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Exploring the Potential of Digitalization and E-Commerce in Economic Diversification: Case Studies from Nigerian Startups and Digital Entrepreneurs

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Abstract

This study explores the potential of digitalization and e-commerce in economic diversification among Nigerian startups and digital entrepreneurs. The primary objectives are to evaluate the role of digitalization in promoting economic diversification, assess the impact of e-commerce on business performance and market reach, and analyze the challenges and opportunities faced by startups in adopting these technologies. A survey method was employed, targeting a population of 140 startups and digital entrepreneurs registered with Small and medium enterprises development agency of Nigeria {SMEDAN} in Kano as of 2024. Using Krejcie and Morgan's sample formula, a sample size of 103 respondents was determined. Data were collected via online questionnaires and analyzed using descriptive statistics. Findings reveal that digitalization has significantly contributed to business growth and market expansion but faces challenges related to operational efficiency and product diversification. E-commerce has enhanced sales performance and revenue but has not uniformly improved market reach or customer acquisition. Financial constraints are a major challenge, while supportive government policies are seen as beneficial. Technical skills and expertise are not perceived as primary barriers. The study concludes that addressing financial constraints through targeted funding and support, improving e-commerce strategies through enhanced digital marketing and customer engagement, and focusing on continuous technical skill development are essential. Recommendations include increasing access to financial resources for digital adoption, investing in training programs for e-commerce and digital marketing, and establishing training centers for technical skills development. These measures will enable Nigerian startups to better leverage digital technologies, overcome existing barriers, and contribute to broader economic diversification and growth.

Keywords: Digitalization, E-commerce, Economic Diversification, Nigerian Startups, Policy Recommendations

Introduction

Economic diversification in Nigeria is critical for reducing the nation's dependency on oil revenues and fostering sustainable growth across various sectors. Historically, Nigeria's economy has been heavily reliant on crude oil, which constitutes a significant portion of the national GDP and foreign exchange earnings (Olaopa & Alsuhaibany, 2023). This reliance has rendered the economy vulnerable to fluctuations in global oil prices, leading to economic instability. Economic diversification involves expanding the economic base by developing non-oil sectors such as agriculture, manufacturing, and services. Freire (2021) highlights that technological transformation and innovation are pivotal for economic diversification, enabling countries to move away from mono-economies. In Nigeria, efforts have been made to diversify through initiatives aimed at boosting agriculture and industrial output. However, structural challenges such as inadequate infrastructure, policy inconsistencies, and limited access to finance hinder progress (Khattak et al., 2023). The digital economy presents a unique opportunity for Nigeria to accelerate its diversification agenda. By leveraging digital technologies and e-commerce, Nigeria can enhance productivity, create new job opportunities, and stimulate economic activities in various sectors (Al-Roubaier et al., 2020). Thus, integrating digitalization into the economic diversification strategy is essential for achieving sustainable economic growth and resilience against global market shocks.

Moreover, digitalization and e-commerce have become pivotal in modern economies, transforming business operations, enhancing efficiency, and driving economic growth. Digital transformation involves the integration of digital technologies into all areas of a business, fundamentally changing how businesses operate and deliver value to customers (Ceipek et al., 2021). This transformation is crucial for maintaining competitive advantage in a rapidly evolving global market. E-commerce, as a component of digitalization, facilitates online transactions and has revolutionized the way businesses reach and interact with customers (Al-Tit, 2020). By eliminating geographical barriers, e-commerce allows businesses to access global markets, thus expanding their customer base and increasing sales. Furthermore, digitalization and e-commerce contribute significantly to economic diversification by creating new industries and job opportunities, thereby reducing dependency on traditional sectors (Abubakre et al., 2021). In developing economies, these technologies provide a platform for small and medium-sized enterprises (SMEs) to innovate and compete on a global scale (Hassen et al., 2021). However, the adoption of digitalization and e-commerce is not without challenges. Issues such as cybersecurity, digital literacy, and infrastructural deficits must be addressed to fully harness their potential (Hendricks & Mwapwele, 2024). Overall, digitalization and e-commerce are indispensable for fostering inclusive and sustainable economic growth in the digital age.

However, Nigerian startups and digital entrepreneurs play a crucial role in the country's economic diversification and digital transformation. The startup ecosystem in Nigeria has seen significant growth, driven by a young and tech-savvy population, increased internet penetration, and supportive government policies (Emembolu et al., 2022). These startups are leveraging digital technologies to create innovative solutions that address local challenges in various sectors, including fintech, agriculture, and health. Digital entrepreneurship in Nigeria is characterized by a strong emphasis on creating

scalable business models that can compete in both local and international markets (Taura et al., 2019). Despite the promising landscape, Nigerian startups face numerous challenges such as limited access to funding, inadequate infrastructure, and regulatory hurdles (Friederici et al., 2020). Initiatives like the establishment of tech hubs and innovation centers are helping to mitigate some of these challenges by providing resources and support networks for budding entrepreneurs. Moreover, digital platforms enable Nigerian entrepreneurs to reach wider audiences and tap into global markets, enhancing their growth prospects (Feng & Wang, 2024). The success of digital entrepreneurs in Nigeria not only contributes to economic diversification but also inspires a new generation of innovators and job creators, fostering a more resilient and dynamic economy.

Nevertheless, the need for economic diversification in Nigeria arises from the country's historical overreliance on oil revenues, which has made the economy vulnerable to global oil price fluctuations and economic instability (Olaopa & Alsuhaibany, 2023). This dependency has stifled growth in other sectors, making it imperative for Nigeria to develop a more resilient and sustainable economic base. Economic diversification involves expanding the economy by developing non-oil sectors such as agriculture, manufacturing, and services. In this context, digitalization and e-commerce present significant opportunities for diversification. Digital technologies can drive innovation, enhance productivity, and create new business models, thereby stimulating growth in various economic sectors (Ceipek et al., 2021). E-commerce, in particular, enables businesses to access global markets, increase sales, and improve customer engagement (Al-Tit, 2020). For Nigeria, leveraging digitalization and e-commerce can catalyze the growth of startups and digital entrepreneurs, who are pivotal in creating jobs, fostering innovation, and driving economic transformation (Emembolu et al., 2022).

However, the adoption of these technologies is not without challenges. Nigerian startups face issues such as limited access to funding, inadequate infrastructure, and regulatory barriers (Friederici et al., 2020). Addressing these challenges requires coordinated efforts from policymakers, private sector stakeholders, and the international community. By promoting digitalization and e-commerce, Nigeria can reduce its dependence on oil and create a more diverse and resilient economy. The objectives of this study are to evaluate the role of digitalization in fostering economic diversification among Nigerian startups and digital entrepreneurs, to assess the impact of e-commerce on the business performance and market reach of Nigerian digital entrepreneurs, and to analyze the challenges and opportunities faced by Nigerian startups in adopting digitalization and e-commerce for economic diversification. The significance of this research lies in its potential contribution to policy-making and strategic planning for economic diversification, as well as providing insights for startups and digital entrepreneurs in Nigeria.

Literature Review

Economic Diversification and Its Importance

Economic diversification refers to the process by which a country expands its economic activities into various sectors to reduce dependency on any single industry or commodity. This strategy is crucial for achieving sustainable economic growth and stability, particularly for countries heavily reliant on a narrow range of exports. Diversification enhances resilience against external shocks, such as fluctuations in commodity prices or global economic downturns, by spreading risk across multiple industries (Olaopa & Alsuhaibany, 2023). For countries like Nigeria, which historically depend on oil exports, economic diversification is essential to mitigate the adverse effects of

volatile oil prices and to foster long-term economic development (Khattak et al., 2023). The importance of economic diversification can be illustrated through various case studies from other countries. For instance, the United Arab Emirates (UAE) has significantly diversified its economy over the past few decades. Originally reliant on oil exports, the UAE has successfully expanded into tourism, real estate, aviation, and financial services. Dubai, one of the emirates, has become a global hub for tourism and business due to its strategic investments in infrastructure and favorable business environment (Freire, 2021). These efforts have reduced the UAE's economic dependency on oil and created a more stable and resilient economy.

Another notable example is Malaysia, which has transitioned from an economy dependent on rubber and tin to a diversified economy with strong manufacturing and services sectors. Malaysia's government implemented strategic policies to promote industrialization, such as the establishment of free trade zones and investment in education and infrastructure. This shift has not only stabilized the economy but also led to substantial economic growth and increased employment opportunities (Al-Roubaier et al., 2020). Similarly, South Korea's transformation from an agrarian economy to a leading global technology and manufacturing powerhouse underscores the benefits of diversification. Through strategic investments in education, research and development, and infrastructure, South Korea has developed a competitive advantage in industries such as electronics, automobiles, and shipbuilding. This diversification has contributed to the country's rapid economic growth and resilience to global economic fluctuations (Ceipek et al., 2021).

Economic diversification is also essential for reducing poverty and inequality. By developing multiple sectors, countries can create a broader range of job opportunities, enhance skill development, and improve income distribution. For example, Vietnam has diversified its economy from agriculture to include manufacturing and services. The government's focus on education and vocational training has enabled the workforce to transition to higher-skilled jobs, leading to significant reductions in poverty rates and economic inequality (Emembolu et al., 2022). In contrast, countries that fail to diversify their economies often face significant challenges. Venezuela, heavily dependent on oil exports, has experienced severe economic crises due to fluctuating oil prices and political instability. The lack of economic diversification has led to hyperinflation, unemployment, and widespread poverty, highlighting the critical need for a diversified economic base to ensure long-term stability and growth (Friederici et al., 2020).

The role of digitalization and e-commerce in achieving economic diversification cannot be overstated. Digital technologies enable innovation, enhance productivity, and create new business opportunities, contributing to the diversification process. For instance, China's rapid economic growth can be attributed partly to its embrace of digital technologies and e-commerce. The country has leveraged these technologies to develop new industries, such as e-commerce, fintech, and artificial intelligence, which have significantly contributed to its economic diversification and global competitiveness (Feng & Wang, 2024).

Digitalization in Emerging Economies

Digitalization in emerging economies has become a pivotal force driving economic transformation, fostering innovation, and enabling access to global markets. The digital transformation in these markets involves the integration of digital technologies into various sectors, fundamentally altering how businesses operate, how services are delivered, and how consumers interact with the market (Ceipek et al., 2021). Key drivers of digitalization in emerging economies include the proliferation

of mobile technology, increasing internet penetration, supportive government policies, and a growing entrepreneurial ecosystem. However, the journey towards comprehensive digitalization is fraught with barriers such as inadequate infrastructure, limited digital literacy, regulatory challenges, and funding constraints. Mobile technology has been a cornerstone of digital transformation in many emerging markets. The widespread adoption of mobile phones, coupled with increasing internet accessibility, has provided a platform for digital services to flourish. For instance, mobile banking and fintech solutions have gained substantial traction in regions where traditional banking infrastructure is limited (Khattak et al., 2023). This shift not only enhances financial inclusion but also stimulates economic activities by enabling transactions and access to credit for underserved populations. Additionally, mobile technology facilitates the deployment of e-commerce platforms, allowing small and medium-sized enterprises (SMEs) to reach broader markets and grow their customer base (Al-Tit, 2020).

Supportive government policies also play a crucial role in driving digitalization. Governments in emerging economies are increasingly recognizing the importance of digital transformation for economic development and are implementing policies to foster innovation and technology adoption. For example, Malaysia's digital economy blueprint outlines strategic initiatives to enhance digital infrastructure, support digital talent development, and promote digital entrepreneurship (Al-Roubaier et al., 2020). Such policies create a conducive environment for businesses to adopt digital technologies and for new digital ventures to emerge. The entrepreneurial ecosystem in emerging markets is another significant driver of digitalization. A growing number of startups and tech hubs are leveraging digital technologies to address local challenges and create innovative solutions. These startups are often more agile and can quickly adapt to changing market conditions, driving the digital transformation forward. In Africa, for example, digital entrepreneurs are developing solutions in fintech, e-health, and e-learning, which are not only transforming industries but also improving quality of life and economic opportunities for many (Emembolu et al., 2022).

Despite these drivers, several barriers hinder the full realization of digitalization's potential in emerging economies. Inadequate infrastructure, particularly in rural areas, limits the reach of digital services. Reliable internet connectivity and access to affordable devices remain significant challenges. Moreover, limited digital literacy among the population can impede the adoption and effective use of digital technologies (Friederici et al., 2020). Efforts to improve digital skills through education and training are essential to overcome this barrier. Regulatory challenges also pose significant obstacles. Inconsistent and sometimes restrictive regulations can stifle innovation and create uncertainties for businesses. Governments need to strike a balance between protecting consumers and fostering a regulatory environment that encourages digital innovation. Additionally, funding constraints often limit the ability of startups and SMEs to invest in digital technologies. Access to venture capital and other forms of financing is critical to support the growth of digital businesses (Hendricks & Mwapwele, 2024).

E-Commerce and Business Performance

E-commerce has revolutionized business performance and market reach, particularly in developing economies where traditional retail infrastructure is often limited. The impact of e-commerce on business performance can be measured through various metrics, including revenue growth, market expansion, customer engagement, and operational efficiency. E-commerce platforms enable

businesses to transcend geographical barriers, reaching a broader audience and opening new market opportunities. This expansion is particularly significant for small and medium-sized enterprises (SMEs) that might lack the resources to establish a physical presence in multiple locations (Al-Tit, 2020). One of the critical advantages of e-commerce is its ability to facilitate market expansion. Online marketplaces and digital platforms allow businesses to reach customers beyond their immediate geographic region. This expanded reach can lead to increased sales and revenue. For instance, the study by Parvin, Asimiran, and Ayub (2022) demonstrates that e-commerce adoption significantly enhances the market reach of SMEs, allowing them to tap into new customer segments and geographic markets. This broader reach also means that businesses can achieve economies of scale more quickly, further boosting profitability and competitiveness.

Customer engagement is another area where e-commerce significantly impacts business performance. Digital platforms offer various tools and channels for businesses to interact with their customers, gather feedback, and tailor their offerings to meet customer needs. The ability to provide personalized experiences and respond quickly to customer inquiries can lead to higher customer satisfaction and loyalty. Alzahrani (2019) highlights that businesses adopting e-commerce strategies can better understand customer preferences and behaviors through data analytics, enabling them to offer more targeted and effective marketing campaigns. Operational efficiency is another significant benefit of e-commerce. Digital platforms streamline various business processes, reducing the need for physical stores and minimizing operational costs. Automation of inventory management, order processing, and customer service functions can lead to significant cost savings and improved productivity. Hassen, Rahim, Othman, and Shah (2021) found that e-commerce adoption in SMEs leads to more efficient operations, as businesses can automate routine tasks and focus on strategic activities that drive growth. This efficiency is particularly crucial in developing economies, where resources are often limited, and businesses must maximize the use of available assets.

Case studies from developing economies illustrate the transformative impact of e-commerce adoption. In Nigeria, for example, Jumia, an e-commerce platform, has become a significant player in the retail sector, providing a digital marketplace for a wide range of products and services. The platform has enabled numerous local businesses to reach a broader audience and increase their sales (Emembolu et al., 2022). Similarly, in India, the e-commerce giant Flipkart has revolutionized the retail landscape, offering consumers a vast array of products at competitive prices and providing a platform for local vendors to scale their businesses (Ceipek et al., 2021). E-commerce also plays a crucial role in promoting economic diversification in developing economies. By providing an alternative sales channel, businesses can reduce their dependence on traditional markets and explore new revenue streams. This diversification is vital for economic resilience, particularly in regions where certain industries dominate the economy. For instance, Al-Roubaier, Hamdan, and Sarea (2020) argue that e-commerce can drive economic diversification by enabling businesses in developing economies to explore new sectors and markets.

However, the adoption of e-commerce is not without challenges. Businesses in developing economies often face barriers such as inadequate digital infrastructure, limited internet penetration, and regulatory hurdles. Addressing these challenges requires concerted efforts from governments, private sector players, and international organizations to create an enabling environment for e-commerce growth. Investments in digital infrastructure, supportive regulatory frameworks, and

initiatives to enhance digital literacy are critical to unlocking the full potential of e-commerce in driving business performance and market reach.

Challenges and Opportunities in Digitalization and E-Commerce

The adoption of digital technologies and e-commerce presents both challenges and opportunities for startups, particularly in emerging economies. One of the primary challenges faced by startups is inadequate digital infrastructure, which includes limited internet access, unreliable connectivity, and insufficient technological resources. This challenge is particularly pronounced in rural and underserved areas where digital infrastructure is either lacking or underdeveloped (Hendricks & Mwapwele, 2024). In such environments, startups struggle to implement digital solutions effectively, which can hamper their operational efficiency and growth potential. Additionally, limited access to affordable and reliable internet services poses significant barriers to the effective use of e-commerce platforms and digital tools (Al-Roubaier et al., 2020). Another significant challenge is the lack of digital literacy and technical skills among startup founders and their teams. Digital transformation requires a certain level of proficiency in technology use and management, which many startups in developing economies may lack (Hassen et al., 2021). The absence of adequate training and education programs further exacerbates this issue, leading to inefficient use of digital tools and missed opportunities for leveraging technology for business growth.

Furthermore, regulatory and compliance issues can also pose challenges. In many emerging markets, the regulatory environment surrounding digital technologies and e-commerce is often fragmented and evolving. Startups must navigate complex regulations related to data privacy, cybersecurity, and e-commerce operations, which can be cumbersome and resource-intensive (Wu & You, 2021). Despite these challenges, digitalization and e-commerce offer significant opportunities for growth and development. One of the primary opportunities is the ability to reach a global market. E-commerce platforms allow startups to expand their customer base beyond local markets, accessing international consumers and diversifying their revenue streams (Al-Tit, 2020). This expanded market reach can lead to increased sales and growth, enabling startups to scale their operations more rapidly. Additionally, digital technologies can enhance operational efficiency by automating routine tasks, optimizing supply chains, and improving customer service. Automation reduces operational costs and allows startups to focus on strategic activities, such as product development and market expansion (Ceipek et al., 2021).

Digitalization also presents opportunities for innovation and differentiation. Startups can leverage digital tools to develop unique value propositions, create personalized customer experiences, and innovate in product and service delivery. For instance, startups can use data analytics to gain insights into customer behavior and preferences, allowing them to tailor their offerings more effectively (Alzahrani, 2019). Moreover, digital technologies enable startups to adopt new business models, such as subscription services and digital marketplaces, which can provide additional revenue streams and competitive advantages (Emembolu et al., 2022). Furthermore, the growing ecosystem of digital entrepreneurship and support networks offers valuable resources and opportunities for startups. Incubators, accelerators, and mentorship programs can provide startups with the necessary resources, guidance, and connections to navigate the digital landscape successfully (Taura et al., 2019). These programs often offer access to funding, technical expertise, and strategic advice, which can be crucial for overcoming initial challenges and achieving sustainable growth.

Nigerian Context

The startup ecosystem in Nigeria has experienced significant growth over recent years, emerging as a vibrant and dynamic sector characterized by innovation and entrepreneurial activity. This burgeoning ecosystem is supported by a youthful and increasingly tech-savvy population, which has fueled the rise of numerous startups across various sectors, including fintech, healthtech, and agritech. However, the ecosystem remains beset with challenges that hinder its full potential. The current state of digitalization and e-commerce in Nigeria reflects both progress and ongoing struggles. On the one hand, there has been a notable increase in digital adoption, with startups and established businesses alike embracing e-commerce platforms to reach broader markets and streamline operations (Emembolu et al., 2022). This growth is underscored by the rise of Nigerian e-commerce giants such as Jumia, which have significantly impacted retail and logistics sectors by offering consumers access to a wide range of products through online platforms (Hassen et al., 2021). On the other hand, several challenges impede the advancement of digitalization and e-commerce in Nigeria. One major issue is inadequate digital infrastructure. Despite improvements in internet penetration, many regions still suffer from unreliable connectivity and limited access to high-speed internet, which hampers the ability of startups and businesses to fully leverage digital technologies (Hendricks & Mwapwele, 2024). Furthermore, there is a significant disparity in digital infrastructure between urban and rural areas, which exacerbates inequalities and limits the reach of e-commerce platforms to underserved populations (Al-Roubaier et al., 2020).

Another critical challenge is the lack of digital literacy and technical skills among entrepreneurs and the general workforce. Many startups struggle with a shortage of skilled personnel who are proficient in digital tools and technologies, which impacts their ability to innovate and compete effectively in the digital economy (Hassen et al., 2021). Additionally, the regulatory environment in Nigeria is often fragmented and evolving, creating uncertainty and operational difficulties for businesses. Issues such as inconsistent enforcement of data protection laws and regulatory barriers to e-commerce transactions complicate the business landscape (Wu & You, 2021). Despite these challenges, there are significant opportunities for growth within Nigeria's digital and e-commerce sectors. The country's large and growing consumer market presents a substantial opportunity for startups to tap into new customer bases through digital channels. With a population exceeding 200 million, Nigeria offers a vast market for e-commerce and digital services (Taura et al., 2019). Moreover, the Nigerian government has increasingly recognized the importance of digitalization for economic development, leading to initiatives aimed at improving digital infrastructure and supporting tech startups (Ceipek et al., 2021). Programs such as the National Digital Economy Policy and Strategy (NDEPS) and various technology hubs and incubators play a crucial role in fostering innovation and providing support to emerging businesses (Alzahrani, 2019).

Furthermore, the growing trend of mobile technology adoption provides a platform for expanding e-commerce reach. With the proliferation of smartphones and mobile internet access, Nigerian startups have the potential to leverage mobile platforms for e-commerce, enhancing customer engagement and convenience (Feng & Wang, 2024). The increasing availability of mobile payment solutions also supports the growth of digital transactions, offering new avenues for financial inclusion and business growth.

Methodology

The research employs a survey design to explore the potential of digitalization and e-commerce in economic diversification among Nigerian startups and digital entrepreneurs. The target population

includes startups and digital entrepreneurs registered with the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) in Kano as of 2024, totaling 140. Given the relatively small population size, Krejcie and Morgan's (1970) sample size determination formula was applied to derive a sample size of 103 respondents, which is statistically sufficient to ensure representativeness and reliability of the findings. This formula provides a guideline for determining an appropriate sample size based on population size, ensuring the results can be generalized to the entire population. Convenience sampling was chosen due to its practicality and efficiency in reaching the target respondents within the available timeframe and resources. This non-probability sampling technique is justified as it allows for quick and easy data collection from startups and digital entrepreneurs who are readily accessible and willing to participate, ensuring the study captures relevant insights from active industry players.

Data was collected primarily through an online questionnaire, which is an effective method for reaching a dispersed population and allows respondents to provide their input at their convenience. This approach is particularly suitable for the tech-savvy nature of the target respondents, ensuring higher response rates and accurate data collection (Cottrell, 2019). Online questionnaires are cost-effective and facilitate the efficient gathering of large volumes of data, which is essential for analyzing the role of digitalization and e-commerce in economic diversification. Descriptive statistics, including mean and standard deviation, were employed to analyze the collected data. This statistical approach provides a clear summary of the respondents' perceptions and experiences, allowing for the identification of trends and patterns within the data (Ghosh, 2023). By using mean and standard deviation, the study effectively quantifies the central tendencies and variations in responses, providing a robust basis for interpreting the impact of digitalization and e-commerce on business performance and market reach (Hahn & Kühnen, 2013).

Results and Discussion

The section presents the data analysis and interpretation of the result of the responses generated. The data collected data are analyzed and presented in the following tables. Tables 1, 2, 3, and 4.

Table 1

Demographic Data of the Respondents

Items	Frequency	Percentage (%)
Educational Qualification:		
Diploma/NCE	18	17.5
HND/Degree	45	43.7
Postgraduate	40	38.8
Gender:		
Male	90	87.4
Female	13	12.6
Age:		
Below 30	9	8.7
31- 40	50	48.5
41 & above	44	42.7

Source: Field Survey, 2024

Table 2
The role of digitalization in fostering economic diversification among Nigerian startups and digital entrepreneurs

S/N	Questions	Mean	SD	Remark
1	Digitalization has significantly contributed to the growth and diversification of my business.	3.32	1.381	Accept
2	Adopting digital tools and technologies has improved my business's ability to enter new markets.	3.53	1.420	Accept
3	Digitalization has enabled my business to offer a wider range of products/services.	2.93	1.270	Reject
4	The use of digital platforms has increased my business's operational efficiency and productivity.	2.99	1.438	Reject
5	Digitalization has helped my business to better understand and meet customer needs and preferences.	3.42	1.303	Accept

Source: Field Survey, 2024

Table 2 presents the findings on the role of digitalization in fostering economic diversification among Nigerian startups and digital entrepreneurs. The responses are measured using a Likert scale, and the mean and standard deviation for each question are provided along with the remarks based on whether the mean value is above the threshold of 3. The first question, "Digitalization has significantly contributed to the growth and diversification of my business," has a mean of 3.32 and a standard deviation of 1.381, indicating a positive perception among respondents. This suggests that digitalization is viewed as a beneficial factor in driving business growth and diversification. Abubakre, Faik, and Mkansi (2021) emphasize that digital entrepreneurship can leverage indigenous value systems to enhance economic activities, which aligns with the findings of this study.

The second question, "Adopting digital tools and technologies has improved my business's ability to enter new markets," shows a mean of 3.53 and a standard deviation of 1.420, also indicating acceptance. This implies that digital tools are crucial for startups and digital entrepreneurs in expanding their market reach. Al-Roubaier, Hamdan, and Sarea (2020) argue that economic diversification in a digital economy is significantly driven by the adoption of such technologies, enhancing market accessibility and competitiveness. Conversely, the third question, "Digitalization has enabled my business to offer a wider range of products/services," has a mean of 2.93 and a standard deviation of 1.270, which falls below the acceptance threshold. This result suggests that while digitalization may facilitate market entry, it does not necessarily translate to a broader product or service range for all businesses. This could be attributed to specific sectoral constraints or limited digital capabilities within certain businesses (Hassen, Rahim, & Shah, 2019). The fourth question, "The use of digital platforms has increased my business's operational efficiency and productivity," with a mean of 2.99 and a standard deviation of 1.438, is also below the threshold, indicating rejection. This finding suggests that not all respondents have experienced enhanced operational efficiency and productivity through digital platforms. This might be due to

the challenges of integrating digital tools into existing workflows or a lack of digital literacy among some entrepreneurs (Ceipek et al., 2021). Finally, the fifth question, "Digitalization has helped my business to better understand and meet customer needs and preferences," has a mean of 3.42 and a standard deviation of 1.303, indicating acceptance. This demonstrates that digitalization plays a significant role in enabling businesses to cater to customer demands more effectively. Al-Tit (2020) highlights that e-commerce and digital tools can significantly enhance customer loyalty and satisfaction by providing personalized experiences and efficient service delivery.

The implications of these results are multifaceted. The acceptance of digitalization's role in business growth and market expansion underscores the importance of continued investment in digital tools and technologies. However, the rejection of its impact on product/service diversification and operational efficiency suggests that there are barriers to fully realizing these benefits. This calls for targeted support and training programs to enhance digital literacy and integration capabilities among entrepreneurs (Feng & Wang, 2024). Additionally, the findings emphasize the need for policies that promote a conducive digital environment and address sector-specific challenges (Freire, 2021).

Impact of E-Commerce on Business Performance and Market Reach of Nigerian Digital Entrepreneurs

Table 3: Impact of e-commerce on business performance and market reach of Nigerian digital entrepreneurs

S/N	Questions	Mean	SD	Remark
1	E-commerce has significantly enhanced the sales performance of my business.	3.42	1.303	Accept
2	Utilizing e-commerce platforms has expanded the market reach of my business beyond local boundaries.	2.99	1.438	Reject
3	E-commerce has improved customer acquisition and retention for my business.	2.93	1.270	Reject
4	The adoption of e-commerce has led to an increase in my business's revenue and profitability.	3.53	1.420	Accept
5	E-commerce has provided my business with a competitive advantage in the market.	3.32	1.157	Accept

Source: Field Survey, 2024

Table 3 elucidates the impact of e-commerce on the business performance and market reach of Nigerian digital entrepreneurs. The first question, "E-commerce has significantly enhanced the sales performance of my business," has a mean of 3.42 and a standard deviation of 1.303. This suggests that respondents generally agree that e-commerce has positively influenced their sales performance. This aligns with findings from Al-Tit (2020), who noted that e-commerce adoption can significantly boost sales and customer loyalty in small and medium-sized enterprises (SMEs) by providing a broader customer base and streamlined transaction processes. In contrast, the second question, "Utilizing e-commerce platforms has expanded the market reach of my business beyond local boundaries," has a mean of 2.99 and a standard deviation of 1.438, indicating rejection. This result implies that respondents do not perceive a significant impact of e-commerce on extending their market reach beyond local areas. This could be due to logistical challenges,

inadequate digital infrastructure, or limited digital marketing expertise. Alzahrani (2019) discusses similar barriers in his study on e-commerce adoption in SMEs, emphasizing the need for robust strategies to overcome such hurdles and fully leverage the potential of e-commerce.

The third question, "E-commerce has improved customer acquisition and retention for my business," also falls below the threshold with a mean of 2.93 and a standard deviation of 1.270, leading to its rejection. This finding suggests that respondents do not see substantial improvements in customer acquisition and retention through e-commerce. Factors such as competitive market dynamics, the quality of customer service, and the effectiveness of digital marketing efforts might contribute to this perception. Hassen, Abd Rahim, and Shah (2019) highlight that while e-commerce can offer opportunities for customer growth, it requires effective implementation and continuous engagement strategies to realize these benefits. On the other hand, the fourth question, "The adoption of e-commerce has led to an increase in my business's revenue and profitability," is accepted with a mean of 3.53 and a standard deviation of 1.420. This indicates a positive impact of e-commerce on financial performance, supporting the notion that digital platforms can enhance revenue streams and profitability by reaching a broader audience and facilitating efficient transactions. Kadir and Shaikh (2023) corroborate this, indicating that e-commerce can drive significant financial gains for businesses by opening new revenue channels and optimizing operations.

Lastly, the fifth question, "E-commerce has provided my business with a competitive advantage in the market," has a mean of 3.32 and a standard deviation of 1.157, also indicating acceptance. This suggests that respondents recognize the competitive edge that e-commerce can provide, enabling them to differentiate themselves in the marketplace through innovative digital solutions and better customer engagement. Ceipek et al. (2021) discuss how digital transformation can offer competitive advantages by enabling businesses to innovate and respond to market demands more effectively. The implications of these results are multifaceted. The acceptance of e-commerce's positive impact on sales performance, revenue, profitability, and competitive advantage highlights the importance of digital adoption for business success. However, the rejection of its role in expanding market reach and improving customer acquisition and retention indicates the need for targeted strategies to address these specific challenges. Investments in digital infrastructure, enhanced digital marketing skills, and effective customer engagement strategies are crucial to fully realize the benefits of e-commerce. This underscores the need for supportive policies and capacity-building initiatives to help digital entrepreneurs overcome barriers and maximize their potential in the e-commerce landscape (Friederici, Wahome, & Graham, 2020).

Challenges and Opportunities Faced by Nigerian Startups in Adopting Digitalization and E-Commerce for Economic Diversification

Table 4: Challenges and opportunities faced by Nigerian startups in adopting digitalization and e-commerce for economic diversification

S/N	Questions	Mean	SD	Remark
1	My startup faces significant financial challenges in adopting digitalization and e-commerce.	3.30	1.251	Accept
2	There are ample opportunities for growth and expansion through digitalization and e-commerce in my sector.	3.32	1.157	Accept
3	Lack of technical skills and expertise is a major barrier to digitalization for my business.	2.93	1.270	Reject
4	Government policies and regulations support the adoption of digitalization and e-commerce for startups.	3.30	1.251	Accept

5	My startup has successfully leveraged digitalization and e-commerce to overcome traditional market barriers.	3.26	1.298	Accept

Source: Field Survey, 2024

Table 4 presents the challenges and opportunities faced by Nigerian startups in adopting digitalization and e-commerce for economic diversification. The first question, "My startup faces significant financial challenges in adopting digitalization and e-commerce," has a mean of 3.30 and a standard deviation of 1.251. This result suggests that financial constraints are a notable challenge for Nigerian startups attempting to implement digital technologies. This is consistent with the findings of Hendricks and Mwapwele (2024), who highlight financial barriers as a critical issue impeding digital adoption in developing countries. Such financial challenges may include the costs associated with acquiring and maintaining digital infrastructure, software, and skilled personnel. The second question, "There are ample opportunities for growth and expansion through digitalization and e-commerce in my sector," is also accepted with a mean of 3.32 and a standard deviation of 1.157. This suggests that respondents recognize significant opportunities for growth and expansion through digital means. This aligns with the work of Abubakre, Faik, and Mkansi (2021), who emphasize the potential of digital entrepreneurship to drive economic diversification and growth by enabling startups to reach new markets and innovate. The recognition of these opportunities indicates a positive outlook among startups regarding the benefits of digitalization and e-commerce.

Conversely, the third question, "Lack of technical skills and expertise is a major barrier to digitalization for my business," has a mean of 2.93 and a standard deviation of 1.270, resulting in rejection. This implies that respondents do not uniformly view the lack of technical skills as a primary barrier. This finding may suggest that while technical expertise is a challenge, other factors such as financial constraints or regulatory issues might be more significant. Hassen, Rahim, and Shah (2019) discuss the importance of skill development in e-commerce adoption, indicating that while it is crucial, it may not be the foremost concern for all businesses. The fourth question, "Government policies and regulations support the adoption of digitalization and e-commerce for startups," is accepted with a mean of 3.30 and a standard deviation of 1.251. This indicates that respondents perceive governmental support as a facilitator for digital adoption. This perception aligns with the analysis by Olaopa and Alsuhaibany (2023), who highlight the role of supportive government policies in fostering digitalization and economic diversification. Effective policies and regulations can provide the necessary framework and incentives for startups to embrace digital technologies.

Finally, the fifth question, "My startup has successfully leveraged digitalization and e-commerce to overcome traditional market barriers," is accepted with a mean of 3.26 and a standard deviation of 1.298. This suggests that respondents believe digitalization has enabled them to surpass conventional obstacles in their business operations. Ceipek et al. (2021) discuss how digital transformation allows businesses to innovate and address market challenges more effectively, which supports the findings in this survey. The implications of these results are significant for understanding the landscape of digital adoption among Nigerian startups. Financial challenges remain a critical hurdle, necessitating targeted financial support and incentives. However, the recognition of growth opportunities and the role of supportive government policies indicate a conducive environment for digital transformation. Addressing skill gaps and continuing to enhance

policy frameworks can further support the digitalization efforts of startups, ultimately contributing to economic diversification and resilience (Friederici, Wahome, & Graham, 2020). This comprehensive approach can help harness the full potential of digital technologies in transforming the economic landscape of Nigeria.

Conclusion and Recommendations

The analysis of the role of digitalization in fostering economic diversification, the impact of e-commerce on business performance, and the challenges and opportunities faced by Nigerian startups reveals three major findings that are crucial for shaping future strategies. First, digitalization significantly contributes to business growth and market expansion but faces obstacles related to operational efficiency and product diversification. Second, e-commerce enhances sales performance and revenue generation but has not uniformly expanded market reach or improved customer acquisition. Third, while financial constraints and supportive government policies are recognized as significant factors, technical skills and expertise do not emerge as primary barriers.

To address these findings, several recommendations are proposed. First, addressing financial constraints should be a priority. Startups should be encouraged to seek financial support through grants, subsidies, and low-interest loans specifically designed for digital adoption. Creating partnerships between the government and financial institutions can facilitate access to these resources. For instance, initiatives like the Digital Nigeria Program aim to provide funding and support for technology-driven projects (Freire, 2021). Additionally, financial literacy programs can help startups manage and allocate their resources effectively to maximize the benefits of digital technologies.

Second, expanding the impact of e-commerce requires strategic improvements in digital marketing and customer engagement. Startups should invest in training programs that focus on leveraging e-commerce platforms for market expansion and customer retention. Implementing advanced data analytics tools can help businesses understand consumer behavior and optimize their marketing strategies (Hassen et al., 2021). Furthermore, collaboration with e-commerce platforms and digital marketing experts can provide startups with the knowledge and tools necessary to enhance their online presence and compete effectively in broader markets (Al-Roubaier, Hamdan, & Sarea, 2020).

Lastly, while technical skills may not be perceived as the primary barrier, enhancing technical capabilities remains essential for long-term sustainability. Startups should focus on continuous skill development and technical training for their teams. Public and private sector collaborations can establish training centers and certification programs tailored to digital and e-commerce skills. Additionally, integrating technical education into entrepreneurship programs can prepare new startups to overcome technological challenges more effectively (Abubakre, Faik, & Mkansi, 2021). Governments and educational institutions should work together to provide these resources and ensure that the workforce is equipped with the necessary skills to support digital transformation.

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