



Research Article

Artificial Intelligence and Entrepreneurial Marketing in SMEs in Edo State, Nigeria: A Critical Secondary-Data Analysis and Capability-Based Framework

Kingsley Chimaobi Akabuokwu^{*} , Anthony Iyekekpolor

Department of Business and Management Studies, Igbiniedion University, Edo State, Nigeria

Abstract

Artificial intelligence (AI) is increasingly accessible to small and medium-sized enterprises (SMEs) through cloud software, generative AI, social-platform analytics, automated advertising, recommendation systems and conversational agents. Yet access to a tool is not equivalent to possession of an organisational capability. This article examines how AI can strengthen entrepreneurial marketing and SME performance in Edo State, Nigeria, while identifying the conditions under which adoption may produce weak, unequal or harmful outcomes. The study uses a critical secondary-data design that triangulates official Nigerian and Edo State policy and economic documents, national MSME statistics, peer-reviewed theory, and published Edo-focused survey results. It re-analyses reported descriptive statistics and regression outputs rather than fabricating primary observations. The evidence indicates that Edo SMEs perceive substantial performance benefits from AI-enabled outputs: a published 2024 survey reports approximately 70-72% agreement that AI improves decision quality, speed, customer service and opportunity identification. In the same study, data readiness explained 15.5% of reported performance variance and computational readiness explained 12.6%. A separate 2025 Edo-Delta study ranked ICT platforms as the strongest of three digital-transformation predictors, ahead of digital human resources and finance for technology. However, serious methodological weaknesses in the local evidence—including inconsistent sample counts, self-reported performance, non-probability sampling, cross-sectional designs and questionable model diagnostics—prevent strong causal conclusions. The article therefore advances an AI-enabled entrepreneurial marketing capability framework in which data quality, affordable compute, owner-manager competence and responsible governance enable AI to amplify seven entrepreneurial-marketing behaviours: proactiveness, opportunity focus, calculated risk-taking, innovativeness, customer intensity, resource leveraging and value creation. The central finding is that AI is best understood as an amplifier, not an autonomous source, of competitive advantage. It creates value when embedded in rapid market learning, disciplined experimentation and trusted customer relationships; it can also scale misinformation, bias, privacy violations and inefficient routines. The study concludes with a staged adoption pathway and policy recommendations for Edo State, business associations, universities, financial institutions and SME owner-managers.

Keywords

Artificial Intelligence, Entrepreneurial Marketing, SMEs, Edo State, Digital Capability, Marketing Agility, AI Readiness, Responsible AI

^{*}Correspondence: Kingsley Chimaobi Akabuokwu (kingsley.akabuokwu@iuokada.edu.ng)

Received: 6 August 2026; **Accepted:** 17 August 2026; **Published:** 14 October 2026



Copyright: © The Author(s), 2026. Published by Science Publishing Group. This is an **Open Access** article, distributed under the terms of the Creative Commons Attribution 4.0 License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

1. Background to the Study and Statement of the Research Problem

Small and medium-sized enterprises occupy a structurally important but institutionally vulnerable position in Nigeria. The 2021 NBS/SMEDAN estimates, as reported by PwC, indicate that micro, small and medium-sized enterprises account for 96.9% of Nigerian businesses, 87.9% of employment, 46.32% of gross domestic product and 6.21% of exports-[26]. The scale of the sector means that even modest productivity gains can have macroeconomic consequences. It also means that aggregate enthusiasm about digitalisation can conceal sharp differences between formal and informal firms, urban and rural locations, growth-oriented enterprises and necessity businesses, and firms with reliable records and those that operate mainly through cash, memory and personal relationships [11].

Edo State provides a compelling setting for investigating the intersection of AI and entrepreneurial marketing. Benin City is a commercial, educational and creative centre, while the wider state contains agricultural, processing, retail, hospitality, transport, construction and professional-service businesses. Historical state GDP evidence shows a service-led economy: services contributed about ₦1.2 trillion of Edo State's ₦2.3 trillion gross domestic product in 2017, equivalent to approximately 52.2% [10, 24]. More recent state policy documents emphasise digital public infrastructure, entrepreneurship and ethical AI. The Edo Digital Policy recognises an emerging innovation ecosystem but also identifies limited access to modern technology and low digital literacy, particularly outside urban centres [34]. This combination of commercial density, sectoral diversity and uneven capability makes Edo State analytically useful: AI may widen market reach for some SMEs while deepening exclusion for others.

AI in marketing includes machine-learning prediction, automated media buying, recommendation engines, customer segmentation, social listening, natural-language processing, chatbots, generative content and decision-support systems. Many of these functions can now be rented through software-as-a-service platforms rather than built internally. The falling technical threshold has created a misleading narrative that AI adoption is simply a purchasing decision. In reality, SMEs must combine usable data, managerial judgement, marketing knowledge, digital infrastructure, employee skills and governance routines. A firm can subscribe to a sophisticated tool and still obtain little value because customer records are incomplete, objectives are unclear, prompts are poorly designed, staff cannot validate outputs, or the business lacks a process for acting on insights.

Entrepreneurial marketing is particularly relevant because conventional marketing assumptions often fit large firms poorly. SMEs usually have limited research budgets, fluid roles, owner-manager dominance, short planning horizons and close customer relationships. Morris, Schindehutte and La-Forge [21] conceptualise entrepreneurial marketing through

seven dimensions: proactiveness, opportunity focus, calculated risk-taking, innovativeness, customer intensity, resource leveraging and value creation. AI can potentially intensify each dimension by accelerating information search, reducing the cost of experimentation and enabling personalisation at scale [23]. However, it may also weaken the very entrepreneurial judgement on which SME advantage depends if owners outsource sense-making to opaque models or imitate generic AI-generated content.

Nigeria's National Artificial Intelligence Strategy frames AI as an instrument for economic growth, productivity, inclusion and technological leadership, supported by infrastructure, skills, innovation and responsible governance [12]. The policy direction is important, but national aspiration does not automatically resolve local constraints. Edo SMEs face electricity interruptions, connectivity costs, limited finance, fragmented data, skills shortages, cyber risks and low trust in digital transactions. The relevant research problem is therefore not whether AI is globally important. It is whether, how and under what conditions AI becomes an entrepreneurial-marketing capability that improves customer and financial outcomes in Edo State.

The immediate empirical literature does not yet answer this question adequately. One Edo-focused study reports statistically significant effects of data and computational variables on SME performance [16]. A second study covering Edo and Delta States finds significant associations between digital human resources, ICT platforms, financial resources for technology and business performance [17]. These studies are useful because they are locally situated, but both rely on cross-sectional self-report data. The first contains incompatible sample figures: it states that 348 questionnaires were administered and 248 returned, while several descriptive tables use $N = 124$; its regression degrees of freedom also imply another effective sample. The second reports an exceptionally high R^2 of .887 and a Durbin-Watson statistic of .079, while some tolerance and variance-inflation values appear internally inconsistent. Such anomalies do not justify discarding the studies, but they require cautious interpretation.

The statement of the research problem is consequently four-fold. First, existing Edo research concentrates on AI infrastructure or broad digital transformation rather than entrepreneurial marketing as the behavioural mechanism through which AI may create market value. Second, local evidence often equates statistically significant associations with causal impact, despite cross-sectional designs and common-method bias. Third, aggregate adoption narratives overlook distributional effects: firms with cleaner data, stronger networks and more educated owner-managers may capture disproportionate benefits. Fourth, responsible use is underdeveloped. AI-generated claims, synthetic images, customer profiling and auto-

mated communication can create privacy, intellectual-property, discrimination and reputational risks. A PhD-level investigation must therefore integrate capability theory, entrepreneurial-marketing theory, local statistics, methodological critique and governance rather than present AI as an uncomplicated productivity technology.

This article addresses that gap through a critical secondary empirical synthesis. It does not present invented field data. Instead, it extracts and re-analyses published aggregate results, compares them with national and state-level evidence, evaluates the methodological strength of each source and develops a testable conceptual framework for subsequent primary research. This approach is appropriate where raw microdata are unavailable but policy and managerial decisions still require disciplined interpretation of the best available evidence.

2. Objectives of the Study

The general objective is to critically examine how artificial intelligence capabilities influence entrepreneurial marketing and the performance of SMEs in Edo State, Nigeria.

- 1) To conceptualise AI as a bundle of data, infrastructure, human, organisational and governance capabilities rather than as tool ownership alone.
- 2) To examine how AI can influence the seven dimensions of entrepreneurial marketing among Edo State SMEs.
- 3) To re-analyse published quantitative evidence on AI infrastructure, digital transformation and SME performance in Edo State.
- 4) To evaluate whether entrepreneurial marketing plausibly mediates the relationship between AI capability and SME performance.
- 5) To identify infrastructural, financial, skills, ethical and institutional conditions that enable or constrain AI-enabled entrepreneurial marketing.
- 6) To develop a context-sensitive framework and recommendations for SME managers, policymakers, universities, financiers and business-support organisations.

3. Research Questions

- 1) What constitutes AI capability in the context of SMEs in Edo State?
- 2) How does AI influence proactiveness, opportunity focus, calculated risk-taking, innovativeness, customer intensity, resource leveraging and value creation?
- 3) What does existing quantitative evidence indicate about the relationship between AI-related readiness and SME performance in Edo State?
- 4) Does entrepreneurial marketing provide a plausible mechanism through which AI capability affects SME performance?
- 5) Which contextual factors strengthen, weaken or reverse the expected benefits of AI adoption?

- 6) What governance and policy arrangements are required for inclusive and responsible adoption?

4. Hypotheses of the Study

- 1) H01: AI capability has no significant influence on the entrepreneurial-marketing intensity of SMEs in Edo State.
- 2) H02: Entrepreneurial-marketing intensity has no significant influence on SME performance in Edo State.
- 3) H03: AI capability has no significant direct influence on SME performance in Edo State.
- 4) H04: Entrepreneurial-marketing intensity does not mediate the relationship between AI capability and SME performance.
- 5) H05: Digital infrastructure and owner-manager absorptive capacity do not moderate the relationship between AI capability and entrepreneurial marketing.
- 6) H06: Responsible-AI governance and customer trust do not materially condition the performance outcomes of AI-enabled entrepreneurial marketing.

Because the study is based on secondary aggregate evidence, H01, H02, H04, H05 and H06 cannot all be tested through a new structural model. They are adjudicated through convergent evidence and are explicitly classified as supported, provisionally supported or not conclusively testable.

5. Literature Review

5.1. Conceptualising AI as an SME Marketing Capability

Artificial intelligence should be distinguished from simple automation. Automation executes predefined rules; AI systems infer patterns, generate content, classify cases, predict outcomes or recommend actions from data [5, 9]. In marketing, Davenport, Guha, Grewal and Bressgott [6] argue that AI affects customer understanding, marketing strategy, sales processes, service options and consumer behaviour. Huang and Rust [15] distinguish mechanical AI for standardising repetitive tasks, thinking AI for analysing data and supporting decisions, and feeling AI for interpreting interactional and emotional cues. For Edo SMEs, these categories translate into practical uses such as automated appointment reminders, demand forecasts, customer clustering, dynamic content variation, sentiment analysis and conversational support.

An organisational capability is more than a technology asset. Mikalef and Gupta [20] define AI capability through the coordinated deployment of tangible resources, human skills and intangible organisational resources. This distinction is crucial for SMEs because cloud platforms reduce the need to own computing infrastructure but do not eliminate the need for data governance, domain expertise or process redesign. AI capability in this article comprises five interdependent components:

data readiness; digital and computational access; human analytical and marketing competence; integration into routines; and responsible governance. Weakness in any component can create a bottleneck. High-quality software cannot compensate fully for poor records, and a skilled employee cannot sustain AI-enabled marketing where management provides neither time nor decision authority.

The resource-based view explains why the same AI tool produces unequal outcomes. Publicly available generative models are not rare and are easily imitated, so tool access alone cannot generate sustained advantage [2]. Advantage arises from complementary resources that competitors cannot readily copy: proprietary customer knowledge, trusted relationships, locally grounded language and cultural understanding, rapid experimentation routines, a credible brand and the ability to combine human judgement with machine output. Dynamic-capability theory strengthens this argument by focusing on sensing opportunities, seizing them and transforming routines as environments change [30, 31]. AI may accelerate sensing, but the owner-manager must still choose what to seize and reorganise the firm to deliver it.

Absorptive capacity also matters. Cohen and Levinthal [4] describe the ability to recognise, assimilate and apply external knowledge. SMEs with prior digital experience, basic analytics, documented processes and learning-oriented employees are more likely to convert AI advice into action. Firms without these foundations may receive outputs they cannot evaluate. The critical implication is that AI can increase variance in performance: it rewards firms already able to learn while exposing weaker firms to new costs and errors.

5.2. Entrepreneurial Marketing and SME Performance

Entrepreneurial marketing integrates opportunity-seeking entrepreneurship with customer- and value-oriented marketing [22]. It differs from a narrow view of promotion. The seven dimensions identified by Morris et al. [21] encompass how firms search, choose, experiment, engage customers, combine resources and create value. Empirical work generally links entrepreneurial-marketing dimensions with financial and non-financial SME performance, although effects differ by context and dimension [14, 27]. This variation matters because AI is unlikely to strengthen all dimensions equally.

Proactiveness refers to acting ahead of competitors and anticipating future demand. AI-based social listening, search-trend analysis and sales forecasting can reduce the time between weak market signals and managerial attention. Opportunity focus involves prioritising attractive problems rather than defending existing products. AI can scan customer complaints, online reviews and transaction data to reveal unmet needs, but models trained on past behaviour may privilege established demand and suppress genuinely novel possibilities.

Calculated risk-taking is not reckless behaviour; it is the disciplined commitment of resources under uncertainty. AI

can support scenario analysis, campaign experiments and demand estimates, thereby reducing the cost of learning. Yet predicted probabilities can create false precision. Small datasets, unstable markets and platform changes make forecasts fragile. Entrepreneurial judgement remains necessary to interpret confidence limits and to recognise when historical data are no longer representative.

Innovativeness concerns new products, processes, channels and business models. Generative AI can accelerate idea generation, copy development, visual prototyping and service design. The risk is convergence: when many firms use similar models and prompts, outputs become stylistically uniform. Distinctive innovation requires proprietary insight, customer co-creation and iteration rather than accepting the first generated answer.

Customer intensity reflects deep attention to customer acquisition, satisfaction, retention and lifetime value. AI enables segmentation, personalised offers, response automation and churn alerts. For relationship-based Edo businesses, however, excessive automation may feel impersonal or manipulative. The appropriate design is often hybrid: AI handles speed and classification while humans manage empathy, negotiation, exceptions and trust.

Resource leveraging describes using partners, networks and external assets beyond the firm's direct control. Cloud AI, digital marketplaces, influencers, fintech infrastructure and business associations allow SMEs to access capabilities once reserved for large organisations. Resource leveraging also creates dependency. Platform fees, algorithm changes, data lock-in and account suspension can abruptly reduce market access. A resilient strategy therefore combines platform reach with owned customer data, consent-based contact lists and multiple channels.

Value creation is the integrative outcome. AI creates value when it reduces customer effort, improves relevance, increases reliability or lowers the cost of delivery. Producing more content is not itself value creation. The decisive test is whether customers experience a superior solution and whether the firm captures sufficient economic return after software, training, verification and compliance costs.

5.3. Mechanisms Linking AI, Entrepreneurial Marketing and Performance

The proposed causal sequence is AI capability → entrepreneurial-marketing intensity → marketing agility and customer knowledge → SME performance. AI capability improves the speed, scope and granularity of information. Entrepreneurial marketing converts that informational potential into proactive opportunity pursuit, experiments and customer value. Marketing agility shortens the cycle from signal to decision to market response. Customer knowledge improves targeting and service design. Performance then appears through customer acquisition, conversion, retention, sales growth, margins, innovation outcomes and market reach.

A direct AI-to-performance relationship is possible through cost reduction and automation, but the indirect route is theoretically stronger for marketing outcomes. A chatbot can reduce response time directly, yet its commercial value depends on whether the conversation advances customer goals. A forecasting model may reduce stock-outs, but only if purchasing routines change. A content generator can lower production cost, but only differentiated, accurate and well-targeted content improves conversion. The behavioural and organisational mechanism should therefore be measured rather than assumed.

Moderators shape the strength of these relationships. Digital infrastructure affects whether tools are reliable and affordable. Owner-manager digital literacy affects interpretation. Financial slack determines whether a firm can experiment and absorb failure. Sector matters because data density and customer interaction differ across retail, agriculture, manufacturing and professional services. Formalisation matters because registered, record-keeping firms possess more structured data. Urban location influences broadband access and proximity to support providers. Governance maturity influences whether customers trust data collection and automated communication.

The model also contains negative pathways. Poor data can produce inaccurate segmentation. Generative systems can fabricate facts, prices or testimonials. Automated targeting can reproduce gender, income or location bias. Over-personalisation can create surveillance concerns. Dependence on foreign platforms exposes firms to exchange-rate pressure and service changes. Employees may deskil when verification is neglected. These risks can reduce reputation and customer trust even where short-term activity metrics rise.

5.4. Edo State's Institutional and Market Context

Edo's service-oriented economic structure creates many AI-relevant marketing use cases. Retailers can forecast demand and personalise promotions; hospitality firms can manage enquiries and reputation; schools and training providers can segment prospects; creative enterprises can prototype campaigns; logistics firms can optimise communication; and agricultural processors can use market information to coordinate supply and sales. The state also benefits from universities, a growing technology community and public-sector digital initiatives.

Nevertheless, local constraints are not marginal. Electricity unreliability increases the cost of devices and connectivity. Many micro and small firms do not maintain complete digital transaction histories. Customer interactions may be distributed across WhatsApp, telephone calls, notebooks, bank alerts and cash payments [1, 25, 29]. Data are therefore fragmented and difficult to analyse. English-language tools may miss Pidgin, Edo-language expressions, local humour and culturally specific meanings. Generic models can generate polished but contextually inappropriate marketing.

Finance is another constraint, but the hidden problem is not only the subscription price. Total adoption cost includes data

cleaning, staff time, integration, cybersecurity, management attention, content validation and the opportunity cost of failed experiments. Grants or loans that fund software without capability development may subsidise low-value adoption. Conversely, low-cost general-purpose tools can create significant benefits when applied to a clearly defined bottleneck and monitored through simple metrics.

The policy environment is becoming more supportive. Nigeria's 2025 National AI Strategy prioritises foundational infrastructure, ecosystem development, sectoral adoption and responsible AI. Edo's digital policy emphasises privacy, transparency and accountability. These frameworks create legitimacy, but implementation must reach firms beyond Benin City and beyond formal technology start-ups. The principal risk is a demonstration-project bias in which visible urban firms receive training and publicity while routine SMEs remain excluded.

5.5. Empirical Evidence and Unresolved Gaps

Iyamah and Oguh's [16] Edo study provides the most direct published quantitative evidence. The reported data-variable model produced $R = 393$, $R^2 = 155$, adjusted $R^2 = 150$, $F = 31.084$ and $p < 001$. The computational-variable model produced $R = 355$, $R^2 = 126$, adjusted $R^2 = 121$, $F = 24.479$ and $p < 001$. Respondents also reported high agreement that AI improves decision-making, speed, customer satisfaction and opportunity identification. These results support a positive association, but they explain a modest share of performance variation. Most variation remains attributable to finance, management, market conditions, capabilities and other unmeasured factors.

The same article has substantial reporting weaknesses. It describes 348 administered questionnaires and 248 returns, while displayed demographic and perceptual tables use 124 observations. The regression table for computational variables reports $F(1, 170)$, implying another sample size. The null and alternative hypotheses are duplicated in one section, and the article labels the independent variable incorrectly for the second test. These errors materially reduce confidence because sample size determines standard errors, degrees of freedom and generalisability. A critical synthesis should retain the direction of association but downgrade precision and causal claims.

Joseph et al. [17] report a cross-sectional survey of 383 usable responses across Edo and Delta States. Their multiple regression gives $R = 942$, $R^2 = 887$, adjusted $R^2 = 886$ and $F = 995.028$. Standardised coefficients rank ICT platforms ($\beta = 355$) above digital human resources ($\beta = 319$) and financial resources for technology ($\beta = 293$). The ranking is plausible, but the model's Durbin-Watson statistic of 0.079 is highly problematic if interpreted in the conventional way, and reported tolerance/VIF pairs do not consistently correspond mathematically. Purposive sampling, common-scale self-reports and the

very high R^2 suggest common-method variance or overlapping constructs. The study is best treated as directional evidence that complementary digital resources matter, not as proof that they explain 88.7% of real business performance.

The wider literature supports the capability argument. Bettoni et al. [3] propose an AI-readiness model tailored to SMEs. Denicolai, Zucchella and Magnani [7] find that AI readiness is associated with international performance. Sharma, Singh, Islam and Dhir [28] show that employee capability, financial support, management support, perceived cost, complexity and relative advantage shape SME chatbot adoption. Studies of digital transformation in developing-country SMEs repeatedly identify infrastructure, skills, finance, leadership and ecosystem support as interacting conditions rather than independent switches [8, 18, 19, 32, 33].

The unresolved empirical gap is measurement of entrepreneurial marketing as a mediator. Existing Edo studies move directly from technology variables to performance. This omits what owner-managers actually do differently after adopting AI. Without measuring opportunity sensing, experimentation, customer intensity and resource leveraging, positive performance associations may reflect already superior firms selecting into technology. Longitudinal, multi-source research is needed to separate adoption effects from selection effects.

5.6. Conceptual Framework

The framework developed in this article treats AI-enabled entrepreneurial marketing capability as a higher-order construct. Foundational inputs consist of data readiness, computational and connectivity access, human capability, financial capacity and responsible governance. These inputs enable AI use in research, strategy and market action. AI use then strengthens or weakens the seven entrepreneurial-marketing dimensions. The resulting marketing agility and customer knowledge influence financial and non-financial performance. Digital infrastructure, sector, firm size, formalisation, owner-manager absorptive capacity and market turbulence moderate the pathways.

This formulation generates a more demanding managerial test than simple adoption. An SME should not ask only, 'Do we use AI?' It should ask: Which customer or market decision has improved? How quickly are insights converted into experiments? What error rate is acceptable? Which data are collected with consent? What remains a human decision? What evidence shows incremental revenue, retention or cost savings? These questions convert AI from a symbolic modernisation project into an accountable capability.

Table 1. *AI mechanisms across entrepreneurial-marketing dimensions.*

EM dimension	Illustrative AI use	Potential value	Critical risk
Proactiveness	Trend scanning, social listening, demand forecasting	Earlier response to market shifts	Overreaction to noisy or manipulated signals
Opportunity focus	Review mining, complaint clustering, gap analysis	Identification of unmet needs and niches	Historical data may suppress novel opportunities
Calculated risk-taking	Scenario modelling, small campaign experiments	Lower cost of testing and faster learning	False precision; sparse data; unstable markets
Innovativeness	Idea generation, prototyping, content variation	Faster product and campaign iteration	Generic outputs and imitation convergence
Customer intensity	Segmentation, personalisation, chatbots, churn alerts	Relevance, response speed and retention	Privacy invasion, bias and loss of human warmth
Resource leveraging	Cloud tools, platforms, partners and freelancers	Access to specialist capability at low fixed cost	Platform dependency, lock-in and exchange-rate exposure
Value creation	Service redesign, recommendation, friction reduction	Higher convenience, reliability and customer utility	Activity without customer or financial value

6. Methodology

This study adopts a critical secondary-data research design. Its purpose is explanatory and theory-building rather than the production of new primary estimates. The design combines

structured literature review, documentary analysis, descriptive re-calculation and critical re-analysis of published statistical outputs. A secondary approach is justified because the current Edo-specific evidence base is small, raw datasets are not publicly available and inventing survey responses would violate research integrity. The article therefore distinguishes carefully

between reported results, calculations derived from those results and theoretical propositions requiring future primary testing.

Four evidence categories were used. First, national MSME statistics and economic reports establish the scale and contribution of the Nigerian sector. Second, Edo State GDP and digital-policy documents provide contextual evidence on sector structure, infrastructure and governance priorities. Third, peer-reviewed and policy literature supplies theoretical constructs for AI capability, entrepreneurial marketing, dynamic capabilities and technology adoption. Fourth, Edo-focused empirical studies provide local descriptive and regression statistics. Priority was given to official documents, established journals and studies with transparent methods. Recent local studies of uncertain quality were retained only where uniquely relevant and were appraised rather than accepted at face value.

The literature search covered combinations of the terms artificial intelligence, generative AI, entrepreneurial marketing, digital marketing, SME performance, AI readiness, Nigeria, Edo State, Benin City and developing economy. Seminal theory was included irrespective of date, while the technology and policy evidence concentrated mainly on 2018-2026. Sources were included when they: defined or measured relevant constructs; provided quantitative SME evidence; addressed marketing applications or adoption conditions; or supplied official Nigerian/Edo statistics. Promotional claims without a traceable method were excluded from numerical synthesis.

The unit of analysis is the SME as an organisational entity, while recognising that owner-managers dominate strategic decision-making. SME performance is conceptualised as a multidimensional outcome: sales growth, profitability, customer acquisition, retention, satisfaction, innovation, process efficiency and market reach. AI capability is operationalised through five domains: data, infrastructure, human competence, organisational integration and governance. Entrepreneurial marketing is operationalised through the seven Morris et al. [21] dimensions. This structure prevents the common error of treating tool usage as equivalent to capability or treating social-media activity as equivalent to marketing performance.

The numerical analysis used three procedures. First, proportions and ratios were recalculated from published figures. For example, Edo services' 2017 GDP share was calculated as ₦1.2 trillion divided by ₦2.3 trillion, yielding approximately 52.2%. Second, reported regression statistics were compared by effect size and explained variance. The difference between the data-readiness and computational-readiness R^2 values was calculated in percentage points, not added, because the models were estimated separately. Third, standardised coefficients from the Edo-Delta study were ranked to compare predictor importance, while diagnostic anomalies were recorded explicitly.

Hypotheses were adjudicated using an evidence-grading logic. A hypothesis was 'rejected with moderate support' where local quantitative evidence and broader theory converged but design limitations prevented causal certainty. It was 'provisionally rejected' where evidence was indirect. It was 'not conclusively testable' where the required mediation, moderation or temporal data were absent. This terminology is more scientifically defensible than presenting all statistically significant coefficients as definitive proof.

Quality appraisal considered sample transparency, sampling method, construct validity, reliability, common-method risk, model diagnostics, temporal ordering and consistency between tables and narrative. The analysis also considered external validity: evidence from Benin City or registered firms may not represent rural, informal or home-based enterprises. Ethical analysis was guided by data protection, transparency, human oversight, non-discrimination and customer trust. No individual-level personal data were processed in this article.

The principal methodological limitation is dependence on published aggregate results. The study cannot re-estimate models, correct coding errors, inspect missing data, test mediation or calculate robust confidence intervals. Edo-specific AI evidence remains narrow and likely overrepresents digitally visible firms. National MSME estimates also differ by survey year and definition. These limitations are not peripheral; they shape the strength of every inference. The article's contribution is therefore a critical synthesis and research framework, not a substitute for a well-designed longitudinal field study.

Table 2. Evidence base and analytical role.

Evidence category	Main sources	Use in this study	Key limitation
Official national statistics	NBS/SMEDAN estimates; PwC synthesis [26]	Sector scale, employment, GDP and export contribution	Definitions and years vary; mostly aggregate
Edo economic and policy documents	State GDP report; Edo Digital Policy [10, 34]	Sector structure, digital priorities and governance context	Policy intention is not implementation evidence
Edo-focused empirical studies	Iyamah and Oguh; Joseph et al. [16, 17]	Local descriptive and regression evidence	Cross-sectional self-report; reporting anomalies
Core theory	RBV, dynamic capabilities, absorptive capacity, EM [2, 4, 21, 30, 31]	Mechanisms and boundary conditions	Developed mainly outside Edo/Nigeria

Evidence category	Main sources	Use in this study	Key limitation
Wider SME/AI literature	AI readiness, chatbots, digital transformation [3, 8, 18-20, 28, 32, 33]	Triangulation and construct development	Context and technology heterogeneity

7. Data Analysis

The first analytical result concerns economic relevance. Nigeria's MSMEs represent nearly all businesses and a very large share of employment, yet their export contribution remains comparatively small. This pattern suggests high entrepreneurial activity but limited productivity, scale and international market conversion. AI-enabled entrepreneurial marketing is therefore potentially valuable not because SMEs lack effort, but because many firms struggle to transform dispersed customer knowledge into repeatable market systems. The low export share also warns against equating business count with competitiveness.

Edo's service-sector share of approximately 52.2% in 2017 indicates a large base of information- and relationship-intensive activities. Services generate frequent customer interactions that can support learning, segmentation and personalisation. They also create trust risks because service quality is often difficult to evaluate before purchase. AI can help codify enquiries, reviews and repeat-purchase patterns, but inaccurate automated promises can damage reputation quickly. The opportunity is therefore strongest where AI improves response and relevance while preserving accountability.

The 2024 Edo survey provides a readiness-performance contrast. Reported agreement on performance benefits was around 70-72%, including decision-making, speed, customer satisfaction and opportunity identification. Reported positive perceptions of underlying data and computational conditions were mostly around the high-50% range. This produces an approximate optimism-readiness gap of 12 percentage points. The gap can be interpreted in three ways: respondents may experience benefits from low-cost tools despite imperfect infrastructure; expectations may exceed actual capability; or common-method and novelty effects may inflate perceived outcomes. Without objective sales or customer data, the third explanation cannot be ruled out.

The regression results show that data variables explain 15.5% of reported performance variance, while computational variables explain 12.6%. The 2.9-percentage-point difference suggests that data accessibility, quality and volume may be more consequential than additional processing power for the average Edo SME. This is strategically plausible. Most small firms do not need to train large models; they need accurate customer lists, product records, transaction histories and feedback data that can be used with existing cloud tools. The finding sup-

ports a 'data before sophistication' sequence, although the separate models prevent a formal comparison of independent effects.

The reported coefficients should not be interpreted literally as guaranteed performance increments. The measures are Likert scales, the sample reporting is inconsistent and the design is cross-sectional. A coefficient of .220 or .271 describes association within the model's scale, not a 22% or 27.1% business improvement. This distinction is often lost in local managerial discourse, where unit coefficients are converted into unsupported percentage claims. The scientifically defensible conclusion is directional: better data and computational conditions are associated with higher self-reported performance.

The Edo-Delta digital-transformation study offers complementary evidence. ICT platforms have the largest standardised coefficient ($\beta = .355$), followed by digital human resources ($\beta = .319$) and finance for technology ($\beta = .293$). The ordering implies that connectivity and usable platforms may be the most immediate enabling resource, but the small differences do not establish a decisive hierarchy. More importantly, the reported R^2 of .887 is unusually high for cross-sectional SME performance research, and the Durbin-Watson statistic of .079 signals severe model concern if applicable. The tolerance/VIF inconsistencies further undermine precision. Accordingly, the predictor ranking is retained as suggestive; the explained-variance claim is not treated as credible evidence of causal magnitude.

The combined evidence supports a complementarity interpretation. Data without connectivity cannot flow; connectivity without employee competence produces superficial use; competence without finance may not sustain adoption; finance without an entrepreneurial-marketing process may fund software that does not improve customer value. AI performance effects are therefore configurational. A minimum viable bundle of resources is more important than maximising any single resource.

Mapping AI applications against the seven entrepreneurial-marketing dimensions reveals different risk-return profiles. Proactive social listening and review analysis are relatively low-cost and low-risk when data are public and insights are verified. Generative campaign content is low-cost but carries high differentiation and accuracy risks. Automated customer profiling can improve relevance but raises privacy and discrimination concerns. Demand forecasting can support calculated risk-taking, although sparse data and inflation-driven demand shifts reduce reliability. Chatbots improve speed but require escalation rules. The highest-value early use cases are

usually narrow, repetitive and measurable rather than fully autonomous.

The evidence also indicates a formalisation premium. Firms with digital payment records, product catalogues, customer consent and basic bookkeeping have usable data exhaust. Informal firms may be commercially active but analytically invisible to their own systems. AI adoption can therefore reinforce the gap between firms able to document operations and those dependent on tacit memory. Policy that distributes tools without improving record-keeping may inadvertently favour already capable SMEs.

A further finding is that local language and cultural fit are strategic assets. Generic models may not understand code-switching between English, Nigerian Pidgin and Edo languages, or the trust cues embedded in local commerce. Human review is not merely a safety control; it is a source of differ-

entiation. SMEs can outperform generic automated competitors by combining model speed with local context, authentic storytelling and owner-level accountability.

The hypothesis assessment reflects this evidence. The direct AI-capability-performance hypothesis receives moderate support for data and computational readiness, but causal certainty is absent. The AI-capability-entrepreneurial-marketing relationship is provisionally supported by theory and application mapping rather than directly measured Edo data. The entrepreneurial-marketing-performance relationship is supported by wider empirical literature, though not isolated in the Edo studies. Mediation remains untested. Digital readiness clearly acts as an enabling condition, but formal moderation coefficients are unavailable. Governance constraints are strongly plausible and policy-recognised, yet local quantitative effect estimates do not exist.

Table 3. *Re-analysis of Edo-focused AI infrastructure results.*

Model	R	R ²	Adjusted R ²	F	p	Reported B	Critical interpretation
Data variables → performance	.393	.155	.150	31.084	<.001	.220	Positive, modest explained variance
Computational variables → performance	.355	.126	.121	24.479	<.001	.271	Positive, modest explained variance

Note. The two R² values come from separate bivariate models and must not be summed. Sample-size inconsistencies in the source prevent precise inferential verification.

Table 4. *Re-analysis of Edo-Delta digital-transformation predictors.*

Predictor	Unstandardised B	Standardised β	Reported p	Interpretation
ICT platforms	.454	.355	.002	Highest standardised coefficient; suggests usable platforms matter
Digital human resources	.352	.319	.010	Capability and employee use are complementary to technology
Financial resources for technology	.433	.293	.021	Finance enables adoption but does not guarantee value

Diagnostic caution. The source reports R² = .887 and Durbin-Watson = .079, alongside internally questionable tolerance/VIF combinations. The exact magnitude of the model should therefore be treated as unreliable even though the directional pattern is informative.

Table 5. *Hypothesis adjudication.*

Hypothesis	Decision	Basis and limitation
H01	Provisionally reject	AI applications plausibly strengthen opportunity sensing, experimentation and customer intensity, but Edo studies do not measure EM directly.

Hypothesis	Decision	Basis and limitation
H02	Provisionally reject	Wider SME evidence links EM dimensions with performance; direct Edo isolation is absent.
H03	Reject with moderate support	Edo results show positive associations for data and computational readiness; causality remains unproven.
H04	Not conclusively testable	The mediation pathway is theoretically strong but no Edo study estimates it.
H05	Provisionally reject	Infrastructure, skills and absorptive capacity repeatedly appear as enabling conditions; no formal Edo interaction test exists.
H06	Provisionally reject	Policy and theory identify privacy, transparency and trust as material; local effect sizes are unavailable.

8. Ethical Considerations

Research integrity: The article uses published secondary evidence and aggregate statistical outputs. It does not claim that new questionnaires were administered, and it does not invent primary data. Where local studies contain contradictory sample counts or questionable diagnostics, these problems are reported and incorporated into the strength of inference.

Data protection and privacy: No individual-level personal data are processed, reducing risks relating to confidentiality and participant identification.

Transparency: Reported findings, recalculated results and theoretical propositions should be clearly distinguished.

Responsible source use: Priority should be given to official documents and credible academic studies, while weaker local sources should be critically appraised rather than accepted without question.

Avoidance of misleading claims: Statistical associations must not be presented as proof of causation or converted into unsupported percentage improvements.

Fairness and non-discrimination: AI-based customer profiling and automated decisions should be checked for bias and unequal treatment.

Human oversight: AI-generated content, predictions and customer responses should be reviewed by people, particularly where local language and cultural context are important.

9. Findings

- 1) First, AI is not a standalone strategic resource for Edo SMEs. Widely accessible tools are imitable; advantage arises from complementary data, customer knowledge, human judgement, routines and trust. The appropriate analytical object is AI-enabled entrepreneurial-marketing capability, not AI adoption in isolation.
- 2) Second, the strongest local quantitative signal concerns foundations rather than advanced algorithms. Data read-

iness and computational conditions are positively associated with SME performance, with published models explaining 15.5% and 12.6% of self-reported variance respectively. These are meaningful but modest effects. They refute technological determinism: most performance variance lies elsewhere.

- 3) Third, AI's marketing value is mediated by behaviour. Tools create value when they make SMEs more proactive, opportunity-focused, innovative, customer-intensive and disciplined in experimentation. Existing Edo studies omit these mediating mechanisms, creating a major research gap.
- 4) Fourth, perceived benefits exceed measured readiness. The approximate 12-percentage-point optimism-readiness gap suggests that SME enthusiasm may be running ahead of data quality, infrastructure and governance. Adoption programmes should therefore combine experimentation with verification, rather than use self-reported satisfaction as proof of commercial impact.
- 5) Fifth, local evidence quality is insufficient for strong causal claims. Inconsistent sample sizes in the 2024 study and severe diagnostic anomalies in the 2025 study reduce confidence in reported precision. The direction of the relationships is more credible than their exact magnitude.
- 6) Sixth, AI adoption is distributional. Urban, formal, better-networked and more educated owner-managers are positioned to benefit earlier. Without targeted support, AI may widen productivity gaps within Edo's SME sector rather than produce broad-based transformation.
- 7) Seventh, responsible governance is economically material. Privacy breaches, fabricated claims, biased targeting and impersonal automation can destroy customer trust. For SMEs whose brand is closely tied to the owner, reputational damage may be more concentrated than in large firms.
- 8) Finally, staged adoption is superior to technology-first investment. The most defensible sequence is problem definition, baseline measurement, data preparation, low-risk pilot, human verification, outcome evaluation and

controlled scaling.

10. Conclusion and Recommendations

10.1. Conclusion

This article examined AI and entrepreneurial marketing in Edo State SMEs through a critical synthesis of policy, economic statistics, theory and published local empirical results. The evidence supports a positive but conditional relationship. Data quality, computational access, ICT platforms, employee capability and finance are associated with higher reported performance. However, AI does not create market value automatically. It becomes productive when embedded in entrepreneurial behaviours that detect opportunities, run disciplined experiments, deepen customer understanding, leverage external resources and deliver differentiated value.

The central theoretical contribution is an AI-enabled entrepreneurial marketing capability framework. It explains why the same cloud tool can produce different outcomes across firms and why local customer knowledge remains strategically important. It also exposes the weakness of adoption-count metrics. A firm may 'use AI' while making no better decisions, while another may apply one simple forecasting or customer-response tool to a high-value bottleneck and achieve measurable gains.

The empirical conclusion must remain cautious. Edo-specific studies point in a positive direction but contain sampling, measurement and diagnostic problems. Their statistics should be treated as exploratory evidence, not causal proof. Future research should use longitudinal data, objective performance measures, multi-source sampling and explicit mediation tests. Until such evidence exists, managerial and policy decisions should favour transparent pilots, measurable outcomes and capability development over broad claims of transformation.

10.2. Recommendations

- 1) Adopt a problem-first, staged AI pathway. SME owner-managers should begin with one measurable marketing problem, such as slow enquiry response, weak repeat purchase, stock-outs, poor campaign targeting or inconsistent content production. A baseline should be recorded before adoption. A low-risk pilot should then run for four to eight weeks, with human review and a pre-determined success metric. Scaling should occur only where incremental benefit exceeds software, staff and verification costs.
- 2) Build data foundations before advanced automation. Edo SMEs should establish simple customer, product, sales and campaign records. Minimum standards include consistent customer identifiers, dated transactions, product categories, consent status, complaint outcomes and channel source. Clean spreadsheets or low-cost customer-relationship systems may create more value than purchasing advanced AI without usable data.
- 3) Develop owner-manager and employee capability. Training should combine AI literacy, entrepreneurial marketing, prompt design, data interpretation, experimentation and critical verification. Courses that teach only tool navigation are insufficient. Participants should learn to detect hallucinations, compare outputs with evidence, calculate conversion and retention metrics, and decide which activities require human judgement.
- 4) Create an Edo AI-SME diagnostic and voucher scheme. The Edo State Government, business associations and development partners should provide a readiness diagnostic covering data, infrastructure, skills, process integration and governance. Support should be milestone-based. Small vouchers can fund data clean-up, process redesign, cybersecurity or targeted software, but subsequent support should depend on documented learning and outcomes rather than platform subscription receipts.
- 5) Establish sector-specific demonstration laboratories. Universities and innovation hubs should run living laboratories for retail, hospitality, creative industries, agro-processing and professional services. Each laboratory should publish anonymised use cases, baseline metrics, failures, costs and implementation lessons. Publishing failed pilots is important because demonstration programmes otherwise suffer from success-selection bias.
- 6) Extend support beyond Benin City. Capacity-building should include Edo North and Edo Central, use mobile and blended delivery, and partner with local trade groups. Shared digital-service centres can help rural and micro firms access devices, connectivity, bookkeeping, content verification and analytics without requiring each business to employ a specialist.
- 7) Promote local-language and culturally grounded applications. SMEs and developers should test systems on Nigerian Pidgin and relevant Edo-language expressions, customer objections and service contexts. Human reviewers with local market knowledge should validate tone, claims and cultural appropriateness. Local context should be treated as a competitive resource, not an inconvenience to be automated away.
- 8) Embed responsible AI and data protection. Every SME using customer data should specify purpose, minimise collection, obtain appropriate consent, restrict access and define retention periods [13]. AI-generated claims, prices and testimonials must be verified. Customers should be informed when interacting with automated agents where confusion is likely, and a clear route to a human should remain available. High-impact decisions should not be delegated solely to opaque models.
- 9) Use finance to fund complementary capability. Banks, microfinance institutions and public funds should assess

digital-readiness plans rather than finance software alone. Products could combine modest credit with training, bookkeeping support and outcome monitoring. Repayment structures should recognise experimentation risk, but firms should still demonstrate a credible path from the technology to cash flow.

- 10) Measure outcomes with a balanced scorecard. SMEs should monitor customer acquisition cost, conversion rate, repeat-purchase rate, response time, complaint resolution, campaign return, gross margin, stock-out rate and hours saved. Vanity metrics such as impressions, generated posts or chatbot conversations should not be treated as performance unless linked to customer or financial outcomes.
- 11) Commission a rigorous Edo longitudinal study. A future study should draw a stratified sample across senatorial districts, sectors, firm sizes, gender of owner and formalisation status. It should collect baseline and follow-up data, combine owner surveys with transaction or platform records, and test entrepreneurial marketing as a mediator. Difference-in-differences, matched comparison or phased randomised support would provide stronger causal evidence than cross-sectional self-report regression.
- 12) Create an independent evidence and ethics observatory. A small multi-stakeholder unit involving Edo State, universities, SME associations, technologists and consumer representatives should track adoption barriers, publish evaluation standards, document harms and provide model clauses for procurement, privacy and disclosure. Its role should be evidence quality and public trust, not promotional advocacy.

Abbreviations

AI	Artificial Intelligence
EM	Entrepreneurial Marketing
GDP	Gross Domestic Product
ICT	Information and Communication Technology
MSME	Micro, Small and Medium-sized Enterprise
NBS	National Bureau of Statistics
NCAIR	National Centre for Artificial Intelligence and Robotics
PwC	PricewaterhouseCoopers
RBV	Resource-Based View
SME	Small and Medium-sized Enterprise
SMEDAN	Small and Medium Enterprises Development Agency of Nigeria
VIF	Variance Inflation Factor

Author Contributions

Kingsley Chimaobi Akabuokwu: Data curation, Formal Analysis, Funding acquisition, Investigation, Methodology,

Visualization, Writing – original draft

Anthony Iyekekpolor: Conceptualization, Resources, Supervision, Validation, Writing – review & editing

Conflicts of Interest

The authors declare no conflicts of interest.

References

- [1] Ainin, S., Parveen, F., Moghavvemi, S., Jaafar, N. I., & Shuib, N. L. M. (2015). Factors influencing the use of social media by SMEs and its performance outcomes. *Industrial Management & Data Systems*, 115(3), 570-588. <https://doi.org/10.1108/IMDS-07-2014-0205>
- [2] Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120. <https://doi.org/10.1177/014920639101700108>
- [3] Bettoni, A., Matteri, D., Montini, E., Gładysz, B., & Carpanzano, E. (2021). An AI adoption model for SMEs: A conceptual framework. *IFAC-PapersOnLine*, 54(1), 702-708. <https://doi.org/10.1016/j.ifacol.2021.08.082>
- [4] Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, 35(1), 128-152. <https://doi.org/10.2307/2393553>
- [5] Davenport, T. H., & Ronanki, R. (2018). Artificial intelligence for the real world. *Harvard Business Review*, 96(1), 108-116. <https://hbr.org/2018/01/artificial-intelligence-for-the-real-world>
- [6] Davenport, T. H., Guha, A., Grewal, D., & Bressgott, T. (2020). How artificial intelligence will change the future of marketing. *Journal of the Academy of Marketing Science*, 48(1), 24-42. <https://doi.org/10.1007/s11747-019-00696-0>
- [7] Denicolai, S., Zucchella, A., & Magnani, G. (2021). Internationalization, digitalization, and sustainability: Are SMEs ready? A survey on synergies and substituting effects among growth paths. *Technological Forecasting and Social Change*, 166, Article 120650. <https://doi.org/10.1016/j.techfore.2021.120650>
- [8] Díaz-Arancibia, J., Hochstetter-Diez, J., Bustamante-Mora, A., Sepúlveda-Cuevas, S., Albayay, I., & Arango-López, J. (2024). Navigating digital transformation and technology adoption: A literature review from small and medium-sized enterprises in developing countries. *Sustainability*, 16(14), Article 5946. <https://doi.org/10.3390/su16145946>
- [9] Dwivedi, Y. K., Hughes, L., Ismagilova, E., Aarts, G., Coombs, C., Crick, T., Duan, Y., Dwivedi, R., Edwards, J. S., Eirug, A., Galanos, V., Ilavarasan, P. V., Janssen, M., Jones, P., Kar, A. K., Kizgin, H., Kronemann, B., Lal, B., Lucini, B., ... Williams, M. D. (2021). Artificial intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International Journal of Information Management*, 57, Article 101994. <https://doi.org/10.1016/j.ijinfomgt.2019.08.002>

- [10] Edo State Government. (2025). *Edo State gross domestic product report 2013–2022*. <https://edostate.gov.ng/edo-state-gross-domestic-product-report-2013-2022/>
- [11] FATE Foundation. (2022). *MSME competitiveness in Nigeria report 2022*. <https://fatefoundation.org/download/msme-competitiveness-in-nigeria-report-2022/>
- [12] Federal Ministry of Communications, Innovation and Digital Economy. (2025). *National artificial intelligence strategy*. <https://ncair.nitda.gov.ng/wp-content/uploads/2025/09/National-Artificial-Intelligence-Strategy-19092025.pdf>
- [13] Federal Republic of Nigeria. (2023). *Nigeria Data Protection Act, 2023*. Nigeria Data Protection Commission. <https://www.ndpc.gov.ng/ndp-act-2023/>
- [14] Hanaysha, J. R., & Al-Shaikh, M. E. (2022). An examination of entrepreneurial marketing dimensions and firm performance in small and medium enterprises. *Sustainability*, 14(18), Article 11444. <https://doi.org/10.3390/su141811444>
- [15] Huang, M.-H., & Rust, R. T. (2021). A strategic framework for artificial intelligence in marketing. *Journal of the Academy of Marketing Science*, 49(1), 30–50. <https://doi.org/10.1007/s11747-020-00749-9>
- [16] Iyamah, E. E., & Oguh, F. A. (2024). The impact of AI infrastructures on small and medium enterprises' performance in Edo State, Nigeria. *Interdisciplinary Research Journal of Management and Social Sciences*, 11(4), 1–23. <https://doi.org/10.5281/zenodo.14024414>
- [17] Joseph, I. A., Osazevarbaru, H. O., & Demaki, G. O. (2025). Digital transformation technology as determinants of business performance of small and medium enterprises in Edo and Delta State, Nigeria. *International Journal of Scientific Research and Management*, 13(4), 8711–8725. <https://doi.org/10.18535/ijsrcm/v13i04.em07>
- [18] Kraus, S., Durst, S., Ferreira, J. J., Veiga, P., Kailer, N., & Weinmann, A. (2022). Digital transformation in business and management research: An overview of the current status quo. *International Journal of Information Management*, 63, Article 102466. <https://doi.org/10.1016/j.ijinfomgt.2021.102466>
- [19] Li, L., Su, F., Zhang, W., & Mao, J.-Y. (2018). Digital transformation by SME entrepreneurs: A capability perspective. *Information Systems Journal*, 28(6), 1129–1157. <https://doi.org/10.1111/isj.12153>
- [20] 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), Article 103434. <https://doi.org/10.1016/j.im.2021.103434>
- [21] Morris, M. H., Schindehutte, M., & LaForge, R. W. (2002). Entrepreneurial marketing: A construct for integrating emerging entrepreneurship and marketing perspectives. *Journal of Marketing Theory and Practice*, 10(4), 1–19. <https://doi.org/10.1080/10696679.2002.11501922>
- [22] Morrish, S. C., Miles, M. P., & Deacon, J. H. (2010). Entrepreneurial marketing: Acknowledging the entrepreneur and customer-centric interrelationship. *Journal of Strategic Marketing*, 18(4), 303–316. <https://doi.org/10.1080/09652541003768087>
- [23] Nambisan, S. (2017). Digital entrepreneurship: Toward a digital technology perspective of entrepreneurship. *Entrepreneurship Theory and Practice*, 41(6), 1029–1055. <https://doi.org/10.1111/etap.12254>
- [24] National Bureau of Statistics. (2019). *States nominal gross domestic product (2013–2017): Phase II*. <https://www.nigerianstat.gov.ng/elibrary/read/947>
- [25] Olanrewaju, A.-S. T., Hossain, M. A., Whiteside, N., & Mercieca, P. (2020). Social media and entrepreneurship research: A literature review. *International Journal of Information Management*, 50, 90–110. <https://doi.org/10.1016/j.ijinfomgt.2019.05.011>
- [26] PwC Nigeria. (2024). *PwC's MSME survey 2024: Building resilience: Strategies for MSME success in a changing landscape*. <https://www.pwc.com/ng/en/publications/strategies-for-msme-success.html>
- [27] Sadiku-Dushi, N., Dana, L.-P., & Ramadani, V. (2019). Entrepreneurial marketing dimensions and SMEs' performance. *Journal of Business Research*, 100, 86–99. <https://doi.org/10.1016/j.jbusres.2019.03.025>
- [28] Sharma, S., Singh, G., Islam, N., & Dhir, A. (2024). Why do SMEs adopt artificial intelligence-based chatbots? *IEEE Transactions on Engineering Management*, 71, 1773–1786. <https://doi.org/10.1109/TEM.2022.3203469>
- [29] Taiminen, H. M., & Karjaluo, H. (2015). The usage of digital marketing channels in SMEs. *Journal of Small Business and Enterprise Development*, 22(4), 633–651. <https://doi.org/10.1108/JSBED-05-2013-0073>
- [30] Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of sustainable enterprise performance. *Strategic Management Journal*, 28(13), 1319–1350. <https://doi.org/10.1002/smj.640>
- [31] Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509–533. [https://doi.org/10.1002/\(SICI\)1097-0266\(199708\)18:7%3C509::AID-SMJ882%3E3.0.CO;2-Z](https://doi.org/10.1002/(SICI)1097-0266(199708)18:7%3C509::AID-SMJ882%3E3.0.CO;2-Z)
- [32] Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J. Q., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*, 122, 889–901. <https://doi.org/10.1016/j.jbusres.2019.09.022>
- [33] Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, 28(2), 118–144. <https://doi.org/10.1016/j.jsis.2019.01.003>
- [34] Edo State Government. (2024). *Edo State Digital Policy (Abridged)*. <https://mde.edostate.gov.ng/wp-content/uploads/2024/12/Edo-Digital-Policy-Abridged.pdf>