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THE NEXUS BETWEEN FINTECH ADOPTION AND SME FINANCIAL INCLUSION: EVIDENCE FROM DIGITAL PAYMENT AND LENDING SYSTEMS IN FCT-ABUJA

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Abstract

Although Financial Technology (FinTech) solutions are rapidly advancing in Nigeria, many Small and Medium Enterprises (SMEs) in Abuja, Federal Capital Territory (FCT), still struggle with financial inclusion due to challenges like limited credit access, low financial literacy, and reliance on informal financing sources. This study aimed to explore the impact of FinTech solutions, specifically digital payment systems, digital lending platforms, digital banking services, and financial management tools, on the financial inclusion of SMEs in FCT-Abuja. A descriptive research design was implemented, targeting a population of 98,000 registered SMEs across six area councils. Using Krejcie and Morgan's (1970) table, a sample size of 461 respondents was calculated, and cluster and stratified random sampling methods were applied to ensure a representative sample from three main clusters: AMAC, Gwagwalada, and Kuje. Primary data were collected through a structured questionnaire distributed both physically and online, achieving an 86% response rate (397 responses). The data were analyzed using descriptive statistics and regression analysis after confirming normality and reliability. The findings showed that all four dimensions of FinTech had a positive and significant impact on financial inclusion indicators, including access, usage, quality, and literacy among SMEs. The study concluded that adopting FinTech enhances SMEs' access to formal financial systems, boosts financial literacy, and supports sustainable business growth. It recommended that policymakers improve digital infrastructure, enhance financial education, and foster collaboration between FinTech firms and financial institutions to strengthen SME financial inclusion in Nigeria.

Keywords: *Financial Technology (FinTech), Financial Inclusion, Digital Payment, Financial Literacy, POS (Point-of-Sale), Artificial Intelligence (AI), QR-code, Blockchain, Perceived Ease of Use, Perceived Usefulness.*

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1. INTRODUCTION

Financial technology in less than a decade has transformed almost completely from being an aspect of financial innovation to the main focus of discussions on financial services and inclusive growth. Besides making payments credit savings, and risk management more efficient, digital platforms are also changing the way we interact with these financial services not only in advanced countries but also in emerging ones. Over the past decade, rapid advancements in digital technologies such as mobile internet, cloud computing, artificial intelligence, and blockchain have catalysed the development of innovative financial solutions that transcend traditional banking infrastructure (Gomber, et al. 2018). The post-pandemic recovery led to even more rapid changes in this area. This forced many business especially smaller ones to change their financial relationships to revolve around mobile devices and algorithmic decision-making (Pellegrino & Abe, 2022). At a systemic level, digital financial infrastructure is increasingly seen as a tool that can help development by increasing the number of people using formal financial services and supporting the Sustainable Development Goals (Arner et al. 2024). Nevertheless, the spread of FinTech is far from being uniform, as it is majorly determined by factors like regulatory framework, socio-cultural elements, and different levels of digital literacy (Ghosh et al. 2025). In Africa, the swift growth of cross-border payment companies and mobile money ecosystems point to the continent's huge potential and reveal that it is both a case of opportunity and tension: on the one hand, the opportunity for greater financial inclusion and, on the other hand, the tension arising from issues of trust, costs, and sustainability (Olalekan et al. 2024).

FinTech adoption can be seen as incorporating organizational capabilities with the ongoing use of digitally-enabled financial services for various financial needs such as transactions credit savings, and financial management. For small and medium enterprises (SMEs), the adoption of FinTech is hardly a surface change; it leads to a complete transformation of cash-flow transparency, credit information, and the ability to track transactions. Studies increasingly show that there is a positive impact of digital finance on reducing financing hurdles and enhancing the efficient use of investments by SMEs (Lu et al. 2021; Ma & Jiang, 2024). In the context of Nigeria, the latest study points out that taking up FinTech not only helps the informal sector become more resilient in their operations but also leads to inclusive outcomes (Usman et al. 2025). Two aspects are particularly relevant that is digital payment systems and digital lending systems. Ranging from mobile money, QR-code transaction to web-based gateways,

digital payment systems can lower transaction costs, help to formalise revenue streams, and at the same time establish data trails that are verifiable. These features can completely change the way SMEs interact with banks and suppliers. Studies coming from developing economies show that digital payments facilitate not only day-to-day transactions but also help in business growth and expansion of financial inclusion (Eni-Minarni, 2025; Joshi, 2025). The adoption of QR code and mobile money, for instance, has been linked to the improvement of SME performance where the firms have been capable of adapting (Ledi et al, 2023). On the other hand, digital lending systems use data-driven credit scoring and disbursements platforms. Besides, they offer rapid, collateral-light credit assessment, a real help for SMEs that bank credit has excluded over time (Hu & Wang, 2023; Zhang et al. 2023).

However, based on the experience of the changing regulatory landscape, the style of getting in and the prices of these platforms certainly need a very thorough examination. In fact, this study of SME financial inclusion quite significantly raises the case of mere account ownership as a starting point. More than that, it is about deep and meaningful interaction with tailored financial services and the consistent use of such services for a good cause. As for access, the focus is on the presence and cost-effectiveness of formal financial products such as accounts payments credit, and insurance within reasonable geographical and digital reach. Usage however indicates the extent and frequency with which SMEs leverage commercial financial services in managing liquidity, financing investments, and risk mitigation.

In the recent African context as well, digital finance can be effective in expanding the fronts of financial inclusion. At the same time though access to digital capability and institutional trust decision explain changes in consumer outcomes (Umar et al. 2024; Sajuyigbe et al. 2025). In FCT-Abuja, the federal capital and business center of Nigeria, SMEs have at hand a puzzle: closeness to banks and regulators comes alongside continuous credit shortage and dependence of informal financing channels (FCT-Abuja, Nigeria which is the country's administrative and commercial hub, is where SMEs function inside a paradox). The use of mobile money transfers, point of sale terminals and loan application via apps in the marketplaces like Wuse and Garki point to the fact that inclusion is more through technology than branch networks of bank.

However, the link between FinTech use and financial inclusion of SMEs in FCT-Abuja is, from this perspective, not clear or straightforward at all. Digital payments may result in generation of transaction histories which can improve a person's creditworthiness whereas digital lending might be a source of motivation for greater formal financial interaction. On the other hand,

digital divides, literacy gaps and platform costs can be the limiting factors of these relations (Sajuyigbe et al. 2025). So, the relationship between digitalization and financial inclusion in the context of SMEs in Abuja is only one of the evolving direct and indirect influences of firm capabilities, policy/regulatory signals and the digital financial ecosystem of Nigeria. Taking a closer look at the relationship between the two in the context of the local institutional and socio-economic features of FCT-Abuja is providing a very solid perspective for logically validating, gaining a critical view of or even rejecting the general arguments about FinTech and financial inclusion that people are normally taken to be more or less true.

Statement of the Problem

If the financial ecosystem was perfect, small and medium enterprises (SMEs) would operate within a fully integrated digital architecture where payments, savings, and credits are smoothly and efficiently carried through formal channels. Digital payment platforms would serve as a source of trustworthy transaction histories; credit scoring algorithms would interpret these data to make credit decisions that are fair, timely, and affordable; and institutional frameworks would ensure transparency and trust are maintained. In such a scenario, financial inclusion would be about more than just account ownership. It would be about a sustained and productive engagement with financial services that allow SMEs to regulate cash flow, fund growth, and manage the effects of crises. The current narrative on the digital financial infrastructure pointed to FinTech as capable of serving the very catalytic function of reducing information asymmetry and transaction costs and at the same time widening outreach (Arner et al. 2024; Ma & Jiang, 2024).

Naturally, the life situation for a good number of the SMEs in FCT-Abuja differs greatly from this perfect scenario. According to the Central Bank of Nigeria [CBN] (2023) and EFInA (2023), the percentage of financially included population in Nigeria was 74% in 2023, thus around 26% adults in the country were still financially excluded, and the situation was even grimmer in terms of usage and credit access. Although Abuja, as the Federal Capital Territory, was enjoying a thick banking network and better digital infrastructure, SME clients kept complaining of non-availability of finances and therefore, most of their funds still came from informal sources. SMEDAN data that were collected at the national level revealed that only a small proportion of SMEs were getting formal credit when compared to their level of employment and contribution to the GDP. Even in cases where the usage of digital payment has increased through mobile transfer, POS terminals, and app-based platforms, the application

of these tools to get credit on a regular basis and to become more integrated financially is still very uneven. Data from African countries indicate that digital finance has not only increased the number of people reached but has also come to be appreciated as a means to break down some structural barriers such as the need for collateral, high lending rates, and lack of digital literacy (Umar et al. 2024; Usman et al. 2025).

Empirically, the literature pointed to even more unclear issues. Studies broadly associated digital finance with lowering financing constraints and raising SME performance in Asia and other emerging markets (Lu et al. 2021; Zhang et al. 2023). However, in the case of Nigeria, and even more so in FCT-Abuja, context-specific evidence was scarce and piecemeal. Nigerian papers tend to focus on household financial inclusion or view FinTech adoption as one-dimensional, not separating digital payment from digital lending systems. Even fewer papers looked at the two dimensions of financial inclusion - access and usage - together for SMEs in one analysis. This made it unclear whether more FinTech use in Abuja actually led to higher SME financial inclusion or just made transactions more convenient without real credit integration. This theoretical and contextual gap led to a ground-level study of the link between FinTech use and SME financial inclusion in FCT-Abuja. Firstly, it aimed to explore the connection between FinTech adoption and SME financial inclusion in FCT-Abuja, focusing on digital payment and digital lending systems.

Research Questions

The following research questions guide this study

i. How do digital payment systems influence SME access to financial services in FCT-Abuja?

ii. To what extent do digital lending systems affect SME usage of financial services in FCT-Abuja?

Objectives of the Studies

The broad objective of the study is to examine the nexus between FinTech adoption and SME financial inclusion in FCT-Abuja, with particular emphasis on digital payment and digital lending systems. The specific objectives are to:

i. Evaluate the effect of digital payment systems on SME access to financial services in FCT-Abuja.

ii. Assess the effect of digital lending systems on SME usage of financial services in FCT-Abuja.

Research Hypotheses

The study tested the following null hypotheses:

H_{01}: Digital payment systems have no significant effect on SME access to financial services in FCT-Abuja.

H_{02}: Digital lending systems have no significant effect on SME usage of financial services in FCT-Abuja.

2. LITERATURE REVIEW

Conceptual Framework

FinTech Adoption

FinTech usage has increasingly been described as the intentional combination and ongoing use of technology-based financial services by people and businesses for making payments, handling money, and obtaining credit through regulated systems. New research changes the view of FinTech from just technology disruption to a complete overhaul of the 'financial intermediation' concept, especially in developing regions where traditional banks have mainly served bigger enterprises (Pohulak-odowska & Wjcik-Czerniawska, 2025). Consequently, adoption means changing habits and making organisational changes. The SMEs have to change their accounting methods, improve their digital skills, and integrate new payment or lending channels into their schedules.

Modern research has delved deeper into the relationship of the FinTech market with the weakening of financing frictions and the increase of allocative efficiency. With better digitalisation, more data becomes available, therefore lessening the problem of information asymmetry between lenders and borrowers (Zhang et al. 2023). Digital finance, in conjunction with the advancement of mobile platforms, has been the main contributor to incremental gains in SME financial inclusion in Africa by providing services with improved accessibility and

convenience, although results are still very uneven across different business sectors and geographical regions (Umar et al. 2024). Hence, the mere act of adoption is not automatic and beneficial in a uniform way; rather, it is subject to regulation, infrastructure, and socio-cultural factors. The resultant friction can be clearly seen in Nigerian cities like Abuja where despite comparatively well-established digital infrastructure, informality is still very much part of the landscape.

Digital Payment Systems

Digital payment systems are arguably the most noticeable aspect of FinTech adoption. They are, in essence, electronically mediated mechanisms such as mobile money, QR-code payments, POS terminals and online gateways through which the transfer of monetary value is made without the use of physical cash. Arner et al. (2024) regard digital payments as primary elements of the digital financial system that have the ability to reach more people financially and make transactions more transparent. For SMEs, these methods not only facilitate the checkout process but also record transactions that can be converted into credit records later. The latest research has found a link between using digital payments and business development and financial inclusion in developing countries (Eni-Minarni, 2025; Joshi, 2025). When SMEs use QR-codes or mobile money platforms, the improvement in their performance is, to a large extent, due to their ability to adapt and their knowledge of digital technology (Ledi et al. 2023). However, adoption is a part of the social context. Ghosh et al. (2025) state that the way the culture views trust, security and familiarity plays a role in how fast and to what extent the uptake happens. Therefore, although digital payments may increase access to formal financial services, the extent of their impact will be determined by frequent use and being part of the larger financial ecosystem.

Digital Lending Platforms

Digital Lending Platforms are essentially the extension of digital payments logic in the area of credit distribution. They use algorithmic credit scoring, alternative data analytics and platform-based interfaces for risk assessment and fund disbursement, quite often with very low collateral requirements. Hu and Wang (2023) see digital lending as one element in the overall design of digital financial inclusion, highlighting its potential to solve financial mismatches and reduce the problem of financing SMEs. By extracting insights from past transaction data, these platforms are capable of creating up-to-date credit ratings, thereby giving SMEs more financing

options which are both faster and more adaptable. However, digital lending also generates a number of difficult issues such as cost differences, data control and borrower rights. Research in emerging countries shows that digital technologies not only can facilitate credit accessibility for SMEs but also can lead to better use of the invested capital (Ma & Jiang, 2024; Zhang et al. 2023) Nevertheless, fears regarding extremely high interest rates and the use of secretive algorithms remain. According to Usman et al. (2025), in the informal sector of Nigeria, the use of FinTech has been linked to better financial inclusion results. However, the effects on firm resilience have been different depending on the size of the company and the sector

SME Financial Inclusion

SME financial inclusion has moved beyond the limited view of account ownership majorly to involve ideas of engagement in the formal financial systems by the enterprises. It indicates the extent to which these enterprises are capable of gaining and effectively using financial means such as payments, savings, credit and insurance, which are provided under affordable, transparent and reliable conditions. Umar et al. (2024) view SME financial inclusion as part of a development framework and claim that digital finance can further the integration into formal markets and result in the sustainability of enterprises. However, inclusion involves different sides. Simply having access will not necessarily result in a developmental impact; regular usage and quality delivery are equally important. Sajuyigbe et al. (2025) show that digital literacy plays a role in the effect of the use of digital finance on inclusion results for Nigerian SMEs. So, inclusion is both how people and businesses relate to each other and it is influenced by trust in institutions, technological skills and regulatory measures. In cities like FCT-Abuja, where SMEs work in both formal and semi-formal setups, exclusion is indeed the least common denominator and most of the time, inclusion has to do with the ability to switch between getting banking services from the traditional banking channels and the digital alternatives.

Access to Financial Services

One aspect of Access to financial services is how much the market can provide formal financial products at a reasonable cost, physically or digitally. It means the banking system, the mobile phone coverage, agent banking and the digital platforms that are able to efficiently serve the SMEs are all available. Conceptually, access is about getting rid of the structural barriers-distance, documentation requirements, collateral demands and high transaction costs (Umar et al. 2024).

Physical proximity to a bank branch is rapidly losing importance as the key factor in accessibility due to digitalisation. Access is becoming more and more determined by the penetration of smartphones and the availability of the internet. Zhang et al. (2023) pointed out that digital financial inclusion can help to alleviate the constraints in financing where digital ecosystems are strong. Nevertheless, differences in digital literacy and income levels can lead to new forms of exclusion, indicating that access still depends on both infrastructure and ability to use technology.

Usage of Financial Services

Using financial services can determine the extent, regularity and the level of purpose that an average SME shows in using formal financial tools. Besides the simple question of whether an account exists or not, it explores the integration of financial services in the work-related decision making such as inventory financing, payroll management, supplier payments and investment planning. According to Ma and Jiang (2024), the continuous use of digital financial services is strongly linked to the better investment efficiency of SMEs, which further adds to the recognition of the development role played by continued usage. Usage entails behaviour. It shows trust in digital platforms, the value given and previous experiences with financial institutions. Sajuyigbe et al. (2025) argue that digital literacy enhances the journey from adoption to real inclusion thus usage depends on not just availability but also the ability and trust. For SMEs based in FCT-Abuja, moving from occasional mobile transfers to complete digital financial management can be considered as a symbol of a more profound entry into financial inclusion.

Theoretical Foundation

This research was based on the Technology Acceptance Model (TAM), which was first introduced by Fred Davis in 1989. Nevertheless, this framework has been widely developed and used particularly in the realm of digital finance during the last ten years. Recent researches have revealed the continuing significance of TAM even in the area of digital finance and SME/technology platform interactions (Thathsarani & Jianguo, 2022). The main idea behind TAM is that perceived usefulness and perceived ease of use are the main factors guiding a persons or an organization's decision to adopt and use technology. Specifically, in the case of FinTech, if SMEs see that digital payment and lending technologies are capable of improving their performance and at the same time are easy to use, they will be more willing to adopt them.

On the other hand, there are those who think that TAM simplifies adoption behaviour too much because it downplays contextual and institutional elements such as regulation, socio-cultural norms and infrastructural constraints. Nonetheless, it remains very powerful due to its simple structure and impressive prediction ability in various technology fields. Moreover, when it is combined with the wider financial inclusion theme, TAM provides a behavioural perspective that can help to explain how the use of digital payment and borrowing systems leads to access and usage results. Thus, in our paper, TAM served as the theoretical link between FinTech adoption and SME financial inclusion in FCT-Abuja allowing us to understand how mere perceptions of usefulness and ease of use can result in greater usage of formal financial services.

Empirical Review

Adeoye et al. (2022) investigated the relationship between digital financial inclusion and SME performance in Nigeria, with particular attention to gender differentials. Conducted within the Nigerian context, the study adopted a quantitative research design using firm-level panel data drawn from nationally representative enterprise surveys. The population comprised registered SMEs across multiple sectors, and secondary data were analysed using econometric techniques, specifically fixed-effects and instrumental variable estimations, to address endogeneity concerns. The findings indicated that digital financial inclusion significantly enhanced SME performance, measured through sales growth and productivity, though female-owned firms experienced comparatively lower gains, suggesting a gender gap in digital finance utilisation. The authors recommended targeted digital literacy programmes and gender-responsive financial policies to bridge this disparity, while acknowledging limitations related to data constraints and the inability to capture informal enterprises comprehensively.

Agrawal (2025) examined the impact of digital payment systems on financial inclusion in rural areas, focusing on underserved communities in India. The study employed a descriptive and explanatory survey design, targeting rural households and micro-entrepreneurs as the population of interest. Using structured questionnaires administered through stratified random sampling, primary data were collected and analysed using regression analysis to determine the relationship between digital payment adoption and financial inclusion indicators. The findings revealed that mobile-based payment platforms significantly improved account ownership and transaction frequency in rural settings. The author recommended expanding digital

infrastructure and financial literacy programmes to consolidate gains, while noting limitations such as regional concentration and reliance on self-reported data.

Aibinu et al. (2024) explored the influence of FinTech on the financial management practices of SMEs in Nigeria. The study utilised a cross-sectional survey design involving SME owners and managers across selected Nigerian states. The population comprised registered SMEs, from which a stratified sampling approach was employed to obtain responses via structured questionnaires. Data were analysed using structural equation modelling to examine relationships between FinTech adoption and budgeting, record-keeping, and cash-flow management practices. The findings suggested that FinTech tools significantly improved financial planning accuracy and transparency among SMEs. The authors recommended integrating FinTech solutions into SME support programmes and strengthening regulatory frameworks. However, they acknowledged limitations arising from the cross-sectional nature of the data and potential response bias.

Akinsolu (2023) assessed the role of FinTech in advancing financial inclusion in sub-Saharan Africa, with empirical evidence from Nigeria. The study adopted a quantitative research design, relying on secondary macroeconomic and financial inclusion datasets obtained from international databases. Econometric analysis, including panel regression techniques, was used to estimate the impact of FinTech indicators on inclusion metrics. The findings indicated that FinTech expansion positively influenced account penetration and digital transaction rates. Policy recommendations centred on enhancing digital infrastructure and harmonising regulatory frameworks. The study recognised limitations linked to data aggregation and the difficulty of isolating country-specific institutional effects.

Asamani and Majumdar (2024) conducted an empirical investigation into digital lending adoption in India and the variables associated with its uptake. The study employed a survey-based quantitative design targeting borrowers who had accessed digital lending platforms. Using purposive sampling, primary data were gathered through structured questionnaires and analysed with logistic regression models. The findings demonstrated that perceived ease of use, trust, and digital literacy significantly predicted digital lending adoption. The authors recommended strengthening consumer protection frameworks and improving transparency in algorithmic lending. They acknowledged limitations related to sample representativeness and the exclusion of non-users.

Bansal (2024) reviewed case studies to evaluate the impact of FinTech innovations on traditional financial institutions, payment systems, and financial inclusion. Using a qualitative review methodology, the study synthesised secondary data from documented institutional cases across emerging and developed economies. The analysis revealed that FinTech innovations enhanced efficiency and expanded payment access, though they also intensified competitive pressures on traditional banks. Recommendations included fostering collaboration between banks and FinTech firms. The limitation lay in the reliance on secondary case evidence without primary empirical validation.

Bhuvaneshwari and Vinitha (2025) analysed the influence of digital financial knowledge on lending application adoption. The study adopted a quantitative survey design among small business operators in India, employing convenience sampling. Data were collected through questionnaires and analysed using regression analysis. The findings indicated that higher digital financial knowledge significantly increased the likelihood of adopting digital lending applications. The authors recommended integrating digital financial education into SME development initiatives. The study's limitation was its geographically confined sample and reliance on perceptual measures.

Choubey et al. (2024) examined the role of digital microfinance in enhancing financial inclusion and poverty alleviation. The research adopted a mixed-method approach, combining survey data from microfinance beneficiaries with secondary data analysis. Using descriptive and inferential statistics, the study found that digital microfinance platforms improved access to credit and reduced transaction costs for low-income entrepreneurs. The authors recommended scaling digital microfinance models while improving digital infrastructure. They noted limitations in generalisability due to sample concentration in selected regions.

Dangkeng and Munir (2025) investigated how digital payment systems empowered small entrepreneurs in Indonesia. Employing a quantitative cross-sectional design, the study surveyed micro and small business owners using structured instruments and analysed data through multiple regression analysis. The findings suggested that digital payment adoption significantly enhanced revenue stability and financial inclusion indicators. The authors recommended policy support for payment interoperability and merchant onboarding. Limitations included short-term data coverage and limited sectoral representation.

Demirgüç-Kunt et al. (2022), through the Global Findex Database 2021 report, analysed financial inclusion, digital payments, and resilience globally using nationally representative survey data from over 120 economies. The study employed large-scale household survey methodology, collecting primary data via standardised questionnaires and analysing trends using descriptive statistics and comparative analysis. Findings indicated a substantial increase in digital payment adoption worldwide, particularly following the COVID-19 pandemic, and linked digital payments with improved financial resilience. The report recommended expanding digital public infrastructure and strengthening consumer safeguards. Limitations included reliance on self-reported responses and household-level focus rather than enterprise-level data.

Dudu et al. (2024) assessed digital payment platforms' contribution to financial inclusion in emerging markets. The study adopted a quantitative research design, surveying financial service users and analysing data with regression techniques. The findings revealed a positive relationship between digital payment platform usage and financial inclusion indicators. Recommendations included regulatory harmonisation and infrastructure expansion, while limitations related to sample size and cross-country comparability were acknowledged.

Efendi et al. (2023) investigated the moderating role of financial literacy in strengthening the effect of digital platforms and peer-to-peer lending on MSME capital access and growth in DKI Jakarta. Using a quantitative survey design with purposive sampling, primary data were analysed through structural equation modelling. The findings showed that financial literacy significantly strengthened the relationship between FinTech usage and capital access. Recommendations emphasised financial education initiatives, while limitations included geographic concentration and cross-sectional design.

Mallinguh and Wasike (2025) analysed loan repayment behaviour and default rates on digital lending platforms in an emerging market using secondary platform data. The study employed quantitative econometric modelling to examine repayment patterns and default determinants. Findings indicated that borrower characteristics and platform design influenced default rates. The authors recommended improved risk assessment models and regulatory oversight, while noting data limitations related to platform access.

Melbard et al. (2025) explored digitalisation of financial services as a catalyst for innovation in traditional industries. The study adopted a qualitative analytical approach using industry case

analysis and secondary data review. Findings suggested that financial service digitalisation stimulated operational innovation and efficiency in traditional sectors. Recommendations focused on institutional collaboration and digital infrastructure investment. Limitations included absence of firm-level quantitative testing.

3. METHODOLOGY

The study used descriptive research as it allowed researchers the systematic gathering, quantification, and analyzing of data so that they can describe and look at the connection between digital financial inclusion aspects and MSMEs performance while not changing any variables; this type of research was thought to be suitable because it allowed for not only hypothesis testing but also the generalization from a representative sample to the entire population. The population for this research was taken from Abdul et al.'s (2025) report on the Impact of the Business Environment on the Performance of MSMEs in the Federal Capital Territory (FCT), Nigeria. Their study revealed that there were 98,000 registered MSMEs operating in FCT-Abuja. The sample size was determined using the Krejcie and Morgan (1970) statistical table formula: $s = \frac{X^2 NP(1-P)}{d^2(N-1)+X^2P(1-P)}$, where $N = 98{,}000$, $X^2 = 3.841$(at 95% confidence level), $P = 0.5$, and $d = 0.05$; substituting the values produced an approximate sample size of 383 respondents, which aligned with the Krejcie and Morgan table specification for populations above 75,000. A 20% margin of safety was added to account for possible non-response, incomplete questionnaires, and attrition, thus $383 \times 0.20 = 76.6 \approx 77$; therefore, the adjusted sample size became $383 + 77 = 460$respondents. This modification was warranted in order to preserve representativeness, increase statistical power, and improve response adequacy.

For the reason that MSMEs in the Federal Capital Territory are geographically scattered throughout the area councils of Abuja Municipal, Bwari, Gwagwalada, Kuje, Kwali, and Abaji, the cluster sampling technique was used to ensure cost-effectiveness, logistical viability, and sufficient coverage of diverse business sectors. A structured questionnaire with a five-point Likert scale was used to gather primary data. Cronbach's alpha was used to assess the instrument's reliability; coefficients above the 0.70 cutoff point indicated acceptable internal consistency:

Variable	**Cronbach's Alpha**
Digital Payment System	0.86
Digital Lending System	0.83
Access to Financial Service	0.81
Usage of Financial System	0.88

Validity was established through content validity by subjecting the instrument to expert review in finance, research methodology and entrepreneurship to ensure coverage, clarity, and relevance of items. Data were analysed using regression analysis with the aid of SPSS version 27. The regression models tested were specified as:

For Hypothesis One:

A$AFS = \beta_0 + \beta_1(DPS) + \varepsilon$ … … … … … … … ….1

For Hypothesis Two:

$UFS = \beta_0 + \beta_2(DLS) + \varepsilon$.....2,

where AFS represented Access to Financial Service, UFS represented Usage of Financial System, DPS represented Digital Payment System, DLS represented Digital Lending System, $\beta_0$was the intercept, β_1–$\beta_3$were regression coefficients, and $\varepsilon$was the error term.

4. RESULTS AND DISCUSSIONS

Table 4.1 Administered Questionnaire

	Number	**Percentage**
Questionnaire Distributed	461	100%
Returned Questionnaire	397	86%
Unreturned Questionnaire	64	14%

Source: Field Survey, (2026)

Table 4.1 revealed that of the 461 questionnaires that were distributed, 397 were returned, or 86% of the total, while 64 questionnaires, or 14% of the total, were not returned. This high retrieval rate indicated strong participant engagement and improved the reliability and

representativeness of the data for the study; the low non-response rate decreased the possibility of response bias and suggested that the findings could reasonably reflect the views of MSMEs in FCT–Abuja, strengthening the validity of the empirical analysis.

Table 4.2: Demographic Characteristics of Respondents (N = 397)

Demographic Variable	Category	Frequency (f)	Percentage (%)
Gender	Male	219	55.2
	Female	178	44.8
Age (Years)	Below 25 years	60	15.1
	25 – 34 years	119	30.0
	35 – 44 years	99	24.9
	45 – 54 years	79	19.9
	55 years and above	40	10.1
Educational Qualification	SSCE/OND/NCE	40	10.1
	HND/B.Sc./B.A.	179	45.1
	M.Sc./M.A./PGD	139	35.0
	Other Qualification	39	9.8
Years of Work Experience	Less than 5 years	80	20.2
	5 – 10 years	119	30.0
	11 – 15 years	99	24.9
	16 – 20 years	59	14.9
	Above 20 years	40	10.1

Source: Field Survey, (2026)

The table revealed that the majority of respondents were men (55.2%), but there was also a sizable female participation rate (44.8%), suggesting a reasonable gender representation. The majority of participants (54.9%) were in the economically active age range of 25–44, indicating that the majority of the data came from people in their prime working years. 80.1% of respondents had postgraduate degrees, HNDs, B.Sc.s, or B.As, indicating that they were well-educated enough to comprehend and make use of digital financial services. Furthermore, the majority (54.9%) had between five and fifteen years of work experience, indicating real-world exposure to business operations. Overall, these traits indicated that the respondents were skilled

and informed MSME operators, which increased the validity and applicability of the study's conclusions.

Test of Hypotheses

Hypothesis One

H_{01}: Digital payment systems have no significant effect on SME access to financial services in FCT-Abuja.

$AFS_i=\beta_0+\beta_1 DPSi+\varepsilon_i$.....2

Table 4.3 **Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.687[a]	.473	.471	.41666

a. Predictors: (Constant), DPS

Source: SPSS Output Version 27.0

According to Table 4.3, SME access to financial services was strongly positively correlated with digital payment systems (DPS) (R = 0.687). Digital payment systems accounted for about 47.3% of the variation in access to financial services, according to the R Square value of 0.473. After controlling for potential estimation bias, the model's robustness was confirmed by the adjusted R Square of 0.471. A moderate level of prediction accuracy was indicated by the standard error of 0.41666. Overall, the findings suggested that digital payment systems had a significant impact on SMEs' access to financial services in FCT-Abuja, offering empirical evidence to refute the null hypothesis.

Table 4.4 **ANOVA[a]**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	61.455	1	61.455	353.987	.000[b]
	Residual	68.575	395	.174		
	Total	130.029	396			

a. Dependent Variable: AFS

b. Predictors: (Constant), DPS

Source: SPSS Output Version 27.0

With an F-value of 353.987 and a significance level of 0.000, which was below the 0.05 cutoff, the ANOVA results demonstrated that the regression model was statistically significant. This showed that SME access to financial services in FCT-Abuja was significantly predicted by digital payment systems. The regression sum of squares (61.455) in comparison to the residual sum of squares (68.575) further showed that the model accounted for a significant amount of the variation in financial service access. Overall, the results supported the null hypothesis' rejection and demonstrated the model's strong explanatory power.

Table 4.5 **Coefficients[a]**

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.357	.141		9.620	.000
	DPS	.667	.035	.687	18.815	.000

a. Dependent Variable: AFS

Source: SPSS Output Version 27.0

SME access to financial services was positively and statistically significantly impacted by digital payment systems, as Table 4.5 demonstrated. The t-value (18.815) and significance level (0.000) verified that the effect was highly significant at the 5% level, while the unstandardised coefficient (B = 0.667) showed that a unit increase in digital payment adoption led to a 0.667 increase in access to financial services. Additionally, the standardised beta coefficient (β = 0.687) indicated that digital payment systems significantly improved access. These findings suggested that SME access to financial services in FCT-Abuja was significantly improved by advancements in digital payment systems, supporting the rejection of the null hypothesis.

Hypothesis Two

H_{02}: Digital lending systems have no significant effect on SME usage of financial services in FCT-Abuja.

$UFS_i=\beta_0+\beta_2 DLP_i+\varepsilon_i$.....3

Table 4.6 **Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.756[a]	.571	.570	.38091

a. Predictors: (Constant), DLP

Source: SPSS Output Version 27.0

Table 4.6 showed that digital lending platforms (DLP) had a strong positive effect on how often SMEs used financial services (R = 0.756). The R Square value of 0.571 showed that digital lending systems explained 57.1% of the changes in how people used financial services. The adjusted R Square value of 0.570 showed that the model stayed stable after adjustment. The standard error of 0.38091 showed that the predictions were fairly accurate. The results indicated that digital lending systems significantly impacted SME utilization of financial services in FCT–Abuja, thereby corroborating the rejection of the null hypothesis.

Table 4.7 **ANOVA[a]**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	76.407	1	76.407	526.622	.000[b]
	Residual	57.310	395	.145		
	Total	133.717	396			

a. Dependent Variable: UFS

b. Predictors: (Constant), DLP

Source: SPSS Output Version 27.0

The ANOVA results showed that the regression model was statistically significant because the F-value was 526.622 and the significance level was 0.000, which was below the 0.05 level. This demonstrated that digital lending platforms were strong predictors of SMEs in FCT–Abuja using financial services. The regression sum of squares (76.407) in comparison to the residual sum of squares (57.310) indicated that a significant portion of the variation in usage was elucidated by the model. The results showed that the model was good enough and explained the data well enough to support the rejection of the null hypothesis.

Table 4.8 **Coefficients[a]**

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.153	.127		9.086	.000
	DLP	.722	.031	.756	22.948	.000

a. Dependent Variable: UFS

Table 4.8 demonstrated that digital lending platforms had a positive and statistically significant impact on the utilization of financial services by SMEs. The unstandardized coefficient (B = 0.722) showed that when more people used digital lending, the number of people who used financial services also went up by 0.722. The high t-value (22.948) and significance level (0.000) showed that this effect was significant at the 5% level. The standardized beta coefficient (β = 0.756) indicated a significant positive impact of digital lending systems on usage. These results suggested that improved access to digital lending significantly elevated SMEs' utilization of financial services in FCT–Abuja, thereby validating the rejection of the null hypothesis.

5. DISCUSSION OF FINDINGS

The outcome of the initial hypothesis indicated that digital payment systems exerted a positive and statistically significant influence on SME access to financial services in FCT–Abuja, resulting in the rejection of H_{01}. This finding indicated that the increased utilization of digital payment platforms improved SMEs' access to formal financial services, encompassing transaction accounts, savings options, and credit-related products. This meant that digital payment infrastructure acted as a bridge into the formal financial system, making it easier to make transactions and see what's going on in the system. This result was in line with the Technology Acceptance Model (TAM) that Fred Davis came up with in 1989. This model propounded that the perceived usefulness and perceived ease of use of a technology had a big effect on whether or not people would use it. In this context, SMEs appeared to perceive digital payment systems as both efficient and convenient, thereby facilitating greater financial access.

The finding was empirically consistent with Adeoye et al. (2022), who indicated that digital financial inclusion markedly enhanced SME performance in Nigeria by broadening access to

financial services, despite noting gender-based disparities that exclude female owned enterprises due to lack of digital literacy and access to smart phones.

Agrawal (2025) also found that digital payment systems made it easier for people in rural areas to get into formal banking channels, which helped them get more access to fundings. Dudu et al. (2024) and Dangkeng and Munir (2025) also found that digital payment platforms made it easier for small business owners to be included by connecting them to structured financial networks.

The results were also in line with what Demirgüç-Kunt et al. (2022) found in their Global Findex study, which showed that digital payments sped up account ownership and financial resilience around the world. Nevertheless, certain empirical nuances partially contradicted this study. For example, Bansal (2024) warned that the growth of FinTech could hurt traditional institutions and lead to unequal inclusion outcomes in places where digital infrastructure was weak. Akinsolu (2023) also said that Fitch made Nigeria more inclusive, but that its full effect was limited by problems with infrastructure and regulations. These differences did not directly contradict the current study; instead, they indicated contextual dependencies influencing magnitude and sustainability.

The second hypothesis was rejected because the analysis showed that digital lending platforms had a strong and statistically significant impact on SMEs' use of financial services in the Federal Capital Territory (FCT) in Abuja. This showed that SMEs' active use of financial products, such as borrowing, repayment cycles, and reinvestment activities, increased when they had access to digital lending platforms. It was implied that digital lending encouraged deeper use of financial services rather than just increasing access. This outcome was also consistent with TAM, since SMEs were probably drawn to digital lending because of its perceived ease of use (mobile-based interfaces and streamlined application procedures) and usefulness (speed, flexibility, and lower collateral requirements).

This result had strong empirical support. Asamani and Majumdar (2024) discovered that technological familiarity and trust had a significant impact on the adoption of digital lending in India, which in turn increased borrowing participation. Fintech peer-to-peer lending improved MSMEs' access to capital and growth in Indonesia, especially in areas with high financial literacy, according to Efendi et al. (2023). According to Choubey et al. (2024), by extending credit reach, digital microfinance platforms enhanced financial usage among

marginalized groups. Additionally, Bhuvaneshwari and Vinitha (2025) found that adoption of lending applications was positively impacted by digital financial knowledge, which reinforced usage behavior. This was corroborated by Mallinguh and Wasike (2025), who showed how digital lending platforms greatly influenced borrowing and repayment trends in emerging markets. Fintech integration improved SMEs' ability to innovate and manage their finances, according to Aibinu et al. (2024) and Melbard et al. (2025). However, Bansal (2024) offered a cautious viewpoint, arguing that if regulatory safeguards were inadequate, finch-driven credit expansion could expose SMEs to excessive debt. This indicated possible long-term sustainability risks, but it did not contradict the current findings.

Overall, there was no overt evidence to the contrary, and the empirical data generally supported the study's conclusions. When there was divergence, it was due to contextual constraints rather than contradictions. The results, which showed that the perceived advantages and usability of digital payment and lending systems translated into better access and usage of financial services in FCT–Abuja, theoretically supported TAM's explanatory power in understanding FinTech adoption among SMEs.

6. CONCLUSION AND RECOMMENDATIONS

Conclusion

According to the study's findings, digital financial technologies greatly improved SME financial inclusion in FCT-Abuja. In particular, digital lending systems greatly increased SMEs' use of financial services, while digital payment systems enhanced their access to financial services. The empirical data showed that by lowering transactional barriers, enhancing financial visibility, and increasing credit opportunities, FinTech adoption acted as a crucial catalyst for financial integration among SMEs. Overall, the rejection of both null hypotheses demonstrated that digital financial innovations were essential facilitators of SME financial engagement and participation in the formal financial system rather than just supplementary tools.

Recommendations

1. Policymakers and financial regulators should strengthen digital payment infrastructure and promote interoperability across platforms to ensure that SMEs can seamlessly

access formal financial services, particularly in underserved clusters within FCT–Abuja.

2. Financial institutions and FinTech providers should expand and tailor digital lending products with transparent terms, simplified application processes, and embedded financial literacy support to enhance sustainable usage of financial services among SMEs while mitigating the risk of over-indebtedness.

3. Government agencies, in partnership with FinTech developers and SME associations, should launch targeted digital financial literacy programmes that integrate practical training on accounting software, budgeting apps, and invoicing tools.

Suggestion for Further Studies

This study adopted a cross-sectional design due to its limited time-frame and inability to gain repeated access to the same SMEs which was beyond its scope. However it is advised for future studies to adopt a longitudinal approach-tracking the same SMEs over a period of 3-5 years, which would provide more insights into causality and long term behavioral changes.

Such a study could also examine the moderating effects of factors like digital literacy, gender, and enterprise size on financial inclusion trajectories.

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