THE ROLE OF DIGITAL FINANCIAL SERVICES IN DRIVING SMALL AND MEDIUM ENTERPRISE (SME) GROWTH IN NIGERIA.

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ABSTRACT

Small and Medium Enterprises (SMEs) remain vital drivers of employment generation, poverty reduction, innovation, and economic diversification in Nigeria. Despite their significant contributions to national development, many SMEs continue to face challenges such as limited access to finance, inefficient payment systems, weak financial management structures, and inadequate banking support. In recent years, Digital Financial Services (DFS)—including mobile banking, online payment platforms, agent banking, and digital credit systems—have emerged as transformative tools capable of improving financial inclusion and supporting SME growth. This study examined the relationship between Digital Financial Services adoption and SME growth in Nigeria.

The study adopted a mixed-method research design combining quantitative and qualitative approaches. Quantitative data were obtained through structured questionnaires administered to 250 SME owners across Lagos, Abuja, and Port Harcourt, while qualitative insights were generated through semi-structured interviews with senior executives from fintech firms and commercial banks. Descriptive and regression analyses were employed to examine the relationship between DFS usage and SME performance indicators.

Findings revealed that over 70% of SMEs actively utilized DFS platforms such as mobile banking applications and USSD services. Regression analysis further showed that DFS adoption had a statistically significant positive relationship with SME growth outcomes ($p < 0.05$). Specifically, DFS usage significantly improved operational efficiency ($R^2 = 0.61$), enhanced sales performance ($R^2 = 0.27$), and increased access to short-term credit facilities. However, infrastructural weaknesses, cybersecurity concerns, poor network connectivity, and low digital literacy remained major barriers to effective DFS utilization.

The study concludes that Digital Financial Services significantly enhance SME resilience, financial inclusion, and business sustainability in Nigeria. It recommends increased investment in digital infrastructure, cybersecurity systems, financial literacy programmes, and SME-focused digital financial products to strengthen inclusive economic growth.

Keywords

Digital Financial Services, Small and Medium Enterprises, Financial Inclusion, Fintech, Mobile Banking, SME Growth, Digital Economy, Financial Technology, Nigeria, Business Sustainability

INTRODUCTION

The Rapid growth of the Nigerian economy depends on the participation of Micro, Small and Medium Enterprises (MSMEs) which is fundamental to commercial and social life. Small and Medium Enterprises Development Agency of Nigeria (SMEDAN, 2021) reported that MSMEs represent about 96% of all businesses in the nation, contribute close to half of the country's Gross Domestic Product (GDP), and provide more than 80% employment jobs. These numbers describe the sector's importance as a powerful driver of economic growth, social cohesion and creative vitality. SMEs are not only statistically significant but they also provide hatching grounds for entrepreneurs, who do business in millions and enhance trade everywhere from the rural to the urban economies.

Despite being undeniably crucial to the country, Nigerian SMEs do so under a minefield of systemic challenges. At the top of this list, is the continued lack of affordable financing, which perennially undermines their growth prospects and risk to scale. The funding gap, valued at more than $158 billion could derive from the difference between credit demand of SMEs and credit that is available for them (International Finance Corporation [IFC], 2020). This deficit is compounded by an array of other obstacles cumbersome payment systems that hinder the pace of business, and usually high costs to transact, frequently prohibitive, lackadaisical financial bookkeeping methods security hazards in electronic transactions and exposing market participants to pilfering of firms and security threats across both digital and paper-based schemes, constraint on entry into larger markets among others. In combination, they constitute a structural bottleneck which limits the potential of SMEs and reduces their contribution to pro-poor economic growth.

Traditional banks have long been fundamentally under-served to the SME sector; largely being seen as too risky and not profitable. This perception is as a result of factors such as inadequate collateral, poor accounting or informal accounting system and lack of proven credit history (Adeoye & Adetunji, 2022; Okpara, 2011). Consequently, SMEs in many cases have been forced to cope with credit rationing or financial exclusion and are thus reliant on the use of personal savings, a reliance on informal lenders or high-cost borrowing. That has limited their ability to innovate, grow and compete at home and abroad.

Yet in recent years a digital revolution has started to change Nigeria's financial system. The deployment of mobile technology, with over 150 million active mobile subscribers in 2023 (Nigerian Communications Commission [NCC], 2023), and purposive regulatory reforms opened the market for the evolution of Digital Financial Services (DFS). "Reforms including the Bank Verification Number (BVN) databased, granting of Payment Service Bank license and reviewing the National Financial Inclusion Strategy by CBN have not only deepen trust in our financial system but also increase creativity for players. DFS may be defined as the provision or storage and transfer of money and value using digital means; this includes mobile money, USSD codes, internet banking, online banking, agent banking network as well as emerging digital lending platforms (World Bank, 2022).

It is powerful that DFS has the potential to offer relief to SMEs from historical restraints in financial service provision. Through allowing friction-less digital payments collections, reducing transaction costs, establishing verifiable records of digital intercompany transactions and facilitating alternative credit-scoring models, DFS address many barriers to growth for SMEs (Demirgüç-Kunt et al., 2022). For instance, mobile payment solutions enable to SMEs grow their clientele beyond physical locations is one of which as well as the facility for digital transaction histories that result in data-drawing profiles that can sit into the credit underwriting models of financial institutions. That evolution is being amplified by the rise of Nigerian FinTech companies such as Flutterwave, Paystack, Opay, Moniepoint and PalmPay offering platforms that are not just more efficient but increasingly aligned with small business needs (Adelekan, 2020).

However, despite the promise of DFS, there is still a big gap to fill in empirically proving the impact on SME growth in Nigeria. There's a lot of talk out there, but much relies on anecdote and success stories pushed by FinTech companies and politicians, without serious academic legwork to justify results at scale. Key implications: The findings underscore the need for nuanced empirical research not so much to confirm that SMEs adopt DFS, but rather how and under what circumstances DFS affect business performance in terms of operational efficiency, sales revenue and access to finance. In addition, little work has been done on the enduring challenges – unstable network

connections others (cyber security risk, and digital illiteracy) that could hinder DFS uptake and its transformational value (Efobi, Beecroft & Osabuohien 2021).

It is within this framework that the current study is located. With the mix of qualitative and quantitative evidence, we aim to contribute a holistic view on how DFS adoption influences firm growth in the context of Nigeria.

RESEARCH OBJECTIVES

This study aims to:

- Examine the consciousness and uses of different DFS platforms by Nigerian SMEs.
- Assess the quantitative effect of adoption of DFS on certain SMEs growth drivers, namely operational efficiency, sales revenue and access to finance.
- Define the key constraints to DFS uptake being scaled and replicated more broadly among SMEs.

RESEARCH QUESTIONS

- How aware and how open are Nigerian SMEs to different DFS platforms?
- What are the effects of DFS on Nigerian SME operational efficiency, Sales volume, and finance accessibility?
- What constraints are the SMEs facing that hinder them to fully adopt and integrate DFS in their business operations?

2.0 Literature Review

2.1 Conceptual Review

Digital Financial Service (DFS) Digital financial service (DFS), a subset of digital banking, can involve the use of mobile and telephone networks to provide low-cost opportunities for cash transfer services without deposit-taking as well as cash handling does devices and user interfaces such as PCs, including operation with tablets (GPFI, 2016). DFS is more than just mobile money, it is a digital environment that lowers the cost and increases the convenience of financial transactions for people as well as businesses. DFS

consists of digital payments, digital credit, digital savings and digital insurance all which provide specific functionalities to smallholder entrepreneurs.

Digital payments are still the most pervasive and widely used DFS, encompassing mobile money transfers, online banking, USSD-based banking, POS transactions and mobile wallets (World Bank 2022). For SMEs, digital payments offer efficient and reliable transactions, less reliance on cash and access to larger customer groups via e-commerce. Digital credit platforms rely on algorithmic data— account transaction history, mobile usage patterns and alternative credit scores—to provide short-term loans to SMEs with minimal or no security demands on a regular basis (Bongomin et al., 2018). Digital savings programmes enable SMEs and entrepreneurs to save through safe, mobile-friendly accounts and micro-investment options that are typically more flexible than those provided by conventional banks. Last but not least, digital insurance – through InsurTech solutions -facilitates the purchasing, management and claims of insurances on the go for SMEs; that ease of claiming business risks.

The quick rollout of mobile phones in Nigeria (more than 150 million active subscribers as at 2023. NCC, 2023) has opened way for expansion of DFS. FinTech companies like Flutterwave, Paystack, Opay and Moniepoint have become a key infrastructure, with affordable digital tools that provide immediate solutions to the needs of SME operators. Yet adoption is asymmetrical, as urban SMEs are more likely to adopt than those in rural area typically due to infrastructure and literacy leads (Efobi, Beecroft & Osabuohien 2021).

Small and Medium Enterprises (SMEs)

SMEs are defined differently in different countries based on their size or turnover. For the purpose of this study, the criteria provided by the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN, 2021) and Central Bank of Nigeria (CBN) are employed. A micro-enterprise has less than 10 employees, and assets are below ₦50 million. A micro enterprise hires between 10 and 49 staff, owned capital is within the range of ₦50 million and ₦500 million. A small-scale business has 50 to 199 staff and asset base of ₦500millon to ₦1billion.

These definitions are not only important for definitional clarity, but also because they structure regulatory systems, credit programmes and financial inclusion strategies aimed at the sector. SMEs play a significant role in Nigeria's economic development, by creating jobs, promoting domestic demand and driving innovation (SMEDAN, 2021). However, they are commonly hampered in their growth paths by financial exclusion, poor infrastructure and limited access to formal finance. This background highlights the importance of part-of DF income in compensating for structural constraints and generating inclusive opportunities.

2.2 Theoretical Framework

This study relies on two integrative frameworks: the Technology Acceptance Model (TAM) and Financial Inclusion Theory to generate insight into the DFS adoption and their effects on SMEs.

Technology Acceptance Model (TAM)

TAM, which was proposed by Davis (1989), is one of the most popular models for technology adoption. Has defined two significant determinants; perceived usefulness (PU) and perceived ease of use (PEOU), that contribute an individual intention to adopt and use a new technology. PU involves the way in which users believe a system will improve their performance, and PEOU refers to the extent to which such a system is perceived as easy to use.

Regarding SMEs in Nigeria, the uptake of DFS is influenced by whether enterprisers consider these tools to improve transaction efficiency, lower operational costs and reach customers better. Extensively, if mobile money channels, USSD (Unstructured Supplementary Service Data) codes and POS machines proved too complex or unreliable for SME's then their acceptance is likely to be impeded. There is abundant empirical evidence to support the predictive ability of TAM in technological settings, such as mobile banking and e-commerce usage across developing countries (Venkatesh & Davis, 2000; Shaikh and Karjaluoto, 2015). Therefore, TAM is a strong lens for examining the determinants of SME's adoption of DFS.

Financial Inclusion Theory

Theory of Financial Inclusion According to financial inclusion proponents, inclusive access to finance is a prerequisite for achieving sustainable development, reducing poverty, and promoting entrepreneurship (Sarma, 2008). Inclusive finance systems expand participation by providing formal financial services to segments of the population who are conventionally underserved or excluded from such services. Reducing the cost of entry, transaction costs and expanding corporate rubber of technology lead to both increasing individual welfare as well also at macro level (Beck et al., 2007).

DFS is congruent with this theory, and further advances financial inclusion where brick-and-mortar banking infrastructure is lacking. To Nigerian SMEs DFS, in turn, provides a source of finance and reduces dependency on informal sources of credit, increases access to digital payments and enables screen-based credit on the basis of alternative data-vector driven models. Hence, Financial Inclusion Theory offers a macroeconomic justification to investigate the impact of DFS integration on small business participation into more formal economic systems, including increased competitiveness and resilience aspects.

2.3 Empirical Review

Nationally and worldwide, evidence on DFS (practices) and the growth of SME's is strong and largely positive. The most famous of these is Kenya's M-PESA; since its introduction in 2007, it has fundamentally changed financial ecosystems. Mobile money was found by Suri and Jack (2016) to lead to higher incomes, greater protection against financial shocks and a reduction in poverty, particularly among female-headed households. In the same light, Aker and Mbiti (2010) asserted that mobile money improves transaction efficiency, decreases remittance cost, and fosters entrepreneurship.

In a wider context pertaining to Sub-Saharan Africa, research supports the transformational aspects of DFS on SMEs. For example, Bongomin et al. (2018) established digital credit as an efficient way to increase SMEs' access to finance and financial resilience. Munyegera and Matsumoto (2016) in Uganda during the same period found mobile money adoption was related to increased sales among small hold farmers suggesting potential for DFS in rural as well as urban settings.

Empirical research in a Nigerian environment is still on the increase and somewhat limited. Ogbo, Ukpere and Nwosu (2021) studied the SMEs in South-Eastern Nigeria and discovered that through DFS financial inclusion, all these entities were able to enhance their savings culture, transaction convenience and overall general financial performance. Adeoye and Adetunji (2022) in a study conducted in Lagos State, established that FinTech adoption explains a high proportion of the variance in performance of SMEs, especially sales volume and customer base.

On the other hand, a number of studies highlight existing obstacles to DFS uptake. Eze et al. (2020) pointed out poor digital infrastructure, low financial literacy and lack of trust as a key barrier. The Central Bank of Nigeria (2020) also noted that whilst DFS adoption for payments is increasing, uptake for more advanced financial services such as digital credit and insurance is low due to high interest rates, repayment terms and lack of information. Efobi et al. (2021) also noted that it is the small firms from rural regions who suffer most from digital exclusion and thus see access inequality of financial service increase.

Collectively, the literature highlights two salient points:

(i) DFS holds great potential for SME performance improvement and

(ii) Structural obstacles still inhibit its ability to transform.

This study adds to the literature by exploring three urban areas in Lagos, Abuja and Port Harcourt, and not just a correlation analysis of DFSA but also an actual measurement of the effect on indicators such as operational expenses, sales revenue or access to credit particularly post-COVID-19 period characterised with accelerated digital uptake and systemic economic disruptions.

3.0 Methodology

3.1 Research Design

Our study employed a mixed-methods research design incorporating both quantitative and qualitative approaches to provide a more complete picture of the relationship between Small and Medium-sized Enterprise (SME) growth and Digital Financial Services (DFS) uptake in Nigeria. The mixed-methods approach, as this paper describes, is chosen quite intentionally to avoid putting all of its eggs in one research paradigm. It naturally combines the strengths available to numerical counting with rich and profound contextual insights, thereby negating weaknesses which may be derived purely our reliance on one standpoint in research (Creswell & Plano Clark, 2018).

The quantitative component of research used a cross-sectional survey which, among other things, sampled SME owner-operators on a large scale. It specifically sought to gather standardized numerical data that could be thrown into statistical analysis -- hence feeding back on the target population as a whole. In contrast, the qualitative component of this work consisted of semi-structured interviews with key informants (in this case Senior Management from FinTechs) who were able to shed light on drivers for DFS development, the demands of SMEs as a unique customer type, and industry-wide focus areas.

In terms of methodology triangulation, this is how the study benefits from more authority and reliability provided the evidence from statistics is supported by audience living experiences and expert interpretations. Such an approach is particularly suitable for study intersecting technology with commerce where people ’s behavior and systems factors both play major roles.

3.2 Population and Sampling

This study was aimed at the population of registered SMEs in three of Nigeria's major commercial centers: Lagos, Abuja, and Port Harcourt. These sites were chosen for two reasons; firstly, they have some of the largest proportions in the country, secondly due to their better infrastructure, more active FinTech operators and more varied customer bases--advanced penetration into DFS is seen here as well (SMEDAN, 2021).

A multi-stage sampling technique was applied to ensure that the final sample was representative of all aspects of society:

1.**Purposive Sampling:** Lagos, Abuja, and Port Harcourt show the East, the North, and the. South commercial zones of Nigeria respectively were chosen city as it offered a broad representation.

2.**Stratified Random Sampling:** SMEs in each town were classified into four types. That is, according to the Small and Medium Enterprises Development Agency of Nigeria--Retail, Service, Manufacturing and Agriculture.

3.**Simple Random Sampling:** Based on the stratified lists of enterprises, a sample of 250 SMEs were randomly selected idly. Business directories provided by the National Association of Small and Medium-Sized Enterprise (NASME) as well as verifiable online platforms such as VConnect provided the sampling frames.

At the 95% level of confidence with a 5% margin for error, the 'Taro Yamane formula' of 1967 for determining sample size from a finite population yielded 250 as an adequate and statistically sound sample size. This sample size was suitable not only for regression but also provided enough statistical power in related tests of hypotheses to be meaningful. In addition, data collection logistics meant that it was feasible as well as sizeable enough to warrant analysis on wages and incomes.

3.3 Data Collection Procedures

Data collection was spread over a period from March until May 1995 and both quantitative and qualitative probes were used.

1. Structured Questionnaire:

A structured questionnaire was developed to examine the experiences of SME owners and managers with DFS. This instrument was constructed on a five-point Likert scale (1 = "Strongly Disagree"; 5 = "Strongly Agree") and divided into four sections:

- **Section A:** Respondent personal and business profile (eg, age, gender, industry of operation, company size).
- **Section B:** Awareness, adoption, and usage patterns of DFS services in general (eg, mobile banking, POS, online transfers).

- **Section C:** How has financial technology affected operational efficiency; does it increase revenues or decrease costs? And to what extent?
- **Section D:** Threats and difficulties involved in utilizing financial technology (such as network failures, security fears, and transaction lag). The photo below shows the questionnaire being conducted in Nigeria:

A total 330 examples were received. But only 301 were analyzed. The bias of the latter was studied and it was found that age-based comparisons were highly similar.

2. Semi-Structured Interviews:

Five key informants were selected to conduct in-depth semi-structured interviews. They were from leading financial institutions and commercial banks in Nigeria. These key informants were purposively selected for their roles in DFS design, operations or regulatory engagement. The interview protocol focused on three main themes:

(i) Services to SMEs needed, consumer behavior under differentiated market conditions when and how do they adopt e-money;

(ii) Industrial Development bottlenecks in the process of development and on which resources from what sources it draws support to overcome this hurdle these questions require work be done at two time scales simultaneously one for insight into problem solutions another laying out future DFs business possibilities.

(iii) Industry culture--the extent of it that reflects in commercial banking sector within China's regulatory framework through this lens we can make more accurate forecasts about how Pay Pacific will grow and develop as well what directions these trends may take later into our period of investigation.

The interviews were carried out face-to-face and remotely (via Zoom) with each lasting from 45 to 60 minutes. Then transcribed audio-recordings were made for thematic analysis purposes later on. Videos

3.4 Data Analysis

The data analysis process proceeded in two phases 5- quantitative and qualitative-complementary overall results were thereby obtained.

Quantitative Analysis The data from the structured questionnaires was cleaned, coded, and analyzed with the Statistical Package for Social Sciences (SPSS, version 27). Data were analyzed both descriptively and inferentially:

Descriptive Statistics: Different frequency distributions summarize demographic characteristics through tables, histograms (or pie charts) providing clues such as how far out of its perceived range 'DFI' has either become-or hasn't yet Lambs before wolves.

Inferential Statistics: Pearson's Product-Moment Correlation (PPMC): This was used to examine the strength and direction of relationships between DFS adoption and growth indicators.

Multiple Linear Regression: Done to figure out if increasing DFS (independent variable) has an effect on any indicators of SME (dependent variables) operational efficiency, sales revenue, and access to finance. There was a statistical threshold of $p < 0.05$, this means that any results below this threshold are deemed significant.

Qualitative Analysis:

Transcripts from the interviews were subjected to Thematic Analysis using the six-step procedure of Braun and Clarke (2006):

(i) getting to know your data,
(ii) formulating initial codes,
(iii) looking for themes,
(iv) reviewing themes,
(v) defining and labeling themes, and
(vi) writing the report.

For its flexibility and ability to identify patterns in qualitative data, this method was selected.

The integration of quantitative and qualitative results provided for methodological triangulation, which gave the study's conclusions more credibility and robustness.

4.0 Results and Discussion

4.1 Demographic Characteristics of Respondents

This study included a total of 250 SME owners and managers, who were sampled from Lagos, Abuja, and Portharcourt. Table 1 gives an overview of their demographic features of all the random samples taken, the balance in gender at the level of the whole sample is more or less maintained, with men accounting for a larger share (65.2%) than women (34.8%).The imbalance in gender is consistent with previous studies identifying male entrepreneurs as the main force in Nigeria's SME ecosystem (Afolabi, 2015; Ogbo et al., 2021).Age-wise, a majority of SME owners78 critics (58 percent) fall within the years 31 to 45 group. This shows that Nigeria's SME sector is still primarily driven by an economically active and middle-aged stratum. This finding is reminiscent of the conclusions by Adeoye and Adetunji (2022), who argue that these older people are most adaptable and receptive to technological change including digital financial services (DFS). The sectorial breakdown was diverse as it were: 30% retail, 24.8% service industry, 20% processing/ manufacturing, 15.2% agriculture, and 10% other sectors. The prevalence of brothels reflects statistics for national SMEs offered by SMEDAN (2021). In any case commercial trade Office of Labor (CNA) is a major employer and contributor to Nigerian's GDP. The sample's business age and size are further evidence of its maturity. 20% of those surveyed were relatively young (less than 3 years old), while the majority (60%) had functioned for between 3–10 years of their lives and 20 % had been in existence for more than 10 years. By number of employees as well, the sample is again diverse, with small firms (10–49 of them) accounting for fully half and thus truly resembling SMEs that proliferate across Nigerian entrepreneurship.

Table 1: Demographic Profile of Respondents (N=250)

Characteristics	**Category**	**Frequency**	**Percentage (%)**
Gender	Male	163	65.2
	Female	87	34.8

Age	18 – 30 Years	45	18.0
	31 – 45 Years	145	58.0
	46 Years and above	60	24.0
Business Sector	Retail Trade	75	30.0
	Services	62	24.8
	Manufacturing/Processing	50	20.0
	Agribusiness	38	15.2
	Others	25	10.0
Business Age	< 3 Years	50	20.0
	3 – 10 Years	150	60.0
	> 10 Years	50	20.0
Employee Headcount	1 – 9 (Micro)	80	32.0
	10 – 49 (Small)	125	50.0
	50 – 199 (Medium)	45	18.0

4.2 Awareness and Adoption of Digital Financial Services

Awareness of DFS was almost universal, with 98% of interviewees claiming to know at least one form of service. This suggests that penetration of DFS in Nigeria has reached critical levels, even among traditionally underserved SME firms. But actual adoption varied widely by service type, reflecting its utility and perceived complexity. According to Table 2, the most commonly used service was USSD banking (95%), followed very closely by

mobile banking apps (85%) and digital wallets (75%). The main uses of these services were for routine transactions such as buying airtime, paying accounts and transferring funds around. The relatively high adoption rate (70%) of POS terminals indicates a growing demand for cashless payment systems, particularly in customer-facing enterprises. However, more sophisticated DFS like online invoicing (40%) and digital loan platforms (35%) suffered low levels of adoption. This echoes earlier findings by Eze et al. (2020) that while SMEs are comfortable using DFS for payments, they remain wary of embracing more advanced product categories such as digital credit or insurance. The total score for the composite graph representing DFS use was 72%. This indicates a good level of incorporation of these services but leaves room for improvement in other more involved features. It is also of interest that USSD banking is such a popular method because it provides access even in low-connectivity environments. This is completely in line with the Technology Acceptance Model (Davis 1989), in which ease of use is at its very heart.

Table 2: DFS Adoption Rates among Respondents (N=250)

Digital Financial Services	Adoption Rate (%)	Primary Use case
USSD Banking	95%	Airtime purchase, low-value funds transfer
Mobile Banking App (Bank)	85%	Bills payment, checking balances, higher-value transfers
Digital Wallets (Opay, PalmPay)	75%	Low-fee transfers, utility payments, ride-hailing
POS Terminal	70%	Receiving customer card payments

Online Invoicing/Payment Links	40%	Receiving remote payments from clients
Digital Loan Platforms (e.g. airMoney)	35%	Accessing short-term credit for inventory/cash flow
Overall Composite DFS Adoption Score	**72%**	

4.3 Impact of DFS on SME Growth

The impact of DFS adoption on these SME growth variables was tested using regression analysis. The finding is shown in Table 3 (a).

Operational Efficiency

The results indicated that there was a significant positive relationship between the adoption of DFS and operational efficiency ($r =. 784$, $p < 0.01$). Small businesses reported a big decrease in time spent on banking — from about three trips per week to fewer than one per week. DFS adoption explained 61% of the variance in efficiency ($R^2 = 0.61$) based on the regression model used. This reinforces the claim that DFS eases and simplifies daily operations so business persons can concentrate on value-creation. Comparable efficiency gains have also been reported on M-PESA studies in Kenya (Suri & Jack, 2016) and FinTech use in Lagos (Adeoye & Adetunji, 2022).

Sales Revenue

DFS use was also moderately and significantly related with sales revenue ($r =. 523$, $p < 0.05$). Around 68% of SMEs that utilized POS devices and online payment links saw sales improve because they could accept more payments, it was reported. The model showed that DFS explained 27%ofthevariance in revenue growth ($R^2 = 0.27$). This result is consistent with that of Ogbo et al. (2021) found that DFS helps SMEs expand their customer base by limiting the necessity for cash-only transactions.

Access to Finance

The relationship between access to finance and DFS adoption was the weakest but it was still moderate ($r =. 304$, $p < 0.05$). Just 35% of those surveyed had used digital loan platforms, but for those who did, the speed and ease compared to having to go through a bank was highlighted. However, high interest rates and short repayment terms were identified as significant constraints, consistent with the findings from CBN (2020) report on digital lending practices.

Table 3: Summary of Regression Analysis for Variables Predicting SME Growth

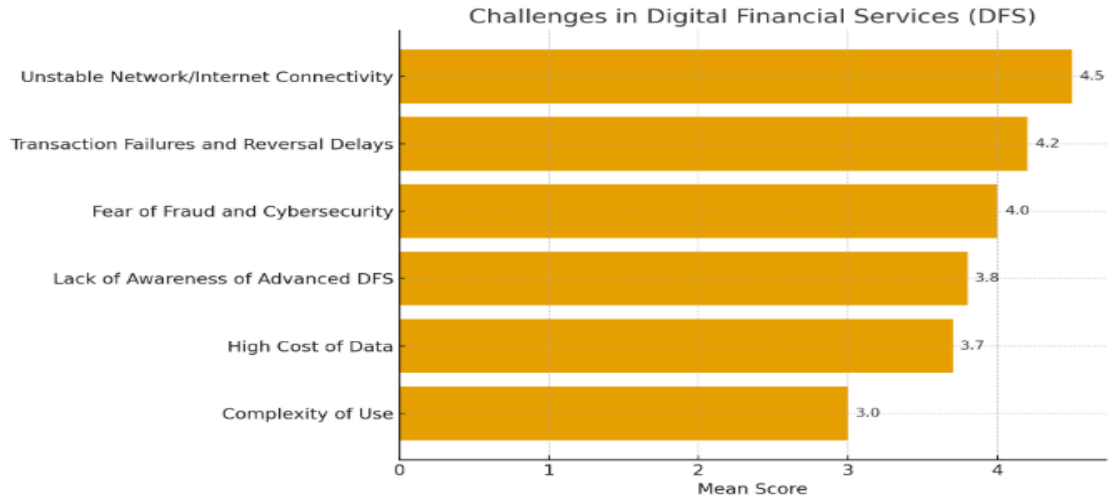
Model	**R**	**R^2**	**Adjusted R2**	**Std. Error of the Estimate**	**P-Value**
Operational Efficiency	.784	.614	.602	.51243	.000
Sales Revenue	.523	.274	.264	.67421	.003
Access to Finance	.304	.092	.088	.78955	.021

4.4 Challenges to DFS Adoption

Despite the overall positive outlook, SMEs reported significant barriers to DFS adoption. Figure 1 (mean scores of challenges) highlighted unstable network connectivity, transaction failures, and cybersecurity risks as the most pressing issues. These findings corroborate those of Eze et al. (2020), who emphasized infrastructural deficits and trust deficits as major obstacles to DFS in Nigeria.

Fraud concerns also emerged prominently, indicating that lack of trust in digital platforms continues to inhibit deeper financial inclusion. The persistence of these challenges underscores the need for collaborative interventions by government, telecom operators, and FinTech firms to improve digital infrastructure and strengthen consumer protection.

Figure 1: Mean Score of Challenges to DFS Adoption (N=250)



4.5 Discussion of Findings

The results offer solid evidence to back up the hypothesis that the diffusion of DFS helps to drive SME development in Nigeria. First, a marked step up in efficiency shows DFS has the potential to transform our transaction model just as mobile money did elsewhere, thereby slashing costs and saving us time (Suri & Jack, 2016) Second, the positive impact on sales revenues shows how DFS extended market opportunities for small and medium-sized enterprises (SMEs); by enabling them to serve cashless customers--an idea consistent with theoretical predictions made by Financial Inclusion Theory (Sarma, 2008). However, the relatively modest impetus toward greater finance access provides a quick view of longstanding holes in Nigeria's DFS ecosystem. While digital loans can tide one over financially, they are often unsuitable for businesses in need of medium- or long-term capital because of their sky-high interest rates and limited loan amounts. This implies that digital credit in its present form might supplement but can never fully replace traditional sources of finance.

The research also underlines how important it is to overcome systemic problems like poor infrastructure in Nigeria-fraud risks (Dominators), low adoption rates for advanced DFS services. Without measures targeting these obstacles, the impetus of financial inclusion could lose steam here in 2002-2005. Qualitative tips from FinTech executives provided further confirmation for me: in low-connectivity environments, there is a clear mismatch between product design and actual circumstances experienced by SMEs. Their suggestion

that future direction for the industry must be toward more integrated platforms–bundling payments, accounting and tax management and so on–is worth noting.

In short, while DFS has indeed enhanced SME efficiency and sales, its role in finance is still underutilized. This mixed picture reflects both the achievements to date and the difficulties faced in moving towards digital financial inclusion for Nigeria's SME sector.

5.0 Conclusion and Recommendations

5.1 Conclusion

This report explores the connection between DFS adoption and the growth of SMEs in Nigeria, focusing three commercial hubs: Abuja Lagos and Port Harcourt. Introducing a mixed research approach, we have found that DFS adoption is associated with both improvements in operational efficiency and sales turnover but while it has a smaller and positive effect in increasing access to finance.

The regression findings showed that DFS accounted for up to 61% of the variance in business' efficiency, underscoring just how critical was its impact on such activities as payment, such things we do now single cellularly like payments and collections financial recording. SMEs applying and using point-of-sale (POS) systems and digital payment links also experienced significant increases in turnover--attributed mainly to enablement of more diverse forms of payment made since the now almost universally cashless cycle. However, the effect on access to finance was not so strong as that, reflecting both poorer distribution of digital loan products and the handicap of high interest rates and short-term repayment

Despite these benefits, however, the study also found a number of structural or behavioral barriers faced by small and medium-sized enterprises. Jittery digital infrastructure, frequent transaction failures and high vulnerability to fraud were identified as key obstacles. Moreover, you saw very little use of more advanced DFS goods such as digital credit, insurance or online invoicing - meaning while basic services are widely available, the industry has yet to achieve full penetration.

In conclusion, the research found that DFS is serving as an essential driving force behind the competitiveness of Nigerian SMEs, particularly after COVID-19 pandemic. Capitalising on efficient digital environments for implementation of financial products it introduced could bring about much further growth in this area over coming years (World Bank, 2022). However, DFS's potential is still not fully utilised; in particular, it is not yet contributing enough to close gaps in small business financing see integrated digital ecosystems emerge. For Nigeria 's financial inclusion agenda stakeholders, both challenges and also opportunities remain.

5.2 Theoretical Implications

From a theoretical perspective, this research further increases our understanding of technology adoption and financial inclusion. By using the Technology Adoption Model (TAM), this report confirmed that perceived usefulness and ease of use are containing factors in the reasoning of DFS among SMEs. USSD banking is nearly universal in neighborhoods where it only provides limited functionality, which exposes another feature of access ease. You can easily build multi-layered access paths and combine openness with control.

The study's findings also develop Financial Inclusion Theory (Sarma, 2008): access to financial services is widened by DFS, but it also improves business efficiency and market reach. However, less impressive outcomes in financing imply a theoretical limitation: financial integration is no automatic route to cheap or sufficient funds for SMEs. This argues for a new financial theory that can cover such things as Build-up planes, shares and regulatory supervisions.

5.3 Practical Implications

To practitioners and policymakers, the study offers actionable insights:

1. **For SMEs:**
    - The adoption of DFS enhances business efficiency and revenue growth. However, businesses must do more than strictly focus on one-line services (payment) and pay attention to the IPS (integrated settlement platform), credit reporting tools and digital shanzhai Partnerships. Only then can they truly benefit from DFS.

- Building the digital and financial literacy skills of the workforce is essential as lack of knowledge often limits both SMEs from utilizing available tools for greater potential gain (Eze et al., 2020), more detailed actual development patterns.

2. **For FinTech Companies and Banks:**
   - Product design must take SME attributes (e.g., 2G networks, low-spec devices) into account. The GCU in economics emphasizes popular use value. The fact that USSD banking is so well-received proves this point.
   - Beyond payments, it is also imperative to offer bundled services so that accounting, inventory management and tax legislation can interact smoothly within the scope of financial services. Such an omnibus platform enables enterprises to establish digital eco-systems with their full span, both deepening consumption and lengthening their life period in the market.
3. **For regulators and policymakers:**
   - Policies should aim to incentivize FinTechs and traditional banks to jointly develop small enterprise credit products. Government-backed credit guarantees could also reduce loan risks.

5.4 Policy Recommendations

Recommendation 1: Infrastructure Development and Security

- The federal government together with telecom operators should promote broadband and mobile network coverage expansion, especially in the less developed areas where currently DFS adoption is uneven or obstructed due to systemic failures.

Recommendation 2: Strengthening Cyber Security and Trust for Consumers

- The Agencies must comply with the most rigorous levels of Internet security standards that FinTech companies command in areas such as data encryption, transaction monitoring speed and customer complaint responses.
- Public awareness campaigns should be mounted to foster digital literacy and give new DFS platform users more confidence, particularly in the first place.

Recommendation 3: Promoting Digitally Accessible Long-term, Sustainable Credit

- In the digital lending sector, regulatory regimes shall have constraints on sky high interest rates to stop extortion.
- Development finance institutions might co-finance with FinTechs hybrid models of credit that combine algorithmic credit scoring and government-backed risk-sharing mechanisms. For small businesses, this would open the way to more accessible, sustainable and longer-term credit.

Recommendation 4: Promote a training plan for SMEs

- Moving nationwide to the town-level training plans. If chamber of commerce, then along with SMU associations and business incubators host sessions focused on digital literacy, as well as how best to use DFS methods in more sophisticated ways, such as for invoicing, savings and insurance
- According to insider sources, as SMEs become more skillful they will not only increase the use of digital finance but also make themselves more attractive in an increasingly digital economy.

Recommendation 5: Promote an Integrated DFS Ecosystem

- Governments must not be afraid to provide incentives for integrated solutions that move digital beyond payments. For instance, putting together payment processing together with bookkeeping, tax management and credit access in a single platform would be a start on fulfilling several of the pain points SMEs now face at once.
- Widely used measures of fragmentation and compatibility one of the key findings of this study suggests that fin tech startups should be encouraged to collaborate rather than engage in too much competitive activity with similar ones. This process of interoperation will ha place to unite those who would otherwise remain isolated into cohesive entities able to play a useful role in the DFS landscape.

5.5 Topics of Future Research

This report has generated several important research topics. First of all, longitudinal studies must be conducted in order to determine the influence of DFS adoption over time with longer collections of data than an instantaneously garnered snapshot can possibly supply. Secondly, further research in different industries will show different aspects of DFS use. For example, it is not known at the moment what impact DFS has had on

businesses in the food processing that are either engaged in production or mainly manufacturing type operations. Finally, comparative across African countries would shed more light on how national regulatory frameworks model DFS adoption and SME performance at a broader level.

5.6 Final Words

In sum, DFS represents both an opportunity and a challenge for the entire SME sector in Nigeria. On the one hand, it has already brought clear benefits in terms of efficiency and sales. In particular, this confirms its status as a significant factor encouraging business growth as well as financial inclusion. On the other hand, the absence of adequate infrastructure, angst about the trustworthiness DFS Inspiration from Jumia's customers and digital credit received illustrate that, even as more gains pour in from fin tech innovation across many diverse areas within Nigeria s economic system it so far remains in retreat. To turn Nigeria back on once again towards full activation as an engine of inclusive economic progress through taking up more market share with DFS services will require national cooperation among SMEs, fin tech innovators, regulators and also policymakers. Otherwise, these gains cannot be continued over a long period of time.

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Appendix A: Survey Questionnaire

Appendix B: Interview Guide

Appendix C: Informed Consent Form