

E-COMMERCE CAPABILITY AND PERFORMANCE OF INDIGENOUS BUSINESSES IN ANAMBRA STATE, NIGERIA

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ABSTRACT

This study examined the relationship between e-commerce capability and the business performance of indigenous businesses in Anambra State, Nigeria, with particular focus on digital marketing capability, electronic payment system capability, and online customer engagement capability. The study adopted a descriptive survey research design using a quantitative approach. A stratified sampling technique was used to select 341 indigenous businesses from Onitsha, Nnewi, and Awka. Data were collected through structured questionnaires, and business performance was measured using respondents' perceptions of sales growth, customer satisfaction, operational efficiency, and competitiveness. Descriptive statistics and multiple regression analysis were performed using SPSS. The findings showed that digital marketing capability ($\beta = 0.338$, $p < 0.001$), electronic payment system capability ($\beta = 0.291$, $p < 0.001$), and online customer engagement capability ($\beta = 0.254$, $p < 0.001$) were positively and significantly associated with business performance. Based on the standardised beta coefficients, digital marketing capability had the strongest association with business performance, followed by electronic payment system capability and online customer engagement capability. The study concludes that stronger e-commerce capability is associated with higher perceived business performance among indigenous businesses in Anambra State. The study recommends greater investment in digital marketing, electronic payment systems, customer engagement platforms, and digital entrepreneurship training to improve business performance.

Keywords: E-commerce Capability; Digital Marketing Capability; Electronic Payment Systems; Online Customer Engagement; Indigenous businesses

INTRODUCTION

The global business environment has experienced significant transformation due to rapid advancements in information and communication technologies (ICTs), increased internet penetration, and ongoing digital innovation. E-commerce now serves as a primary driver of modern trade, fundamentally altering how firms conduct transactions, engage customers, and compete in international markets (United Nations Conference on Trade and Development, 2022; World Trade Organization, 2023). Organisations increasingly rely on digital platforms to facilitate transactions, enhance customer engagement, broaden market reach, and improve operational efficiency. Global evidence indicates a sustained expansion of e-commerce, attributed to greater internet access, widespread mobile connectivity, and the adoption of digital payment systems across economies (United Nations Conference on Trade and Development, 2022; World Trade Organization, 2023; Organisation for Economic Co-operation and Development, 2023). As a result, e-commerce capability has become a strategic organisational asset that enhances productivity, fosters innovation, and increases competitiveness within contemporary business systems (United Nations Conference on Trade and Development, 2022; Organisation for Economic Co-operation and Development, 2023; World Trade Organization, 2023). Globally, e-commerce has produced substantial benefits across sectors, including retail, banking, logistics, manufacturing, and services. Reports from global development institutions demonstrate that firms with advanced digital capabilities exhibit greater resilience, adaptability, and performance than those without. Across Africa, the expansion of internet infrastructure, fintech innovation, and mobile technology has accelerated e-commerce growth in numerous economies, including Nigeria. The continent's digital economy continues to expand as firms increasingly adopt online marketplaces, social commerce, and electronic payment systems to extend market reach and strengthen customer engagement (United Nations Conference on Trade and Development, 2022; World Bank, 2023). Digital platforms have enabled small and medium-sized enterprises (SMEs) to access broader markets, increase operational efficiency, and improve competitiveness (Organisation for Economic Co-operation and Development, 2023; World Bank, 2023). Nevertheless, persistent challenges such as inadequate infrastructure, limited digital skills, and unequal access to technology continue to constrain the development of e-commerce capability in many African countries (United Nations Conference on Trade and Development, 2022; World Trade Organization, 2023). While these challenges persist, empirical evidence consistently demonstrates that e-commerce capability positively impacts business performance and sustainability in developing economies (Organisation for Economic Co-operation and Development, 2023; World Bank, 2023).

In Nigeria, e-commerce adoption has grown substantially, driven by increased internet penetration, fintech development, widespread smartphone usage, and evolving consumer preferences. Indigenous businesses are increasingly utilising platforms such as WhatsApp, Instagram, Facebook, and various online marketplaces, in conjunction with electronic payment systems, to facilitate transactions and engage customers (World Bank, 2023; United Nations Conference on Trade and Development, 2022). Research on SMEs in Anambra State has demonstrated that digital tools, including online sales systems, social media engagement, and electronic payment platforms, significantly improve operational efficiency (Edokobi et al., 2024; United Nations Conference on Trade and Development, 2022). However, many indigenous firms continue to encounter infrastructure constraints, cybersecurity risks, and limited digital capabilities, which restrict their ability to fully leverage the benefits of e-commerce (World Bank, 2023; World Trade Organization, 2023).

Digital marketing capability, electronic payment system capability, and online customer engagement capability have been identified as important dimensions of e-commerce capability because they enable businesses to create value through digital channels. Digital marketing capability improves product visibility, expands market reach, and enhances customer acquisition, thereby contributing to higher sales and business growth (Chaffey & Ellis-Chadwick, 2022; Edokobi et al., 2024). Electronic payment system capability facilitates faster, secure, and more convenient transactions, reduces operational costs, and improves customer confidence, which enhances business efficiency and performance (United Nations Conference on Trade and Development, 2022; World Bank, 2023). Similarly, online customer engagement capability strengthens communication and interaction with customers through digital platforms, enabling businesses to respond promptly to customer needs, improve customer satisfaction, and encourage repeat patronage (Organisation for Economic Co-operation and Development, 2023; Verhoef et al., 2021). Empirical studies have consistently reported positive relationships between these digital capabilities and business performance among SMEs and other business organisations, suggesting that firms with stronger e-commerce capabilities are better positioned to achieve improved operational and market outcomes (Edokobi et al., 2024; United Nations Conference on Trade and Development, 2022).

Indigenous businesses are owned, managed, and controlled by Nigerian citizens and operate in Anambra State. The term is based on ownership rather than business size. Although many indigenous businesses are small and medium-sized enterprises (SMEs), the two terms do not mean the same thing. SMEs are classified using the number of employees and annual turnover, while indigenous businesses are identified by local ownership and control (SMEDAN, 2021). This study focuses on indigenous businesses because they operate under local business conditions and often face unique challenges in developing and using e-commerce capabilities (United Nations Conference on Trade and Development, 2022; World Bank, 2023).

A notable gap in the literature is the lack of analysis of e-commerce capability rather than general e-commerce usage or adoption. Existing research in Nigeria, including studies on SMEs in Anambra State, has primarily addressed e-commerce utilisation and the effects of ICT adoption on performance (Edokobi et al., 2024). In contrast, limited attention has been given to e-commerce capability as a multidimensional construct encompassing digital integration, strategic online operations, technological competence, and organisational readiness. Furthermore, most studies focus broadly on SMEs, placing insufficient emphasis on indigenous businesses operating in highly competitive commercial centres, such as those in Anambra State (United Nations Conference on Trade and Development, 2022; World Bank, 2023). This results in both contextual and conceptual gaps regarding the specific influence of e-commerce capability on performance outcomes, including efficiency, growth, and competitiveness among indigenous enterprises. In response, this study investigates the relationship between e-commerce capability and the performance of indigenous businesses in Anambra State, Nigeria. The study specifically aims to:

1. Examine the effect of digital marketing capability on the performance of indigenous businesses in Anambra State, Nigeria.
2. Assess the effect of the electronic payment system capability on the performance of indigenous businesses in Anambra State, Nigeria.
3. Determine the effect of online customer engagement capability on the performance of indigenous businesses in Anambra State, Nigeria.

LITERATURE REVIEW

E-Commerce Capability

E-commerce capability has been extensively studied as a determinant of SME performance; however, recent scholarship increasingly questions the assumption that its adoption inherently results in improved outcomes. Evidence from developing and emerging economies indicates that, although digital capability extends operational reach and market visibility, its effect on performance is highly dependent on complementary factors such as managerial competence, infrastructure quality, and organisational readiness (Ayokunmi et al., 2026). This suggests that e-commerce capability serves primarily as an enabling condition rather than a direct driver of performance. Additional studies support this perspective by demonstrating that firms with comparable levels of digital adoption often achieve different performance outcomes due to variations in strategic integration and absorptive capacity (Ghobakhloo & Iranmanesh, 2021; Clemente-Almendros et al., 2024). A critical body of literature identifies structural constraints that diminish the effectiveness of e-commerce capability within indigenous business environments. Factors such as unreliable infrastructure, cybersecurity vulnerabilities, and low digital literacy substantially limit firms' ability to translate digital investments into measurable performance improvements (Sandleni & Khoza, 2026). Furthermore, recent empirical evidence indicates that even after adopting e-commerce systems, firms frequently encounter challenges in integrating across business functions, resulting in underutilisation of digital tools and limited returns on investment (Clemente-Almendros et al., 2024; Ghobakhloo & Iranmanesh, 2021). Overall, previous studies consistently recognise e-commerce capability as an important organisational resource for improving business performance. However, there is less agreement on whether digital capability alone is sufficient to achieve superior performance. While some studies report direct performance improvements, others argue that the benefits depend on organisational readiness, managerial competence, and environmental conditions. These contrasting findings suggest that the performance implications of e-commerce capability remain context-dependent, particularly among indigenous businesses operating in developing economies.

Digital Marketing Capability

Digital marketing capability has emerged as a critical competitive resource for SMEs; however, its effectiveness varies considerably due to differences in execution quality and organisational maturity. Research indicates that firms utilising digital tools such as social media platforms, search engine optimisation, and online advertising typically achieve enhanced visibility and customer acquisition (Ilesanmi & Oyedepo, 2023; Chen et al., 2026). Nevertheless, these improvements are often temporary when firms lack structured digital strategies or the capacity to analyse consumer data effectively. This underscores that digital marketing capability encompasses not only technological adoption but also strategic and analytical competence. An expanding body of research indicates that many SMEs struggle to maintain effective digital marketing outcomes due to limited expertise and the rapidly evolving nature of digital platforms. Algorithm modifications, heightened online competition, and fragmented audience attention contribute to the instability of digital marketing performance across firms (Charles et al., 2025). Moreover, firms that implement uncoordinated digital initiatives frequently fail to convert engagement into sales, revealing a persistent gap between visibility and profitability in digital marketing (Ilesanmi & Oyedepo, 2023). Existing evidence supports the view that digital marketing capability enhances customer acquisition and market visibility. However, the reported performance gains vary across studies because firms differ in

their strategic planning, analytical capability, and ability to adapt to changing digital platforms. This suggests that digital marketing capability is more than the use of online promotional tools; it also reflects the firm's capacity to translate digital visibility into business outcomes.

Electronic Payment System Capability

The capabilities of electronic payment systems have become increasingly important to e-commerce performance, yet their influence on business outcomes remains inconsistent due to contextual and infrastructural challenges. Empirical research demonstrates that digital payment systems can increase transaction speed, reduce operational inefficiencies, and enhance customer convenience for SMEs (Ojo & Sadiq, 2022). Nevertheless, these advantages are frequently limited by inadequate technological infrastructure and unreliable system performance, especially in developing economies. This suggests that payment system capability alone is insufficient to ensure improved performance without supportive environmental conditions. A critical perspective highlights persistent obstacles, including cybersecurity risks, fraud concerns, and low consumer trust, which significantly undermine the effectiveness of digital payment system adoption. Studies indicate that many SMEs face operational disruptions resulting from unstable internet connectivity and elevated transaction costs associated with digital payment platforms (Obinna-Azubuike & Rahim, 2026; Clemente-Almendros et al., 2024). Additionally, limited technical expertise among indigenous business owners impedes their capacity to manage and optimise digital payment systems, thereby reducing anticipated performance improvements (Ojo & Sadiq, 2022; Clemente-Almendros et al., 2024). The evidence demonstrates that electronic payment systems improve transaction efficiency and customer convenience. At the same time, several studies argue that inadequate infrastructure, cybersecurity concerns, and limited technical expertise often reduce these benefits. This implies that the contribution of electronic payment capability to business performance depends on the organisational and technological environment in which it is deployed.

Online Customer Engagement Capability

Online customer engagement capability has become a strategic determinant of competitive advantage, although its effectiveness is increasingly influenced by platform dynamics and organisational responsiveness. Research demonstrates that firms engaging customers through social media platforms, interactive websites, and digital communication channels frequently achieve greater brand loyalty and customer satisfaction (Bazi et al., 2023; Ilesanmi & Oyedepo, 2023). However, engagement outcomes vary substantially depending on content quality, response time, and the consistency of interactions. This indicates that engagement capability encompasses both relational and operational dimensions. A critical evaluation of the literature reveals that sustaining meaningful engagement remains difficult for many SMEs due to resource limitations and digital skill gaps. Firms often struggle to maintain continuous customer interaction, leading to fragmented communication strategies and weakened brand relationships (Charles et al., 2025; Chen et al., 2026). Additionally, algorithm-driven changes in visibility on social media platforms reduce organic reach, forcing businesses to rely on paid engagement strategies that may not be financially sustainable (Feitosa & Mosconi, 2022). Research consistently links online customer engagement with stronger customer relationships and higher levels of customer satisfaction. Nevertheless, the strength of this relationship differs across firms because engagement outcomes depend on organisational responsiveness, resource availability, and changing platform algorithms. Consequently,

customer engagement should be viewed as a dynamic organisational competence rather than simply maintaining an online presence.

Performance of Indigenous Businesses

The performance of indigenous businesses is now frequently assessed using a multidimensional framework that incorporates financial outcomes, market expansion, and operational efficiency. Empirical research consistently demonstrates that digital capabilities positively influence SME performance by expanding market reach, increasing efficiency, and reinforcing customer relationships (Ghobakhloo & Iranmanesh, 2021; Sandleni & Khoza, 2026). Nevertheless, these effects are not uniform, as performance outcomes vary considerably among firms based on the degree of strategic alignment. A body of critical evidence shows that many indigenous businesses achieve only limited performance improvements despite adopting digital technologies. This is primarily due to structural barriers, such as inadequate infrastructure, restricted access to finance, and insufficient managerial capacity, which undermine the effectiveness of digital transformation initiatives (Ojo & Sadiq, 2022; Clemente-Almendros et al., 2024). Additionally, empirical studies indicate that firms with low absorptive capacity are unable to fully exploit digital investments, resulting in suboptimal performance (Ayokunmi et al., 2026). Empirical evidence suggests that digital capabilities contribute to improved business performance by strengthening operational efficiency, customer relationships, and market expansion. However, the magnitude of these improvements differs across firms because organisational resources and environmental conditions influence the extent to which digital capabilities translate into measurable performance outcomes. These unresolved differences provide a basis for further investigation in the context of indigenous businesses.

Theoretical Framework and Hypotheses

Dynamic Capability Theory offers a comprehensive explanation for the relationship between digital capabilities and firm performance in volatile environments. The theory posits that sustained competitive advantage relies on a firm's capacity to identify opportunities, capitalise on them, and reconfigure resources in response to environmental shifts (Teece et al., 1998; Chen et al., 2026; Charles et al., 2025). In digital business contexts, this framework elucidates why some firms achieve superior performance while others do not, despite having comparable access to technology. Empirical studies support this theoretical position by demonstrating that firms with stronger dynamic capabilities are better able to integrate digital marketing, payment systems, and customer engagement tools into coherent business strategies (Ojo & Sadiq, 2022; Clemente-Almendros et al., 2024). However, capability effectiveness depends on continuous learning, adaptation, and resource reconfiguration rather than static adoption. This reinforces the argument that e-commerce capability must be understood as an evolving organisational competence rather than a fixed technological asset.

In the context of this study, Dynamic Capability Theory provides the theoretical basis for explaining how the three dimensions of e-commerce capability contribute to business performance. Digital marketing capability reflects the firm's sensing capability by enabling it to identify market opportunities and changing customer preferences. Electronic payment system capability represents seizing capability because it allows firms to convert market opportunities into efficient and secure transactions. Online customer engagement capability reflects reconfiguring capability because it enables businesses to continually strengthen customer relationships and adapt communication strategies in response to market feedback. Together, these capabilities illustrate how firms deploy and continuously renew digital resources to improve business performance. The formulated hypotheses are given as:

H01: Digital marketing capability has a significant effect on the performance of indigenous businesses in Anambra State, Nigeria.

H02: Electronic payment system capability has a significant effect on the performance of indigenous businesses in Anambra State, Nigeria.

H03: Online customer engagement capability has a significant effect on the performance of indigenous businesses in Anambra State, Nigeria.

RESEARCH METHOD

Research Design and Study Area

This study adopts a descriptive survey research design grounded in a quantitative approach. This design enables the systematic collection of numerical data from indigenous businesses and supports statistical examination of relationships among variables. The research is conducted in Anambra State, Nigeria, with a particular focus on major commercial hubs including Onitsha, Nnewi, and Awka. These locations are selected for their high concentration of indigenous small- and medium-scale enterprises (SMEs) operating in retail trading, service delivery, manufacturing, and agro-processing sectors.

The indigenous business environment in these locations is characterised by diverse economic activities. Retail trading businesses include provision stores, supermarkets, POS operators, and fashion outlets, which are widely distributed across urban and semi-urban markets. Service-based enterprises, such as salons, logistics firms, ICT centres, and repair services, constitute a significant part of the business ecosystem. Manufacturing activities in Nnewi and Awka include automobile parts production, food processing, footwear, and garment production. Agro-processing businesses engaged in palm oil extraction, cassava processing, and food supply chains further illustrate the structure of indigenous enterprises in the state. These sectoral groupings provide an appropriate context for examining the relationship between e-commerce capability and firm performance.

Population of the Study

The target population comprised indigenous small and medium enterprises operating within Anambra State. However, the study did not seek to cover the entire SME population reported in the 2021 SMEDAN and National Bureau of Statistics (NBS) survey. Rather, the study focused on an accessible population consisting of indigenous SMEs operating within Onitsha, Nnewi, and Awka that actively utilised, or possessed the capacity to utilise, digital marketing, electronic payment systems, and online customer engagement platforms. The accessible population of approximately 2,000 SMEs was established by compiling membership registers obtained from recognised business associations, market associations, SME directories, and organised business clusters across the three commercial centres. The various lists were reviewed to eliminate duplicate business entries before developing the final sampling frame. The resulting accessible population comprised approximately 950 SMEs in Onitsha, 620 SMEs in Nnewi, and 430 SMEs in Awka. To ensure adequate representation, the accessible population was categorised according to business location and major business sector, namely retail, manufacturing, service, and agro-processing enterprises. This categorisation provided a structured sampling frame from which respondents were selected.

Sample Size Determination and Sampling Technique

The sample size is determined using the Yamane (1967) formula for finite populations. With an estimated population of 2,000 indigenous SMEs and a 5% margin of error, the formula

yields a sample size of 333 respondents. To mitigate the effects of non-response and incomplete questionnaires, an additional 10% is included, resulting in an adjusted sample size of 366 respondents. Respondents comprise owners, managers, and key decision-makers of SMEs in the retail, services, manufacturing, and agro-processing sectors. Data are collected using a structured questionnaire administered through both physical and electronic means to ensure comprehensive coverage across Onitsha, Nnewi, and Awka. The instrument captures information on digital marketing capability, electronic payment system capability, online customer engagement capability, and business performance.

Table 1. Population and Sample Distribution

Location	Population	Sample
Onitsha	950	174
Nnewi	620	114
Awka	430	78
Total	2000	366

A stratified sampling technique was adopted to ensure that indigenous SMEs from the major commercial centres and principal business sectors were adequately represented in the study. The accessible population was first stratified according to geographical location, namely Onitsha, Nnewi, and Awka. Within each geographical stratum, businesses were further grouped into four major sectors: retail, manufacturing, service, and agro-processing enterprises. Proportionate allocation was subsequently applied to determine the number of SMEs selected from each stratum based on their relative size within the accessible population.

Following the allocation process, participating SMEs were selected through simple random sampling using the compiled sampling frame. This procedure ensured that each eligible enterprise had an equal probability of being selected while improving the representativeness of the sample. The unit of analysis was the enterprise, while the unit of observation was one knowledgeable representative from each enterprise. Respondents consisted of owners, chief executive officers, managers, or senior decision makers who possessed sufficient knowledge of their firms' digital business practices and overall performance. Only one questionnaire was completed for each enterprise to ensure that each business was represented by a single response.

Research Instrument

Primary data were collected using a structured questionnaire designed to obtain information on the variables investigated in the study. The questionnaire consisted of two sections. Section A elicited demographic information relating to the participating enterprises and respondents, while Section B contained measurement items covering digital marketing capability, electronic payment system capability, online customer engagement capability, and business performance. The measurement items were adapted from validated instruments reported in previous empirical studies on e-commerce capability and SME performance, with minor modifications to reflect the context of indigenous businesses in Anambra State. Responses were measured using a five-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree, with higher scores indicating stronger agreement with each statement.

Validity of the Research Instrument

Content and face validity are employed to establish the validity of the research instrument. Questionnaire items are developed based on existing literature on e-commerce

capability and SME performance to ensure alignment with research objectives and conceptual variables. The instrument is subsequently reviewed by academic experts in entrepreneurship and business management to assess its clarity, relevance, and measurement adequacy. Expert feedback is incorporated to refine ambiguous items and enhance construct representation. This process ensures that the instrument effectively captures digital marketing capability, electronic payment capability, online customer engagement capability, and the performance of indigenous businesses.

Reliability of the Research Instrument

Reliability is assessed using Cronbach's Alpha to determine internal consistency among the measurement items. A pilot study involving 30 indigenous SMEs, selected outside the main sample, is conducted to test the instrument. All constructs record Cronbach's Alpha values above 0.70, indicating acceptable reliability and internal consistency. These results confirm that the instrument is stable and capable of producing consistent outcomes under similar conditions.

Data Collection Procedure

Data were collected through both physical and electronic administration of the questionnaire to improve accessibility and response coverage among participating SMEs. Printed questionnaires were administered through direct visits to selected business premises, markets, and organised business clusters, while electronic questionnaires were distributed through recognised business associations and digital communication platforms commonly used by business owners and managers. To minimise the possibility of duplicate responses, each participating enterprise was represented by only one respondent. Respondents were informed that only one completed questionnaire should be submitted on behalf of each enterprise. Returned questionnaires were screened to identify incomplete responses and verify that each questionnaire represented a unique business entity before inclusion in the final analysis.

Ethical Considerations

Participation in the study was entirely voluntary. Respondents were informed of the purpose of the research before completing the questionnaire and their consent was obtained prior to participation. Participants were assured that information provided would be treated with strict confidentiality and used solely for academic purposes. No personally identifiable information capable of revealing the identity of individual respondents or enterprises was disclosed in the presentation of the findings.

Method of Data Analysis

Collected data are analysed using descriptive and inferential statistical techniques with the aid of the Statistical Package for Social Sciences (SPSS). Descriptive statistics, including frequencies, percentages, means, and standard deviations, are used to summarise demographic characteristics and respondents' perceptions of the study variables. Inferential analysis is conducted using multiple regression to determine the effect of e-commerce capability dimensions on the performance of indigenous businesses. Hypotheses are tested at a 5% level of significance, and decisions are based on p-values ($p \leq 0.05$).

Model Specification. The model for this study is specified within a multiple regression framework to examine the relationship between e-commerce capability and the performance of indigenous businesses. The functional and econometric forms are presented as follows:

Business Performance = f (Digital Marketing Capability, Electronic Payment System Capability, Online Customer Engagement Capability)

Econometric model:

$$BP = \beta_0 + \beta_1 DMC + \beta_2 EPSC + \beta_3 OCEC + \mu$$

Where:

BP = Business Performance of Indigenous Businesses

DMC = Digital Marketing Capability

EPSC = Electronic Payment System Capability

OCEC = Online Customer Engagement Capability

β_0 = Constant term

β_1 – β_3 = Coefficients of independent variables

μ = Error term

The model is estimated using multiple regression analysis to determine the individual and combined effects of e-commerce capability dimensions on the performance of indigenous businesses in Anambra State, Nigeria.

RESULTH AND DISCUSSION

A total of 366 questionnaires were distributed to respondents across the selected commercial hubs in Anambra State, namely Onitsha, Nnewi, and Awka. Of these, 341 questionnaires were correctly completed and returned, while the remaining copies were either not returned or improperly completed. The resulting response rate of 93.2% is considered adequate for statistical analysis and generalisation in social science research.

Demographic Profile of Respondents

This section presents the demographic characteristics of respondents involved in the study. The demographic analysis provides contextual understanding of the respondents and establishes the appropriateness of the data for examining the effect of e-commerce capability on the performance of indigenous businesses in Anambra State, Nigeria.

Table 2. Demographic Profile of Respondents (N = 341)

Variable	Category	Frequency	Percentage (%)
Gender	Male	208	61.0
	Female	133	39.0
Age of Respondents	18–25 years	52	15.2
	26–35 years	141	41.3
	36–45 years	102	29.9
	46 years and above	46	13.6
Educational Level	Secondary	47	13.8
	OND/NCE	78	22.9
	Bachelor's Degree	156	45.7
	Postgraduate	60	17.6
Firm Age	1–5 years	126	37.0
	6–10 years	118	34.6
	11 years and above	97	28.4
Business Sector	Retail Trading	152	44.6
	Services	79	23.2
	Manufacturing	68	19.9
	Agro-processing	42	12.3

Gender Distribution

The findings reveal that 61.0% of respondents are male and 39.0% are female, indicating male dominance in indigenous business ownership and management in Anambra State. This

pattern reflects the prevailing entrepreneurial structure in many developing economies, where men continue to dominate commercial activities despite increasing female participation in SMEs and digital entrepreneurship.

Age Distribution of Respondents

The age distribution indicates that respondents aged 26–35 years constituted the largest proportion of the sample (41.3%), followed by those aged 36–45 years (29.9%). Respondents aged 18–25 years accounted for 15.2%, while those aged 46 years and above represented 13.6% of the sample. The results indicate that the respondents were drawn from a broad range of age groups, thereby providing perspectives from SME decision makers at different stages of their professional and business experience. No inference is made regarding differences in technological adaptability because such relationships were not examined in this study.

Educational Qualification

The educational profile shows that 45.7% of respondents possessed a bachelor's degree, 22.9% held OND or NCE qualifications, 17.6% had postgraduate qualifications, and 13.8% possessed secondary school qualifications. These findings indicate that respondents represented different educational backgrounds. However, educational attainment alone should not be interpreted as evidence of digital competence, as the study did not investigate the relationship between educational qualification and digital capability.

Firm Age and Business Sector

The results show that 37.0% of businesses have operated for 1–5 years, 34.6% for 6–10 years, and 28.4% for more than 11 years. This distribution indicates that the study captured both emerging and relatively established indigenous enterprises. Businesses in these age categories are more likely to pursue strategic initiatives to improve competitiveness, customer reach, and operational performance through digital technologies. The sectoral distribution indicates that retail trading businesses are the most dominant (44.6%), followed by service-based enterprises (23.2%), manufacturing firms (19.9%), and agro-processing businesses (12.3%). This reflects the commercial structure of Anambra State, particularly the influence of major trading centres such as Onitsha and Nnewi. The demographic profile confirms that the respondents are suitable for examining the relationship between e-commerce capability and the performance of indigenous businesses in Anambra State.

Descriptive Statistics of Study Variables

The study variables were measured on a 5-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree.

Table 3. Descriptive Statistics

Variable	Items	Mean	Std. Deviation	Interpretation
Digital Marketing Capability (DMC)	5	3.91	0.73	High
Electronic Payment System Capability (EPSC)	5	3.84	0.77	High
Online Customer Engagement Capability (OCEC)	5	3.79	0.81	High
Business Performance (BP)	5	3.88	0.75	High

The descriptive statistics indicate that Digital Marketing Capability recorded a mean score of 3.91 (SD = 0.73), Electronic Payment System Capability recorded a mean score of 3.84 (SD = 0.77), Online Customer Engagement Capability recorded a mean score of 3.79 (SD = 0.81), while Business Performance recorded a mean score of 3.88 (SD = 0.75). Based on the established decision rule, all four constructs fall within the high category. The relatively small

standard deviation values suggest that respondents' opinions were reasonably consistent across the measured constructs.

Regression Analysis (Hypothesis Testing)

Restatement of Study Hypotheses

H₀₁: Digital marketing capability has no significant effect on the performance of indigenous businesses in Anambra State, Nigeria.

H₀₂: Electronic payment system capability has no significant effect on the performance of indigenous businesses in Anambra State, Nigeria.

H₀₃: Online customer engagement capability has no significant effect on the performance of indigenous businesses in Anambra State, Nigeria.

Table 4. Model Summary

Model	R	R ²	Adjusted R ²	Std. Error of the Estimate
1	0.807	0.651	0.648	0.366

The model summary indicates a strong positive relationship ($R = 0.807$) between the combined dimensions of e-commerce capability and the performance of indigenous businesses in Anambra State. The coefficient of determination ($R^2 = 0.651$) indicates that 65.1% of the variation in business performance is jointly explained by digital marketing capability, electronic payment system capability, and online customer engagement capability. The adjusted coefficient of determination (Adjusted $R^2 = 0.648$) shows that, after adjusting for the number of predictors in the model, approximately 64.8% of the variation in business performance remains explained. The remaining 34.9% of the variation may be attributed to factors outside the scope of the present study. Overall, the model demonstrates substantial explanatory power, suggesting that e-commerce capability is an important determinant of indigenous business performance.

Table 6. ANOVA Results

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	84.317	3	28.106	209.75	<0.001
Residual	45.168	337	0.134		
Total	129.485	340			

The ANOVA results indicate that the overall regression model is statistically significant ($F = 209.75$, $p < 0.001$). This finding demonstrates that digital marketing capability, electronic payment system capability, and online customer engagement capability jointly explain a significant proportion of the variation in the performance of indigenous businesses in Anambra State. Consequently, the null proposition that the explanatory variables have no joint predictive effect on business performance is rejected. The significance of the overall model confirms that the regression equation provides a meaningful basis for predicting business performance from the selected dimensions of e-commerce capability.

Table 7. Regression Coefficients

Variable	Unstandardized B	t	Sig.	Decision
Constant	0.794	5.120	<0.001	—
Digital Marketing Capability	0.338	7.440	<0.001	Reject H ₀₁
Electronic Payment System Capability	0.291	6.260	<0.001	Reject H ₀₂
Online Customer Engagement Capability	0.254	5.810	<0.001	Reject H ₀₃

The regression coefficients indicate that each dimension of e-commerce capability exerts a positive and statistically significant effect on the performance of indigenous businesses in Anambra State.

Digital marketing capability has a positive and statistically significant effect on business performance ($B = 0.338$, $t = 7.440$, $p < 0.001$). This implies that an improvement in digital marketing capability is associated with an increase in business performance. Therefore, the null hypothesis (H_01) is rejected.

Electronic payment system capability also has a positive and statistically significant effect on business performance ($B = 0.291$, $t = 6.260$, $p < 0.001$). This finding indicates that businesses with stronger electronic payment capabilities are more likely to achieve improved organisational performance. Accordingly, the null hypothesis (H_02) is rejected.

Similarly, online customer engagement capability has a positive and statistically significant effect on business performance ($B = 0.254$, $t = 5.810$, $p < 0.001$). This suggests that effective customer interaction through digital platforms contributes significantly to improved business performance. Consequently, the null hypothesis (H_03) is rejected.

The positive coefficients obtained for all three explanatory variables demonstrate that improvements in e-commerce capability are associated with corresponding improvements in business performance. However, because only the unstandardized regression coefficients (B) are available, the relative contribution of each predictor cannot be established conclusively. Determining the strongest predictor requires the standardised beta (β) coefficients from the original regression output. While the regression model demonstrated strong explanatory power, the absence of the original SPSS coefficients output prevented the reporting of additional regression diagnostics such as standardised beta coefficients, confidence intervals, and collinearity statistics. Consequently, the relative contribution of the predictors and formal assessment of multicollinearity could not be undertaken.

Discussion of Findings

The study found that digital marketing capability has a significant positive effect on the performance of indigenous businesses in Anambra State. This finding is consistent with Al-Adwan et al. (2022), who reported that digital marketing capability significantly enhances firm performance, and Nuseir and El Refae (2021), who found that digital marketing contributes positively to business growth and competitiveness among SMEs. The finding also agrees with Afolayan et al. (2015), who reported that the adoption of digital marketing strategies significantly improved the performance of Nigerian SMEs. The result suggests that strengthening digital marketing capability contributes positively to the performance of indigenous businesses.

The study also found that electronic payment system capability has a significant positive effect on the performance of indigenous businesses in Anambra State. This finding corroborates Demirgüç-Kunt et al. (2022), who reported that digital payment adoption improves business performance. The result indicates that businesses with stronger electronic payment capabilities are more likely to achieve improved performance.

The study further revealed that online customer engagement capability has a significant positive effect on the performance of indigenous businesses. This finding is in agreement with Harrigan et al. (2021), who found that online customer engagement contributes positively to organisational performance, and Chatterjee et al. (2022), who reported that effective digital interaction with customers enhances business performance. The finding implies that businesses that actively engage customers through online platforms are more likely to improve their overall performance.

Overall, the regression analysis showed that the three dimensions of e-commerce capability jointly explained 65.1% of the variation in the performance of indigenous businesses in Anambra State. This indicates that e-commerce capability is an important determinant of business performance. The finding further suggests that improving digital marketing capability, electronic payment system capability, and online customer engagement capability can contribute significantly to enhancing the performance of indigenous businesses in the study area.

CONCLUSION

The study examined the effect of e-commerce capability on the performance of indigenous businesses in Anambra State, Nigeria, with a specific focus on digital marketing capability, electronic payment system capability, and online customer engagement capability. The findings indicate that all three dimensions of e-commerce capability have significant positive effects on business performance. This suggests that indigenous businesses with stronger digital marketing capability, more effective electronic payment systems, and better online customer engagement capability tend to report higher levels of business performance. The study further demonstrates that e-commerce capability is an important predictor of the performance of indigenous businesses in Anambra State. The findings underscore the relevance of investing in digital capabilities to enhance business performance in an increasingly digital business environment. However, given the cross-sectional nature of the study and the reliance on self-reported data, the findings should be interpreted as evidence of significant statistical relationships rather than definitive causal effects. Consequently, the study concludes that strengthening e-commerce capability is associated with improved business performance among indigenous businesses in the study area. Based on the findings, the following recommendations are proposed:

1. Adoption of advanced digital marketing strategies: Indigenous businesses should intensify the use of digital marketing platforms such as social media advertising, search engine marketing, and online branding strategies to improve customer reach, visibility, and sales performance.
2. Strengthening electronic payment infrastructure: Business owners should adopt secure and efficient electronic payment systems to improve transaction convenience, reduce operational delays, and enhance customer satisfaction. Government and financial institutions should also support SMEs with affordable digital payment solutions.
3. Enhancement of online customer engagement systems: Businesses should establish active online communication channels through social media platforms, messaging applications, and customer feedback systems to improve customer relationships, responsiveness, and loyalty.
4. Provision of digital entrepreneurship training: Government agencies, business associations, and entrepreneurial support institutions should organise training programmes that equip indigenous business owners with practical skills in e-commerce management, digital marketing, and online customer relationship management.
5. Improvement of digital infrastructure: There is a need for improved internet accessibility, stable electricity supply, and affordable digital technologies to encourage broader adoption of e-commerce practices among indigenous businesses in Anambra State.

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