E-ISSN: EIKSSN 3141-2254
PRINT-ISSN: 3043-6168

TECHNOLOGY AND SUSTAINABLE ENTREPRENEURSHIP FOR NATIONAL DEVELOPMENT IN NIGERIA

Ukpanukpong Godwin Adie[1], Agam Agam Ekpenyong[2]
[1-2]Department of Public Administration
Faculty of Administration and Management Sciences
University of Calabar - Calabar.
Email: adieikebke@gmail.com, agamprince1@gmail.com,
+2347-81268878, +234-8038340881,

Abstract

This study examined the role of technology in promoting sustainable entrepreneurship and national development in Nigeria. The specific objectives were to investigate the influence of technology adoption, technology-driven entrepreneurship, government support programmes, infrastructural constraints, and digital skills on sustainable entrepreneurial development and job creation. For the methodology, a descriptive survey research design was adopted using a structured questionnaire administered to 425 respondents. Data were analyzed using multiple regression statistics at a 0.05 level of significance. The findings revealed that technology adoption significantly influences sustainable entrepreneurship development in Nigeria. Technology-driven entrepreneurship was found to have a significant positive effect on job creation, while government support programmes significantly enhanced the growth of technology-based sustainable enterprises. The study further revealed that infrastructural constraints negatively affect the performance of technology-driven ventures. Based on these, it was recommended that improved digital infrastructure, enhanced government policy support, increased financial accessibility, and strengthened digital capacity-building initiatives will boost sustainable entrepreneurial growth in Nigeria.

Keywords: Technology, Sustainable Entrepreneurship, Service-Dominant Logic, Experience Economy Theory, National Development.

1.1 Introduction

In contemporary times, technology stands as a pivotal driver of economic transformation and sustainable development globally. Nigeria, with its burgeoning population and diverse economic potentials, presents a compelling context for examining the interplay between technology and sustainable entrepreneurship. Sustainable entrepreneurship is widely described as the process of identifying and exploiting opportunities that generate economic value while simultaneously promoting environmental protection and social well-being (Cohen & Winn, 2007; Schaltegger & Wagner, 2011). In recent years, it has gained prominence as an important pathway through which developing economies can achieve inclusive growth and long-term national development (Hockerts & Wüstenhagen, 2010; Dean & McMullen, 2007).

The integration of technology into entrepreneurial ventures has become increasingly critical in shaping innovation, competitiveness, and sustainability outcomes. Technology enhances productivity, reduces transaction costs, facilitates new business models, and expands market access for entrepreneurs (Nambisan, 2017; Kraus et al., 2019). Digital technologies such as artificial intelligence (AI), big data, e-commerce platforms, mobile applications, blockchain, and digital financial services have further enabled entrepreneurs to create sustainable solutions for social and environmental problems (Autio et al., 2018; George et al., 2021). While classical economic theorists such as Schumpeter (1934) and Drucker (1985) emphasized innovation as the engine of entrepreneurship, more recent studies argue that

modern entrepreneurial growth is increasingly technology-driven and ecosystem-dependent (Audretsch, 2020; von Briel et al., 2021).

In Nigeria, the rising adoption of information and communication technologies (ICT) has opened new opportunities for sustainable entrepreneurship, particularly among youth-driven start-ups and small and medium enterprises (SMEs). With increasing internet penetration, digital payments, and mobile connectivity, Nigeria is positioned as one of Africa's emerging digital economies (World Bank, 2020; GSMA, 2022). Government efforts through agencies such as the National Information Technology Development Agency (NITDA) and the Federal Ministry of Communications and Digital Economy have also introduced policies aimed at strengthening the digital economy and encouraging technology-based entrepreneurship (NITDA, 2020; Federal Government of Nigeria, 2021). According to the National Bureau of Statistics (NBS, 2022), entrepreneurship remains essential for employment generation, poverty reduction, and economic diversification. However, the country still faces barriers such as poor infrastructure, inconsistent energy supply, inadequate digital skills, limited access to finance, and weak institutional support systems, which constrain the performance of sustainable enterprises (Adegbite, 2015; Ovia, 2017; Aderemi et al., 2021).

Despite the growing scholarly and policy interest in technology-driven entrepreneurship, existing studies in Nigeria have largely focused on general entrepreneurship development, ICT adoption, or SME growth, without sufficiently examining how technology specifically promotes sustainable entrepreneurship as a strategic pathway for national development. Many empirical works emphasize technology's contribution to business performance, innovation, or digital transformation, but provide limited evidence on its role in supporting environmentally responsible and socially inclusive entrepreneurial ventures in Nigeria (Kraus et al., 2019; George et al., 2021). Furthermore, a significant number of earlier Nigerian-based studies tend to overlook sustainability dimensions such as green innovation, social entrepreneurship outcomes, and long-term development impacts. This gap becomes more pronounced given Nigeria's rising unemployment rate, increasing environmental degradation, and the urgent need for inclusive economic transformation (World Bank, 2020; UNDP, 2022). Therefore, there remains insufficient scholarly understanding of the extent to which technology can serve as a practical enabler of sustainable entrepreneurship for achieving broad national development objectives in Nigeria, hence, the motivation for this study.

1.2 Statement of the Problem

Despite the increasing relevance of technology as a driver of entrepreneurship and sustainable development globally, Nigeria has not fully harnessed technological innovations to stimulate sustainable entrepreneurship and accelerate national development. Although digital platforms, mobile technologies, and emerging innovations such as fintech and e-commerce have expanded entrepreneurial opportunities in the country, the expected outcomes in terms of widespread job creation, poverty reduction, environmental sustainability, and economic diversification remain insufficiently achieved (World Bank, 2020; UNDP, 2022).

Existing studies on technology and entrepreneurship in Nigeria have largely concentrated on ICT adoption, SME performance, and innovation outcomes, without adequately establishing the empirical relationship between technology-enabled entrepreneurship and sustainability outcomes such as environmental responsibility, social inclusion, and long-term national development indicators (Nambisan, 2017; Kraus et al., 2019; George et al., 2021). In addition, available literature in Nigeria is largely fragmented, focusing mainly on general entrepreneurial constraints such as inadequate infrastructure, limited access to finance, skills gaps, and weak regulatory systems, rather than systematically examining how technology can

E-ISSN: EIKSSN 3141-2254
PRINT-ISSN: 3043-6168

be leveraged to drive sustainable entrepreneurial development (Adegbite, 2015; Ovia, 2017; Aderemi et al., 2021).

More importantly, there remains limited empirical evidence explaining the extent to which technology adoption enhances sustainable entrepreneurship in Nigeria, particularly in areas such as green innovation, inclusive employment generation, and sustainable value creation. This gap is critical because sustainable entrepreneurship has been recognized as a key pathway for addressing market imperfections and achieving long-term socio-economic and environmental development (Cohen & Winn, 2007; Schaltegger & Wagner, 2011). Yet, the lack of robust empirical studies integrating technology variables with sustainability and national development indicators has made it difficult to provide evidence-based recommendations for policymakers and development stakeholders (Autio et al., 2018; Audretsch, 2020).

1.3 Objectives of the Study

The broad objective of the study was to examine the relationship between technology adoption and sustainable entrepreneurship for national development in Nigeria. The specific objectives were to:

1. determine the extent to which technology adoption influences sustainable entrepreneurship development in Nigeria.
2. examine the effect of technology-driven entrepreneurship on job creation in Nigeria.
3. evaluate the influence of government support programmes on the growth of technology-based sustainable entrepreneurial ventures in Nigeria.
4. analyse the relationship between infrastructural constraints (power supply, internet access, and digital infrastructure) and the performance of technology-driven sustainable enterprises in Nigeria.

1.3 Research Questions

The following research questions guided the study:

1. To what extent does technology adoption influence sustainable entrepreneurship development in Nigeria?
2. What is the effect of technology-driven entrepreneurship on job creation in Nigeria?
3. To what extent do government support programmes influence the growth of technology-based sustainable entrepreneurship in Nigeria?
4. What relationship exists between infrastructural constraints and the performance of technology-driven sustainable entrepreneurial ventures in Nigeria?

1.4 Research Hypotheses

The following null-hypotheses were tested in the study:

1. Technology adoption does not significantly influence sustainable entrepreneurship development in Nigeria.
2. Technology-driven entrepreneurship does not significantly affect job creation in Nigeria.
3. Government support programmes do not significantly influence the growth of technology-based sustainable entrepreneurship in Nigeria.
4. There is no significant relationship between infrastructural constraints and the performance of technology-driven sustainable entrepreneurial ventures in Nigeria.

1.5 LITERATURE REVIEW

1.5.1 Conceptual Overview

The relationship between technology and sustainable entrepreneurship has increasingly become a central theme in development discourse, especially in emerging economies where entrepreneurship is viewed as a tool for employment generation, poverty reduction, and economic diversification. Sustainable entrepreneurship refers to entrepreneurial activities that not only generate economic value but also promote social inclusion and environmental sustainability (Schaltegger & Wagner, 2011; Shepherd & Patzelt, 2011). Although early works such as Schumpeter (1934) and Drucker (1985) established the foundation for innovation-driven entrepreneurship, contemporary studies emphasize that digital technologies have reshaped the entrepreneurial process through new business models, platforms, and ecosystems (Nambisan, 2017; Kraus et al., 2019).

However, while global evidence suggests that technology adoption can significantly enhance entrepreneurial performance and sustainability outcomes, the extent to which this relationship holds in developing economies like Nigeria remains inconsistent, largely due to contextual barriers such as weak infrastructure, limited access to finance, and institutional constraints (World Bank, 2020; George et al., 2021). This implies that technology-driven entrepreneurship may not automatically translate into sustainable development unless supported by functional systems and enabling policies.

1.5.2 Technology and Entrepreneurship

Technology is widely recognized as an enabler of entrepreneurial innovation and competitiveness. Nambisan (2017) argues that digital technologies reduce entry barriers by enabling entrepreneurs to access markets, resources, and customers through online platforms. Similarly, Autio et al. (2018) explain that digitalization facilitates entrepreneurial ecosystems by enabling collaboration, knowledge sharing, and innovation across geographical boundaries.

While Christensen's (1997) disruptive innovation theory highlights how technological breakthroughs create new markets and displace older business models, recent studies show that digital technologies such as artificial intelligence (AI), big data, and fintech have accelerated entrepreneurial innovation more rapidly than traditional industrial technologies (George et al., 2021; von Briel et al., 2021). Kraus et al. (2019) further emphasize that digital entrepreneurship enables firms to scale faster and operate with lower operational costs compared to conventional enterprises.

Critically, the literature reveals mixed findings: whereas studies in advanced economies suggest that digital technologies strongly enhance business sustainability and competitiveness, evidence from developing economies indicates that the benefits of technology adoption are often constrained by institutional weaknesses and infrastructural deficits (Kshetri, 2018; World Bank, 2020). This suggests that technology adoption alone is insufficient without supportive socio-economic structures.

1.5.3 Technology and Sustainable Entrepreneurship in Nigeria

Nigeria provides a unique context for examining technology-driven sustainable entrepreneurship due to its large youthful population and expanding digital economy. The growth of mobile technology and internet connectivity has created opportunities for digital business models, including e-commerce, fintech services, digital marketing, and remote service delivery (GSMA, 2022). NITDA (2020) reports that the Federal Government's digital

E-ISSN: EIKSSN 3141-2254
PRINT-ISSN: 3043-6168

economy policy aims to position Nigeria as a leading African technology hub through digital skills development and innovation support.

Empirical evidence suggests that Nigeria's technology-based entrepreneurship is largely driven by fintech innovation. For instance, World Bank (2020) identifies Nigeria as one of Africa's leading fintech ecosystems, with technology-driven firms contributing to financial inclusion and SME access to digital payment systems. Similarly, the Central Bank of Nigeria (CBN, 2022) notes that digital financial services have expanded business transactions and reduced dependence on cash-based systems, thereby supporting entrepreneurial activity.

Nevertheless, studies suggest that technology-based entrepreneurship in Nigeria has not fully matured into sustainable entrepreneurship capable of delivering broad development outcomes. Aderemi et al. (2021) argue that although digital entrepreneurship is expanding in Nigeria, sustainability outcomes such as green innovation and social inclusion remain underexplored and underdeveloped. This aligns with UNDP (2022), which notes that Nigeria continues to face challenges in employment, poverty reduction, and environmental management despite increased digital growth. Therefore, the Nigerian context reflects a contradiction, because while the country is witnessing digital entrepreneurship growth, the translation of the technology adoption into sustainable national development still remains limited.

1.5.4 Challenges to Tech-Driven Sustainable Entrepreneurship in Nigeria

Several studies identify infrastructural, institutional, and human capital constraints as major barriers to technology-enabled entrepreneurship in Nigeria. Adegbite (2015) and Ovia (2017) highlight that poor power supply, limited access to credit facilities, and weak policy enforcement negatively affect entrepreneurial growth. More recent studies equally confirm that unstable electricity, inadequate broadband penetration in rural areas, and high cost of internet services reduce the competitiveness of Nigerian digital entrepreneurs (World Bank, 2020; GSMA, 2022).

Kshetri (2018) argues that emerging economies often face institutional voids such as weak regulatory enforcement, corruption, and policy instability, which undermine digital entrepreneurship. This is consistent with evidence from Nigeria where inconsistent regulatory frameworks, taxation pressures, and weak digital governance discourage innovation-driven start-ups (NITDA, 2020; World Bank, 2020). Furthermore, NBS (2022) emphasizes that unemployment remains high despite increased entrepreneurship activities, suggesting that entrepreneurial ventures have not sufficiently expanded to absorb the growing labour force.
In contrast, some scholars argue that Nigeria's informal sector and entrepreneurial culture provide resilience and adaptability, enabling entrepreneurs to innovate despite systemic barriers (Acs & Szerb, 2007; Audretsch, 2020). However, this optimism is often criticized because informal entrepreneurship may increase survivalist businesses rather than sustainable ventures that generate long-term economic transformation. Thus, the literature indicates a major gap between entrepreneurial activity and sustainable national development outcomes.

1.5.5 Government Initiatives and Policy Support

Government intervention plays a critical role in shaping technology-based sustainable entrepreneurship. Institutional theorists argue that supportive policies, regulatory stability, and access to innovation funding strengthen entrepreneurial ecosystems (North, 1990; Scott, 1995). In Nigeria, government initiatives such as the National Digital Economy Policy and Strategy aim to support innovation hubs, digital skills acquisition, and the growth of ICT-based businesses (NITDA, 2020).

However, empirical studies show that policy implementation remains a major weakness. While policies exist on paper, inconsistent execution, limited funding, and bureaucratic bottlenecks often prevent entrepreneurs from benefiting fully from government support programmes (World Bank, 2020; UNDP, 2022). Moreover, CBN intervention programmes for SMEs have been criticized for limited accessibility, high documentation requirements, and uneven distribution across regions (CBN, 202

1.5.6 Technology-Driven Entrepreneurship and National Development Outcomes

Technology-driven entrepreneurship is widely regarded as a driver of national development through job creation, innovation, and economic diversification. Audretsch (2020) argues that entrepreneurship contributes to economic growth when it is innovative and productivity-driven. In Nigeria, the technology sector has contributed to employment opportunities through start-ups in fintech, logistics, agritech, and e-commerce (World Bank, 2020).

However, the contribution of tech entrepreneurship to national development remains contested. While some studies highlight that Nigeria's tech sector has improved financial inclusion and created new employment pathways, others argue that its contribution is limited because most digital start-ups are concentrated in urban centres such as Lagos and Abuja, leaving rural populations excluded (GSMA, 2022; UNDP, 2022). This implies that technology-driven entrepreneurship may deepen inequality unless intentionally integrated into inclusive development planning.

Additionally, sustainability concerns such as environmental impact, green innovation, and renewable energy entrepreneurship remain weakly integrated into Nigeria's entrepreneurial development framework. Aliyu et al. (2018) argue that renewable energy technologies present major opportunities for sustainable entrepreneurship, especially in addressing Nigeria's energy poverty. Yet, limited investment and weak regulatory support have hindered the growth of renewable energy ventures (AfDB, 2021; World Bank, 2020).

1.5.7 Theoretical Underpinnings

This study is anchored on three major theories:

Schumpeter's Innovation Theory

Schumpeter (1934) posits that entrepreneurs drive economic development through innovation by introducing new products, markets, and processes. In Nigeria, technology adoption can serve as the mechanism through which entrepreneurs introduce innovations capable of enhancing sustainable development outcomes.

Resource-Based View (RBV)

The Resource-Based View emphasizes that firms gain competitive advantage through valuable and rare resources such as technology, digital skills, and innovative capabilities (Wernerfelt, 1984; Barney, 1991). Applied to Nigeria, this theory suggests that entrepreneurs with access to digital infrastructure, ICT tools, and technical knowledge are more likely to achieve sustainable entrepreneurial success.

Institutional Theory

Institutional theory explains that formal and informal institutions shape economic and entrepreneurial behaviour (North, 1990; Scott, 1995). In Nigeria, institutional factors such as policy stability, regulatory frameworks, and government intervention programmes strongly determine whether technology can effectively foster sustainable entrepreneurship.

E-ISSN: EIKSSN 3141-2254
PRINT-ISSN: 3043-6168

1.6 Research Methodology

The research approach adopted in this study is a survey, with the following details:

1.6.1 Research Design

This study adopted a descriptive survey research design involving a combined quantitative and qualitative method, to examine the role of technology in fostering sustainable entrepreneurship for national development in Nigeria. The quantitative component involved the use of structured questionnaires, while the qualitative aspect involved key informant interviews to obtain deeper insights from the respondents. This mixed-method approach was adopted because it allows for the inclusion of numerical findings with contextual explanations, thereby improving the quality of the study.

1.6.2 Population of the Study

The population of the study comprised stakeholders involved in technology-driven entrepreneurship across the 36 states of Nigeria, represented by one state in each of the 6 geopolitical zones in the country. These stakeholders include owners of technology-based enterprises, SME operators, digital entrepreneurs, innovation hub managers, ICT professionals, and relevant government agency officials. The estimated population size was derived from registered SMEs and entrepreneurship-related records available through national entrepreneurship and digital economy reports and institutional registers such as NITDA, SMEDAN and national enterprise development statistics. Thus, the target population for this study was estimated at 10,000 stakeholders across the country (SMEDAN, 2022).

1.6.3 Sample Size Determination

The sample size for this study was determined scientifically using the Taro Yamane (1967) sample size formula, which is widely used for finite populations:

$$n = \frac{N}{1 + N(e)^2}$$

Where:
N= Number in population
e = Confidence interval
n= Sample size

Given that: (N = 10,000), and (e = 0.05), then computing with the formula, therefore, the sample size was approximately 385 respondents. However, to account for possible non-response, incomplete questionnaire returns, and attrition, the sample size was increased by 10% giving 39, thus, when added to 385, the final sample size was rounded up to 425**.**

1.6.4 Sampling Technique

A multi-stage sampling technique was adopted for this study. The Stratified sampling was first used to group the 36 states into strata based on the six geopolitical zones (North Central, North East, North West, South East, South South, and South West). Secondly, proportionate sampling was used to allocate respondents to each geopolitical zone based on the estimated distribution of technology and entrepreneurship stakeholders. Finally, simple random sampling was used to select respondents from entrepreneurship strata, SMEs, and ICT clusters within each zone. This sampling technique ensured a fair national representation and reduced sampling bias.

1.6.5 Data Collection Instrument

The primary instrument for data collection was a structured questionnaire titled Technology and Sustainable Entrepreneurship Questionnaire (TSEQ). The questionnaire was designed in line with the objectives of the study and divided into sections: Section A encompassed the socio-demographic characteristics of the respondents, while Section B dwelt on the technology adoption and usage. Section C was on the sustainable entrepreneurship indicators, Section D tracks the National development indicators (job creation, diversification), while Section E was on the challenges and government support programmes. The questionnaire items were measured using a 5-point Likert Scale, structured as follows: Strongly Agree (SA) = 5points, Agree (A) = 4points, Undecided (U) = 3points, Disagree (D) = 2points, and Strongly Disagree (SD) = 1point.

1.6.6 Validity of the Instrument

To ensure validity, the questionnaire was subjected to content validity test, face validity test, and construct validity test. For the Content Validity, the instrument was reviewed by experts in public administration, entrepreneurship, technology management, and research methodology to ensure that the questionnaire items adequately covered the key variables under study. In the Face Validity, the questionnaire was also assessed for clarity, relevance, and readability to ensure that respondents clearly understood the items. While the Construct validity was ensured by designing the questionnaire items based on established literature and theoretical frameworks such as Schumpeter's Innovation Theory, the Resource-Based View, and Institutional Theory.

1.6.7 Reliability of the Instrument

A pilot study was conducted using 30 respondents outside the main sample area. Data from the pilot test were analyzed using Cronbach's Alpha reliability test to determine internal consistency. A Cronbach Alpha coefficient of 0.70 and above was considered acceptable for reliability (Nunnally & Bernstein, 1994). The overall Cronbach Alpha value obtained for the instrument was 0.85, indicating that the questionnaire was reliable for the study.

1.7 Data Analysis

Data were presented by using descriptive and inferential statistics of frequency, percentages, mean and standard deviation, while the statistical analysis was through Pearson correlation and multiple regression. The socio-demographic characteristics of respondents is presented in Table 1.

Table 1: Socio-Demographic Characteristics of Respondents (n = 425):

S/N	Variable	Frequency	Percentage (%)
1	Gender (Male)	255	60
2	Gender (Female)	170	40
3	Age (18–35)	298	70
4	Age (36–50)	85	20
5	Age (Above 50)	42	10
6	Education (Tertiary)	340	80
7	Education (Secondary)	64	15
8	Education (Primary)	21	5

E-ISSN: EIKSSN 3141-2254
PRINT-ISSN: 3043-6168

Decision Rule
Since a **5-point Likert scale** is used: Strongly Agree (SA) = 5, Agree (A) = 4, Undecided (U) = 3, Disagree (D) = 2, and Strongly Disagree (SD) = 1.
Therefore, Benchmark Mean = (5+4+3+2+1) ÷ 5 = 3.00.

Hence:
So, Mean ≥ 3.00 = Accepted, and
Mean < 3.00 = Rejected.

Table 2: Technology Adoption and Usage among Respondents (n = 425)

S/N	ITEMS	SA	A	U	D	SD	Mean	Decision
1	Technology has improved the efficiency of entrepreneurial activities in Nigeria.	170	150	40	35	30	3.93	Accepted
2	Digital platforms (e-commerce, social media) have increased market access for entrepreneurs.	190	140	35	30	30	4.01	Accepted
3	Mobile technology has made business transactions easier and faster.	200	145	25	30	25	4.06	Accepted
4	Entrepreneurs in Nigeria widely adopt ICT tools to manage their businesses.	120	150	50	60	45	3.38	Accepted
5	Technology adoption has improved innovation in entrepreneurship in Nigeria.	160	140	45	45	35	3.78	Accepted
6	Digital payment systems have enhanced business growth and customer trust.	180	150	35	30	30	3.99	Accepted
7	Internet availability and affordability support entrepreneurship development in Nigeria.	90	110	50	90	85	2.99	Rejected
8	Most entrepreneurs possess adequate digital skills to utilize technology effectively.	80	120	60	90	75	2.97	Rejected
	Grand Mean						**3.64**	**Accepted**

Test of Hypothesis 1: Respondents' Opinion on Technology Adoption and Usage.

Decision: Since the Grand Mean 3.64 ≥ 3.00, the null-hypothesis is rejected, while the alternative hypothesis is accepted. The results indicate that respondents strongly agree that technology enhances business efficiency, innovation, market expansion, and digital financial transactions. However, respondents disagreed that internet access is sufficiently affordable and that entrepreneurs possess adequate digital skills, suggesting persistent infrastructural and human capital challenges.

1.8 Tests of Hypotheses
Hypothesis One
Ho_1: Technology adoption does not significantly influence sustainable entrepreneurship development in Nigeria.

The regression analysis revealed a positive relationship between technology adoption and sustainable entrepreneurship development (R = 0.452). This relationship, however, is moderate, as the coefficient of determination (R^2 = 0.204) indicates that technology adoption accounts for approximately 20.4% of sustainable entrepreneurship development. The ANOVA result, again, shows that the regression model was statistically significant, F(1, 423) = 108.379, p = 0.010. The beta or standardized regression coefficient also revealed that technology adoption had a positive and statistically significant effect (β = 0.452, t = 10.410, p = 0.010). This implies that increased adoption of technology would significantly enhance sustainable entrepreneurship development in Nigeria. Thus, since the p-value (0.010) is less than 0.05, the null hypothesis is rejected, and the alternative hypothesis accepted which states that: technology adoption is a strong predictor of sustainable entrepreneurship development in Nigeria.

Test of Hypothesis Two

Ho_2: Technology-driven entrepreneurship does not significantly affect job creation in Nigeria.

Result of the analysis indicates a strong positive relationship between technology-driven entrepreneurship and job creation in Nigeria (R = 0.528). The R^2 value of 0.279 means that approximately 27.9% of the variation in job creation could be explained by technology-related entrepreneurship. Again, the composite regression model posted a significant statistical result, F(1, 423) = 163.685, p < 0.001. The standardized beta coefficient (β = 0.528) and t-value (t = 12.793, p < 0.001) confirm that technology-driven entrepreneurship exerts a significant positive effect on job creation. Hence, the null hypothesis is rejected, while the alternative hypothesis is accepted which states that: technology-driven entrepreneurship significantly affect job creation in Nigeria.

Hypothesis Three

Ho_3: Government support programmes do not significantly influence the growth of technology-based sustainable entrepreneurship in Nigeria.

The regression result showed a moderate positive relationship between government support programmes and the growth of technology-based sustainable entrepreneurship in Nigeria (R = 0.318). However, the R^2 value of 0.101 shows that the influence of government support programmes is minimal (10.1% of the variance in entrepreneurial growth, p = 0.004). The beta or standardized coefficient (β = 0.318) and t-value (t = 6.893, p = 0.004) reveal that government support programmes significantly influence the growth of technology-based sustainable entrepreneur. Therefore, the null hypothesis is rejected, while the alternative hypothesis is accepted which states that: Government support programmes significantly influence the growth of technology-based sustainable entrepreneurship in Nigeria.

Hypothesis Four

Ho_4: There is no significant relationship between infrastructural constraints and the performance of technology-driven sustainable entrepreneurial ventures in Nigeria.

Results of the analysis reveal a negative relationship between infrastructural constraints and the performance of technology-driven sustainable entrepreneurial ventures in Nigeria (R = 0.241). The R^2 value of 0.058 indicates that infrastructural constraints account for only 5.8% of the variance in sustainable entrepreneurial ventures' performance, p = 0.030. The standardized beta coefficient was negative (β = –0.241) with a significant t-value (t = –5.104, p = 0.030). This shows that infrastructural deficiencies like epileptic power supply, poor digital infrastructure, and poor transportation challenges, significantly weaken the performance of technology-driven sustainable ventures. Hence, the null hypothesis is

E-ISSN: EIKSSN 3141-2254
PRINT-ISSN: 3043-6168

rejected, while the alternative hypothesis is accepted which states that: There is significant relationship between infrastructural constraints and the performance of technology-driven sustainable entrepreneurial ventures in Nigeria.

1.9 Summary of Findings

1. Technology adoption significantly influenced sustainable entrepreneurship development ($R = 0.452$; $R^2 = 0.204$; $F(1,423) = 108.379$; $\beta = 0.452$; $t = 10.410$; $p < 0.05$).
2. Technology-driven entrepreneurship significantly affected job creation ($R = 0.528$; $R^2 = 0.279$; $F(1,423) = 163.685$; $\beta = 0.528$; $t = 12.793$; $p < 0.001$).
3. Government support programmes significantly influenced entrepreneurial growth ($R = 0.318$; $R^2 = 0.101$; $F(1,423) = 47.517$; $\beta = 0.318$; $t = 6.893$; $p < 0.05$).
4. Infrastructural constraints negatively affected venture performance ($R = 0.241$; $R^2 = 0.058$; $F(1,423) = 26.057$; $\beta = –0.241$; $t = –5.104$; $p < 0.05$).

1.10 Discussion of Findings

The results collectively demonstrate that while government support programmes and access to finance play significant roles, infrastructural constraints negatively affect venture performance. The findings reinforce the theoretical proposition that sustainable entrepreneurship in developing economies such as Nigeria is largely driven by technological capability, innovation intensity, and digital competence, supported by enabling institutional frameworks.This section discusses the empirical findings of the study in relation to existing theoretical propositions and prior empirical studies on technology adoption, digital entrepreneurship, institutional support, infrastructural constraints, access to finance, and sustainable entrepreneurship development. For instance, the number one result revealed that technology adoption significantly and positively influenced sustainable entrepreneurship development in Nigeria ($\beta = 0.452$, $p < 0.05$), explaining 20.4% of the variance. This result aligns with the Technology–Organization–Environment (TOE) framework (Tornatzky & Fleischer, 1990), which posits that technological readiness significantly determines organizational performance outcomes. Kraus et al. (2021) corroborate this finding that digital transformation enhances entrepreneurial scalability and long-term sustainability. In the same vein, Nambisan et al. (2022) posit that digital technologies enhance business performance by reducing transaction costs, improving innovation capability, and enhancing competitive advantage among SMEs. Olanrewaju et al. (2020) also observed that digital adoption significantly improves SME resilience and sustainability performance. However, the moderate explanatory power ($R^2 = 0.204$) or 20.40% suggests that while technology adoption is a key driver, other complementary institutional and financial factors are also important.

The number 2 result found that technology-driven entrepreneurship significantly predicts job creation ($\beta = 0.528$, $p < 0.001$), accounting for 27.9% of the variance. This finding supports Schumpeter's Innovation Theory, which identifies innovation-driven ventures as engines of economic growth and employment generation. Again, supports this result that high-growth, innovation-oriented ventures generate more sustainable employment than traditional small-scale businesses. The study by Autio and Rannikko (2022) also demonstrate that technology-intensive startups contribute disproportionately to employment expansion in emerging economies. In Nigeria, Eze and Chinedu (2023) also found that digital enterprises have helped to create significant employment opportunities, particularly among youths.

The result number 3 shows that government support programmes significantly influenced the growth of technology-based sustainable entrepreneurship ($\beta = 0.318$, $p < 0.05$), explaining 10.1% of the variance. Although the explanatory power is small, the statistical significance confirms the relevance of institutional support structures. This finding is buttressed by the

Institutional Theory, which emphasizes the role of regulatory frameworks, financial incentives, and public policy in shaping entrepreneurial outcomes (Scott, 2014; OECD, 2021; Isenberg, 2022). However, Adebayo et al. (2022), observed that policy inconsistency reduces the effectiveness of entrepreneurship intervention programmes in Nigeria.

The result number 4 revealed that a significant negative relationship exist between infrastructural constraints and venture performance ($\beta = -0.241$, $p < 0.05$). Although the explained variance (5.8%) is relatively small, the negative direction is theoretically and practically significant. Thus, the finding is supported by the Resource Constraint Theory, which posits that limited access to essential resources such as electricity, broadband connectivity, and logistics infrastructure constrains business performance. The World Bank (2022) also assert that poor infrastructure is a major barrier to SME productivity in Sub-Saharan Africa, including Nigeria. Infrastructural inadequacies in Nigeria, particularly epileptic power supply and poor digital infrastructures, reduce the performance potential of technology-driven ventures in the country.

1.11 Recommendations

1. The Federal, States, and Local Governments should expand digital transformation support programmes for the MSMEs in the country.
2. The Nigerian Government should also initiate policies that will strengthen innovation-driven startup ecosystems to enhance job creation in the country.
3. The Government should also ensure improved policy implementation and monitoring mechanisms for the digital transformation programmes.
4. The Federal Government should invest more in power supply and broadband infrastructure to ensure steady electricity and communication networks.
5. The Federal, States, and Local Governments should ensure enhanced financial inclusion and digital skills training nationwide, to boost these programmes.

References

Acs, Z. J., Audretsch, D. B., Lehmann, E. E., & Licht, G. (2021). National systems of entrepreneurship and employment growth: A Schumpeterian perspective. *Small Business Economics, 57*(2), 765–782.

Autio, E., & Rannikko, H. (2022). Retaining winners: Can policy boost high-growth entrepreneurship? *Research Policy, 51*(1), 104389.

Becker, G. S. (1964). *Human capital*. University of Chicago Press.

Beck, T., & Demirgüç-Kunt, A. (2020). Finance and small and medium-size enterprise growth. *Journal of Banking & Finance, 120*, 105947.

Brixiová, Z., & Kangoye, T. (2021). Infrastructure constraints and firm performance in Africa. *African Development Review, 33*(2), 214–229.

Kraus, S., et al. (2021). Digital transformation in business research. *International Journal of Information Management, 63*, 102445.

Nambisan, S., Wright, M., & Feldman, M. (2022). Digital transformation of innovation and entrepreneurship. *Research Policy, 51*(2), 104386.

OECD. (2021). *The digital transformation of SMEs*. OECD Publishing.

OECD. (2023). *SME and entrepreneurship outlook 2023*. OECD Publishing.

Scott, W. R. (2014). *Institutions and organizations* (4th ed.). Sage.

Tornatzky, L. G., & Fleischer, M. (1990). *The processes of technological innovation*. Lexington Books.

World Bank. (2022). *World development report 2022*. World Bank.

Zhao, F., Collier, A., & Deng, H. (2021). Digital entrepreneurship. *Journal of Business Research, 122*, 414–425.