acquisition of mobile money among small entrepreneurs in Nigeria. It means that user-centered design and streamlined processes should be the priority of financial service providers to make financial services more accessible and more financially inclusive.

The results from the third hypothesis show that digital wallet transaction activities have a significant and positive impact on the inclusion of financial services among rural entrepreneurs (R^2 = 0.500; p <.001), implying that the more the rural entrepreneurs use digital types of transactions the more they can access financial services. This finding is consistent with that of Ojarikre et al. (2024), who discovered that digital financial services boost financial autonomy and business performance. It is also in line with Mbon (2023) which indicated that electronic banking increased access to

affordable financial services among the rural communities. Nevertheless, the statistical association is high; however, the moderate levels of usage recorded indicate that complete inclusion has not been attained. It means that more coverage of the depth of use, enhancement of trust, and financial literacy should be developed to maximise the inclusive power of digital wallets.

Lastly, the findings from the fourth hypothesis indicated a statistically significant impact of perceived usefulness on continued use intention among rural entrepreneurs of mobile banking and digital wallets ($R^2 = 0.588$; $p = .001$), which proved the view that continued use is heavily reliant on the perceived usefulness. Such a finding is in line with those of Neves et al. (2023), who found perceived usefulness a significant predictor of continued use. It also concurs with Udoinyang (2025) whereby perceived benefits were identified to motivate continued participation. This implication is that after the initial adoption, digital financial services need to provide clear and consistent value to the business practices of the users to maintain usage and enhance financial inclusion.

Conclusions

Based on the above findings, the following conclusions are drawn:

i. infrastructures such as internet availability, electricity, and the presence of POS influences the adoption payment service platforms by rural area entrepreneurs in North Central, Nigeria;
ii. the ease of use of POS devices is a strong determinant of ownership of bank account among rural entrepreneurs in North Central, Nigeria;
iii. digital wallet transactions influence financial inclusion services of rural area entrepreneurs in North Central, Nigeria; and
iv. perceived usefulness strongly influences the intention to continue using mobile banking and digital wallets among rural area entrepreneurs in North Central, Nigeria.

Recommendations

Based on the above conclusions, the following recommendations are made:

i. government and non-government stakeholders should increase rural digital and energy infrastructure by investing in internet access facilities, constant electricity access, and the widespread use of POSs in the next 2-3 years with quantifiable goals of coverage among underserved populations.

ii. financial services providers must redesign POS and mobile banking interfaces to be easier and more user-friendly, by including local language options, guidelines for conducting transactions, and benchmarking user testing progress to realise at least a specified percentage increase in ease-of-use ratings within a specified period.

iii. financial institutions and regulators should develop simplified, low entry, account opening procedures such as agent-based onboarding and limited documentation with a goal of including a certain percentage of rural area entrepreneurs to financial bank services within a specific time frame.

iv. Community-based training and collaborating with local associations should be used to implement targeted digital financial literacy programmes with the aim of enhancing the ability of users to make transactions independently and boost active usage rates within a period of time and,

v. Financial service providers should increase the practical application of digital wallets, including incorporating it into local supply chains and payment systems, and have performance indicators based on higher transaction rates and less reliance on cash.

Implications of Results

The findings have significant policy, practice, and theoretical implications for financial inclusion adoption in rural area entrepreneurs. First, the high power of the functional financial infrastructure on adoption proves that digital finance will not be able to successfully develop in a vacuum of larger development circumstances. This implies that mobile banking and digital wallets promotion should be done together with electricity, internet and payment infrastructure investments. In their absence, adoption will be skewed and concentrated in comparatively better-served regions, which will restrict the potential of digital finance to be inclusive.

More so, the strong influence of the ease of use on the ownership of a bank account underlines the relevance of the human-centred design of financial technologies. The financial institutions have to go beyond the aspect of offering the services to make it available, user-friendly, and relevant to the daily life of the users. Simplification of interfaces and processes in practice can be directly converted into the involvement in formal financial systems.

The financial inclusion policies ought to change to focus not on promoting simple access but more frequent and varied transactions that involve incorporating digital tools into business operations. Achieving this will be essential through expansion of use cases and development of trust in digital systems.

Lastly, service providers have to pay attention to the provision of consistent, tangible value, instead of using the initial adoption momentum. In general, the findings indicate that meaningful financial inclusion can be attained through a coordinated strategy involving developing infrastructure, designing with the user in mind, making them relevant, and delivering value over time.

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