

Bridging the Digital Divide: A Comparative Study of Digital Entrepreneurship Adoption in Urban and Rural Nigeria

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Abstract

This study investigates the level of digital entrepreneurship adoption in Nigeria, focusing on both urban and rural entrepreneurs. Nigeria has increasingly adopted digital economy strategies to encourage entrepreneurship, drive economic growth, and diversification. However, there are still significant spatial inequalities that affect how digital entrepreneurship adoption plays out. The research employed a descriptive survey design, collecting primary data from 200 entrepreneurs in urban and rural areas via structured questionnaires. The data was then analyzed using descriptive statistics and t-test analysis. The results show that urban entrepreneurs exhibit significantly higher levels of digital engagement than their rural counterparts ($t = 7.02$; $df = 198$; $p = 0.001$; $P < 0.05$). This indicates that location significantly influences entrepreneurs' adoption of digital technologies, with urban entrepreneurs reporting higher levels of digital engagement than rural entrepreneurs. The study concludes that rural entrepreneurs face constraints due to infrastructural deficiencies such as, limited digital resources, poor internet connectivity, and limited access to digital devices, which hinder their ability to adopt digital entrepreneurship. It recommends that rural digital literacy programmes, broadband access, rural innovation hubs, and

mobile-based entrepreneurship support should be introduced, which could help bridge the urban-rural digital divide and boost the role of digital entrepreneurship in Nigeria's economic growth.

Key Words: *Digital Entrepreneurship, Digital Economy, Digital Adoption, Entrepreneurship, and Economy Growth.*

INTRODUCTION

Background to the Study

Digital entrepreneurship has become a vital force for driving economic growth, sparking innovation, and creating jobs in both developed and developing countries. It encompasses entrepreneurial activities that harness digital technologies like the internet, mobile platforms, digital payment systems, and data-driven tools to generate, deliver, and capture value (Sussan & Acs, 2017). In Nigeria, this trend has gained traction thanks to the nation's large population, a burgeoning youth demographic, and increasing access to mobile and internet services.

As the largest economy in Africa, Nigeria faces ongoing structural challenges, including a heavy reliance on oil revenues, high unemployment rates, and a significant informal sector (World Bank, 2021). While Nigeria is ripe with opportunities for digital transformation, these prospects are often hindered by persistent issues like inadequate electricity supply, limited broadband access, and uneven availability of digital skills, especially in rural areas (Oyelaran-Oyeyinka & Lal, 2022). In response, the government has been actively promoting the digital economy as a key strategy for diversifying the economy and fostering inclusive growth. Initiatives such as the National Digital Economy Policy and Strategy (NDEPS) 2020–2030, the National Broadband Plan 2020–2025, and various tech-driven entrepreneurship programs have been rolled out to encourage innovation and support digital business models (Federal Ministry of Communications and Digital Economy, 2020). These efforts are designed to enhance digital infrastructure, boost digital skills, and encourage digital entrepreneurship throughout the country, while also integrating small and medium-sized enterprises (SMEs) into the digital economy.

Despite the growing academic interest in digital entrepreneurship within Nigeria, empirical evidence remains inconsistent regarding the variations in digital entrepreneurial activities across different geographical areas. Existing studies have predominantly concentrated on aspects such as digital infrastructure, internet accessibility, mobile technology utilization, and the overarching digital divide. However, there is a scarcity of studies that offer direct comparative analyses of

entrepreneurs functioning in urban versus rural settings. For instance, research conducted by Adeleke (2021) and Ogbo-Gebhardt et al. (2017) highlighted notable spatial and urban-rural differences in internet usage and digital connectivity in Nigeria. Nevertheless, these studies did not specifically investigate how these disparities affect the adoption of digital tools by entrepreneurs and the resultant business performance, more importantly, the study did not provide empirical understanding of whether and how entrepreneurs in rural locations differ from their urban counterparts in adopting and utilizing digital technologies for business creation, growth, and competitiveness

Although earlier research has highlighted the significance of broadband infrastructure, internet access, and digital inclusion in fostering entrepreneurship and economic growth, the influence of geographical location as a contextual factor in digital entrepreneurship has not received adequate attention. Current evidence indicates that notable inequalities exist in terms of digital access, connectivity, and digital skills between urban and rural areas in Nigeria (Okunola et al., 2017; Adeleke & Yusuf, 2021).

In light of this, this study aims to assess the the level of digital entrepreneurship adoption among entrepreneurs in urban and rural areas of Nigeria. Grasping these dynamics is crucial for development of location-specific policies and interventions aimed at promoting inclusive digital entrepreneurship and reducing regional inequalities in entrepreneurial opportunities.

Statement of the Problem

While the Nigerian government has made commendable strides in shaping its digital economy framework, it remains unclear how effectively these policies translate into widespread digital entrepreneurship. A significant hurdle is the ongoing digital divide between urban and rural areas (World Bank, 2022). Entrepreneurs in urban centers typically show a higher level of digital adoption, thanks to better access to infrastructure, digital finance, technology hubs, and supportive innovation ecosystems (Ojo & Bello 2022). In contrast, rural entrepreneurs often find themselves in situations marked by poor internet connectivity, inconsistent power supply, limited awareness of digital opportunities, and restricted access to government-backed digital initiatives (Jimoh et al., 2022; Nwankwo & Kalu, 2024). It is clear that many rural entrepreneurs are still left out of the digital revolution, missing out on opportunities offered by e-commerce, mobile payment systems, and digital marketing tools. This exclusion limits their ability to harness

technology that could significantly boost customer satisfaction and help them break free from the constraints of traditional brick-and-mortar businesses, allowing them to reach a wider audience (Jimoh et al., 2025; Adeleke and Owolabi, 2020). Even in urban areas, entrepreneurs face hurdles like high data costs, cyber-security issues, and a lack of advanced digital skills, which continue to hold back the full adoption of digital technologies (UNCTAD, 2021).

Thus, this study aims to assess the uneven adoption of digital entrepreneurship among Nigerian entrepreneurs, despite the existence of government policies and initiatives designed to foster digital entrepreneurship. This gap highlights the need for a thorough investigation into differences in the level of digital entrepreneurship adoption in both urban and rural areas.

Objectives of the Study

1. To determine the level of digital entrepreneurship adoption among the entrepreneurs in urban and rural areas of Nigeria.

Research Hypothesis

H₀₁: There is no significant difference in the level of digital entrepreneurship adoption among the entrepreneurs in urban and rural areas of Nigeria.

LITERATURE REVIEW

Conceptual Review

Concept of Digital Entrepreneurship

Digital entrepreneurship is all about starting and running businesses that mainly use digital technologies to create value, distribute products, and engage with customers (Sussan & Acs, 2017). It involves adopting and making the most of digital tools like mobile apps, e-commerce sites, social media for marketing, and digital payment systems to boost efficiency and improve the customer experience (Egunjobi, 2025). In Nigeria, this trend is really taking off, encompassing activities like e-commerce, digital services, fintech innovations, and online platforms such as Jumia, Paystack, and Flutterwave (Omodafe & Onobrakpeya, 2024).

For developing economies like Nigeria, digital entrepreneurship holds great promise for breaking down traditional barriers, such as limited physical infrastructure and high transaction costs. With

mobile technologies and digital platforms, entrepreneurs can tap into broader markets, streamline operations, and enhance customer experiences, ultimately leading to better overall performance for their organizations (Jimoh et al., 2025). However, the extent to which these technologies are adopted can vary significantly, particularly due to infrastructural issues in rural areas (Akinwale & Olaopa, 2020).

Digital Adoption

Digital adoption has become a key concept in the realm of Information Systems, especially when we talk about digital transformation and innovation. It is all about how individuals, organizations, and societies not only access digital technologies but also effectively integrate and use them to create real value. This distinction is crucial because just having digital infrastructure does not automatically lead to meaningful usage or improved performance. So, digital adoption involves both how people accept technology and how they use it functionally, making it a more complex idea than just simple tech use (World Bank, 2016). The effects of digital adoption are significant. Research in Nigeria shows that embracing digital technologies boosts productivity, fosters innovation, and enhances performance across various sectors (Fagbuyi et al., 2023). Specifically, incorporating digital systems in areas like education, finance, and governance has been proven to improve service delivery and broaden access to opportunities, which in turn supports national development goals (Agbeyangi et al., 2024). However, these advantages are not shared equally. The uneven pace of digital adoption continues to widen the digital divide in Nigeria, particularly between urban and rural areas and across different socio-economic groups, which limits inclusive participation in the digital economy (Okocha & Edafewotu, 2022; Adeleke, 2021). Further studies indicate that gaps in infrastructure, income, and digital literacy significantly hinder technology adoption and usage, worsening existing inequalities (Paul & Victor, 2023). This situation highlights that digital adoption is not just a tech issue; it is a vital developmental challenge with broad policy implications, calling for intentional efforts to ensure inclusivity and fair access (Inah et al., 2024).

An Overview of Digital Entrepreneurship Adoption among the Nigerian Entrepreneurs

Digital entrepreneurship is becoming a hot topic among Nigerian entrepreneurs, catching the eye of both scholars and policymakers in the fields of entrepreneurship and the digital economy. This surge in interest is largely due to the increasing importance of technology in boosting business

competitiveness and performance (Karimu et al., 2025). Essentially, digital entrepreneurship adoption refers to how well entrepreneurs are weaving digital technologies like mobile platforms, e-commerce systems, cloud tools, and digital payment solutions into their business models, daily operations, and strategies for engaging with the market (Sheikh Khairuddin & Olowosuyi, 2020; Karimu et al., 2025). In Nigeria, this trend is particularly tied to the rise of micro, small, and medium enterprises (MSMEs), which make up a whopping 96% of businesses in the country and play a crucial role in job creation and GDP contribution (Oduwole, 2025).

The path of digital entrepreneurship adoption among Nigerian entrepreneurs has been influenced by the rapid growth of information and communication technologies (ICTs). The rise in mobile phone usage and better internet access has dramatically changed how businesses operate and how entrepreneurs approach their work (Ashiru et al., 2023). With the boom of fintech platforms, social media marketplaces, and digital payment systems, entrepreneurs are shifting away from traditional brick-and-mortar setups to more hybrid or fully digital business models, which help them reach more customers and operate more efficiently (Odufuwa et al., 2024).

Research indicates that the post-COVID-19 landscape has accelerated this transformation, with entrepreneurs increasingly relying on digital tools to keep their businesses afloat, connect with customers, and oversee their supply chains (Fagbuyi et al., 2024; Olasanmi et al., 2023). The pandemic particularly pushed many micro and small businesses in Nigeria to embrace digital marketing and online strategies as a way to adapt to the disruptions in traditional business operations. Likewise, findings from analyses conducted after the pandemic reveal that the adoption of technology surged across various sectors of the Nigerian economy, driven by changing socio-economic and operational needs.

Digital entrepreneurship adoption among Nigerian entrepreneurs is not uniform; rather, it varies across sectors, firm size, and geographic location. Studies show a persistent urban–rural divide, where entrepreneurs in urban centers such as Lagos and Abuja exhibit higher levels of digital entrepreneurship adoption due to better infrastructure, stronger internet connectivity, and greater exposure to digital ecosystems (World Bank, 2021). This pattern is reinforced by evidence indicating that rural entrepreneurs face constraints such as limited electricity supply, low digital literacy, and high data costs, which significantly hinder adoption (Ashiru et al., 2023). Sectoral differences are also evident. Technology-driven sectors such as fintech and e-commerce

demonstrate significantly higher levels of digital entrepreneurship adoption compared to traditional sectors such as agriculture, retail trade, and informal enterprises, largely due to their reliance on digital platforms and payment systems (Ossai & Abdullahi, 2025). The rapid expansion of fintech and digital payment ecosystems in Nigeria has particularly accelerated adoption within service-oriented and platform-based businesses (Odufuwa et al., 2024).

In summary, digital entrepreneurship adoption among Nigerian entrepreneurs brings both exciting opportunities and significant challenges. It paves the way for growth, competitiveness, and innovation, but the advantages aren't shared equally due to various structural and institutional hurdles. To bridge these gaps, we need a united effort from the government, private sector players, and development partners to build a more inclusive digital ecosystem that empowers entrepreneurs from every corner of the economy.

Theoretical Framework

Resource-Based View (RBV)

The Resource-Based View, refined by Barney (1991), emphasizes the importance of internal resources in achieving a competitive advantage. In the context of digital entrepreneurship, access to digital resources such as skilled labor, reliable infrastructure, and technological assets can determine the success or failure of entrepreneurial ventures. Entrepreneurs with better access to these resources are more likely to thrive in the digital economy. The theory posits that for a resource to yield a sustained competitive advantage, it must meet four criteria, collectively referred to as VRIN: it should be Valuable (allowing the firm to capitalize on opportunities or mitigate threats), Rare (not commonly held by existing or potential competitors), Inimitable (challenging for competitors to duplicate or replace, whether due to historical path dependency, causal ambiguity, or social complexity), and Non-substitutable. This framework was later expanded in the year 1995 by Barney to include the VRIO model, which highlights the importance of Organizational embedding, which is the degree to which a firm's structures, processes, and routines are designed to leverage the resource's potential.

METHODOLOGY

This study adopted a descriptive survey research design to examine the level of digital entrepreneurial adoption among Nigerian entrepreneurs, particularly within the context of urban

and rural economies. The population for the study comprised Nigerian entrepreneurs operating in both urban and rural areas, especially small and medium-sized business owners who used or intended to use digital tools in their businesses. It also included startup founders, fintech operators, and informal digital vendors.

The sample size for this study consisted of 200 respondents. To ensure inclusiveness and representativeness, the study employed a combination of stratified sampling and purposive sampling techniques. Stratified sampling was used to divide the population into two main groups: urban entrepreneurs from Lagos state and rural entrepreneurs from Kwara state. This was important in order to highlight potential disparities in digital entrepreneurship adoption and infrastructure access between these two groups. Within each stratum, purposive sampling was used to select respondents from both states who met specific criteria. Entrepreneurs were selected based on their direct involvement in digital business activities, such as the use of e-commerce platforms, social media marketing, mobile apps, digital payment tools, and other tech-enabled solutions. This approach ensured that only participants with relevant digital experience contributed to the data, thus increasing the reliability and relevance of the responses.

Primary data were collected through the administration of structured questionnaires to gather relevant information from Nigerian entrepreneurs. The questionnaire employed a four-point Likert scale to capture respondents' opinions and levels of agreement. To ensure clarity and relevance, the instrument was reviewed by academic experts and pre-tested with 20 entrepreneurs. Feedback from the pilot study helped refine the questions, making the instrument reliable and appropriate for addressing the study's objectives and testing the stated hypotheses. Descriptive statistics, such as frequency count and percentage were used to analyze the respondents' bio data, while inferential statistics, such as T- test was used to test the study's hypothesis at the 0.05 level of significance.

DATA ANALYSIS AND INTERPRETATION

Analysis of Respondents' Bio Data

Table 1 Demographic Information of Sampled Respondents

Demographic Features	Features	Frequency	Percentage
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Age	18-25years	20	10.0%
	26-35years	99	49.5%
	36-45years	51	25.5%
	46years and above	30	15.0%
Gender	Male	119	59.5%
	Female	81	40.5%
Types of Business	E-commerce	49	24.5%
	Fin Tech	31	15.5%
	Social Media based	39	19.5%
	Mobile Services	29	14.5%
	Informal/Others	52	26.0%
Location	Urban	111	55.5%
	Rural	89	44.5%

Source: Field Survey, 2025

Table 1 shows the demographic information of the sampled respondents. The largest segment (49.5%) is aged 26–35 years, reflecting a generation of young, energetic, and digitally inclined entrepreneurs. The data shows a male-dominated entrepreneurial landscape (59.5%), though female representation (40.5%) is also significant. This indicates a growing inclusion of women in the digital economy. Further, it was shown that (24.5%) of the entrepreneurs are into e-commerce. This is an indication that more enterprises are springing up using digital platforms like e-commerce as a result of digital technology adoption. The location distribution shows a reasonably balanced spread: Urban entrepreneurs (55.5%) slightly outnumber their rural counterparts (44.5%). This allows for meaningful comparisons in digital entrepreneurship adoption between well-connected and underdeveloped areas. Entrepreneurs in urban areas likely benefit from better infrastructure, stable electricity, and faster internet. However, the high rural participation highlights an encouraging shift where digital transformation is reaching traditionally marginalized areas, potentially through mobile phones, local networks, or community initiatives.

Research Hypothesis

H₀₁: There is no significant difference in the level of digital entrepreneurship adoption among the entrepreneurs in urban and rural areas of Nigeria.

Table 2: T-test analysis of difference in digital entrepreneurship adoption among the entrepreneurs in urban and rural areas of Nigeria

Variables	N	Mean	Std. Dev.	Mean Diff.	T-value	df	95% CI	Cohen's d	p-value
Rural	100	48.22	9.47	14.42	7.02	198	10.37	0.99	0.001
Urban	100	62.64	18.25				18.47		

Source: Author's Computation, 2025

Table 2 illustrates the differences in digital entrepreneurship adoption levels between entrepreneurs situated in urban and rural regions. The findings indicate a statistically significant difference in digital entrepreneurship adoption between these two groups (t-value = 7.02, p-value = 0.001, $p < 0.05$). The mean difference of 14.42 is in favor of urban entrepreneurs (M = 62.64, SD = 18.25) compared to their rural counterparts (M = 48.22, SD = 9.47). Furthermore, the 95% confidence interval for the mean difference (10.37, 18.47) does not include zero, thereby affirming the reliability of this observed difference. The effect size, calculated using Cohen's $d = 0.99$, signifies a large practical effect, indicating that the urban-rural divide in digital entrepreneurship adoption is not only statistically significant but also substantively relevant. This suggests that the adoption of digital entrepreneurship is markedly higher in urban areas than in rural ones, a difference likely due to varying levels of access to internet infrastructure, technological resources, and training in digital skills across these environments. Therefore, the null hypothesis is rejected while the alternative hypothesis is accepted.

Discussion of findings

The findings of this study revealed that urban entrepreneurs reported a higher level of digital engagement compared to their rural counterparts, as shown by the significant t-test result (t = 7.02, p-value = 0.001, and $p < 0.05$). This finding corroborate with the findings of Okocha and Edafewotu (2022) and Okocha and Dogo, (2023) that rural households and firms have significantly lower access to the internet and related digital tools than urban ones, implying lower digital engagement among rural entrepreneurs compared to their urban counterparts. This

finding is also in alignment with the findings of Ezinwa and Bello, (2025) who found that entrepreneurs in urban centers, especially Lagos, enjoyed greater benefits from fintech due to more advanced digital infrastructure, underscoring the need for targeted investment in rural areas to narrow the digital divide. More importantly, this finding is further supported by the findings of Idowu, (2023) who found that the geographic concentration of innovation infrastructure and entrepreneurial support systems in urban centres accounts for higher participation in digital entrepreneurship adoption compare to rural areas where there is low internet penetration and limits accessibility to internet thereby limiting rural entrepreneurs participation in digital entrepreneurship.

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study has demonstrated that infrastructural limitations, such as poor internet connectivity, limited digital resources, and limited access to digital devices, lower the adoption of digital entrepreneurship among entrepreneurs in the rural areas of Nigeria. The findings indicate that location significantly influences entrepreneurs' adoption of digital technologies; with urban entrepreneurs reporting higher levels of digital engagement than rural entrepreneurs, though present need for stronger implementation and support mechanisms to reach grassroots entrepreneurs. Overall, digital entrepreneurship has the potential to revolutionize Nigeria's entrepreneurial landscape, but its success depends on inclusive infrastructure development, accessible digital education, and sustained policy commitment. Bridging the digital divide between urban and rural areas will not only enhance economic inclusion but also position Nigeria to fully harness the potentials of a digital economy in fostering innovation, job creation, and sustainable development.

Recommendations

- The study recommends that the government should fund community-based digital literacy and entrepreneurship training programmes, especially in regions with high illiteracy rates.
- Entrepreneurs should engage proactively with available fintech and government support schemes to maximize the limited resources currently available in their localities.

- Educational institutions should partner with telecom and fintech providers to bring subsidized internet access and financial technology training directly to rural-serving institutions

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