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Artificial Intelligence: A Tool for Sustainable Business Growth in Kogi State, Nigeria

Iloegbunam Lawrence
Office of the Vice Chancellor
Paul University Awka, Anambra State, Nigeria.
Iloegbunamlaw20@gmail.com

Abstract

Artificial Intelligence (AI) has increasingly become a cornerstone of digital transformation and sustainable business practices worldwide. Its ability to automate processes, analyze large datasets, enhance decision-making, and foster innovation positions it as a strategic resource for business growth, particularly in emerging economies. In Nigeria, small and medium enterprises (SMEs) play a crucial role in economic development but continue to face challenges related to inefficiency, market volatility, and limited technological capacity. This study investigates Artificial Intelligence as a tool for sustainable business growth in Kogi State, Nigeria. Adopting a descriptive survey research design, primary data were collected from 300 SMEs owners and managers using a semi-structured questionnaire measured on a five-point Likert scale. Data were analyzed using SPSS version 25 through descriptive statistics and regression analysis. Findings reveal that AI adoption has a significant positive effect on operational efficiency, innovation capability, competitiveness, and long-term sustainability of businesses in Kogi State. However, barriers such as high cost of AI technologies, inadequate digital infrastructure, and limited technical skills constrain widespread adoption. The study concludes that Artificial Intelligence can substantially enhance sustainable business growth in Kogi State if supported by appropriate policy frameworks, capacity-building initiatives, and infrastructural development.

Keywords: *Artificial Intelligence, Sustainable Business Growth, SMEs, Digital Transformation, Innovation, Kogi State, Nigeria.*

Introduction

The global business environment has undergone profound transformation due to rapid advances in digital technologies, with Artificial Intelligence (AI) emerging as one of the most disruptive innovations of the modern era. AI refers to the development and application of computer systems capable of performing tasks that normally require human intelligence, such as learning, reasoning, problem-solving, and decision-making. In recent years, AI has been widely adopted across industries to improve efficiency, enhance customer experience, and create new business models (Obiya, 2024; Enholm et al., 2022).

In both developed and developing economies, AI is increasingly recognized as a strategic tool for achieving sustainable business growth. Sustainable business growth goes beyond short-term profitability to encompass long-term value creation, efficient resource utilization, innovation, and resilience in the face of environmental and economic uncertainties. AI contributes to sustainability by enabling businesses to optimize processes, reduce waste, predict market trends, and respond proactively to customer needs (Ogunbodede & Atchrim, 2025; Di Vaio et al., 2020).

In Nigeria, SMEs constitute the backbone of the economy, accounting for approximately 48% of national GDP and over 80% of employment (SMEDAN, 2022). Despite their importance, Nigerian SMEs face persistent challenges, including limited access to finance, inadequate infrastructure, low productivity, and weak technological adoption. These challenges are particularly pronounced at the sub-national level, where disparities in digital infrastructure and skills availability further constrain business growth (Ehima & Amede, 2025; Kekeocha et al., 2025).

Kogi State, located in Nigeria's North-Central region, presents a unique context for examining AI adoption and business sustainability. The state hosts a diverse range of SMEs engaged in trading, agriculture, hospitality, transportation, and services. While awareness of digital technologies is increasing, empirical evidence on how AI contributes to sustainable business growth within the state remains scarce. This study therefore seeks to bridge this gap by systematically examining AI as a tool for sustainable business growth in Kogi State, contributing to the growing body of literature on digital transformation in sub-Saharan African contexts (Mhlungu et al., 2019).

Objectives of the Study

The main objective of this study is to examine the role of Artificial Intelligence in promoting sustainable business growth in Kogi State, Nigeria. Specifically, the study aims to:

i. Examine the level of awareness and adoption of Artificial Intelligence among SMEs in Kogi State;
ii. Assess the effect of Artificial Intelligence adoption on sustainable business growth indicators such as efficiency, innovation, and competitiveness;
iii. Identify the key challenges hindering effective Artificial Intelligence adoption among SMEs in Kogi State.

Research Questions

The study seeks to provide answers to the following questions:

i. What is the level of awareness and adoption of Artificial Intelligence among SMEs in Kogi State? ii. How does Artificial Intelligence adoption influence sustainable business growth in Kogi State?
iii. What challenges limit the adoption and effective use of Artificial Intelligence among SMEs in Kogi State?

Statement of Hypotheses

H_0: Artificial Intelligence adoption has no significant effect on sustainable business growth in Kogi State.
H_1: Artificial Intelligence adoption has a significant positive effect on sustainable business growth in Kogi State.

Literature Review and Theoretical Framework

Conceptualizing Artificial Intelligence in Business

The concept of Artificial Intelligence in this study is grounded in established organizational and technology-based theories that explain how innovations are adopted, utilized, and transformed into sustainable performance outcomes. Specifically, the Technology Acceptance Model (TAM), the Resource-Based View (RBV), and Innovation Diffusion Theory (IDT) provide a comprehensive theoretical foundation for understanding the role of AI as a tool for sustainable business growth.

Within the framework of the Technology Acceptance Model (Davis, 1989), Artificial Intelligence is conceptualized as a technological innovation whose adoption depends largely on users' perceptions and attitudes. TAM posits that perceived usefulness and perceived ease of use significantly influence an individual's intention to adopt a technology. In the context of AI, business owners and managers are more inclined to integrate AI-enabled systems such as predictive sales tools, intelligent accounting software, and customer analytics platforms when these technologies are perceived to enhance productivity, improve decision-making accuracy, and reduce operational complexity. For SMEs in Kogi State, where technical expertise may be limited, the simplicity and practical relevance of AI applications play a critical role in determining acceptance and continuous usage (Dwivedi et al., 2021; Ukpabi & Karjaluoto, 2017).

Beyond initial acceptance, the Resource-Based View (Barney, 1991) extends the analysis by positioning Artificial Intelligence as a strategic organizational resource. According to RBV, firms achieve sustainable competitive advantage when they possess resources that are valuable, rare, inimitable, and non-substitutable. AI systems, particularly those embedded in business processes, enhance firms' analytical capabilities, operational efficiency, and innovation capacity. In this study, AI is viewed as an intangible asset that enables businesses in Kogi State to leverage data for forecasting demand, optimizing resource allocation, and improving service delivery. These capabilities strengthen organizational resilience and contribute to sustained business growth, especially in highly competitive and resource-constrained environments (Rane et al., 2023; Mikalef & Gupta, 2021).

Theoretical Framework: Diffusion of Innovation Theory

This study is primarily anchored on Rogers' (1995) Diffusion of Innovation Theory (DOI). The theory explains how new ideas and technologies spread within a social system over time and identifies five key attributes influencing adoption decisions: relative advantage, compatibility, complexity, trialability, and observability.

In the context of AI adoption among SMEs, the theory suggests that businesses are more likely to adopt AI technologies if they perceive them as offering clear advantages over existing methods (relative advantage), compatible with their operational processes (compatibility), and relatively easy to understand and implement (low complexity). Furthermore, the ability to experiment with AI on a small scale (trialability) and observe positive results from other businesses (observability) accelerates adoption rates. DOI is particularly relevant in developing economies like Nigeria, where disparities in technological readiness and resource availability influence adoption patterns (Tony-Okeme, 2025; Awa et al., 2015).

The Innovation Diffusion Theory further explains how Artificial Intelligence spreads across business organizations over time. Applied to this study, SMEs in Kogi State are more likely to adopt AI technologies that demonstrate clear performance benefits, align with existing business practices, and require minimal technical complexity. For example, AI-driven digital marketing tools or automated inventory systems are more readily adopted than complex standalone AI platforms. This theoretical lens helps explain differences in AI adoption levels among businesses and their varying impacts on sustainable growth outcomes (Oluwatobi et al., 2024; Hiran & Henten, 2020).

Integrating the Theoretical Perspectives

Together, TAM, RBV, and DOI provide an integrated framework for this study. TAM explains individual-level acceptance decisions, RBV explains how AI becomes a strategic asset for competitive advantage, and DOI explains the patterns and rates of AI diffusion across the SME population in Kogi State. This integrated approach recognizes that AI adoption is not merely a technological decision but a complex process influenced by individual perceptions, organizational capabilities, and broader social systems.

Furthermore, the integration of Artificial Intelligence aligns with sustainability-oriented organizational theories that emphasize efficiency, innovation, and responsible resource management. AI supports sustainable business growth by enabling firms to reduce waste, optimize energy and material usage, improve supply chain transparency, and enhance customer satisfaction. These sustainability outcomes reinforce the theoretical assumption that technological capabilities, when strategically deployed, contribute not only to financial performance but also to long-term environmental and social sustainability. In developing economies such as Nigeria, this alignment is particularly important, as businesses must balance growth objectives with socio-economic development goals (Ehima & Amede, 2025; Nzewi et al, 2023 & George et al., 2021).

The framework also incorporates a dynamic capability perspective (Teece et al., 1997), which emphasizes a firm's ability to adapt, integrate, and reconfigure internal and external competencies in response to environmental changes. Artificial Intelligence enhances dynamic capabilities by enabling firms to sense market changes, seize emerging opportunities, and transform business processes through data-driven insights. This theoretical lens complements the Resource-Based View by explaining how AI-enabled capabilities evolve over time to support sustained business growth, particularly in volatile and competitive markets such as those faced by SMEs in Kogi State.

Research Methodology

Research Design

The study adopted a descriptive survey research design, which is appropriate for examining relationships among variables and collecting quantitative data from a large population. This design enables the researcher to systematically describe existing conditions and assess the influence of AI adoption on business sustainability.

Population and Sampling

The population of the study comprised registered SMEs operating across major commercial areas in Kogi State, including Lokoja, Anyigba, Okene, and Idah. According to the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN, 2022), the estimated number of registered SMEs in these areas is approximately 1,250.

Using Krejcie and Morgan's (1970) sample size determination table, a sample size of 300 respondents was selected. Stratified random sampling was employed to ensure representation across different sectors: trading (35%), agriculture (25%), services (30%), and manufacturing (10%). Within each stratum, respondents were randomly selected.

A total of 300 questionnaires were distributed. After data cleaning, 291 responses were found to be complete and usable for analysis, representing a response rate of 97%. However, for the regression analysis, listwise deletion of cases with missing values on key variables resulted in 139 complete cases. This discrepancy is acknowledged as a limitation, and the analysis is based on the 139 cases with complete data across all regression variables.

Data Collection Instrument

A semi-structured questionnaire was used as the primary data collection instrument. The questionnaire was divided into four sections:

Section A: Demographic Information (5 items) – capturing gender, business age, sector, education level, and number of employees.

Section B: AI Awareness and Adoption (8 items) – measuring awareness of AI technologies, usage of AI-based applications, integration of AI in decision-making, and use of AI for customer engagement. Sample item: "I use AI-powered tools (e.g., chatbots, predictive analytics) in my business operations."

Section C: Sustainable Business Growth Indicators (12 items) – measuring operational efficiency, innovation capability, competitiveness, and long-term sustainability. Sample item: "AI adoption has improved my business's operational efficiency."

Section D: Challenges of AI Adoption (6 items) – measuring cost barriers, technical expertise gaps, and infrastructural constraints. Sample item: "Poor internet connectivity limits my ability to use AI tools."

All items were measured on a five-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5).

Validity and Reliability

Content validity was ensured through expert review by two professors in business management and one professor in information systems from Nigerian universities. Their feedback was used to refine the instrument for clarity and relevance.

Reliability was assessed using Cronbach's alpha coefficient. The overall instrument yielded a value of 0.84. Reliability for each construct was as follows:

- AI Awareness and Adoption (8 items): α = 0.81
- Operational Efficiency (3 items): α = 0.79
- Innovation Capability (3 items): α = 0.82
- Competitiveness (3 items): α = 0.77
- Long-term Sustainability (3 items): α = 0.80
- Challenges of AI Adoption (6 items): α = 0.85

All values exceed the acceptable threshold of 0.70, indicating high internal consistency (Nunnally & Bernstein, 1994).

Method of Data Collection

Data were collected through face-to-face administration and online distribution of questionnaires using Google Forms. The face-to-face administration targeted respondents in major markets and business districts, while online distribution targeted SMEs with registered email addresses. Ethical considerations such as informed consent, anonymity, and confidentiality were strictly observed. Data collection lasted six weeks (January–February 2026).

Method of Data Analysis

Data were coded and analyzed using SPSS version 25. Descriptive statistics (frequencies, percentages, means, and standard deviations) were used to summarize respondents' views and address research questions 1 and 3. For research question 2 and hypothesis testing, simple linear regression analysis was employed, with AI adoption as the independent variable and sustainable business growth (composite score) as the dependent variable. Statistical significance was determined at $p < 0.05$.

Results and Findings

Demographic Characteristics of Respondents

Table 1: Demographic Characteristics of Respondents (N = 291)

Variable	Category	Frequency	Percentage
Gender	Male	182	60.7
	Female	118	39.3
Business Age	≤ 5 years	96	32.0
	6-10 years	124	41.3
	10 years	80	26.7
Sector	Trading	102	35.1
	Agriculture	73	25.1
	Services	87	29.9
	Manufacturing	29	9.9
Education	Secondary	45	15.5
	Tertiary	218	74.9

	Postgraduate	28	9.6
Employees	1-10	189	64.9
	11-50	87	29.9
	51+	15	5.2

The demographic distribution shows that a higher proportion of respondents were male (60.7%) compared to female (39.3%). This reflects the existing gender structure of SME ownership and management in Nigeria, where male participation remains dominant, although female involvement is gradually increasing (Itai et al., 2024). The representation of both genders enhances the reliability and inclusiveness of the data.

In terms of business age, a significant proportion of firms (41.3%) had operated between 6 and 10 years, indicating that many respondents possess substantial business experience and operational maturity. Businesses with longer years of operation are more likely to have encountered technological changes and may better assess the relevance of Artificial Intelligence to business sustainability. Most respondents (74.9%) had tertiary education, suggesting a relatively educated sample capable of understanding AI concepts.

Research Question 1: AI Awareness and Adoption

Table 2: AI Awareness and Adoption among SMEs (N = 291)

Item	Mean	Std. Dev
Awareness of AI technologies	4.24	0.66
Use of AI-based applications	3.62	0.82
AI in decision-making	3.76	0.79
AI for customer engagement	3.69	0.80

The results indicate a high level of awareness of Artificial Intelligence among SMEs in Kogi State, as reflected by a mean score of 4.24. This suggests that most respondents are familiar with AI concepts and recognize their relevance to modern business operations. High awareness may be attributed to increased digital exposure, mobile technologies, and online business platforms. This finding aligns with global studies showing that awareness of AI is rising even in developing economies (Chatterjee et al., 2021).

However, the mean scores for actual usage of AI-based applications (3.62), AI in decision making (3.76), and AI for customer engagement (3.69) reveal only moderate levels of adoption. This gap between awareness and adoption implies that while SMEs understand the importance of AI, practical implementation remains constrained. Factors such as cost, technical complexity, and limited expertise likely account for this disparity. These findings align with prior studies that note a lag between technological awareness and adoption among SMEs in developing economies (Mkhize & Ellis, 2020; Ehima & Amede, 2025).

Research Question 2: AI and Sustainable Business Growth

Table 3: AI and Sustainable Business Growth Indicators (N = 291)

Indicator	Mean	Std. Dev
Operational efficiency	3.94	0.72
Innovation capability	3.88	0.70
Competitiveness	3.76	0.75
Long-term sustainability	3.91	0.73

The results in Table 3 demonstrate that Artificial Intelligence contributes positively to key dimensions of sustainable business growth. The highest mean score was recorded for operational efficiency (3.94), indicating that businesses adopting AI experience improved workflow automation, reduced operational errors, and faster service delivery. This finding corroborates international evidence that AI significantly enhances operational performance (Wamba Taguimdje et al., 2020).

Innovation capability also recorded a high mean score (3.88), suggesting that AI supports product development, service customization, and creative problem-solving among SMEs. The mean score for competitiveness (3.79) implies that AI enables firms to respond more effectively to market changes and customer demands, thereby improving their competitive position.

Furthermore, the mean score for long-term sustainability (3.91) confirms that AI adoption enhances business resilience, scalability, and continuity. These findings collectively suggest that AI is not only a productivity-enhancing tool but also a strategic asset for sustaining business growth in Kogi State, consistent with research on AI and sustainability in emerging markets (George et al., 2021; Nwadiani, 2025).

Research Question 3: Challenges of AI Adoption

Table 4: Challenges of AI Adoption among SMEs (N = 291)

Challenge	Mean	Std. Dev
High cost of AI tools	3.90	0.83
Lack of technical expertise	3.97	0.78
Poor digital infrastructure	4.05	0.74

Table 4 highlights the major constraints affecting AI adoption among SMEs in Kogi State. Poor digital infrastructure recorded the highest mean score (4.05), indicating that unreliable internet connectivity and power supply significantly hinder effective AI implementation. This finding reflects broader infrastructural challenges across sub-Saharan Africa (Aker & Mbiti, 2010; Hiran & Henten, 2020).

The lack of technical expertise (mean = 3.97) further underscores the shortage of skilled personnel capable of deploying and managing AI solutions. This skills gap limits SMEs' ability to transition from awareness to full-scale adoption. Additionally, the high cost of AI tools (mean = 3.90) remains a substantial barrier, particularly for small firms with limited financial capacity.

These findings align with studies identifying cost and skills as primary barriers to technology adoption in developing economies (Alaegbor, 2025; Sokolov, 2025).

These findings suggest that infrastructural and human capital challenges must be addressed to accelerate AI adoption and maximize its contribution to sustainable business growth.

Test of Hypotheses

H_0: Artificial Intelligence adoption has no significant effect on sustainable business growth in Kogi State.

H_1: Artificial Intelligence adoption has a significant positive effect on sustainable business growth in Kogi State.

A simple linear regression analysis was conducted with Artificial Intelligence adoption as the independent variable and sustainable business growth (composite score) as the dependent variable. The analysis was based on 139 cases with complete data.

Table 5: Regression Results for AI Adoption and Sustainable Business Growth

Variable	B (Unstandardized)	Std. Error	β (Standardized)	t	Sig
(Constant)	1.84	0.29		6.34	0.000
AI Adoption	0.56	0.07		7.84	0.000

Note: $R^2 = 0.31$, Adjusted $R^2 = 0.30$, $F(1, 137) = 61.47$, $p < 0.001$

The R^2 value of 0.31 indicates that 31% of the variation in sustainable business growth is explained by Artificial Intelligence adoption, showing a meaningful level of predictive power. The F-value of 61.47 ($p < 0.001$) indicates that the regression model is statistically significant and appropriate for explaining sustainable business growth.

The positive beta coefficient ($\beta = 0.56$, $p < 0.001$) indicates that Artificial Intelligence adoption has a significant positive influence on sustainable business growth. Since the significance value is less than 0.05, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted. This confirms that AI adoption significantly enhances sustainable business growth in Kogi State.

Discussion of Findings

The results indicate that Artificial Intelligence plays a significant role in enhancing sustainable business growth in Kogi State. High awareness levels (mean = 4.24) suggest increasing recognition of AI's strategic importance, consistent with findings by Ogunbodede and Atchrim (2025) and global trends in digital transformation (Enholm et al., 2022). Moderate adoption levels (means ranging from 3.62 to 3.76) reflect infrastructural and skills-related challenges, which have been widely reported in Nigerian SME studies (Ehima & Amede, 2025; Kekeocha et al., 2025) and across other developing economies (Mkhize & Ellis, 2020).

The positive relationship between AI adoption and sustainability indicators (efficiency, innovation, competitiveness, long-term sustainability) supports the Diffusion of Innovation Theory, emphasizing perceived advantage and compatibility as key drivers of adoption. Businesses that adopt AI report improved efficiency, innovation, and competitive positioning, reinforcing AI's role as a catalyst for sustainable growth. This finding aligns with international research demonstrating that AI capabilities enhance firm performance and innovation outcomes (Mikalef & Gupta, 2021; Rane et al., 2023).

The regression results ($\beta = 0.56$, $p < 0.001$) provide robust statistical evidence that AI adoption significantly predicts sustainable business growth, explaining 31% of its variance. This effect size is meaningful in social science research and comparable to studies examining technology adoption in SMEs (Chatterjee et al., 2021). The positive coefficient confirms that as AI adoption increases, sustainable business growth improves.

However, the identification of poor digital infrastructure (mean = 4.05), lack of technical expertise (mean = 3.97), and high costs (mean = 3.90) as major barriers aligns with previous research in Nigerian contexts (Alaegbor, 2025; Itai et al., 2024) and broader African studies (Aker & Mbiti, 2010; Hiran & Henten, 2020). These barriers represent systemic challenges that require coordinated responses from government, private sector, and educational institutions.

The study's findings also support the integrated theoretical framework. The awareness-adoption gap can be explained by TAM's emphasis on perceived ease of use and usefulness—while SMEs perceive AI as useful, implementation complexity and infrastructure limitations reduce ease of use, dampening adoption. The significant effect of AI on sustainability outcomes supports RBV's contention that technological resources, when effectively deployed, yield competitive advantage. Finally, the variation in adoption levels across businesses reflects DOI's attributes, particularly compatibility and complexity.

Conclusion

This study concludes that Artificial Intelligence is a critical tool for achieving sustainable business growth in Kogi State, Nigeria. While adoption remains uneven due to infrastructural, skills, and cost barriers, evidence suggests that AI significantly enhances business performance and long-term sustainability. The significant positive relationship between AI adoption and sustainable business growth ($\beta = 0.56$, $p < 0.001$) confirms that businesses investing in AI capabilities reap substantial benefits in efficiency, innovation, competitiveness, and sustainability.

The study contributes to the growing body of literature on digital transformation in African SMEs by providing empirical evidence from a previously under-researched context. It demonstrates that the theoretical frameworks developed in Western contexts (TAM, RBV, DOI) are applicable and useful for understanding technology adoption in sub-Saharan Africa, while also highlighting the contextual barriers that must be addressed.

Recommendations

Based on the findings, the following recommendations are proposed:

i. **Government Policy and Infrastructure Investment:** The Kogi State Government and Federal Government should prioritize investment in digital infrastructure, particularly reliable electricity and internet connectivity. Policies that provide tax incentives for AI adoption and reduce import duties on AI-related technologies would lower cost barriers. This aligns with recommendations from international development organizations promoting digital transformation in Africa (World Bank, 2020).

ii. **Capacity Building and Skills Development:** Educational institutions, including universities and polytechnics, should integrate AI literacy and practical AI skills into

their curricula. Public-private partnerships should establish training programs and workshops for SME owners and managers. Technical colleges should offer certification programs in AI applications for business. This addresses the skills gap identified in this study and echoed in prior research (Tony-Okeme, 2025; Uchenna et al, 2022 & Nwadiani, 2025).

iii. **Promotion of Affordable AI Solutions:** Technology firms and startups should develop low-cost, user-friendly AI solutions tailored to the needs and resource constraints of Nigerian SMEs. Cloud-based AI services with pay-as-you-go models can reduce upfront costs. Mobile-first AI applications are particularly appropriate given high mobile penetration in Nigeria. Government agencies and development partners can subsidize access to these solutions for qualifying SMEs.

iv. **Public-Private Partnerships:** Collaborative initiatives involving government, financial institutions, technology companies, and SME associations can accelerate AI adoption. These partnerships can facilitate access to financing for AI investments, provide technical support, and create demonstration projects that showcase AI benefits to hesitant business owners. Such multi-stakeholder approaches have proven effective in other developing economies (George et al., 2021).

v. **Awareness and Demonstration Programs:** Given the gap between high awareness and moderate adoption, targeted programs demonstrating AI's practical benefits in local business contexts are needed. Success stories from early-adopting SMEs in Kogi State should be documented and shared through business associations, social media, and local media. Observability of positive outcomes, as emphasized in DOI, will accelerate adoption.

Limitations and Future Research

This study has several limitations that should be acknowledged. First, the regression analysis is based on 139 complete cases, representing only a subset of the 291 respondents. Future research should ensure complete data collection to maximize statistical power. Second, the simple linear regression model, while demonstrating a significant relationship, does not control for other variables that may influence sustainable business growth, such as firm size, sector, owner's education, or access to finance. Future studies should employ multiple regression or structural equation modeling to account for these control variables and explore mediating and moderating effects.

Third, the cross-sectional design captures AI adoption and business growth at a single point in time, limiting causal inferences. Longitudinal research tracking SMEs over time would provide stronger evidence of AI's causal impact on sustainability outcomes. Fourth, the study relied on self-reported perceptions of AI adoption and business growth, which may be subject to social desirability and recall biases. Future research could incorporate objective measures of AI usage (e.g., system logs) and business performance (e.g., financial records).

Finally, qualitative research through in-depth interviews and case studies would provide richer understanding of how SMEs in Kogi State navigate AI adoption, overcome barriers, and leverage AI for sustainability. Mixed-methods approaches combining surveys with qualitative insights would yield more comprehensive understanding of this phenomenon.

Despite these limitations, this study provides valuable empirical evidence that Artificial Intelligence can serve as a powerful tool for sustainable business growth in Kogi State, Nigeria, and offers practical recommendations for policy and practice.

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