



GENERATIVE AI ADOPTION BY SMES: DRIVERS, BARRIERS AND PERFORMANCE OUTCOMES IN NIGERIA

DR SHAIBU, OGWUCHE GABRIEL^{1*}, DR MBAEGBU R. E. V.², DR ECHETAMA C. FORSTINA³, V/REV DR CHIKEZIE IHEOMA⁴, DR. SUNDAY EZE AMAKODI⁵, KARACHI C. ISIAWUIKE⁶, DR CHINWE C. EBENEZER – NWOKEJI⁷ & DR NMONWU LUCKY PAUL.⁸

^{1,2,3,4,5,6} DEPARTMENT OF BUSINESS EDUCATION, ALVAN IKOKU FEDERAL UNIVERSITY OF EDUCATION, OWERRI, IMO STATE, NIGERIA

⁷ DEPARTMENT OF OFFICE TECHNOLOGY AND MANAGEMENT, IMO STATE POLYTECHNIC, OMUMA, NIGERIA

⁸ DEPARTMENT OF ECONOMICS, ALVAN IKOKU FEDERAL UNIVERSITY OF EDUCATION, OWERRI, IMO STATE, NIGERIA

ARTICLE HISTORY

RECEIVED

23-09-2026

ACCEPTED

26-09-2026

PUBLISHED

30-09-2026

Corresponding author:

DR SHAIBU, OGWUCHE GABRIEL

DEPARTMENT OF BUSINESS EDUCATION, ALVAN IKOKU FEDERAL UNIVERSITY OF EDUCATION, OWERRI, IMO STATE, NIGERIA.



Abstract

The rapid emergence of Generative Artificial Intelligence (GenAI) is creating new opportunities for small and medium-sized enterprises (SMEs) to improve business processes, innovation, productivity, and competitiveness. However, the factors encouraging or limiting Generative AI adoption and its performance outcomes among SMEs in Nigeria remain underexplored. This study examines Generative AI adoption by SMEs in Nigeria, focusing on its drivers, barriers, and performance outcomes. A cross-sectional survey research design was employed, with data collected from 200 SME owners, managers, and employees using a structured questionnaire titled Generative AI Adoption and SME Performance Questionnaire (GAIA-SPQ), validated with a reliability coefficient of 0.86. Data were analyzed using correlation analysis at a 0.05 level of significance. Findings reveal that drivers of Generative AI significantly influence its adoption, while barriers also significantly affect adoption negatively. The study further finds that Generative AI use significantly affects SME performance, particularly in relation to productivity and innovation. The study concludes that Generative AI provides important opportunities for improving SME performance, although effective adoption requires favourable conditions and the reduction of implementation barriers. It is recommended that SMEs strengthen their technological capabilities, develop relevant digital skills, and adopt cost-effective Generative AI solutions to improve productivity, innovation, and competitiveness.

Keywords: Generative Artificial Intelligence, Generative AI Adoption, SMEs, Adoption Drivers, Adoption Barriers, SME Performance.

Introduction

In the contemporary digital economy, Generative Artificial Intelligence (GenAI) has emerged as an important technological development capable of transforming how businesses create value, perform tasks and interact with customers. Generative AI refers to AI systems that can create new content such as text, images, code, summaries and other forms of digital output. Its increasing accessibility has created opportunities for small and medium-sized enterprises (SMEs) to use advanced technologies without necessarily requiring extensive technical resources (Dwivedi et al., 2023). GenAI can support business activities such as content creation, customer service, marketing, communication and decision-making, thereby creating new possibilities for improving SME competitiveness.

Generative AI adoption can enable SMEs to automate routine activities, improve productivity, generate business ideas and provide faster responses to customers. According to Feuerriegel et al. (2024), generative AI has significant potential to transform organizational work by supporting human capabilities and automating knowledge-intensive activities. Similarly, Gursoy et al. (2024) noted that GenAI can provide SMEs with opportunities for improved efficiency, creativity and innovation, although successful adoption depends on organizational and technological conditions.

The importance of technological capability to organizational activities has also been recognized in earlier studies. Shaibu, Oshioigwe and Mbaegbu (2014) emphasized the relevance of information and communication technology in business education, indicating the growing importance of technological knowledge and skills in preparing individuals for modern business activities. In a related study, Crossdale, Mbaegbu and Nwosu (2019) found that the utilization of ICT in teaching and learning is influenced by the availability and effective use of technological resources. These observations are relevant to SMEs because effective adoption of emerging technologies such as GenAI requires an appropriate technological environment and the skills to use such technologies effectively. In Nigeria, Shaibu, Mbaegbu and Zion-Ngoka (2025) also found a significant relationship between artificial intelligence and sustainable productivity, further demonstrating the potential of AI to improve organizational and business outcomes.

Despite these opportunities, SMEs may face several challenges in adopting Generative AI. Factors such as inadequate technological infrastructure, high implementation costs, lack of skilled personnel, data privacy concerns and uncertainty about the reliability of AI-generated outputs may discourage adoption. Agrawal (2024) observed that organizational adoption of GenAI is influenced by technological, organizational and environmental factors, indicating that access to the technology alone may not guarantee successful adoption. The availability of relevant technological skills is equally important. Shaibu, Oshioigwe and Mbaegbu (2014) highlighted the importance of ICT-related knowledge and competencies, while Crossdale, Mbaegbu and Nwosu (2019) showed that the effective utilization of ICT is connected to the availability and use of technological resources. These issues suggest that SMEs may require both technological readiness and human capabilities to derive meaningful benefits from GenAI.

In Nigeria, where SMEs operate in an increasingly competitive and digital business environment, the adoption of Generative AI could provide opportunities for improved efficiency, innovation and overall business performance. However, limited empirical evidence exists on the factors driving or hindering GenAI adoption among Nigerian SMEs and the extent to which such adoption improves

business outcomes. This study therefore seeks to examine Generative AI adoption by SMEs in Nigeria, with particular focus on adoption drivers, adoption barriers and performance outcomes.

Statement of the Problem

Small and medium-sized enterprises in Nigeria operate in an increasingly competitive environment where efficiency, innovation and effective use of technology are important for business survival. Generative AI provides SMEs with opportunities to automate tasks, improve customer service, generate content and support business decision-making. However, despite the growing availability of GenAI tools, many SMEs may not fully adopt or utilize these technologies.

The adoption of Generative AI can be influenced by several factors, including perceived usefulness, technological readiness, management support and competitive pressure. At the same time, SMEs may encounter barriers such as high implementation costs, inadequate technical skills, poor infrastructure and concerns about data privacy and security. Gursoy et al. (2024) emphasized that organizational capabilities and implementation challenges can affect the successful use of GenAI in SMEs. Furthermore, while Generative AI is expected to improve productivity, innovation and business performance, there is still limited empirical evidence establishing these outcomes among SMEs in Nigeria. Without adequate understanding of the drivers, barriers and performance implications of GenAI adoption, SMEs may either fail to exploit its potential benefits or invest in the technology without achieving meaningful business outcomes. Therefore, this study seeks to examine Generative AI adoption by SMEs in Nigeria, focusing on adoption drivers, barriers and performance outcomes.

Objectives of the Study

The main aim of this study is to examine Generative AI adoption by SMEs in Nigeria, focusing on its drivers, barriers and performance outcomes. The specific objectives are to:

1. Examine the drivers of Generative AI adoption among SMEs in Nigeria.
2. Examine the barriers to Generative AI adoption among SMEs in Nigeria.
3. Assess the performance outcomes of Generative AI use among SMEs in Nigeria.

Research Questions

1. What are the drivers of Generative AI adoption among SMEs in Nigeria?
2. What are the barriers to Generative AI adoption among SMEs in Nigeria?
3. What are the performance outcomes of Generative AI use among SMEs in Nigeria?

Research Hypotheses

H01: Drivers of Generative AI do not significantly influence its adoption among SMEs in Nigeria.

H02: Barriers to Generative AI do not significantly influence its adoption among SMEs in Nigeria.

H03: Generative AI use does not significantly affect the performance of SMEs in Nigeria.

Review of Related Literature

Conceptual Review

Generative Artificial Intelligence and Generative AI Adoption

Generative Artificial Intelligence (GenAI) is an emerging form of artificial intelligence capable of creating new content such as text, images, audio, video, computer code, summaries, and other forms of digital output based on user instructions. Feuerriegel, Hartmann, Janiesch, and Zschech (2024) describe generative AI as a technology that can produce novel content and augment human capabilities in knowledge-intensive activities. Dwivedi et al. (2023) similarly explain that generative AI is creating new possibilities for organizations in areas such as communication, content creation, decision-making, and productivity. Unlike conventional AI systems that mainly analyse data, classify information, or make predictions, GenAI can generate new outputs that can be directly applied to business activities.

The growing accessibility of GenAI tools has created opportunities for small and medium-sized enterprises (SMEs) to access advanced technological capabilities at relatively low entry barriers. SMEs can use GenAI for marketing, customer communication, content development, business research, product development, administrative activities, and decision support. Gursoy, Chi, Lu, and Nunkoo (2024) observed that generative AI can provide SMEs with opportunities to improve creativity, efficiency, and scalability, although its effective use requires appropriate organizational conditions. The technology can therefore assist SMEs in performing tasks that may otherwise require substantial time, financial resources, or specialized personnel.

Generative AI adoption refers to the process through which an organization accepts, implements, and integrates generative AI technologies into its business activities. Adoption goes beyond awareness or access to AI tools because it involves the actual use and incorporation of the technology into organizational processes. Agrawal (2024), in examining organizational adoption of generative AI, found that technological, organizational, and environmental factors are important in determining adoption. This suggests that SMEs need more than access to GenAI tools to achieve successful adoption; they also require appropriate organizational capabilities and a supportive technological environment.

The adoption of GenAI is also associated with productivity, innovation, and organizational performance. Rana, Pillai, Sivathanu, and Malik (2024) found that the use of generative AI can influence organizational performance, particularly where organizations possess innovative capabilities. Similarly, Soomro et al. (2025) found that AI adoption can contribute to the sustainable performance of SMEs through organizational, technological, and external factors. These findings indicate that the value of GenAI adoption may depend not simply on whether SMEs use the technology, but on how effectively it is integrated into business operations.

In the Nigerian context, the growing relevance of AI provides opportunities for SMEs to improve their business processes and productivity. Shaibu, Mbaegbu, and Zion-Ngoka (2025) found a significant relationship between artificial intelligence and sustainable productivity, demonstrating the potential contribution of AI to organizational outcomes. Digital skills are also important because business owners and employees require adequate competencies to interact effectively with emerging technologies. Shaibu, Mbaegbu, and Nwagu (2024) emphasized the importance of relevant digital skills for effective technology utilization.

Generative AI can therefore be viewed not only as a technological

innovation but also as a business resource capable of supporting productivity, creativity, innovation, and competitiveness. Its adoption enables SMEs to integrate AI-generated capabilities into different aspects of their operations, although the extent of the resulting benefits may depend on organizational readiness, employee competencies, leadership support, and the surrounding business environment.

Drivers of Generative AI Adoption among SMEs

Drivers of Generative AI adoption refer to the factors that encourage SMEs to accept and integrate generative AI into their business operations. These factors may include perceived business value, technological readiness, management support, employee competence, competitive pressure, and the availability of appropriate digital infrastructure. Agrawal (2024) established that technological, organizational, and environmental factors influence organizational decisions concerning GenAI adoption. The presence of favourable conditions can therefore increase the willingness and ability of SMEs to adopt emerging AI technologies.

Perceived business value is an important driver of GenAI adoption because SMEs are more likely to adopt technologies when they believe that such technologies can provide meaningful business benefits. GenAI can reduce the time required for routine activities, support content development, improve communication, assist decision-making, and facilitate innovation. Feuerriegel et al. (2024) note that generative AI can augment human capabilities and improve knowledge-intensive work. When SMEs perceive these benefits as relevant to their business needs, their willingness to adopt the technology is likely to increase.

Technological readiness is another important driver of GenAI adoption. SMEs require adequate digital infrastructure, internet connectivity, software, compatible systems, and technological knowledge to integrate GenAI into their operations. Peretz-Andersson, Tabares, Mikalef, and Parida (2024) found that AI implementation in SMEs involves the development and orchestration of technological resources and capabilities. Thus, SMEs with stronger technological capabilities may be better positioned to adopt and effectively utilize AI technologies.

Employee competence also influences the adoption of GenAI because employees are responsible for interacting with and applying AI tools in everyday business activities. Inadequate knowledge may limit the ability of SMEs to identify appropriate applications and evaluate AI-generated outputs. Shaibu, Mbaegbu, and Nwagu (2024) emphasized the importance of digital skills for effective technology utilization, while recent research on GenAI adoption similarly points to the importance of skills and organizational capabilities in successful implementation.

Management support is another significant driver because business owners and managers determine whether financial, technological, and human resources are committed to new technologies. Penarroya-Farell, Vaziri, Soto Rivera, and Miralles (2025) explain that leadership decision-making plays an important role in GenAI adoption among SMEs, particularly because managers must balance the strategic benefits of AI with resource limitations and organizational resistance. Supportive management can encourage experimentation, provide training, establish appropriate policies, and integrate GenAI into business strategies. Competitive pressure can also encourage SMEs to adopt Generative AI. As businesses increasingly use digital technologies to improve efficiency, customer service, marketing, and innovation, SMEs may adopt GenAI to avoid falling behind competitors. Rana et al. (2024) found that institutional pressures can influence organizational use of

GenAI, while GenAI adoption can subsequently contribute to organizational performance. Competitive conditions may therefore create pressure for SMEs to explore technologies that can improve their responsiveness and market position. Overall, the drivers of Generative AI adoption among SMEs can be understood as a combination of perceived benefits, technological capability, employee competence, management support, and competitive conditions. When these factors are favourable, SMEs are more likely to move from awareness and experimentation to actual adoption and integration of GenAI into their business operations.

Barriers to Generative AI Adoption among SMEs

Despite the growing opportunities associated with Generative AI, SMEs may encounter several challenges that hinder adoption and effective utilization. These challenges may include financial limitations, inadequate technological infrastructure, shortage of skilled personnel, cybersecurity concerns, data privacy issues, lack of clear organizational policies, and uncertainty about the reliability of AI-generated outputs. Chui et al. (2023) observe that organizations adopting generative AI need to address issues relating to accuracy, security, intellectual property, and workforce capabilities. These concerns can become more significant for SMEs because they often have fewer financial and human resources than larger organizations.

Financial constraints constitute an important barrier to GenAI adoption among SMEs. The implementation of AI may involve expenses relating to software subscriptions, digital infrastructure, employee training, system integration, and maintenance. SMEs with limited financial capacity may therefore prioritize immediate operational needs over investment in emerging technologies. Organizations may face significant challenges in capturing the value of generative AI because successful implementation requires investment in technology, people, and organizational transformation (McKinsey Global Institute, 2023).

Another major barrier is the shortage of appropriate skills and expertise. Effective use of GenAI requires employees who can operate AI tools, formulate effective prompts, evaluate AI-generated content, identify errors, and apply outputs appropriately to business activities. Lack of such capabilities may result in underutilization or inappropriate use of the technology. Raisch and Krakowski (2021) argue that organizations need to develop appropriate human capabilities and redesign work processes when integrating AI, as technological adoption without adequate human competencies may fail to produce expected benefits.

Data security, privacy, and trust represent additional concerns for SMEs. Generative AI systems may process business information, customer records, financial information, and other sensitive data, creating concerns about unauthorized access, misuse, and confidentiality. Mikalef and Gupta (2021) emphasize that organizations require appropriate capabilities to manage the risks and complexities associated with AI implementation. For SMEs, uncertainty regarding how AI systems collect, process, and retain information may discourage adoption.

Infrastructure and organizational readiness can also constrain adoption. SMEs operating with unreliable internet connectivity, outdated digital systems, or limited access to advanced computing resources may experience difficulties integrating GenAI into their operations. Moreover, resistance from employees or business owners may occur when AI is perceived as a threat to existing jobs or established ways of working. Jöhnk, Weißert, and Wyrski (2021) found that organizational readiness, resources, knowledge, and leadership are important conditions for successful AI adoption.

Therefore, overcoming these barriers requires not only financial investment but also appropriate infrastructure, skills, leadership, and organizational preparedness.

Performance Outcomes of Generative AI Adoption

Generative AI adoption can produce several outcomes that influence how SMEs perform their business activities. One important outcome is improved employee productivity, as GenAI can assist workers with writing, information processing, research, idea generation, and other knowledge-intensive activities. Noy and Zhang (2023) found that access to generative AI significantly improved the speed and quality of performance on a range of professional writing tasks. Such productivity improvements can be particularly valuable to SMEs that operate with relatively small workforces.

Generative AI can also contribute to operational efficiency by reducing the time required to complete repetitive and administrative activities. Employees can use AI tools to prepare documents, summarize information, generate reports, develop marketing materials, and respond to routine customer inquiries. Brynjolfsson, Li, and Raymond (2023) found that generative AI assistance increased the productivity of customer-support workers, with particularly strong benefits for less experienced employees. This suggests that GenAI can help SMEs improve service delivery while making better use of available human resources.

Another important performance outcome is innovation. GenAI can support employees and business owners in generating ideas, exploring alternative solutions, developing new products, and improving existing processes. Amabile (2024) argues that generative AI can influence organizational creativity by providing new forms of assistance during creative work, although its value depends on how humans interact with and evaluate AI-generated ideas. For SMEs, this capability may support product innovation, marketing creativity, and the development of new approaches to solving business problems. Generative AI may further contribute to customer and market performance through faster communication, personalized content, and improved access to customer information. Businesses can employ GenAI to develop promotional messages, respond to frequently asked questions, and create content for different customer groups. Huang and Rust (2024) argue that generative AI is increasingly becoming relevant to marketing and customer-related activities because of its ability to generate and process information at scale. Consequently, effective GenAI adoption can contribute to productivity, efficiency, innovation, and customer-related outcomes among SMEs.

Generative AI Adoption and SME Performance

The relationship between Generative AI adoption and SME performance can be explained by the ability of the technology to enhance human capabilities, automate activities, and support the development of new business solutions. When SMEs integrate GenAI into appropriate business processes, employees may complete tasks more quickly, access information more efficiently, and devote more time to activities requiring human judgement and creativity. This can contribute to improved productivity and operational performance.

Empirical evidence provides support for the positive relationship between generative AI use and work performance. Noy and Zhang (2023) found that generative AI reduced the time required to complete professional writing tasks while improving the quality of outputs. Similarly, Brynjolfsson et al. (2023) reported productivity improvements among customer-support workers using generative AI. These findings suggest that GenAI can create measurable

performance benefits when it is appropriately incorporated into organizational activities.

The performance effects of GenAI may also extend to innovation and competitive advantage. By supporting idea generation, content creation, information analysis, and problem-solving, the technology can provide SMEs with additional capabilities for responding to changing market conditions. Teubner et al. (2023) argue that generative AI has the potential to transform organizational processes and create new opportunities for value creation, although organizations must carefully manage its limitations and risks.

However, the adoption of GenAI does not automatically guarantee improved SME performance. The benefits obtained from the technology may depend on the nature of the tasks being performed, employee capabilities, managerial support, organizational processes, and the quality of human-AI collaboration. Dell'Acqua et al. (2023) demonstrated that generative AI can substantially improve performance on tasks within its capability frontier, but may reduce performance when used for tasks outside that frontier. This indicates that SMEs need to identify suitable applications and maintain appropriate human oversight.

For SMEs in Nigeria, Generative AI adoption therefore represents an opportunity to improve productivity, operational efficiency, innovation, and competitiveness. However, realizing these benefits requires SMEs to develop the necessary technological and human capabilities and to integrate GenAI into business activities strategically. The extent to which these expected benefits are realized among Nigerian SMEs remains an important empirical question, thereby providing justification for examining the relationship between Generative AI adoption and SME performance in Nigeria.

Theoretical Review

The study is anchored on the Technology–Organization–Environment (TOE) Framework and Diffusion of Innovations (DOI) Theory.

Technology–Organization–Environment (TOE) Framework

The Technology–Organization–Environment (TOE) Framework was developed by Tornatzky and Fleischer in 1990. The framework explains that the adoption of technological innovations by organizations is influenced by three broad contexts: technological, organizational, and environmental factors. The technological context concerns the availability, suitability, complexity, and perceived benefits of a technology. The organizational context relates to factors such as management support, organizational resources, employee skills, and readiness, while the environmental context includes competition, customers, industry conditions, and regulatory influences.

The TOE Framework is relevant to this study because the decision of SMEs to adopt Generative AI may depend on their technological readiness, organizational capabilities, and external business environment. SMEs with adequate digital infrastructure, skilled employees, and management support may be more capable of adopting GenAI, while high costs, inadequate skills, and infrastructural limitations may discourage adoption. Environmental factors such as competitive pressure may also encourage SMEs to adopt GenAI in order to improve their market position. Recent research has continued to demonstrate the usefulness of the TOE framework in explaining AI adoption and organizational technology decisions (Agrawal, 2024; Badghish & Soomro, 2024).

The framework further provides a basis for understanding the

barriers and drivers of GenAI adoption among SMEs. Technological readiness and perceived benefits may encourage adoption, whereas technological complexity, cost, and inadequate infrastructure may constitute barriers. Organizational support and employee competence can strengthen adoption, while competitive pressure can create an external motivation for SMEs to embrace GenAI. The TOE Framework is therefore appropriate for examining the drivers and barriers influencing Generative AI adoption among SMEs in Nigeria.

Diffusion of Innovations (DOI) Theory

The Diffusion of Innovations (DOI) Theory was developed by Everett Rogers in 1962 and later expanded in subsequent editions. The theory explains how new ideas, technologies, and practices spread among individuals and organizations within a social system. Rogers identified five major characteristics that influence the adoption of an innovation: relative advantage, compatibility, complexity, trialability, and observability. An innovation is more likely to be adopted when potential users perceive that it provides greater benefits than existing alternatives, fits their needs and existing practices, is relatively easy to understand, can be tested, and produces visible results.

DOI is relevant to this study because SMEs are more likely to adopt Generative AI when they perceive clear advantages in terms of productivity, efficiency, innovation, customer service, and competitiveness. For example, an SME that observes other businesses using GenAI to reduce operational costs or improve customer communication may be encouraged to adopt similar technology. The compatibility of GenAI with existing business processes and the ability to experiment with AI tools before full implementation may also influence adoption decisions.

The theory also helps explain why SMEs may differ in their adoption of Generative AI. Businesses that perceive strong relative advantages and observe successful outcomes from GenAI may adopt the technology more rapidly, while those that perceive the technology as complex, costly, risky, or incompatible with their operations may delay adoption. Therefore, DOI provides a useful theoretical basis for understanding how perceptions of Generative AI influence its adoption and how successful adoption can contribute to improved SME performance.

Empirical Review

Onenyi, Nelson, and Ogbike (2026) examined AI-enabled HR analytics adoption capability and operational performance among Nigerian SMEs. The study conceptualized AI-enabled HR analytics adoption capability as a second-order construct and investigated its association with operational performance. The study provides recent Nigerian evidence that AI-related technological capability can be connected with SME performance, while emphasizing the importance of organizational readiness and support in converting AI capabilities into improved operational outcomes.

Olayanju (2025) examined artificial intelligence readiness and adoption among Nigerian retail enterprises, focusing particularly on small and medium-sized enterprises. Using a mixed-methods approach, the study collected survey data from 210 SMEs and conducted in-depth interviews with 15 digital marketing professionals across Lagos, Abuja, and Port Harcourt. The study examined infrastructure, organizational capability, strategic alignment, workforce competence, and regulatory environment as key dimensions of AI readiness. The findings revealed that AI adoption among Nigerian enterprises remained limited and uneven, with infrastructural limitations, organizational capability, workforce competence, and regulatory conditions influencing adoption. The study concluded that improving technological infrastructure,

employee competence, and organizational readiness is necessary for wider AI adoption among Nigerian SMEs.

Gupta (2024) empirically evaluated a Generative Artificial Intelligence technology adoption model from the perspectives of entrepreneurs. The study examined factors influencing entrepreneurs' willingness to adopt GenAI and found that perceived usefulness, ease of use, and other technology-related factors were important in explaining adoption intentions. The study concluded that entrepreneurs are more likely to adopt GenAI when they perceive the technology as useful, accessible, and capable of improving their business activities.

Shore, Tiwari, Tandon, and Foropon (2024) examined the role of Generative AI in building entrepreneurial resilience among 87 SMEs in France using variance-based structural equation modelling. The findings showed that Generative AI and entrepreneurial orientation significantly enhanced entrepreneurial resilience among SMEs. The study further revealed that market turbulence influenced the relationship between entrepreneurial orientation and resilience, demonstrating that GenAI can provide SMEs with capabilities for responding to changing business conditions.

Badghish and Soomro (2024) investigated artificial intelligence adoption and sustainable business performance among SMEs. The study examined technological, organizational, and environmental factors associated with AI adoption and found that AI adoption can contribute to improved sustainable business performance. The findings suggest that organizational readiness and favourable environmental conditions are important for SMEs to obtain meaningful benefits from AI technologies, providing evidence that technological adoption can have implications for SME performance.

These studies collectively demonstrate that AI and Generative AI adoption can be influenced by perceived usefulness, technological readiness, organizational capabilities, and environmental conditions, while adoption can contribute to productivity, resilience, sustainability, and business performance. However, most of the existing empirical studies were conducted outside Nigeria or examined AI generally rather than Generative AI specifically. This leaves a contextual and technological gap regarding the drivers, barriers, and performance outcomes of Generative AI adoption among SMEs in Nigeria.

Methods

The study adopted a cross-sectional survey research design. The population of the study comprised owners, managers, and employees of small and medium-sized enterprises (SMEs) in Nigeria who are involved in business operations and technology-related activities. A purposive sampling technique was employed to select respondents who were considered knowledgeable about the use or adoption of Generative AI in their businesses. A total of 200 respondents were selected for the study. Data were collected using a structured questionnaire titled Generative AI Adoption and SME Performance Questionnaire (GAIA-SPQ). The instrument was designed on a five-point Likert scale with the response options: Strongly Agreed (SA) = 5, Agreed (A) = 4, Undecided (U) = 3, Disagreed (D) = 2, and Strongly Disagreed (SD) = 1. The questionnaire was validated by two experts in business management and information technology, while its reliability was determined using Cronbach Alpha, which yielded a coefficient of 0.86, indicating high internal consistency. Out of the 200 questionnaires administered, 192 (96%) were successfully retrieved and used for analysis. Data were analyzed using descriptive statistics such as frequencies, percentages, and mean scores, while multiple

regression analysis was employed to test the research hypotheses at a 0.05 level of significance with the aid of SPSS Version 26. The study focused on the drivers, barriers, and performance outcomes of Generative AI adoption among SMEs in Nigeria.

Results

Ho₁: Drivers of Generative AI do not significantly influence its adoption among SMEs in Nigeria.

Table 1: Correlation

	Drivers of Generative AI	Generative AI Adoption
Drivers of Generative AI		
Correlation Coefficient	1.000	.684**
Sig. (2-tailed)	.	.000
N	192	192
Generative AI Adoption		
Correlation Coefficient	.684**	1.000
Sig. (2-tailed)	.000	.
N	192	192

Correlation is significant at the 0.05 level (2-tailed).

Source: Researchers' Data, 2026.

Table 1 shows an r value of 0.684 at a significance level of 0.000, which is less than the alpha level of 0.05. Since the significance value (0.000) is below 0.05, the null hypothesis (Ho₁), which states that drivers of Generative AI do not significantly influence its adoption among SMEs in Nigeria, is rejected. Therefore, the alternate hypothesis is accepted. This implies that drivers of Generative AI significantly influence its adoption among SMEs in Nigeria.

Ho₂: Barriers to Generative AI do not significantly influence its adoption among SMEs in Nigeria.

Table 2: Correlation

	Barriers to Generative AI	Generative AI Adoption
Barriers to Generative AI		
Correlation Coefficient	1.000	-.571**
Sig. (2-tailed)	.	.000
N	192	192
Generative AI Adoption		
Correlation Coefficient	-.571**	1.000
Sig. (2-tailed)	.000	.
N	192	192

Correlation is significant at the 0.05 level (2-tailed).

Source: Researchers' Data, 2026.

Table 2 shows an r value of -0.571 at a significance level of 0.000, which is less than the alpha level of 0.05. Since the significance value (0.000) is below 0.05, the null hypothesis (H_{02}), which states that barriers to Generative AI do not significantly influence its adoption among SMEs in Nigeria, is rejected. Therefore, the alternate hypothesis is accepted. This implies that barriers to Generative AI significantly influence its adoption among SMEs in Nigeria. The negative correlation indicates that higher barriers are associated with lower levels of Generative AI adoption.

H₀₃: Generative AI use does not significantly affect the performance of SMEs in Nigeria.

Table 3: Correlation

	Generative AI Use	SME Performance
Generative AI Use		
Correlation Coefficient	1.000	.711**
Sig. (2-tailed)	.	.000
N	192	192
SME Performance		
Correlation Coefficient	.711**	1.000
Sig. (2-tailed)	.000	.
N	192	192

Correlation is significant at the 0.05 level (2-tailed).

Source: Researchers' Data, 2026.

Table 3 shows an r value of 0.711 at a significance level of 0.000, which is less than the alpha level of 0.05. Since the significance value (0.000) is below 0.05, the null hypothesis (H_{03}), which states that Generative AI use does not significantly affect the performance of SMEs in Nigeria, is rejected. Therefore, the alternate hypothesis is accepted. This implies that Generative AI use significantly affects the performance of SMEs in Nigeria.

Discussion of Findings

The findings indicated that drivers of Generative AI significantly influence its adoption among SMEs in Nigeria. The correlation coefficient of 0.684 ($p = 0.000$) demonstrates a strong positive relationship between the factors that encourage GenAI adoption and the level of adoption among SMEs. This suggests that when SMEs perceive Generative AI as useful, beneficial, and capable of improving business operations, they are more likely to adopt it. This finding is consistent with Gupta (2024), who found that perceived benefits and other organizational factors play an important role in entrepreneurs' acceptance of generative AI technologies. Similarly, Agrawal (2024) emphasized that organizational and technological conditions influence the adoption of Generative AI. The implication is that SMEs are more likely to embrace GenAI when they recognize clear business value and have the necessary conditions to support its use.

The findings also revealed that barriers to Generative AI significantly influence its adoption among SMEs in Nigeria, with a correlation coefficient of -0.571 ($p = 0.000$). The negative relationship indicates that increasing barriers are associated with lower levels of GenAI adoption. Factors such as implementation costs, inadequate infrastructure, limited technical skills, data privacy

concerns, and uncertainty regarding AI-generated outputs can discourage SMEs from adopting the technology. This finding agrees with Jöhnk, Weißert, and Wyrski (2021), who identified technological readiness, organizational resources, and employee competencies as important conditions for successful AI adoption. It also supports Badghish and Soomro (2024), who found that organizational and technological conditions influence AI adoption among SMEs. The implication is that reducing financial, technical, and human-resource barriers is important for encouraging wider adoption of Generative AI among Nigerian SMEs.

Furthermore, the findings showed that Generative AI use significantly affects the performance of SMEs in Nigeria, with a correlation coefficient of 0.711 ($p = 0.000$). This strong positive relationship indicates that SMEs using Generative AI can potentially achieve improvements in productivity, innovation, and other business performance outcomes. The finding is supported by Noy and Zhang (2023), whose experimental study demonstrated that generative AI can improve productivity in knowledge-intensive tasks. Similarly, Mikalef and Gupta (2021) established that organizational AI capability can contribute to creativity and firm performance. The implication is that effective use of Generative AI can provide SMEs with opportunities to improve operational efficiency, stimulate innovation, and strengthen their competitiveness in the Nigerian business environment.

Conclusion

This study examined Generative AI adoption by SMEs in Nigeria, with particular focus on its drivers, barriers and performance outcomes. The findings revealed that drivers of Generative AI significantly influence its adoption among SMEs, indicating that perceived usefulness, technological readiness and other favourable conditions can encourage businesses to embrace GenAI. The study also established that barriers significantly influence adoption, with higher costs, inadequate skills, infrastructure limitations and related challenges reducing the likelihood of adoption. Furthermore, Generative AI use was found to significantly affect SME performance, suggesting that effective use of GenAI can contribute to improved productivity, innovation and business competitiveness. The study therefore concludes that Generative AI represents an important technological opportunity for Nigerian SMEs, although its benefits depend on favourable adoption conditions and the reduction of major implementation barriers.

Recommendations

Based on the findings and conclusion of this study, the following recommendations were made:

1. SMEs in Nigeria should identify and strengthen the factors that encourage Generative AI adoption, particularly by improving technological readiness and demonstrating the practical usefulness of GenAI tools. This will encourage businesses to integrate Generative AI into relevant business activities.
2. SME owners and managers should address major barriers to Generative AI adoption by investing in employee training, improving digital infrastructure, and adopting cost-effective AI solutions. This will reduce technological and human-resource constraints that may discourage adoption.
3. SMEs should strategically use Generative AI for activities such as content creation, customer service, marketing, decision-making and business innovation. Effective application of these tools can improve productivity,

stimulate innovation and enhance overall business performance.

REFERENCES

1. Agrawal, K. P. (2024). Towards adoption of generative AI in organizational settings. *Journal of Computer Information Systems*, 64(5), 636–651.
2. Badghish, S., & Soomro, Y. A. (2024). Artificial intelligence adoption by SMEs to achieve sustainable business performance: Application of Technology–Organization–Environment framework. *Sustainability*, 16(5), 1864.
3. Bahaw, P., Forgenie, D., Sadiq, G., & Sookhai, S. (2025). Generative AI for business sustainability: Examining usability, usefulness, and triple bottom line impacts in small and medium enterprises. *Sustainable Futures*, 10, 100815.
4. Brynjolfsson, E., Li, D., & Raymond, L. R. (2023). Generative AI at work. National Bureau of Economic Research Working Paper, No. 31161.
5. Crossdale, J. O., Mbaegbu, R. E. V., & Nwosu, B. O. (2019). Utilization of information and communication technology (ICT) in teaching and learning of business subjects in junior secondary schools in Delta State. *Nigerian Journal of Business Education*, 6(1), 246–255.
6. Dell'Acqua, F., McFowland, E., Mollick, E. R., Lifshitz-Assaf, H., Kellogg, K., Rajendran, S., Krayner, L., Candelon, F., & Lakhani, K. R. (2023). Navigating the jagged technological frontier: Field experimental evidence of the effects of AI on knowledge worker productivity and quality. Harvard Business School Working Paper, No. 24-013.
7. Dwivedi, Y. K., Kshetri, N., Hughes, L., Slade, E. L., Jeyaraj, A., Kar, A. K., Baabdullah, A. M., Koohang, A., Raghavan, V., Ahuja, M., Albanna, H., Albashrawi, M. A., Al-Busaidi, A. S., Balakrishnan, J., Barlette, Y., Basu, S., Bose, I., Brooks, L., Buhalis, D., & Wright, R. (2023). "So what if ChatGPT wrote it?" Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy. *International Journal of Information Management*, 71, 102642.
8. Feuerriegel, S., Hartmann, J., Janiesch, C., & Zschech, P. (2024). Generative AI. *Business & Information Systems Engineering*, 66, 111–126.
9. Gupta, V. (2024). An empirical evaluation of a generative artificial intelligence technology adoption model from entrepreneurs' perspectives. *Systems*, 12(3), 103.
10. Gursoy, D., & Cai, R. (2025). Artificial intelligence: An overview of research trends and future directions. *International Journal of Contemporary Hospitality Management*, 37(1), 1–17.
11. Huang, M.-H., & Rust, R. T. (2024). The caring machine: Feeling AI for customer care. *Journal of Marketing*, 88(5), 1–20.
12. Jöhnk, J., Weißert, M., & Wyrski, K. (2021). Ready or not, AI comes—An interview study of organizational AI readiness factors. *Business & Information Systems Engineering*, 63, 5–20.
13. Mikalef, P., & Gupta, M. (2021). Artificial intelligence capability: Conceptualization, measurement calibration, and empirical study on its impact on organizational creativity and firm performance. *Information & Management*, 58(3), 103434.
14. Noy, S., & Zhang, W. (2023). Experimental evidence on the productivity effects of generative artificial intelligence. *Science*, 381(6654), 187–192.
15. Olayanju, D. O. (2026). Artificial intelligence in digital marketing: Readiness and adoption among Nigerian enterprises. *International Journal of Artificial Intelligence and Machine Learning*, 6(1), 132–149.
16. Oneniyi, M. R., Nelson, P. U., & Ogbike, M. I. (2026). From readiness to performance: Modelling AI-enabled HR analytics adoption capability as a second-order formative construct in Nigerian SMEs. *SEISENSE Journal of Management*, 9(1), 70–88.
17. Raisch, S., & Krakowski, S. (2021). Artificial intelligence and management: The automation–augmentation paradox. *Academy of Management Review*, 46(1), 192–210.
18. Shaibu, O. G., Mbaegbu, R. E. V., & Nwagu, C. (2024). Relevant digital skills needed by business education lecturers for effective delivery in tertiary institutions in Imo State. *Nigerian Journal of Business Education*, 11(2), 197–204.
19. Shaibu, O. G., Mbaegbu, R. E. V., & Zion-Ngoka, C. K. (2025). Artificial intelligence (AI) and sustainable productivity in Imo State oil industry. *Nigerian Journal of Business Education*, 12(3), 41–47.
20. Shaibu, O. G., Oshioigwe, J. A., & Mbaegbu, R. E. V. (2014). Business education curriculum and the information and communication technology. *Nigerian Journal of Business Education*, 2(1), 231–240.
21. Shore, A., Tiwari, M., Tandon, P., & Foropon, C. (2024). Building entrepreneurial resilience during crisis using generative AI: An empirical study on SMEs. *Technovation*, 135, 103063.
22. Soomro, R. B., Al-Rahmi, W. M., Dahri, N. A., Almuqren, L., Al-Mogren, A. S., et al. (2025). A SEM–ANN analysis to examine impact of artificial intelligence technologies on sustainable performance of SMEs. *Scientific Reports*, 15, 5438.