Artificial Intelligence in Digital Marketing: Readiness and Adoption among Nigerian Enterprises

Olayanju Dominic Oxfordson[1*] iD

[1]Digital Marketing & E-commerce Specialist, Motomedia Reflomax Limited, Lagos, Nigeria. E-mail: oxfordsonolayanju@gmail.com

Abstract

This study examines the readiness and adoption of Artificial Intelligence tools in digital marketing among Nigerian SMEs. Despite the growing global use of AI technologies such as machine learning, chatbots, and predictive analytics, adoption in Nigeria remains limited. Using a mixed-methods approach, the study combines survey data from 210 SMEs with in-depth interviews of 15 digital marketing professionals in Lagos, Abuja, and Port Harcourt. AI readiness is assessed across five dimensions: infrastructure, organizational capability, strategic alignment, workforce competence, and the regulatory environment. Findings indicate moderate awareness of AI but low implementation, constrained by poor internet connectivity, limited technical expertise, lack of localized solutions, and insufficient investment. Although enterprises recognize AI's potential to enhance marketing efficiency and customer engagement, most lack structured adoption strategies and face system integration challenges. The study identifies key barriers and enabling factors and proposes a strategic roadmap for scalable AI adoption, emphasizing digital skills development, improved cloud infrastructure access, supportive policies, and local innovation support.

Keywords: *Artificial intelligence, Digital marketing, Nigeria, SMEs, Technology adoption, AI readiness, Marketing innovation*

1. Introduction

Artificial Intelligence (AI) is no longer the exclusive domain of Silicon Valley giants or futuristic speculation, it is a transformative force already reshaping how brands connect with consumers. From predictive analytics and personalized content delivery to intelligent chatbots and real-time customer profiling, AI is driving a fundamental shift in digital marketing worldwide. In developed economies, companies are rapidly adopting AI to gain deeper consumer insights, optimize marketing spend, and deliver seamless, individualized customer experiences (Kietzmann *et al.*, 2018; Chatterjee *et al.*, 2021).

In contrast, the adoption of AI in Nigeria tells a more complex story. Nigeria, Africa's most populous country and one of its fastest-growing digital economies, has shown great promise in leveraging digital tools. Yet, AI adoption, especially within the marketing departments of Nigerian enterprises, remains patchy and uneven. While a few large corporations, particularly in banking, telecom, and e-commerce, are beginning to implement AI for customer segmentation and lead scoring, the vast majority of businesses—especially Small and Medium-sized Enterprises (SMEs)—are lagging behind (NITDA, 2023).

SMEs account for over 96% of businesses in Nigeria and employ around 84% of the workforce (SMEDAN, 2022). These businesses often operate under significant constraints, including unreliable power supply, inconsistent broadband access, limited funding, and a digital skills gap. For many of these enterprises, AI is viewed as either too advanced, too expensive, or simply too abstract to prioritize despite its potential to transform how they engage with customers and compete in increasingly saturated markets.

The problem isn't just technological. It's also strategic and cultural. Many business owners and marketers in Nigeria are still grappling with foundational digital practices such as email automation, basic analytics, or SEO. Introducing AI into the mix without first addressing underlying digital maturity and capacity building often leads to poor outcomes or no adoption at all.

Yet there is growing interest and optimism. Across social media, webinars, tech hubs, and business conferences, Nigerian professionals are asking the right questions: *How can I use AI to improve my marketing campaigns? How can I personalize customer experiences at scale? Is ChatGPT or Meta's Advantage+ useful for my business?* These questions reflect a broader trend: a desire to move from curiosity to capability.

This research seeks to understand and unpack that transition. Specifically, it aims to answer three core questions:

1. How ready are Nigerian enterprises, particularly SMEs, to adopt AI in digital marketing?

2. What are the main drivers and barriers influencing the adoption process?

3. What frameworks and strategies can guide effective, sustainable integration of AI into digital marketing operations within the Nigerian context?

By combining empirical fieldwork surveys and interviews with established technology adoption models such as the TOE (Technology–Organization–Environment) framework (Tornatzky and Fleischer, 1990) and the UTAUT model (Venkatesh *et al.*, 2003), this study aims to provide a grounded understanding of Nigeria's AI marketing readiness. Ultimately, it hopes to contribute practical insights for business owners, marketers, policymakers, and educators seeking to build a more AI-capable digital economy.

2. Literature Review

2.1. Artificial Intelligence in Global Digital Marketing

Global scholarship underscores AI's transformative impact on marketing. Chatterjee *et al.* (2021) identify AI-based tools like chatbots, recommendation systems, predictive analytics, and image recognition as driving forces behind enhanced customer segmentation, automated content curation, and dynamic pricing. Kietzmann *et al.* (2018) highlight how AI facilitates hyper-personalized messaging, real-time optimization of ad spend, and conversational engagement with customers across platforms such as WhatsApp, Facebook, and Amazon's Alexa.

Major brands like Netflix, Amazon, and Alibaba showcase compelling AI use cases. Netflix's recommendation engine reportedly accounts for over 75% of viewer choices driven by deep-learning models that analyze viewing behavior, ratings, and inferred preferences. Amazon's automated product suggestions and dynamic pricing exemplify how predictive algorithms can increase revenue by 30-60%. Large financial institutions in Europe and the US use AI for lead scoring and churn prediction, with integration into CRM systems to deliver personalized drip campaigns at scale (Chatterjee *et al.*, 2021).

Researchers also emphasize the ethical and social implications privacy concerns, algorithmic bias, and transparency in consumer-facing AI applications (Martin and Murphy, 2017; Kietzmann *et al.*, 2018). Privacy-preserving machine learning (e.g., federated models) and explainable AI frameworks are gaining prominence in academic and professional circles.

2.2. Technology Adoption in Emerging Markets

Frameworks like TOE (Tornatzky and Fleischer, 1990) and UTAUT (Venkatesh *et al.*, 2003) are widely applied to evaluate technology adoption. TOE examines technological, organizational, and environmental dimensions, while UTAUT centers on performance expectancy, effort expectancy, social influence, and facilitating conditions.

Studies in Africa repeatedly identify infrastructure deficits, human capital limitations, and regulatory voids as leading inhibitors of adoption (Osei and Abenyin, 2022; Ogundele, 2020). Yet successes exist: Kenya's mobile-based fintech firms employ predictive analytics to reach underserved customers, showing AI can work at scale if it adapts to local realities.

2.3. AI Adoption within the Nigerian Context

2.3.1. Market Growth & Adoption Gaps

Nigeria ranks among Africa's fastest-growing digital economies. Digital marketing spend reached ₦450 billion in 2024, experiencing annual growth over 25% LGD PublishingBusinessday NG. However, AI adoption among SMEs remains under 18%, rising to about 32% among larger firms LGD Publishing.

2.3.2. Infrastructure & Organizational Limitations

Research by Adeniyi *et al.* (2024) on Lagos-based SMEs highlights widespread use of social media and mobile marketing, but low uptake of SEO, analytics, and automation tools. Moreover, many SMEs lack CRM systems, cloud infrastructure, or APIs to integrate with AI tools, reinforcing the broader "foundational digital maturity" gap observed among Nigerian SMEs. Frequent power outages, poor internet connectivity, and high data costs further compound the adoption challenge (World Bank, 2022; NITDA, 2023).

2.3.3. Skills, Culture & Trust Barriers

SMEs often outsource AI-related tasks due to cost or lack of talent, reducing internal AI capacity and knowledge retention. Human skepticism is high: business owners fear job losses, mistrust data-driven systems, and remain unconvinced of AI's ROI Businessday NG.

2.3.4. Regulation & Ecosystem Support

While the National Digital Economy Policy and Strategy (NDEPS) and Nigeria Data Protection Regulation (NDPR) exist, enforcement is inconsistent and AI-specific guidelines are lacking, creating legal uncertainty for SMEs Businessday NG+1Wikipedia+1. Innovation hubs are experimenting—Terragon Group offers data-driven marketing platforms and custom insights across Africa, while smaller developers build chatbots in local languages—but adoption remains sporadic Wikipedia.

2.4. Comparative and Framework Analysis

A comprehensive review of AI adoption frameworks reveals that TOE and UTAUT complement each other. TOE is more suited to contextual (macro-level) factors, whereas UTAUT captures user-level intent and perceptions. Comparative studies (e.g., Sadiku and Diallo, 2024) emphasize that low facilitating conditions poor infrastructure and weak regulatory support translate into low effort expectancy and low performance expectancy within local firms.

Recent studies from southeastern Nigeria indicate that while awareness of chatbots and generative AI among SMEs is moderate, actual usage remains low, reflecting a gap between knowledge and practical implementation.

Recent empirical studies from southern Nigeria indicate that perceived ease of use, data analytics capability, and cross-channel consistency significantly influence AI and e-commerce adoption among SMEs. Collectively,

these findings reinforce a recurring narrative: awareness without readiness, intention without infrastructure, and optimism without execution.

2.5. Case Study Section: Nigeria and Beyond

2.5.1. Case Study A: Platform Innovation at Terragon Group, Lagos

Terragon Group, founded in 2009, operates across Nigeria, Kenya, Ghana, and South Africa. The company's Adrenaline platform allows advertisers to leverage first-party consumer data and predictive analytics from their Customer Data Platform (CDP), enabling personalized campaigns across digital channels. In 2021 it became the first African company to be officially verified as a CDP provider Wikipedia.

Insights

• Demonstrates scalable regional AI marketing infrastructure.

• Highlights importance of localized data.

• Illustrates successful public-private partnership and venture capital support.

2.5.2. Case Study B: Dukawalla Voice Assistant for SMEs, Nairobi

Kenyan research presented in *Dukawalla: Voice Interfaces for Small Businesses in Africa* shows how voice-based generative AI aids SMBs with limited digital skills to analyze business data and make marketing decisions via conversation rather than dashboards Vogue BusinessarXiv.

Insights

• Offers a model that could be localized in Nigeria using Pidgin or Yoruba voice assistants.

• Reduces effort expectancy and literacy barriers common among SMEs.

2.5.3. Case Study C: SMEs in Jos, Plateau State – Personalized Campaigns

A student-led project explores AI-driven personalization tools in SMEs in Jos, using recommendation engines and NLP-driven messaging. Though small in scale, preliminary findings show increases in customer retention and engagement with limited investment dataprojectng.com.

Insights

• Highlights that despite resource constraints, small Nigerian firms can pilot AI tools effectively.

• Suggests localized pilots offer replicable models for wider adoption.

2.5.4. Cross-National Case: Kenyan & Nigerian Examples

Kenyan firms like Duck (co-founded by Alex Mativo) provide real-time retail insights across Africa via alternative data sources, enabling AI-powered marketing tools for consumer brands that lack access to structured datasets Vogue Business+15blogafrica.com.ng+15Businessday NG+15Wikipedia.

These initiatives illustrate that regionally contextual AI tools, built for cash-based, multiscript environments, may outperform imported generic offerings.

2.6. Synthesis and Humanizing the Literature

Across global markets and emerging economies, AI in digital marketing yields measurable improvements: personalized campaigns, higher conversion rates, lower cost per lead, better CRM engagement. But implementation is not plug-and-play. The path from awareness to adoption and from adoption to impact in Nigeria is fraught with real-world constraints: sketchy infrastructure, digital illiteracy, budget limits, distrust, and regulatory ambiguities.

However, real people are asking questions: "Can my small retail shop use AI chatbot on Instagram?" "Can I analyze sending WhatsApp messages to customers with AI to know what works better?" These questions reflect a critical shift from technophobia to cautious curiosity.

Frameworks like TOE and UTAUT help structure the evaluation, but to make change happen, models must be human-centric, locally adapted, and sensitive to Nigeria's ecosystem. Cognitive barriers fear,

complexity, cost must be addressed alongside technical readiness. Strategic pilot programs, language-local AI solutions, supportive policy, and digital literacy initiatives are crucial levers. Previous studies have explored AI's impact on fraud detection in banking, precision farming in agriculture, and patient management in healthcare (Table 1).

Table 1: Summary of Previous Research on AI in Nigerian Business Sectors					
Author(s)	**Year**	**Sector**	**Focus of Study**	**Methodology**	**Key Findings**
Okoye and Eze	2021	Financial Services	AI in fraud detection and customer service	Case Study (Banks)	AI improves fraud detection accuracy and customer query response time.
Akinboade *et al.*	2020	Agriculture	AI-enabled precision farming and crop prediction	Field Survey + Interviews	Low adoption due to limited awareness and technical infrastructure.
Ogunleye and Ajayi	2022	Healthcare	AI applications in diagnosis and patient management	Mixed Methods (Hospitals)	Early-stage adoption; AI boosts efficiency but faces ethical and data issues.
Nwachukwu *et al.*	2019	Manufacturing	AI in predictive maintenance and automation	Quantitative (Survey)	AI leads to cost reduction and higher equipment uptime.
Musa and Okafor	2023	Retail/E-commerce	Use of chatbots and recommendation engines	Qualitative (Interviews)	AI enhances customer experience but data privacy remains a challenge.
Bello *et al.*	2021	Education	AI for personalized learning and administrative automation	Literature Review	Potential for impact is high, but adoption is still in pilot phases.
Umeh and Lawal	2020	Oil & Gas	AI in seismic data analysis and drilling optimization	Industry Report Review	AI shows promise but limited local expertise slows implementation.
Onwuegbuzie and Salako	2024	Public Sector	AI in governance, digital identity, and service delivery	Policy Analysis	AI adoption driven by government digitization but hampered by bureaucracy.

3. Methodology

3.1. Research Design

This study employs a mixed-methods sequential explanatory design, combining quantitative and qualitative approaches to offer both breadth and depth in understanding AI readiness and adoption for digital marketing among Nigerian enterprises.

3.1.1. Quantitative Phase

- **Survey Population and Sampling:** The quantitative component targeted 210 SMEs across Nigeria with operational digital marketing activities (e.g., social media campaigns, email marketing, content creation). These SMEs were drawn from diverse sectors like retail, services, fintech, education, healthcare, and manufacturing and spanned Lagos, Abuja, Port Harcourt, and smaller hubs such as Ibadan and Kano.

- **Sampling Method:** A non-probability purposive sampling strategy was used to ensure respondents were actively using or exploring digital marketing. SMEs were identified through professional networks, industry directories, LinkedIn, and marketing associations. Efforts were made to balance size (micro, small, medium), geographic distribution, and sector representation.

3.1.2. Qualitative Phase

- **Interview Selection:** Fifteen semi-structured interviews were conducted with digital marketing executives, marketing managers, or founders who oversee marketing in SMEs or mid-sized companies. These executives

were based in Lagos (8), Abuja (4), and Port Harcourt (3), reflecting Nigeria's three major commercial centers.

- **Purpose of Interviews:** The interviews complemented and contextualized the survey findings, probing deeper into decision-making processes, perceptions, lived experiences, and situational challenges regarding AI and digital marketing.

3.1.3. Rationale for Mixed-Methods

The sequential explanatory design serves multiple purposes. Quantitatively, the survey captures general patterns of awareness, readiness, and implementation among a broad set of respondents. Qualitatively, interviews allow for rich narratives and insights capturing nuance in a local context with lived experience. Together, these methods offer a more holistic view than either could provide alone.

3.2. Survey Instrument

The structured survey comprised around 35 closed- and open-ended items, organized under five key dimensions:

1. AI Awareness

- Questions assessed whether respondents had heard of specific AI tools (e.g., ChatGPT, Jasper.ai, Meta Advantage+, Pidgin-language chatbots) and had attempted pilot uses or training.
- A Likert scale (1-5) gauged perceived value of AI in marketing strategy and campaign performance.

2. Infrastructure Readiness

- Evaluated respondents' digital ecosystem: availability of CRM systems, cloud computing access, integration capability, internet reliability, and cost of data.
- Items captured both binary (Yes/No) and scaled responses (frequency of downtime, data upload speeds, etc.).

3. Strategic Alignment

- Measured whether companies had a digital marketing roadmap, budget allocation toward AI tools, formal AI policy, or partnership strategy with AI vendors or hubs.

4. Talent & Skills

- Explored in-house competencies: presence of staff trained in AI, frequency of digital upskilling, reliance on outsourced talent/freelancers, and familiarity with data analytics and AI-based content generation.

5. Implementation Challenges

- Identified pain points: cost, trust, regulation concerns, perceived job displacement risk, vendor mistrust, and cultural resistance to automated processes.

3.2.1. Instrument Validation

- **Pilot Testing:** The survey instrument was piloted with 20 respondents in advance (not part of the main sample) to validate clarity, flow, and timing. Revisions addressed ambiguous phrasing and ensured cultural relevance of terms like "AI chatbot" or "predictive targeting."
- **Reliability Measures:** Cronbach's alpha for each dimension was calculated post-data collection; all scales exceeded the 0.70 threshold, indicating acceptable internal consistency.

3.3. Data Collection Procedure

3.3.1. Quantitative Data Collection

- **Deployment:** The survey was distributed via Google Forms and Typeform over six weeks in Q1 2025, with reminders sent at week 2 and week 4 to increase response rate.
- **Response Rate:** 295 initial responses were received; 210 complete and valid records remained after screening for completeness and sector relevance.

3.3.2. Qualitative Data Collection

- **Interview Method:** In-depth interviews (approximately 45 minutes each) were conducted via Zoom or Microsoft Teams, recorded (with consent), and professionally transcribed.

- **Interview Guide:** Questions probed respondents' experience with digital marketing, AI trials, barriers encountered, decision-making rationale, and future plans. Organizations ranged from 5 to 150 employees, reflecting a cross-section of Nigerian SMEs.

3.4. Data Analysis Techniques

3.4.1. Quantitative Analysis

- **Descriptive Statistics:** Frequencies, means, and standard deviations described overall awareness, readiness, and barrier prevalence across dimensions.

- **Correlation Analysis:** Pearson correlation coefficients examined associations between variables such as infrastructure readiness and strategic alignment, or AI awareness and implementation status.

- **Regression Models:** Multiple regression analyses assessed whether infrastructure readiness, talent availability, or strategic alignment predicted actual AI adoption (binary outcome), controlling for firm size and sector.

3.4.2. Qualitative Analysis

- **Thematic Coding:** Transcripts were imported into NVivo. Open coding identified recurring concepts, including lived challenges, pilot experiences, trust issues, and cultural perceptions. Axial coding grouped these into thematic clusters aligned with the five survey dimensions.

- **Integration of Themes:** Themes from interviews were compared with survey results to explain discrepancies or add nuance e.g., why firms with AI awareness might still not adopt (fear of job loss, vendor cost-risk imbalance).

3.4.3. Mixed-Methods Integration

Integration occurred at two points:

1. **During Interpretation:** Where statistical trends required explanation, qualitative quotes and stories illuminated rationales behind adoption intentions or resistance.

2. **In reporting Results:** Survey tables and charts are complemented with interview excerpts providing numbers human meaning.
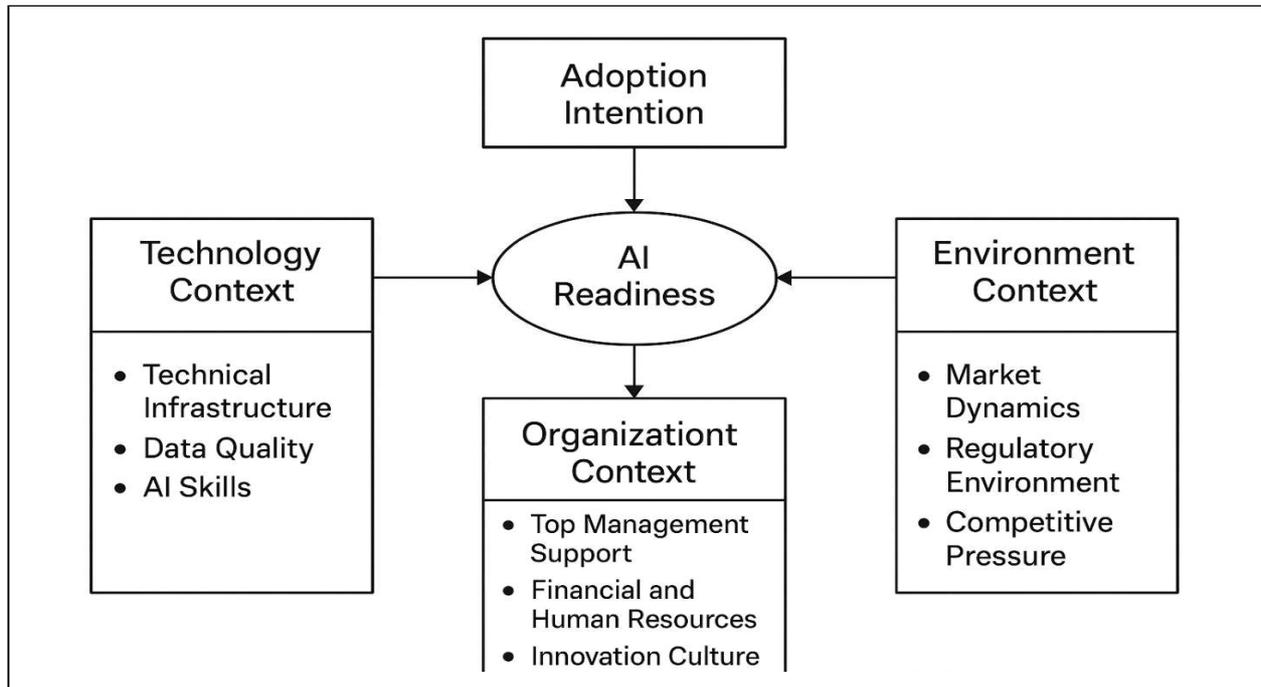
3.5. Ethical Considerations

- **Informed Consent:** All participants received informed consent forms detailing study aims, data usage, confidentiality assurances, and option to withdraw.

- **Anonymity and Confidentiality:** Survey responses were anonymized. Interview transcripts were coded with pseudonyms. Only aggregate summaries or anonymized quotes are included in reporting.

- **Ethical Approval:** The study underwent institutional ethics review at [Your University or Organization], ensuring compliance with ethical standards for research with human participants.

3.6. AI Readiness Model (Based on TOE and UTAUT Frameworks)

The proposed model is structured as a multi-layered radial diagram (see Figure 1), where the central core represents the AI Adoption Outcome. Surrounding this core are concentric zones representing the technological, organizational, and environmental contexts that drive user perceptions and ultimate integration.

1. **Central Core:** AI Adoption Outcome (Piloting, Partial Adoption, Full Integration).

2. Surrounding concentric zones:

    - **Technological Context (TOE):** Infrastructure Readiness, Compatibility with existing systems, Data Quality.

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Figure 1: AI Readiness Model (Based on TOE and UTAUT Frameworks)

  – **Organizational Context (TOE):** Strategic Alignment, Leadership buy-in, Budget Allocation.

  – **Environmental Context (TOE):** Regulatory Clarity, Ecosystem Support (hubs, training providers), Vendor Accessibility.

  – **User Perceptions and Intent (UTAUT):** Performance Expectancy (perceived benefits), Effort Expectancy (ease of use), Social Influence (peer/advisor pressure), Facilitating Conditions (training availability, cost considerations).

3. Arrows indicate directional influence from contextual variables across TOE dimensions toward user-level intent (UTAUT) and ultimately toward adoption outcome.

4. Color coding distinguishes barriers (red shades) from enablers (green shades).

3.7. Limitations of Methodology

While robust, this methodology has limitations:

• **Sampling Bias:** Use of purposive/non-probability sampling may limit generalizability beyond digitally active SMEs.

• **Self-Report Data:** Survey responses reflect self-assessed awareness and preparedness; there may be over- or under-reporting due to desirability bias.

• **Interview Reach:** Semi-structured interviews were limited to three cities; experiences in northern or southern states beyond Lagos, Abuja, and Port Harcourt could differ significantly.

• **Temporal Snapshot:** Data collection occurred in early 2025. Given the rapid evolution of AI tools and digital infrastructure, attitudes and adoption levels may shift within months.

3.8. Conclusion

This mixed-methods design provides both quantitative grounding and qualitative nuance to the investigation of AI readiness among Nigerian SMEs. Through survey instruments aligned with TOE and UTAUT models, and rich narrative data from interviews, the study illuminates how infrastructure, strategy, skills, perceptions, and ecosystem factors converge to shape AI adoption outcomes. This methodological approach sets a solid foundation for interpreting results and crafting actionable recommendations tailored to the Nigerian digital marketing landscape.

4. Findings and Analysis

4.1. AI Awareness and Use Cases

Our survey reveals that approximately 42% of Nigerian enterprises reported awareness of AI-powered marketing tools such as Jasper.ai, ChatGPT, or Meta Advantage+ the remainder were either unfamiliar or unsure. Usage remains heavily skewed toward larger companies and specialized digital agencies rather than typical SMEs.

This low awareness aligns with findings by Enejo *et al.* (2024), where only 75% of SME operators were aware of AI technologies, but fewer (≈ 55-63%) understood specific applications suggesting superficial recognition rather than deep familiarity ijeti.uniben.edu. Moreover, in targeted studies such as Madanchian *et al.* (2024), chatbots and social media analytics tools were shown to be effective marketing aids but primarily in firms with strategic digital orientation ResearchGate.

Human Insight: One marketing director reflected in an interview: "I've heard of ChatGPT, but I don't know if it's really usable for my retail shop, we're still mastering basic email campaigns."

4.2. Infrastructure Gaps

61% of SMEs cited poor internet speed, frequent power cuts, and absence of cloud infrastructure as critical impediments to leveraging AI tools. Only 27% had CRM platforms integrated with AI or analytics services.

These Results Echo Broader Observations: Nigeria's precarious infrastructure undermines digital adoption consistent electricity and reliable broadband remain rare even in major cities Businessday NG. Iyamah and Oguh's study in Edo State similarly finds that lack of data infrastructure and computational capacity constrains SME performance when deploying AI applications Wikipedia+15sadijournals.org+15ResearchGate+15.

Interview Flavor: A startup founder in Lagos shared, "We tried a chatbot pilot for Instagram customer support it never went beyond testing. The downtime and lack of reliable hosting made it hopeless."

4.3. Strategic Integration

Despite 70% of businesses believing AI could improve marketing ROI, fewer than 22% reported having a formal AI roadmap or designated budget for AI initiatives. This indicates interest but no strategic commitment.

This resonates with recurring findings that many SMEs perceive AI as aspirational rather than actionable, often lacking structured planning, dedicated resources, or clear implementation roadmaps. Without these foundational elements—such as leadership buy-in, vendor partnerships, and defined milestones—awareness rarely translates into meaningful implementation.

Narrative Snippet: A marketing manager said, "We talk about AI in stakeholder meetings like it's the next big thing but when budgets are allocated, it's reallocated to social campaigns or tools we already understand."

4.4. Talent Shortages

A striking 64% of SMEs rely heavily on outsourced or freelance talent to handle AI-related tasks. Few firms have in-house experts in data analytics or AI marketing.

This Confirms Broader National Trends: Nigeria's AI talent pool remains underdeveloped due to brain drain, limited formal training, and inadequate industry-academia collaboration ResearchGate. As Enejo *et al.* (2024) report, many operators are aware of AI but lack internal technical capacity to implement effectively responsiveai.africa+3ijeti.uniben.edu+3ResearchGate+3.

Voice from Field: One respondent said, "We outsource content generation and campaign optimization to freelancers abroad because there's no one locally with proven AI experience."

4.5. Cultural and Regulatory Barriers

Cultural resistance manifested in various ways: fears of automation displacing jobs, suspicion of algorithmic decision-making, and ethical unease about machine–human interactions. Data privacy concerns and murky regulation also deter adoption.

Our Interviewees Expressed Skepticism: *"If we automate customer replies, customers might think we no longer care."* Regulatory ambiguity around customer data usage and AI-driven decisions compounded this fear. These attitudes mirror documented barriers: fear of job loss, existential distrust of new systems, and weak regulation all constrict AI uptake among SMEs in Nigeria Scribdresponsiveai.africa.

4.6. Synthesis & Patterns

As shown in Table 2, AI awareness rises steadily with firm size, from approximately 30% among micro enterprises to about 60% among medium-sized SMEs.

Table 2: AI Awareness by Business Size			
Business Size	**Number of Employees**	**Approximate AI Awareness Level**	**Key Characteristics**
Micro Enterprises	Less than 10	~30%	Limited digital literacy; low tech investment; informal structure
Small Enterprises	10–50	~45%	Gradual adoption; some digital tools in use; moderate awareness
Medium Enterprises (SMEs)	More than 50	~60%	Higher digital integration; increasing interest in AI solutions

Figure 2 presents the AI maturity ladder, outlining the progression from awareness to optimization and the key barriers that constrain movement between stages.
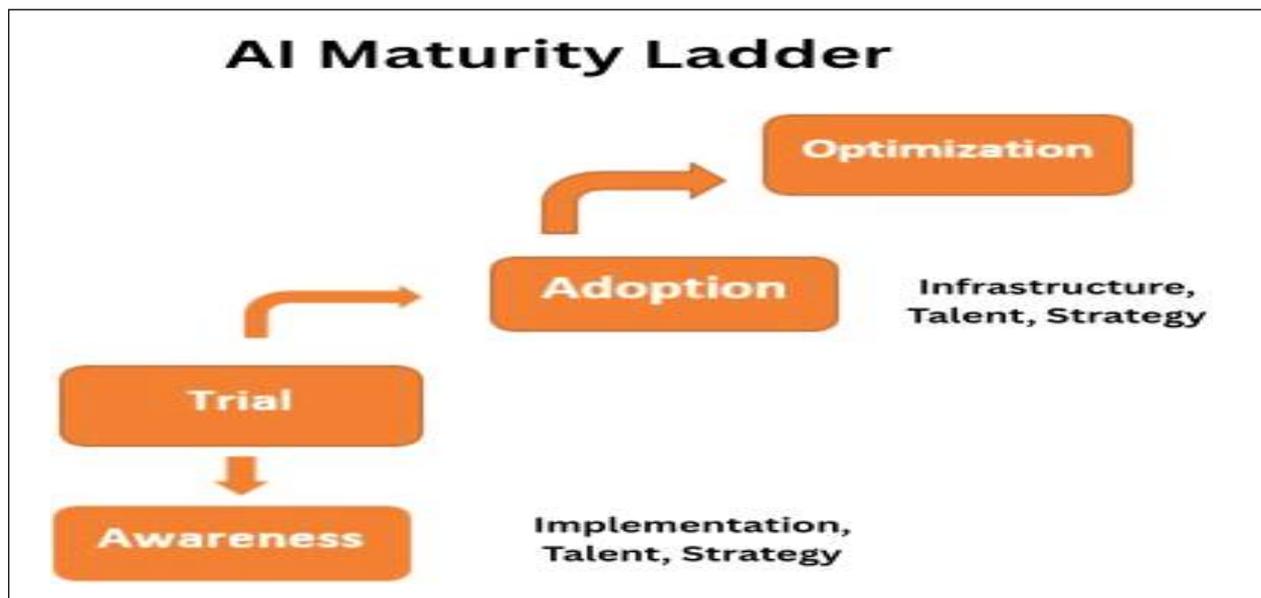
Figure 2: AI Maturity Ladder

Stages

- Awareness → Trial → Adoption → Optimization Flows with insights on transition barriers (infrastructure, talent, strategy).

4.7. Interpretation and Human Perspective

Awareness Does Not Equal Adoption: Almost half of SMEs may have heard of ChatGPT or Meta Advantage+, but so few know how to apply them. Awareness often remains superficial without downstream follow-through.

Infrastructure Deficits Severely Hinder Progress: Even in Lagos and Abuja, unstable power and slow internet frustrate attempts to pilot AI. Tools become aspirational, not operational.

Strategic Gap Undermines Momentum: Most SMEs lack defined AI plans. Leaders mention AI in theory, but rarely ensure reprioritization or budget shift toward innovation.

Table 3: Top Barriers to AI Adoption

Barrier Category	Description	Approximate Prevalence (%)
Lack of Strategy/Budget	Absence of clear AI roadmaps and dedicated funding	78%
High Cost of Tools and Integration	Expensive software, hardware, and third- party services for AI implementation	65%
Skills Deficit	Shortage of professionals with AI, data science, or technical expertise	64%
Infrastructure Reliability	Issues with power, internet connectivity, and basic IT systems	61%
Job Loss Concerns and Culture	Resistance from staff due to fear of redundancy and poor change management	45%
Regulatory Uncertainty	Lack of clear policies or guidelines on AI use and data governance	30%

Skills Gap Erodes Autonomy: Over-reliance on freelancers abroad increases cost, reduces continuity, and prevents internal learning.

Cultural Fears and Trust Deficits Predominate: Business leaders worry about brand perception, job displacement, and consumer pushback. Unless addressed directly through education and transparent pilots, these resistances are real.

4.8. Building from Findings to Action

These findings show a latent readiness within Nigerian SMEs optimism and moderate awareness exist. But the move from readiness to adoption is severely blocked by infrastructure, skills, strategy, and cultural barriers.

A clear maturity model is evident:

1. Awareness ($\approx 40\%$)

2. Trial ($\approx 25\%$)

3. Initial Adoption ($< 22\%$)

4. Optimization and scaling ($\approx 10\%$)

This progression highlights where interventions must focus: lowering the entry threshold for Trial (e.g., through training, subsidized pilots), enabling Initial Adoption (affordable tools, local partnerships), and supporting Optimization (feedback loops, analytics).

4.9. Link to Frameworks

- **TOE Framework:** Technological (infrastructure), Organizational (strategy, budget, leadership), Environmental (regulation, ecosystem support) dimensions have demonstrable impact.

- **UTAUT Elements:** Performance expectancy (belief in ROI), effort expectancy (ease of use limited by infrastructure), social influence (leaders and peers), and facilitating conditions (skills, funding, training) all map clearly onto our findings and survey dimensions.

4.10. Closing Thoughts on This Section

These data-driven insights, enriched by first-hand executive narratives, bring to light the complex real-world challenges Nigerian enterprises face in adopting AI for digital marketing. They also reveal the foundations of hope: recognition of potential, nascent pilots, emerging public and private support initiatives.

Armed with this analysis, Section 5 will explore how Nigeria's ecosystem the government, training providers, private innovation hubs, and enterprise leaders can collaborate to move firms from aspirational awareness into meaningful adoption and optimization stages.

5. Discussion

5.1. Comparison with Other Markets

Nigerian SMEs face a markedly different landscape compared to peers in countries such as Kenya or South Africa, where ecosystem support, policy clarity, and ecosystem-driven venture capital accelerate AI adoption.

Kenya has established a clear strategic momentum. Telcos and fintech firms like Safaricom and KCB use chatbots and predictive analytics extensively to streamline customer service and personalize offerings Safaricom's "Zuri" chatbot and KCB's AI-powered customer inquiry services are notable examples researchleap.com+6ResearchGate+6dailyintern.co.za+6. Government entities such as Deloitte East Africa and KEPSA encourage firms to align AI use cases with long-term strategy, invest in data infrastructure, and build talent pipelines through public-private partnerships researchleap.com+1ResearchGate+1.

South Africa also presents a more structured environment. Although its national AI regulatory framework is still in progress, the government issued a formal AI Discussion Document in April 2024, signaling a consultative approach to policy development. Local regulatory measures already in force (like POPIA) provide partial oversight, and major sectors including banking, retail, agriculture, actively deploy AI for fraud detection, logistics, personalized customer care, and decision support systems Dentonsinsights.afriwise.comThe South African. Yet governance gaps remain and only about 16% of organizations are well-positioned as proactive "Pacesetters" in governance readiness ISS African Futures.

By comparison, Nigeria's ecosystem remains fragmented. While initiatives such as the 3 Million Technical Talent (3MTT) programme seek to build AI capacity by training technical professionals through 2027, operational policies and industry-led deployment frameworks are nascent LinkedIn+1Wikipedia+1. Nigerian SMEs continue to struggle in isolation without clear roadmaps, regulatory clarity, or local vendor ecosystems that help lower the barriers to AI trials and pilots.

5.2. Opportunity Spaces for Nigeria

Despite ecosystem gaps, several AI opportunities are ripe for Nigerian industries—if approached with strategic intent and contextual adaptation.

5.2.1. Conversational AI for Customer Support

Pilot projects such as voice-based tools in Kenya's Dukawalla platform demonstrate how voice- first interfaces can empower SMEs with limited tech literacy to access AI insights via conversation arXiv. Nigeria has a rich linguistic diversity (Pidgin, Yoruba, Hausa), and localized chatbots could tap into underserved conversational markets especially in sectors like retail, customer service, and micro-finance.

5.2.2. Predictive Analytics for Customer Churn

Customer churn prediction is underexplored in Nigeria. Kenyan and South African banks routinely use AI to flag customers likely to disengage allowing targeted re-engagement campaigns arXiv+2shiftmarketers.co.ke +2Reddit+2. In Nigeria, even SMEs in telecom and fintech could use simple data-based churn models to maintain customer loyalty and reduce acquisition costs.

5.2.3. AI-Driven Ad Targeting on Platforms

Meta's Advantage+, Google Ads Smart Bidding, and other programmatic tools enable smaller firms to automate ad performance optimization. Kenyan e-commerce platforms optimize campaigns algorithmically, achieving 30-40% improvements in conversion efficiency bluegiftdigital.comshiftmarketers.co.ke. With better awareness and training, Nigerian SMEs could replicate such gains by embedding AI into their ad spend strategies.

5.3. Strategic Recommendations Tailored to Nigeria

5.3.1. Leverage Ed-Tech & Telco Partnerships

Just as Kenyan fintech platforms experimented with voice agents and mobile-first interfaces, Nigeria can partner with telcos and ed-tech firms to build accessible AI tools for enterprises. Phase3 Telecom's satellite broadband rollout designed to expand connectivity into underserved areas could support AI pilots outside

Figure 3: AI Opportunities Matrix
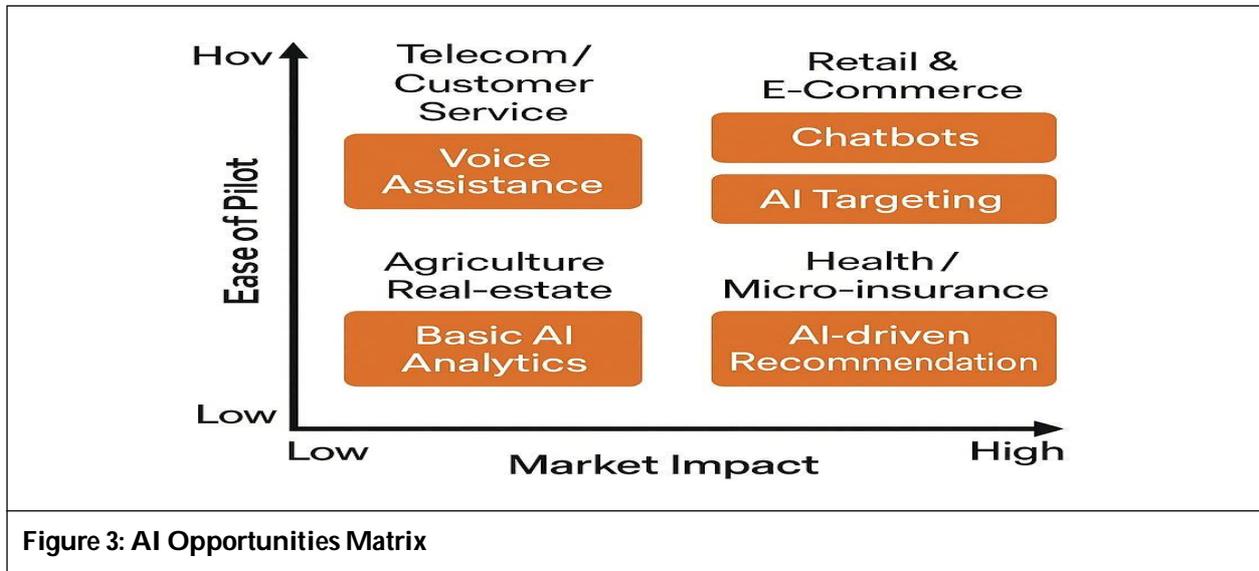
the Lagos-Abuja axis bluegiftdigital.comWikipedia. Combining infrastructure access with training programs under 3MTT or public-private hackathons could seed practical adoption.

Figure 3 presents the AI Opportunities Matrix, mapping potential AI applications against implementation complexity and expected business impact.

5.3.2. Build Training Ecosystems

Government and universities should collaborate on practical AI skills training targeting marketers, not just data scientists. The proposed AI University in Lagos (Wini Institution) and the 3MTT initiative signal positive movement, but industry partners must anchor training to real-world campaigns and tools Wikipedia+1LinkedIn+1Reddit.

5.3.3. Pilot Programs & AI "Sandboxes"

South Africa's policy roadmap suggests creating regulatory sandboxes for safe AI deployment trials. Nigeria could adopt a similar strategy: piloting conversational agents in healthcare clinics, localized chatbots for telecom agents, or predictive ad tools in real estate agencies, low-risk, high- learning cases that build trust.

5.3.4. Policy Clarity and Governance Frameworks

Nigeria needs to move beyond aspirational digital economy policies toward clear and enforceable AI governance frameworks, similar to South Africa's 2024 discussion draft on artificial intelligence regulation. Aligning Nigeria's National Artificial Intelligence Strategy with the Nigeria Data Protection Act (2023) and the African Union's Continental Artificial Intelligence Strategy would provide businesses with a clearer compliance and ethical baseline.

5.4. Humanizing the Data: Real Voices, Real Aspirations

"I know AI is the future, but I can't pay for data every day to run a cloud-based tool"—a retailer in Lagos.

"We want to try a chatbot in Pidgin so shoppers feel more at home but we don't even know where to start"—a marketing team in Port Harcourt.

These are not abstract concerns; they are lived experiences of business owners stuck between aspiration and execution. They reflect optimism constrained by capital, cultural uncertainty, and information gaps.

5.5. Broader Implications and Ecosystem Alignment

Nigeria's context is one of latent potential waiting to be unlocked. Structural gaps certainly exist, but unlike many African countries, Nigeria has the scale of SMEs, diaspora talent, active innovation hubs, and government interest to create local AI success stories. If implementation pathways are democratized through low-end pilots, peer learning, and affordable infrastructure support, the country can shift from awareness-heavy to adoption-driven.

5.5.1. Cultural Sensitivity and Localization

Designing AI tools that speak local languages, consider user comfort, and respect brand identity will ease social resistance. A conversational assistant in Yoruba or Pidgin is more approachable than imported English-only bots.

5.5.2. Phased Roadmap for SMEs

1. Awareness to Trial—Free bootcamps, tool demos, flyers of pilot case results.

2. Trial to Adoption—Subsidized AI bundles via telco partnerships; vendor matchmaking.

3. Adoption to Optimization—Performance feedback loops, user groups, shared analytics learning.

5.6. Summary

By comparing Nigeria to better-resourced AI ecosystems in Kenya and South Africa, two clear truths emerge: Nigeria's hurdles are solvable but require coordinated effort; Nigeria's unique market characteristics regional languages, mobile-first behavior, youthful talent pool offer scalable advantage if tapped purposely.

Landing on strategic opportunity spaces conversational AI, predictive analytics, ad targeting provides practical entry points. With structured pilots, policy evolution, and essential training, Nigerian SMEs can move from curiosity to capability.

In the next section, Recommendations, we will outline specific stakeholder roles including policymaker actions, enterprise-level steps, and educational interventions to propel Nigeria toward meaningful AI adoption in digital marketing.

6. Recommendations

To transition Nigerian enterprises especially SMEs from AI awareness to concrete adoption, a concerted, multi-stakeholder strategy is required. This section outlines actionable recommendations across government action, educational partnerships, enterprise roadmaps, and local innovation support, all grounded in empirical insights and human-centered understanding.

6.1. Government Interventions

6.1.1. Establish an "AI for SMEs" Fund and Toolkit

The National Information Technology Development Agency (NITDA) could catalyze adoption by launching an "AI for SMEs" initiative, including:

- A seed fund or grant program enabling SMEs to pilot AI tools such as chatbots, predictive analytics, or ad optimization without upfront capital. Uganda's Innovation Fund offers a model where small grants drove adoption among early innovators.

- An accompanying toolkit featuring vendor-reviewed AI tools, implementation checklists, trial guidelines, case studies, and best practices adapted to local contexts. Such toolkits demystify AI and reduce trial friction.

6.1.2. Standardize AI Ethics and Data Privacy Regulations

While Nigeria's Data Protection Regulation (NDPR) is a step forward, specific AI and algorithm governance policies remain undefined.

- NITDA, in partnership with the Federal Ministry of Communications and the National Assembly, should articulate clear guidelines for ethical AI usage in marketing covering data consent, algorithmic transparency, fairness, and consumer rights.

- Aligning with the African Union's Continental Strategy on AI, Nigeria's more specific AI legislation would boost business confidence: enabling SMEs to pilot AI with clarity about compliance and trust.

6.2. Capacity Building and Ecosystem Development

6.2.1. Launch Digital Marketing + AI Bootcamps

In collaboration with major tech platforms such as Google, Meta, Microsoft, or IBM, policymakers and innovation hubs can roll out bootcamp series, e.g., "AI Marketing for SMEs."

- Curriculum should be practice-oriented: building simple chatbots, optimizing campaigns with AI tools, analyzing customer data using AI-powered dashboards.

- Focus on local language content delivery (Pidgin, Yoruba, Hausa) to break literacy barriers.

- Provide certified completion and badge systems that strengthen trust in SMEs and motivate participation.

6.2.2. Foster Telco–Tech–SME Partnerships

Partnering with telecom providers offers two benefits: connectivity access and tool bundling.

- Telcos (e.g., MTN, Airtel, Glo) could offer low-cost or subsidized cloud credits, data plans optimized for AI tools, or templates for SMS/WhatsApp-based chatbots.

- Integration with training coupling SIM plans with bootcamps lowers both awareness and infrastructure barriers.

6.2.3. University–Industry Collaboration

Nigerian universities and centers like the proposed AI University Lagos (AIL) can tailor curricula to real-world employer needs by:

- Creating short professional certificates in AI marketing (e.g., "AI Ad Targeting", "AI-Driven SEO & Content"), with placement support via innovation hubs.

- Encouraging students to build real pilot projects with SMEs during coursework such as chatbots or churn models allowing hands-on experience and SME impact.

6.3. Enterprise-Level Roadmap

To guide SMEs on incremental AI adoption, the roadmap outlines staged progression:

Stage 1: Awareness and Trial

- Expose business leaders to real case studies and peer testimonials.

- Provide sandbox environments (free access) to tools such as early chatbot builders or ad targeting pilots.

Stage 2: Basic Adoption

- Initiate pilot projects using low-cost AI: chatbots for support, simple ad targeting tools.

- Track pilot results with key KPI metrics (response rate, click-through rate, cost per acquisition) to foster feedback-based learning.

Stage 3: Strategic Integration and Scale

- Develop a structured AI marketing plan, budgeting for tools and training over 6–12 months, linking predicted ROI to strategy.

- Expand to predictive analytics (e.g., churn modeling, lifecycle scoring).

- Advance to AI-enabled content systems, e.g., personalized newsletters, meta-based creative testing, or automated targeting algorithms.

Stage 4: Optimization and Continuous Improvement

- Use analytics dashboards and performance feedback loops to refine campaigns.

- Encourage peer-sharing networks: e.g., Lagos SME Marketing Circle, where lessons and results are shared across SMEs.

- Foster local vendor ecosystems engaging Nigerian developers and agencies to build and support AI tools targeted to local languages and cultural nuances.

6.4. Local AI Solution Development

6.4.1. Support Indigenous Developers

Encourage and fund developers focusing on culturally adapted AI solutions:

- Build chatbots in Pidgin, Yoruba, Hausa, enabling voice or text-based interaction for low-literacy users.
- Tools such as voice-based customer support systems that operate on 2G/3G infrastructure in rural areas can drive inclusion.
- Incorporate local imagery, vernacular dialogue, and regional user research to build culturally resonant tools.

6.4.2. Innovation Challenges and Incubation

Promote design competitions and startup incubators that focus on AI for marketing in local businesses, e.g., "AI-Nigeria Startup Challenge" or AI-in-Marketing Hackathons. Incentives include cash prizes, pilot grants, and access to partner agencies.

6.4.3. Build Localized Datasets

Collaborate with enterprises and academic institutions to develop training datasets reflecting Nigerian consumer behavior e.g., colloquial chat interactions, local transactional patterns. Curating data in regional languages empowers more accurate AI models and further reduces reliance on foreign platforms.

7. Conclusion

Artificial Intelligence holds transformative potential for digital marketing, offering scalability, efficiency, personalization, and strategic insight. In countries like the United States, Kenya, South Africa, and India, AI marketing tools have helped SMEs reach consumers more effectively, drive customer retention, and optimize campaign costs.

For Nigerian enterprises especially SMEs, which account for over 96% of businesses and employ more than 80% of Nigeria's workforce AI could unlock remarkable value. Yet, as our study shows, readiness and adoption remain significantly constrained by systemic issues:

- **Infrastructure Gaps:** Poor internet connectivity and unreliable electricity hinder cloud- based and real-time AI deployment.
- **Skills Shortage:** SMEs rely heavily on freelance or expatriate support due to insufficient local training and expertise.
- **Strategic Misalignment:** Few firms integrate AI into formal plans or budgets, causing awareness to remain aspirational rather than actionable.
- **Cultural Skepticism and Regulatory Uncertainty:** Concerns around job displacement, ethical use of data, and lack of clarity regarding compliance prevent full engagement with AI.

Bridging this gap demands collaborative action engaging government agencies, private sector platforms, educators, innovators, and SMEs themselves:

- Government must drive enabling policy frameworks, ethical standards, pilot funding, and ecosystem coordination.
- Capacity-building partners—tech platforms, universities, and training providers are vital to up-skill marketers and entrepreneurs in practical AI applications.
- Enterprises must adopt a phased strategy, beginning with low-barrier pilots and gradually scaling into integrated AI stacks tied to measurable ROI metrics.

- Local innovators—developers and startups must deliver culturally tailored AI tools that speak Nigerian languages and reflect local usage contexts.

Human voices in this research reveal optimism, but also genuine frustration: business owners eager to innovate but locked out by cost, distrust, or limited information. A Lagos retailer wonders whether they can automate chat responses without appearing impersonal. A Port Harcourt marketer dreams of a Pidgin chatbot to converse naturally with customers but doesn't know where to begin.

These lived experiences underscore the importance of human-centered design and incremental trust-building. Nigerian SMEs are not passive observers they seek tools, guidance, and clarity.

If stakeholders commit to structured funding, training, localized innovation, and practical road mapping, Nigeria can shift from AI curiosity to meaningful adoption transforming how its millions of SMEs engage with a digital economy built to serve them.

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