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Effect of Digital Financial Tools on the Profitability and Growth of Small and Medium Enterprises (SMEs) in Adamawa, Borno, and Yobe States

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Abstract

This study examines the relationship between digital financial tools and the profitability and growth of small and medium enterprises (SMEs) in Adamawa, Borno, and Yobe States, Nigeria. As digital finance including mobile banking, digital wallets, and cloud-based accounting systems reshapes business operations, SMEs in the region face infrastructural constraints, digital illiteracy, and security challenges. Using a quantitative design, data were collected from 200 SME operators through structured questionnaires. Descriptive and inferential analyses, including correlation and regression, were conducted using SPSS. The findings reveal a significant positive relationship between digital financial tool adoption and profitability ($r = 0.71$, $p < 0.01$). SMEs utilizing digital platforms reported improved cash flow management, enhanced access to credit, efficient payment systems, and increased revenue growth. Instrument reliability was confirmed ($r = 0.85$). The study concludes that digital financial integration is a significant predictor of SME performance and recommends strengthened digital literacy initiatives, improved ICT infrastructure, and fintech partnerships to promote sustainable enterprise development and regional economic resilience.

Keywords: *Digital, Financial Tools, Profitability, Growth, Small and Medium Enterprises*

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Background to the Study

Small and Medium Enterprises (SMEs) play a pivotal role in the Nigerian economy, contributing nearly 48% to the national GDP and employing over 60 million people (SMEDAN/NBS, 2017). They are widely recognized as drivers of innovation, employment, and economic diversification (Agbim, 2020). However, SMEs, especially in Nigeria's North-East region, face several operational challenges including insecurity, limited access to finance, and poor infrastructure (World Bank, 2020). The emergence of digital financial tools such as mobile money services, point-of-sale (POS) systems, cloud-based accounting, and fintech lending platforms offers a transformative opportunity for SMEs to overcome traditional financial bottlenecks. These tools provide access to faster transactions, improved record keeping, access to financial products, and real-time decision-making capabilities (Ozili, 2018). Despite the national push towards digital finance adoption, uptake among SMEs in Adamawa, Borno, and Yobe States remains inconsistent, potentially due to infrastructural and educational disparities. Prior research emphasizes the importance of digital finance in fostering inclusive financial ecosystems and promoting business sustainability (Demirguc-Kunt et al., 2018). However, empirical studies specifically focusing on Adamawa, Borno, and Yobe States remain limited, leaving a gap in understanding how these tools influence business outcomes in high-risk and underserved regions. This study aims to fill this knowledge gap by assessing the relationship between the use of digital financial tools and the financial performance of SMEs in Adamawa, Borno, and Yobe States. Through this research, we aim to provide actionable insights that inform policy design, entrepreneurial strategy, and development interventions in the region.

Statement of the Problem

In Nigeria, the SME sector faces persistent financial constraints that hinder growth and profitability. These challenges are particularly pronounced in the North-East region, where decades of socio-economic instability and infrastructural decay have weakened business environments. SMEs operating in this region often lack access to traditional financial services due to the closure of bank branches, limited physical security, and high transaction costs. Digital financial tools have the potential to mitigate some of these barriers by providing SMEs with alternative channels for accessing credit, managing payments, and tracking financial performance. However, the extent to which these tools have been adopted and their actual impact on SME profitability and growth in Adamawa, Borno, and Yobe States remains poorly understood. Preliminary observations suggest that many SMEs are either unaware of or unable to effectively utilize these tools. This disconnect raises critical questions: Are digital financial tools accessible and usable by SMEs in the region? Do they contribute meaningfully to profitability and business expansion? What barriers impede their usage? Addressing these questions is essential for developing targeted interventions that support digital financial inclusion and promote economic resilience. This study, therefore, seeks to bridge the empirical gap by systematically evaluating the role of digital financial tools in enhancing SME performance in Adamawa, Borno, and Yobe States. Understanding these dynamics is crucial for designing responsive policies and support mechanisms that can empower SMEs and stimulate inclusive regional development.

Objectives of the Study

1. To examine the level of awareness and adoption of digital financial tools among SMEs in Adamawa, Borno, and Yobe States.
2. To assess the impact of digital financial tools on the profitability and growth of SMEs.
3. To identify the key barriers and enablers of digital financial tool adoption among SMEs.

Research Questions

1. What is the level of awareness and usage of digital financial tools among SMEs in Adamawa, Borno, and Yobe States?
2. How do digital financial tools influence SME profitability and growth?
3. What challenges limit the adoption of digital financial tools in the region?

Hypothesis

H0: There is no significant relationship between the use of digital financial tools and the profitability of SMEs in Adamawa, Borno, and Yobe States.

H1: There is a significant relationship between the use of digital financial tools and the profitability of SMEs in Adamawa, Borno, and Yobe States.

Literature Review

The integration of digital financial tools into SME operations has garnered significant attention in development finance and entrepreneurship literature. Digital finance encompasses technologies that deliver financial services through mobile phones, the internet, or smart cards (Aron, 2018). Such tools enhance financial access, especially in remote and underserved regions like Adamawa, Borno, and Yobe States. According to Ozili (2018), digital finance reduces transaction costs and improves efficiency in financial operations. SMEs that embrace mobile banking, digital wallets, and cloud accounting can better manage their cash flow and make informed financial decisions (Asongu et al., 2022). Empirical evidence by Bongomin & Ntayi (2018) indicates that mobile banking enhances credit access and financial inclusiveness for small enterprises in sub-Saharan Africa. Asongu & Odhiambo (2020) argue that digital platforms facilitate customer engagement and business expansion, thereby boosting sales and profitability. In Adamawa, Borno, and Yobe States, however, weak ICT infrastructure, limited power supply, and security challenges obstruct adoption (Agwu, 2022). Despite these barriers, findings by Oluwafemi (2023) show that digitally equipped SMEs demonstrate better growth indicators and operational stability. Digital literacy plays a critical role in tool adoption and utility. Adeola et al. (2019) found that SMEs with digital knowledge are more likely to explore fintech services. This supports the view of Osei-Assibey (2015), who emphasized the role of human capital in digital financial inclusion. Moreover, the COVID-19 pandemic accelerated digital finance usage among SMEs (KPMG, 2021), underscoring its resilience-enhancing potential. Furthermore, FinTech lending platforms provide an alternative to traditional banks, offering quick and collateral-free credit (Zetzsche et al., 2017). These services have proven particularly valuable to SMEs in conflict-affected regions (McKinsey, 2016). However,

concerns around cybersecurity and fraud remain a deterrent (Oyedokun et al., 2020). A lack of consumer protection regulations and trust in digital channels also hinders broader adoption (Central Bank of Nigeria (CBN), 2018). In summary, the literature suggests that digital financial tools significantly contribute to SME performance. Their impact, however, is mediated by infrastructure, literacy, regulatory frameworks, and security. Addressing these gaps is key to unlocking their full potential in Adamawa, Borno, and Yobe States.

Research Design

The research design for this study on the Effect of Digital Financial Tools on the Profitability and Growth of Small and Medium Enterprises (SMEs) in Adamawa, Borno and Yobe is structured to ensure a rigorous, systematic, and replicable approach. It aligns with the study's quantitative methodology, focusing on empirical testing of relationships between digital financial tool adoption and SME outcomes in Adamawa, Borno, and Yobe States. The design is guided by the positivist philosophy, emphasizing objective measurement and statistical analysis to test hypotheses.

Population

The target population comprises SME owners/operators in Adamawa, Borno, and Yobe States, estimated at over 1 million based on national MSME surveys (SMEDAN/NBS, 2017). SMEs are defined per SMEDAN criteria: micro (1-9 employees, assets < N5 million), small (10-49 employees, assets N5-50 million), and medium (50-199 employees, assets N50-500 million).

Sampling Technique

Stratified random sampling is used to ensure representation across states (Adamawa: 40%, Borno: 30%, Yobe: 30%) and SME sizes (micro: 50%, small: 30%, medium: 20%). Strata are based on state registries or local business associations to account for regional variations (e.g., higher insecurity in Borno).

Sample Size

A sample of 200 SME owners is selected, calculated using Yamane's formula (n = N / (1 + N(e)^2), where N is the estimated population, e = 0.07 margin of error at 95% confidence). This size ensures statistical power for correlation/regression analysis while being feasible given logistical constraints.

Data Collection Methods

i. Primary Data: Collected via a structured questionnaire with closed-ended (e.g., Likert-scale for impact perceptions) and multiple-choice items. The 10-key questions focus on awareness, frequency of use, benefits (e.g., profitability improvement), challenges, and recommendations. Questionnaires are administered in-person.
ii. Secondary Data: Drawn from literature, reports (e.g., SMEDAN/NBS, 2017; World Bank, 2020), and databases for contextual background.

iii. Ethical Considerations: Informed consent is obtained, anonymity assured, and data stored securely.

Instrumentation: A structured questionnaire was designed with two sections: demographic data and perception/usage of digital financial tools. It included the following 10 key questions:

1. Are you aware of digital financial tools (e.g., mobile banking, POS, fintech platforms)?
2. How often do you use digital financial tools in your business operations?
3. What types of digital financial tools do you use?
4. Have digital tools improved your access to credit facilities?
5. Do you experience any challenges in using digital tools? If yes, specify.
6. Have digital tools helped in improving your business profitability?
7. Do you track your income and expenses using any digital platform?
8. How secure do you feel using digital tools for transactions?
9. Do digital tools help in making faster and better financial decisions?
10. Would you recommend the use of digital tools to other SMEs?

Data Analysis Techniques
Software: SPSS v25 for processing
Descriptive Analysis: Frequencies, percentages, means, and visuals (e.g., pie charts for awareness levels, bar charts for profitability impacts) to summarize data.

Inferential Analysis:

i. Pearson correlation to test relationships (e.g., tool usage vs. profitability).
ii. Linear regression to predict growth/profitability (dependent variables) from tool adoption (independent variable), controlling for confounders (e.g., SME size, state).
iii. Significance tested at $p < 0.05$; assumptions (e.g., normality, linearity) checked via histograms and scatterplots.

Validity and Reliability: Content validity via expert reviews; construct validity through pilot testing. Reliability via test-retest ($r = 0.85$) and Cronbach's alpha (>0.7 for scales).

Data Collection and Analysis: Data were collected over four weeks through in-person visits and digital forms. Responses were coded and analyzed using the Statistical Package for the Social Sciences (SPSS v25). Descriptive statistics (mean, frequency, percentages) and inferential statistics (Pearson correlation, regression analysis) were used to assess relationships between digital tool usage and SME profitability.

Table 1: Data Presentation (Selected Responses)

Question	Response Option	Frequency	Percentage
Awareness of digital tools	Yes	172	86%
Use digital tools weekly	Yes	144	72%
Improved access to credit	Yes	130	65%
Profitability improved	Yes	156	78%
Recommend to others	Yes	180	90%

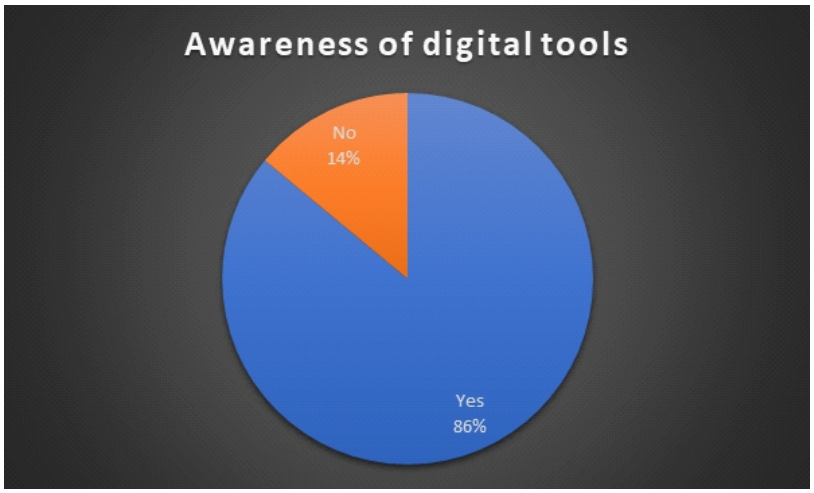

Figure 1: Pie Chart: SME Awareness of Digital Financial Tools

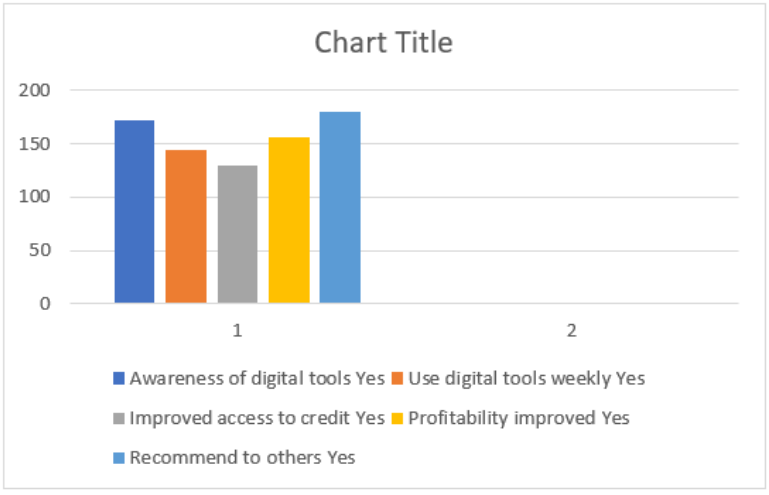

Figure 2: Bar Chart: Impact of Digital Tools on Profitability (Bar chart displaying percentage of SMEs reporting profitability improvements by tool type)

Table 2: Statistical Analysis

Test	Result	Decision
Pearson Correlation	$r = 0.71, p < 0.01$	Reject Null Hypothesis (H_0) – Significant positive relationship
Regression (R^2 value)	$R^2 = 0.504$	—
F-Statistic	$F(1,198) = 74.23, p < 0.001$	Reject Null Hypothesis (H_0) – Model is statistically significant

Interpretation

The Pearson correlation coefficient ($r = 0.71, p < 0.01$) reveals a strong positive relationship between the use of digital tools and SME profitability. The regression result ($R^2 = 0.504$) shows that 50.4% of the variance in profitability can be explained by the adoption of digital financial tools.

The F-statistic ($F(1,198) = 74.23, p < 0.001$) indicates that the overall model is statistically significant, confirming that digital tool usage meaningfully predicts SME profitability.

Thus, the null hypothesis (H_0) — that "there is no significant relationship between digital tool adoption and SME profitability" — is rejected.

The alternative hypothesis (H_1) — that "digital tool adoption significantly influences SME profitability" — is accepted.

Conclusion

The study confirms a statistically significant and positive relationship between the adoption of digital financial tools and the profitability and growth of SMEs in Adamawa, Borno, and Yobe States.

The strong correlation ($r = 0.71$) and high explanatory power ($R^2 = 0.504$) indicate that digital tool adoption accounts for more than half of the observed changes in SME profitability. These results align with prior research (Ozili, 2018; Asongu et al., 2022; Bongomin & Ntayi, 2018) linking digital finance with financial inclusion, cost efficiency, and operational effectiveness.

Moreover, despite infrastructural and capacity constraints, SMEs utilizing digital tools reported improved access to credit, better cash-flow management, and faster decision-making processes. The findings underscore that digital adoption remains a transformative driver for SMEs in conflict-affected and underserved areas, reinforcing the need for capacity-building and digital finance access programs across Northern Nigeria.

Recommendations

1. Digital Literacy Campaigns: Government and development partners should initiate training programs to improve SME owners' digital and financial literacy.
2. Infrastructure Development: Investment in broadband internet, stable electricity, and mobile connectivity is essential for tool effectiveness.
3. Subsidized FinTech Solutions: Financial institutions should develop low-cost, user-friendly digital tools tailored to small business needs.
4. Cybersecurity Awareness: Create programs that educate SMEs on data protection and fraud prevention.
5. Policy and Regulatory Support: Formulate SME-focused digital finance policies that encourage safe adoption and growth.

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