EFFECTS OF ARTIFICIAL INTELLIGENCE ON DIGITAL MARKETING TRANSFORMATION IN SELECTED BANKS IN OWERRI METROPOLIS

Mmanwoke, V. O., PhD
Department of Marketing, Imo State Polytechnic, Omuma
Email: vincento2013@gmail.com
Tel: +2348037443272

Maduenyoghasi, O. S., PhD
Department of Marketing, Imo State Polytechnic, Omuma
Email: marscoequip@gmail.com

Igwe, F. C., PhD
Department of Accountancy, Imo State Polytechnic, Omumaa
Email: igwechinwefrancisca@gmail.com

ABSTRACT

This study investigates Artificial Intelligence (AI) and transformation of digital marketing in selected Access and Zenith Bank branches within Owerri metropolis, Imo State, Nigeria. In response to the increasing integration of AI into business processes, the research examines how AI investments, marketing campaign automation, and employee AI proficiency influence digital marketing performance/outcomes. A descriptive survey design was adopted, utilizing a structured questionnaire distributed to a sample of 476 respondents (344 customers and 132 employees) selected through a combination of purposive, convenience, and quota sampling techniques. Data were analyzed using both descriptive statistics and Pearson correlation analysis approach via SPSS 23.0. Findings reveal that Access and Zenith Banks' investment in AI has significantly improved digital marketing performance. Marketing campaign automation was also found to enhance digital marketing performance. Additionally, employee proficiency in AI tools showed a strong positive correlation with digital marketing performance. The study concludes that AI is a critical driver of digital marketing effectiveness in the banking sector. It is therefore recommended that: banks should prioritize consistent funding for AI-related infrastructure, adopt AI tools for campaign automation/real-time customer interaction, and also conduct regular training programs to improve staff proficiency in AI tools.

Keywords: Artificial Intelligence, Digital marketing, Transformation, Marketing campaign, Employee proficiency, and Marketing performance

1. INTRODUCTION

In the past decade, the financial services industry has experienced a significant shift, driven by rapid advancements in digital technologies. Among these innovations, Artificial Intelligence (AI) has emerged as a transformative force, redefining how

businesses, especially banks, engage with their customers through digital marketing. Artificial Intelligence (AI) refers to the simulation of human intelligence processes by machines, particularly computer systems; these processes include learning, reasoning, and self-correction (Russell & Norvig, 2021). AI-powered tools such as chatbots, predictive analytics, recommendation engines, and customer segmentation algorithms are enabling financial institutions to deliver hyper-personalized content, optimize marketing campaigns, and streamline customer service operations, ultimately improving customer satisfaction and loyalty.

Digital marketing now plays a critical role in the strategic operations of banks, encompassing a wide range of online activities such as social media marketing, email campaigns, search engine optimization, and targeted advertising. Digital marketing encompasses all marketing efforts that use an electronic device or the internet to connect with current and prospective customers. It includes channels such as search engines, social media, email, and websites to promote products and services (Kotler, Kartajaya, & Setiawan, 2017). The integration of AI into these digital marketing efforts marks a fundamental shift from traditional rule-based systems to intelligent, adaptive solutions capable of learning and decision-making in real time. This evolution is particularly relevant in the Nigerian banking sector, where rising internet penetration, mobile technology adoption, and increasing customer expectations are pushing banks to innovate.

In Nigeria, leading banks like Zenith Bank and Access Bank have embraced digital transformation, with notable efforts in leveraging AI for customer relationship management, fraud detection, and targeted marketing. Within the Owerri metropolis, an emerging commercial hub in South-Eastern Nigeria, branches of these banks are increasingly engaging a diverse and growing customer base. However, while AI tools are being adopted, there remains a lack of comprehensive research focused on how these technologies are transforming digital marketing strategies and outcomes at the branch level in urban centres like Owerri.

While existing studies have acknowledged the positive impact of Artificial Intelligence (AI) on digital marketing performance in the banking sector (Olayemi & Ibrahim, 2024; Adeoye & Ibhadode, 2023; Musa and Bello, 2023), notable gaps remain in the literature that this study aims to address. First, much of the current research predominantly explores isolated aspects of AI applications, such as chatbots, predictive analytics, or CRM systems - without providing a comprehensive, integrative analysis of how these AI components collectively transform digital marketing strategies in banks. This fragmented focus limits understanding of the holistic effects of AI on marketing outcomes and organizational processes.

Furthermore, although empirical evidence from Nigerian banking contexts confirms improvements in metrics like customer acquisition, conversion rates, and customer

loyalty (Okonkwo, Nwankwo, & Mensah, 2022; Musa & Bello, 2023), there is a paucity of research exploring the strategic alignment between AI adoption and broader marketing objectives within Nigerian banks. Specifically, how AI initiatives are integrated into existing marketing frameworks and how this integration influences measurable performance indicators remains underexplored. Lastly, while global literature highlights the transformative potential of AI in financial services marketing, there is insufficient localized research focusing on the unique socio-economic and technological contexts of Nigerian banks, particularly in regional hubs like Owerri Metropolis in Imo State.

This study, therefore, aims to address the gaps enumerated above by investigating the effect of Artificial Intelligence in shaping digital marketing practices within Access Bank and Zenith Bank branches in Owerri. In fact, a clear understanding of AI and its role in digital marketing is essential for banks seeking to compete in an increasingly digital marketplace.

1.1 Objectives of the Study

The main objective of this study was to investigate the effect of artificial intelligence on digital marketing transformation in selected branches of Access and Zenith Bank branches in Owerri metropolis. The specific objectives of the study were to**:**

1. Examine the effect of Artificial Intelligence (AI) investment on digital marketing performance.
2. Ascertain the effect of marketing campaign automation on digital marketing performance.
3. Ascertain the effect of employee Artificial Intelligence (AI) proficiency on digital marketing performance.
4. Determine the combined effect of Artificial Intelligence (AI) adoption strategies on digital marketing performance.

1.2 Research Hypotheses

The study is guided further by formulation of null hypothesis

$H0_1$: Digital marketing performance investment is not significantly affected by Artificial Intelligence (AI) investment.

$H0_2$: Marketing campaign automation does not significantly affect digital marketing performance.

$H0_3$: Employee Artificial Intelligence (AI) proficiency does not significantly affect digital marketing performance.

$H0_4$: Artificial Intelligence (AI) adoption strategies do not have significant impact on digital marketing performance.

1.3 Scope of the Study

This study examines the impact of Artificial Intelligence (AI) adoption on the digital marketing performance of selected branches of Access and Zenith International Bank

Plc in Owerri metropolis in Imo State, Nigeria. The focus on Nigeria's banking sector is motivated by the fact that the modern-day Nigerian banks, to a large extent, build their marketing strategies around AI-driven digital platforms. The study focuses on digital marketing performance as well as the following Artificial Intelligence (AI) adoption strategies: Artificial Intelligence (AI) investment, Marketing campaign automation, and employee Artificial Intelligence (AI) proficiency.

2. REVIEW OF RELATED LITERATURE

Conceptual Review

2.1 The Concept of Artificial Intelligence

Artificial Intelligence (AI) refers to the ability of machines to simulate human intelligence in functions such as learning, reasoning, perception, and problem-solving (Russell & Norvig, 2016). In modern business contexts, AI includes technologies that enable machines to perform cognitive tasks like speech recognition, decision-making, and data analysis (Kaplan & Haenlein, 2019). AI is broadly categorized into three types: narrow AI, general AI, and super intelligent AI. Of these, narrow AI, designed for specific tasks such as customer service automation, recommendation systems, and fraud detection, is the most applicable in current business use (Haenlein, Kaplan, Tan, & Zhang, 2022). General AI aims to replicate full human cognitive abilities, while super intelligent AI would exceed human intelligence, though both remain theoretical. In Nigeria's banking sector, AI is increasingly used through tools like intelligent chatbots, predictive analytics, and algorithmic decision-making to enhance service delivery and customer engagement (Adeleke, Olatunji, & Adegbite, 2023). These applications are reshaping digital marketing by enabling personalized content, targeted outreach, and greater operational efficiency (Davenport & Ronanki, 2018). AI adoption is guided by theoretical frameworks such as the Technology Acceptance Model (TAM) and Diffusion of Innovations (DOI), which highlight factors like perceived usefulness, ease of use, organizational readiness, and competitive pressure (Venkatesh & Davis, 2000). In digital marketing, AI improves performance by leveraging data analytics, automating customer interactions, and supporting real-time decision-making (Chatterjee, Rana, Tamilmani, & Sharma, 2021).

For Nigerian banks, deploying AI in digital marketing enables better market trend analysis, customer experience personalization, and campaign performance tracking. However, challenges such as infrastructure limitations, data privacy concerns, regulatory uncertainty, and skills shortages hinder wider adoption (Olanrewaju & Adebayo, 2020). Three components/perspectives of AI, as conceptualized in this study, are hereunder discussed.

2.1.1 Artificial Intelligence Investment

Investment in Artificial Intelligence (AI) plays a pivotal role in driving the adoption and effective use of AI within digital marketing strategies. This investment extends

beyond the allocation of financial resources for acquiring AI tools and platforms; it also includes funding for the development of skilled talent, the establishment of necessary infrastructure, and the management of organizational change. As a fundamental enabler, AI investment determines an organization's readiness to implement AI-driven solutions and unlock performance improvements in marketing and other core business functions.

The Technology-Organization-Environment (TOE) framework highlights technological investment as a crucial element of an organization's preparedness for adopting new technologies (Tornatzky & Fleischer, 1990). Within this framework, investment in AI technology directly influences a firm's capacity to integrate intelligent systems. This is particularly important in digital marketing, where success hinges on system interoperability, data-driven decision-making, and the availability of skilled personnel to manage and optimize AI tools (Mikalef, Krogstie, Pappas, & Giannakos, 2018).

In Nigeria's banking industry, investment in AI is increasingly shaping operational efficiency and customer engagement. Leading banks such as Access Bank, Zenith Bank, and First Bank have begun investing in AI technologies to enhance fraud detection, automate customer service through chatbots, and personalize financial products based on customer data analytics. These institutions are not only procuring advanced AI solutions but are also investing in staff training, data infrastructure, and cybersecurity to support the integration of AI across various departments. As a result, Nigerian banks are gradually transitioning from traditional service models to more agile, technology-driven operations, thereby improving service delivery and maintaining competitiveness in a rapidly evolving financial landscape.

Empirical studies show a positive relationship between AI investment and marketing outcomes such as return on marketing investment (ROMI), customer engagement, and campaign effectiveness (Bughin, Seong, Manyika, Chui, & Joshi, 2018; Wamba-Taguimdje, Fosso Wamba, Kala Kamdjoug, & Tchatchouang Wanko, 2020). Firms that invest in AI training, algorithm development, infrastructure, and data management are better positioned to unlock AI's full potential. In contrast, inadequate or misaligned investment can lead to poor performance and diminished returns.

2.1.2 Marketing Campaign Automation

Marketing campaign automation involves the deployment of advanced software and artificial intelligence (AI) tools to streamline and optimize repetitive marketing functions such as email marketing, customer segmentation, campaign orchestration, and performance tracking. As a critical component of AI-driven digital marketing ecosystems, it significantly enhances operational efficiency, personalization, and overall return on investment (ROI) (Chaffey & Ellis-Chadwick, 2019). By leveraging AI algorithms, businesses can analyse customer behaviour in real time, forecast

purchasing trends, and deliver tailored content at precisely the right moment (Jarek & Mazurek, 2019). These intelligent systems adapt messaging dynamically across multiple platforms, increasing relevance and timeliness, which ultimately boosts customer engagement and conversion rates (Kumar, Ramachandran, & Kumar, 2021). In Nigeria's banking sector, marketing campaign automation is increasingly being adopted to drive customer engagement and digital transformation. Leading financial institutions, including Access Bank and Zenith Bank, utilize automation platforms to segment their customer base, personalize product offers, and optimize communication across email, SMS, and mobile apps. For instance, AI-driven tools help banks identify dormant account holders and send timely, personalized incentives to encourage reactivation. Automation also enables real-time credit product marketing, where customers are targeted with loan offers based on transaction history and credit scoring models. As competition intensifies and customer expectations evolve, Nigerian banks are leveraging marketing automation not only to improve efficiency but also to deliver more meaningful and timely customer experiences.

Empirical studies demonstrate that organizations using AI-driven automation tools report improvements in customer acquisition, lead nurturing, and retention (Columbus, 2020). These tools not only enhance operational efficiency but also support real-time decision-making, campaign optimization, and personalization at scale (Wedel & Kannan, 2016).

2.1.3 Artificial Intelligence Proficiency

Artificial Intelligence (AI) proficiency refers to the extent to which individuals or organizations possess the knowledge, skills, and capabilities necessary to effectively understand, implement, and utilize AI technologies (Jarek & Mazurek, 2019). Within the context of digital marketing, AI proficiency encompasses both technical competencies, such as machine learning, natural language processing, and predictive analytics, and strategic capabilities, including data-driven decision-making and integration of AI tools into marketing functions (Chatterjee et al., 2021).

AI proficiency plays a critical role in determining the success of AI adoption and its subsequent impact on marketing performance. Organizations with higher levels of AI proficiency are better positioned to align AI technologies with marketing objectives, leverage customer data more effectively, and optimize campaign outcomes (Mariani & Borghi, 2021). Moreover, firms that invest in AI training and development are more likely to innovate and maintain a competitive edge in dynamic digital environments (Dwivedi, Hughes, Ismagilova, Aarts, Coombs, Crick, & Williams, 2021).

In Nigeria's banking sector, AI proficiency is increasingly shaping service delivery and customer engagement. Major banks leverage AI for fraud detection, credit scoring, personalized marketing, and chatbots that enhance customer support. Institutions like Access Bank and Zenith Bank have invested in AI-driven platforms and staff training

to improve operational efficiency and customer experience. This growing adoption reflects a strategic shift towards digital transformation, with AI playing a key role in driving innovation and competitiveness in the industry.

2.1.4 Digital Marketing Performance

Digital Marketing Performance (DMP) refers to the effectiveness and efficiency of digital marketing efforts in achieving organizational goals such as brand awareness, customer acquisition, engagement, conversion rates, and return on investment (ROI) (Chaffey & Ellis-Chadwick, 2019). As digital technologies become central to modern marketing, assessing DMP has become critical for maintaining competitive advantage and driving sustainable growth.

Several factors influence DMP, including technological infrastructure, organizational capabilities, data analytics proficiency, and customer-centric strategies (Kannan & Li, 2017). Given the dynamic nature of digital platforms and consumer behavior, organizations must implement agile performance measurement systems that enable real-time monitoring and iterative optimization (Kingsnorth, 2019). The integration of Artificial Intelligence (AI) in digital marketing further enhances performance by enabling personalized targeting, predictive analytics, and automated content delivery (Chatterjee et al., 2021).

In Nigeria's banking industry, digital marketing performance has seen a notable evolution, driven by increased competition, rising customer expectations, and rapid digital adoption. Most banks now leverage digital channels (such as social media, mobile apps, email marketing, and search engine marketing), to acquire, engage, and retain customers. However, performance outcomes vary significantly across institutions due to disparities in digital maturity, data analytics capabilities, and technological investment.

While some tier-one banks have made considerable strides in using AI and customer data to personalize marketing and improve engagement, many others still rely on traditional, less targeted digital strategies. Key challenges limiting optimal DMP include inadequate infrastructure, limited integration of customer data across platforms, and a shortage of skilled digital marketing professionals. Despite these hurdles, the industry has seen incremental improvements in key KPIs such as mobile app usage, online customer acquisition rates, and social media engagement.

2.1.5 Theoretical Review

This study applies Everett Rogers' Diffusion of Innovation (DOI) theory to assess how AI adoption impacts digital marketing performance in Nigeria's banking sector. According to Rogers (2003), the diffusion process is driven by five key elements: the innovation itself, communication channels, time, the social system, and the adopters. The DOI theory identifies **five innovation attributes** that influence adoption

decisions: **relative advantage, compatibility, complexity, trialability**, and **observability** (Rogers, 2003). These elements explain how and when organizations adopt new technologies, categorized as innovators, early adopters, early majority, late majority, or laggards.

In Nigeria, empirical data and industry reports indicate that Tier-1 banks such as UBA, Zenith, and Access Bank fall into the innovator or early adopter categories. These institutions have implemented AI tools, including chatbots, predictive analytics, fraud detection, and personalization engines, leading to faster response times, improved customer engagement, and cost efficiencies. For example, UBA's chatbot "Leo" has become a prominent customer interface, contributing to reduce on boarding times, more accurate segmentation, and higher customer satisfaction.

Conversely, many smaller banks and microfinance institutions remain in earlier adoption phases, hindered by legacy infrastructure, limited technical expertise, regulatory concerns, and lower digital maturity. Trust plays a pivotal role: studies show that customer acceptance of AI-driven marketing is closely tied to trust in the institution, even when technical understanding is limited.

DOI analysis suggests that banks seeking to enhance digital marketing performance should emphasize clear relative advantages (e.g., measurable engagement gains), ensure compatibility with existing systems, reduce perceived complexity, enable low-risk trials, and make performance outcomes visible. Building trust through credible communication channels is critical. As more banks progress through the adoption curve, sector-wide improvements in digital marketing are likely to follow.

2.1.6 Empirical Review

Scholars/researchers have at different times employed different methodologies to come up with diverse results, findings, and conclusions regarding the relationship between artificial intelligence and digital marketing performance. Reviewed below are the studies on the relationship between the variables.

Olayemi and Ibrahim (2024) analysed the interplay between AI-enabled analytics and marketing decision-making in Nigerian banks. A survey of 100 digital marketing managers was conducted, and results revealed that banks using real-time analytics achieved better segmentation and targeting accuracy, higher campaign conversion rates, and enhanced customer retention. The study advocated for continuous training to build analytical competencies among marketing personnel.

Adeoye and Ibhadode (2023) examined the influence of artificial intelligence (AI) tools on digital marketing strategies among commercial banks in Nigeria. Using a quantitative survey-based method, data were collected from marketing departments of 15 leading Nigerian banks and analysed using structural equation modelling (SEM). The results revealed that AI tools such as chatbots, predictive analytics, and customer

segmentation algorithms significantly enhance the efficiency of digital marketing campaigns, improve customer engagement, and ultimately boost marketing performance. The study emphasized the need for strategic investment in AI technologies for marketing purposes.

Musa and Bello (2023) explored the extent to which machine learning algorithms contribute to the personalization of digital marketing in Nigerian retail banking. Using a mixed-methods approach involving interviews and surveys, their findings indicated that banks leveraging machine learning could better predict customer preferences and behaviours, leading to higher engagement and loyalty. However, challenges such as data privacy concerns and technical expertise gaps were noted as barriers to optimal performance.

Egwu and Amadi (2023) investigated the contribution of natural language processing (NLP) technologies to social media marketing in Nigerian banking. By employing content analysis on AI-managed social media campaigns and survey responses from social media managers, the study found that NLP significantly improves sentiment analysis, brand monitoring, and content relevance. Findings support the integration of sentiment analytics into digital strategies to align with consumer perceptions.

Akinyemi and Yusuf (2022) performed a comparative analysis of traditional digital marketing methods versus AI-driven strategies in Nigerian banks. Data collected through in-depth interviews with digital marketers and senior managers showed that AI-driven strategies outperformed traditional approaches in terms of adaptability, scalability, and personalization. The study urged banks to transition from conventional digital tools to intelligent systems to remain competitive.

Okonkwo, Nwankwo, and Mensah (2022) conducted an empirical investigation into the relationship between AI adoption and digital marketing performance in sub-Saharan African banks. Employing a regression analysis on cross-sectional data from 120 bank staff in Nigeria and Ghana, the study found a positive and significant correlation between AI integration and metrics such as customer acquisition rates, conversion ratios, and ROI on digital marketing campaigns. The authors concluded that proactive AI deployment leads to more data-driven decisions and measurable marketing gains.

Chukwuma and Etim (2022) focused on the effectiveness of AI-enhanced customer relationship management (CRM) systems in driving digital marketing performance in Nigeria. A total of 150 CRM professionals across commercial banks participated in the study. Using multivariate analysis, the findings suggested that AI-enhanced CRM led to more effective lead nurturing, increased campaign personalization, and improved customer lifetime value. The study highlighted the strategic role of data quality in maximizing AI-driven CRM benefits.

Olajide and Adebayo (2021) assessed the impact of AI-powered automation on digital marketing outcomes in the Nigerian financial services sector. The authors applied the Technology-Organization-Environment (TOE) framework and gathered data from 20 banks through questionnaires. The analysis showed that automation of content delivery and customer service significantly improves response time, customer satisfaction, and marketing reach. The study recommended policy and capacity-building initiatives to enhance AI capabilities across banks.

3. METHODOLOGY

Research Design

This study adopted a **descriptive survey research design**. Descriptive survey research is appropriate for collecting quantifiable data that can be statistically analyzed to identify patterns, relationships, and differences among variables (Creswell & Creswell, 2018).

Population of the Study

The population for this research comprises **all employees and customers** of Access Bank Plc and Zenith International Bank Plc across the branches in **Owerri Metropolis, Imo State**. As of the time of this study, there are **three (3) Access Bank branches** as well as **three (3) Zenith Bank branches** operating within Owerri municipality, according to branch managers each employing base range of 35 staff and serving hundreds of daily customers. The actual number of customers is unknown due to paucity of data.

Purposing Sampling Technique

Due to the difficulty of surveying the entire population, a representative sample was selected. Following Anyanwu's (2000) guidelines, the sampling design involved a mix of **non-probability sampling techniques**, namely **convenience**, **purposive**, and **quota sampling**. These methods allowed for the selection of individuals who are **accessible**, **relevant**, and **qualified** to provide valid responses to the study's constructs.

Sampling Unit

The sampling units include:

Bank employees***: Digital marketing officers, customer service representatives, branch managers).***

Customers***: Users of digital banking services (including mobile and internet banking) and have banked with Access Bank Plc and Zenith International Bank Plc for at least 6 months.***

Sampling Frame

The sampling frame consists of all the Access Bank Plc and Zenith International Bank Plc branches in Owerri metropolis***, namely:***

S/N	Access Bank	S/N	Zenith Bank
1	Wetheral Road branch	4	Wetheral Road branch
2	Bank Road branch	5	Douglas Road branch
3	Federal Polytechnic Nekede branch	6	Bank Road branch

A full list of employees was obtained from the respective branch managers. Customer respondents were approached within the banking halls and via online platform (google form) for those actively using the bank's digital channels.

Sample Size Determination

Since the actual number of customers is unknown, an estimation method was employed in the sample size determination for customers.

Customers:

Using Freund and Williams (1983) formula:

$$n_r = \frac{(1.96)^2pq}{d^2} = \frac{(1.96)^2 \times 0.5 \times 0.5}{0.05^2} = 384 \text{ customers (approximately)}$$

Note:

p = 0.5 (maximum variability),

q = 1- p=0.5,

d = 0.05 (5% margin of error).

The determined sample size of 384 (for customers) was judgmentally distributed among the customers of the bank branches under study.

Employees:

Using **Taro Yamane's formula** :

$$n = \frac{N}{1 + N (e)^2}$$

Assuming total employee population across all three branches is **210**:

$$n = \frac{N}{1 + N (e)^2}$$

Where:

n = Sample size

N = Population size (210; i.e. 35 x 6 bank branches)

e = Tolerable error term (5%)

Substituting:

$$n = \frac{210}{1 + 210 (0.05)^2} = 138 \text{ employees (Approximately)}$$

Total Sample Size = 384 (customers) + 138 (employees of Access and Zenith bank branches) = 522 respondents

Sampling Procedure

Respondents were selected using a combination of the following procedure:

Convenience sampling***: Customers available in banking halls and via online platform.***

Purposive sampling***: Employees directly involved in digital marketing or AI tools usage.***

Quota sampling***: Ensured gender, age, and banking experience balance among respondents.***

Questionnaire Design

The primary instrument used was a **structured questionnaire** consisting of **four-point Likert-scale items,** where: 1 = Strongly Disagree; 2 = Disagree; 3 = Agree; 4 = Strongly Agree. The questionnaire was divided into five sections: Section A: Demographics; Section B: Artificial Intelligence Investment (AII); Section C: Marketing Campaigns Automation (MCA); Section D: Employee AI Proficiency (EAP); Section E: Digital Marketing Performance (DMP). A total of **522 questionnaires** were distributed across the six (6) branches of the two banks under study.

Validity and Reliability of the Research Instrument

Validity of the Research Instrument

To ensure the instrument measured the intended constructs accurately, the following validity types were assessed:

Content Validity:

Subject-matter experts in digital marketing and AI reviewed the instrument to confirm alignment with the study's constructs such as AII, MCA, EAP, and DMP.

Face Validity:

Preliminary feedback was obtained from branch managers and experienced marketers to confirm the clarity and relevance of items.

Reliability of the Research Instrument

Reliability *was established using* **Cronbach's Alpha** *to assess internal consistency of the Likert-scale items (George & Mallery, 2019). A* **pilot study** *was conducted with* **20 respondents** *(10 employees and 10 customers) from Access and Zenith Bank branches in Owerri. All values exceeded the recommended threshold of 0.70 (Nunnally & Bernstein, 1994), confirming* high reliability**.**

Data Analysis Techniques

Collected data were coded and analyzed using **Statistical Package for the Social Sciences (SPSS) version 23.0**. **Descriptive statistics (f**requencies, percentages, mean

scores, and standard deviations) were used to summarize respondents' demographic characteristics and assess overall trends. On the other hand, **inferential statistics (Pearson Product-Moment Correlation Coefficient - r)** was employed to test the strength and direction of the relationship between each independent variable (AII, MCA, EAP) and the dependent variable (DMP). Pearson correlation is appropriate for exploring linear associations between continuous variables (Pallant, 2020). The formula is as stated below:

$$r = \frac{n\sum XY - \sum X \sum Y}{\sqrt{(n\sum X^2 - (\sum X)^2)(n\sum Y^2 - (\sum Y)^2)}} \quad \text{- - - - - - - - - - -} \quad \text{Egbulonu (2007)}$$

Where:
X = Independent variables (AII, MCA, EAP)
Y = Dependent variable (DMP)
n = Number of observations
$\sum$ = Summationsymbol

Hypotheses Testing:
Each hypothesis was tested at 5% level of significance ($\alpha = 0.05$) with the aid of Statistical Package for the Social Sciences (SPSS) version 23.0. ***The*** null hypothesis was rejected ***if the*** p-value < 0.05***, indicating a statistically significant relationship.***

4 RESULTS AND DISCUSSION

Distribution and Return of Questionnaire

Table No. 1: Distribution and Return of Questionnaire – Access Bank Branches

Access Bank	Number Distributed		Total Distributed	% Distributed	Number Returned	Total Returned	% Returned	
	Customers	Staff			Customers	Staff		
Wetheral Road (1)	64	23	87	33.3	59	21	80	30.7
Bank Road (2)	64	23	87	33.3	58	22	80	30.7
Federal Poly Nekede (3)	64	23	87	33.3	56	22	78	29.9
Total	**192**	**69**	**261**	**100.0**	**173**	**65**	**238**	**91.2**

Source: Researcher's computation (2025)

Table No. 2: Distribution and Return of Questionnaire – Zenith Bank Branches

Zenith Bank	Number Distributed		Total Distributed	% Distributed	Number Returned		Total Returned	% Returned
	Customers	Staff			Customers	Staff		
Wetheral Road (4)	64	23	87	33.3	55	23	78	29.9
Douglas Road (5)	64	23	87	33.3	61	22	83	31.8
Bank Road (6)	64	23	87	33.3	55	22	77	29.5
Total	**192**	**69**	**261**	**100.0**	**171**	**67**	**238**	**91.2**

Source: Researcher's computation (2025)

Table No. 3: Distribution and Return of Questionnaire – Access and Zenith Bank Branches

Access & Zenith	Number Distributed		Total Distributed	% Distributed	Number Returned		Total Returned	% Returned
	Customers	Staff			Customers	Staff		
1 & 4	128	46	174	33.3	114	44	158	30.3
2 & 5	128	46	174	33.3	119	44	163	31.2
3 & 6	128	46	174	33.3	111	44	155	29.7
Total	**384**	**138**	**522**	**100.0**	**344**	**132**	**476**	**91.2**

Source: Researcher's computation (2025)

From Tables No. 1 to No. 3 above, it could be observed that out of a total of 522 respondents (both customers and employees), 476 questionnaires (91.20%) were returned while the remaining 46 questionnaires (8.80%) were not returned. Therefore, further analysis was done using the 476 returned questionnaires for both Access and Zenith bank branches.

Demographic Characteristics of Respondents

Table No. 4: Gender Distribution of Respondents

Gender	Frequency	Percentage (%)
Male	264	55.5%
Female	212	44.5%
Total	**476**	**100%**

Source: Researcher's computation (2025)

Table No. 5: Age Distribution

Age Range	Frequency	Percentage (%)
18–25	92	19.3%
26–35	192	40.3%
36–45	129	27.1%
46 and above	63	13.2%
Total	**476**	**100%**

Source: Researcher's computation (2025)

Table No. 6: Respondent Category

Category	**Frequency**	**Percentage (%)**
Bank Employee	132	27.7
Bank Customer	344	72.3
Total	**476**	100

Source: Researcher's computation (2025)

Descriptive Statistics

Descriptive analysis was conducted to understand the respondents' perceptions of the four constructs: **Artificial Intelligence Investment (AII)**, **Marketing Campaigns Automation (MCA)**, **Employee AI Proficiency (EAP)**, and **Digital Marketing Performance (DMP)**.

Table No. 7: Mean Responses on Artificial Intelligence Investment (AII)

Statement	Mean	Std. Dev
Zenith Bank invests in AI to enhance customer experience.	3.52	0.63
There is a clear budget for AI implementation in digital marketing.	3.41	0.70
AI tools have replaced or enhanced manual marketing efforts.	3.46	0.68
The bank's management supports AI investment initiatives.	3.59	0.58
AI investment has improved marketing efficiency in the bank.	3.55	0.60
Aggregate Mean (AII)	**3.51**	

Source: Researcher's computation (2025)

Table No. 8: Mean Responses on Marketing Campaigns Automation (MCA)

Statement	Mean	Std. Dev
AI is used for personalized marketing messages.	3.48	0.66
AI enables 24/7 marketing campaigns.	3.51	0.61
Automation has improved targeting accuracy.	3.46	0.70
Timely recommendations are made through AI.	3.43	0.69
Campaign performance is tracked using AI tools.	3.50	0.62
Aggregate Mean (MCA)	**3.48**	

Source: Researcher's computation (2025)

Table No. 9: Mean Responses on Employee AI Proficiency (EAP)

Statement	Mean	Std. Dev
Employees have received AI training.	3.31	0.75
Staff are confident using AI tools.	3.28	0.78
Continuous learning of AI technologies is encouraged.	3.35	0.72
Employees can independently operate AI-powered systems.	3.29	0.77
A dedicated team handles AI-related marketing.	3.37	0.70
Aggregate Mean (EAP)	**3.32**	

Source: Researcher's computation (2025)

Table No. 10: Mean Responses on Digital Marketing Performance (DMP)

Statement	Mean	Std. Dev
AI has led to increased engagement on digital platforms.	3.54	0.62
Improved lead conversion rates via AI marketing.	3.49	0.65
AI has reduced customer churn.	3.44	0.69
Digital campaigns are more responsive and data-driven.	3.52	0.63
Overall marketing performance has improved.	3.57	0.60
Aggregate Mean (DMP)	**3.51**	

Source: Researcher's computation (2025)

Inferential Statistics: Correlation Analysis

The Pearson Product-Moment Correlation was used to test the relationship between each independent variable and Digital Marketing Performance (DMP).

Table No. 11: Correlation Results

Variables	R-value	p-value	Decision
AII and DMP	0.728	0.000	Significant ($p<0.05$)
MCA and DMP	0.712	0.000	Significant ($p<0.05$)
EAP and DMP	0.695	0.000	Significant ($p<0.05$)

Source: SPSS v23 Output

Discussion of Findings

The findings of this study reveal compelling evidence that the integration of Artificial Intelligence (AI) significantly transforms digital marketing practices in the Nigerian banking sector. Across various dimensions, AI investment, adoption, and employee proficiency demonstrate strong positive correlations with improved marketing outcomes, which is in line with global trends as supported by recent empirical studies conducted in Nigeria.

AI Investment and Digital Marketing Performance:

The study revealed a strong positive correlation ($r = 0.728$, $p < 0.05$) between AI investment and digital marketing performance, indicating that increased resource allocation toward AI technologies directly contributes to marketing effectiveness. This finding substantiates the conclusions of Okonkwo, Nwankwo, and Mensah (2022), who reported that proactive AI integration boosts customer acquisition, conversion rates, and marketing ROI in sub-Saharan African banks. Similarly, Adeoye and Ibhadode (2023) observed that AI tools such as chatbots and predictive analytics enhance campaign efficiency and customer engagement. This alignment underscores the strategic imperative for financial institutions to prioritize capital investment in AI to remain competitive in the digital era.

AI-Enabled Automation and Digital Marketing Performance:

A high correlation ($r = 0.712$, $p < 0.05$) was found between AI-enabled automation and digital marketing performance, reflecting improvements in campaign targeting, timing, and personalization. Participants consistently affirmed that automation has streamlined marketing operations and improved responsiveness. This supports the findings of Olajide and Adebayo (2021), who noted that automation of customer interactions significantly enhances service delivery and marketing reach. Additionally, Akinyemi and Yusuf (2022) highlighted that AI-driven strategies outpace traditional digital methods in terms of adaptability and scalability. These outcomes validate the efficiency gains achievable through intelligent automation and emphasize the need for banks to scale automated solutions across marketing functions.

Employee Proficiency and Digital Marketing Performance:

The study identified a significant positive relationship ($r = 0.695$, $p < 0.05$) between employee proficiency in AI tools and the success of digital marketing campaigns. This underscores the importance of human capital in actualizing AI's potential. It aligns with the findings of Olayemi and Ibrahim (2024), who advocated for continuous training to build analytical competencies among marketing staff. The current study further confirms that when employees possess the technical and analytical skills required to utilize AI effectively, marketing creativity and execution are enhanced. This observation is supported by West, Allen, and Gorham (2019), who emphasized

that organizational AI success is largely dependent on employee readiness and skills development.

Collectively, the findings of this study corroborate and extend prior empirical research, illustrating that AI is not merely an auxiliary tool but a transformative force in digital marketing. The evidence points to a scenario where investment in AI technologies, coupled with human capability development, leads to enhanced personalization, increased customer engagement, and improved marketing performance. This transformation, however, requires a holistic strategic approach encompassing technological, organizational, and human dimensions.

5 CONCLUSION AND RECOMMENDATIONS

The findings of this study provide robust evidence that Artificial Intelligence (AI) serves as a transformative driver of digital marketing performance in the Nigerian banking sector. Specifically, the study establishes that AI investment, AI -enabled automation, and employee proficiency in AI tools are all strongly and positively correlated with enhanced digital marketing outcomes. These results affirm that banks like Access and Zenith Bank, which proactively invest in AI technologies and prioritize employee training, are better positioned to achieve higher levels of personalization, customer engagement, operational efficiency, and overall marketing success. The consistent alignment of these findings with prior studies further strengthens the conclusion that AI is not just a technological trend but a strategic imperative for competitive advantage in digital marketing.

Ultimately, this study concludes that the integration of AI within digital marketing strategies must be approached holistically, balancing technological adoption with organizational readiness and human capacity development. The successful harnessing of AI's potential depends not only on acquiring the right tools but also on building the capabilities and culture necessary to support data-driven, customer-centric innovation.

Based on the findings and conclusion of this study, the following recommendations are proposed to banking institutions and other stakeholders seeking to optimize digital marketing performance through AI integration:

Banks should prioritize consistent funding for AI-related infrastructure, including machine learning platforms, predictive analytics, and AI-driven marketing software.

Institutions should adopt AI tools for campaign automation, real-time customer interaction, and data analysis to enhance targeting precision and operational efficiency.

Regular training programs should be instituted to improve staff proficiency in AI tools, data interpretation, and customer analytics.

Banks should integrate AI deployment into their broader digital transformation strategy, ensuring alignment between technology, people, and organizational processes.

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