

Challenges and Effects of Artificial Intelligence (AI) on Advertising in Nigeria: A Study of Enugu and Abuja

Raphael Onwudinor (Ph.D)¹, Rose Ojabo² & Maxwell Ngene (Ph.D)³

¹Department of Mass Communication, Renaissance University, Ugbawka, Enugu State.

²Department of Mass Communication, Renaissance University, Ugbawka, Enugu State.

³Department of Mass Communication, Enugu State University of Science and Technology (ESUT), Enugu, Enugu State.

Abstract

This study comprehensively examines the transformative role of Artificial Intelligence (AI) in reshaping advertising practices within Nigeria's rapidly evolving digital landscape. Through a quantitative survey of 400 advertising professionals in Enugu and Abuja, the research investigates AI's integration in content creation, media buying, customer engagement, and data analytics. Employing descriptive and inferential statistical analyses, including a one-sample t-test ($t=27.647$, $p<0.001$), the study confirms AI's significant positive impact on advertising outcomes, with 72.5% of respondents utilizing personalized advertising. 65.4% leveraging automated content creation, and 60.3% adopting programmatic ad buying. Professionals reported enhanced targeting accuracy (78.0%) and reduced campaign costs (66.1%). However, challenges such as job displacement concerns (64.7%), data privacy issues (58.3%), and inadequate skills (55.0%) highlight barriers to adoption. Ethical concerns, including algorithmic bias and data misuse, further complicate AI's integration. The study underscores the need for robust ethical frameworks, enhanced AI literacy, and inclusive policies to ensure responsible adoption, offering actionable insights for stakeholders to navigate Nigeria's AI-driven advertising ecosystem effectively.

Keywords: Artificial Intelligence, Advertising, Personalization, Automation, Digital Marketing, Nigeria, Ethics

Introduction

In the 21st century, Artificial Intelligence (AI) has emerged as a defining force reshaping industries across the globe. Advertising, traditionally built on human creativity and intuition, is now being transformed by intelligent systems capable of data-driven decision-making, real-time consumer engagement, and hyper-personalized messaging (Davenport et al., 2020). Globally, major firms increasingly rely on AI to automate ad placement, tailor messages, and optimize customer interactions. In Nigeria, the rise of digital platforms, increasing internet penetration, and the push for marketing innovation have encouraged the adoption of AI tools, especially among urban-based agencies (Nwankwo & Okeke, 2022). This paradigm shift promises unprecedented efficiency and new avenues for creativity. However, this technological evolution is not without its complexities. While AI offers greater efficiency, accuracy, and potentially higher return on investment, it also raises critical ethical questions related to privacy, surveillance, algorithmic bias, and workforce displacement. Moreover, many Nigerian firms, particularly small and medium-sized agencies, face significant barriers to adoption such as limited technical skills, high implementation costs, and a general lack of awareness regarding AI applications (Adegbite & Salawu, 2022). Understanding how Nigerian advertising professionals are integrating AI into their practices, their perceptions and concerns, and the broader implications for the industry is vital for fostering responsible and sustainable digital transformation.

Statement of the Problem

The Nigerian advertising industry stands at a critical juncture. While AI presents immense opportunities for enhanced efficiency, precision, and innovative creativity, there are significant gaps in understanding, adoption, and ethical application. Many professionals remain unaware of the full capabilities of AI tools, while others harbor legitimate fears of job displacement and the potential manipulation of consumers through increasingly invasive data

Furthermore, regulatory frameworks specifically guiding the ethical use of AI in advertising remain largely underdeveloped in Nigeria. This lack of clear guidelines creates a vacuum that could lead to inconsistent adoption, potential public backlash due to privacy concerns, and ultimately, the erosion of consumer trust. Without empirical data to illuminate current practices, perceptions, and challenges, and without informed policy responses, the sector risks uneven development and failure to fully harness AI's benefits responsibly. This study, therefore, sought to bridge this knowledge gap by comprehensively assessing how AI is currently being used, perceived, and the emerging ethical and regulatory considerations within the Nigerian advertising ecosystem.

Objectives of the Study

The primary objectives of this study were designed to systematically investigate the multifaceted role of AI in the Nigerian advertising landscape. Each objective addressed a specific dimension of AI's influence and perception, contributing to a comprehensive understanding:

1. To examine the extent of AI adoption in advertising practices in Nigeria.
2. To evaluate how AI influences advertising performance, targeting, and consumer engagement.
3. To assess the perceptions of advertising professionals on the advantages and challenges of AI.
4. To identify ethical concerns related to AI use in advertising.
5. To explore the implications of AI on job roles and creativity in the industry.

Research Questions

1. What is the level of AI adoption in advertising practices in Nigeria?
2. How does AI affect personalization, efficiency, and consumer engagement in advertising campaigns?
3. What benefits and challenges do Nigerian advertising professionals associate with AI use?
4. What ethical issues are raised by AI-based advertising methods in Nigeria?
5. How is AI impacting employment and creative roles within the Nigerian advertising sector?

Research Hypotheses

Based on the core inquiry into AI's impact on advertising practices and outcomes in Nigeria, and informed by the existing discourse suggesting both transformative benefits and potential drawbacks, the following hypotheses were formulated and tested:

- **H01 (Null Hypothesis):** Artificial Intelligence (AI) does not significantly influence advertising practices and outcomes in Nigeria positively.
- **H1 (Alternative Hypothesis):** Artificial Intelligence (AI) significantly influences advertising practices and outcomes in Nigeria positively.

Literature Review

Empirical Review

Global evidence consistently highlights the transformative power of AI in advertising. Luo et al. (2021) demonstrate that AI-driven campaigns frequently outperform traditional advertisements in key metrics such as customer retention and conversion rates. A notable example is Alibaba's AI ad engine in China, which reportedly increased ad engagement by over 40% through its sophisticated targeting and optimization capabilities. Grewal et al. (2021) further elaborate on AI's ability to drive hyper-personalization, leading to enhanced customer experiences and brand loyalty.

In the Nigerian context, the adoption of AI, while growing, remains uneven. Adegbite and Salawu (2022) found that approximately 60% of top Nigerian advertising agencies leverage AI for media planning and campaign optimization. However, their study also identified barriers to broader adoption, including a pervasive lack of specialized training and lingering concerns over data privacy. Similarly, Nwankwo and Okeke (2022) reported that while digital advertisers in Nigeria recognize the potential of AI, many still face challenges in integrating complex AI tools into their existing workflows.

The ethical dimensions of AI in advertising are also a prominent area of concern. Ekeanyanwu (2023) warns against the potential for "digital manipulation," where consumers are subtly or overtly coerced through the

deployment of highly data-driven, personalized insights without their full awareness or consent. Other studies caution against the pervasive issue of algorithmic bias, which can perpetuate and amplify existing societal inequalities through skewed targeting or content delivery. There are also ongoing debates about the marginalization of human creativity and intuition as advertising increasingly relies on automated processes, as discussed by Okonkwo (2023) in the broader Nigerian job market context.

Conceptual Overview

AI in advertising refers to the application of intelligent algorithms, machine learning, and deep learning techniques to analyze vast datasets, predict consumer behavior, and automate various marketing and advertising decisions, (Adegbite and Salawu, 2022). Its core functions are designed to optimize campaign effectiveness and deepen consumer connections. Key applications include:

- **Personalization:** AI algorithms analyze demographic data, Browse history, purchase patterns and real-time interactions to deliver highly customized messages and product recommendations to individual consumers.
- **Programmatic Advertising:** This involves the automated buying and selling of ad inventory using sophisticated algorithms that bid on impressions in real-time, optimizing placement based on target audience data and campaign objectives.
- **Content Generation:** Advanced AI tools, such as large language models (e.g., ChatGPT, Jasper AI) and image generation platforms, are increasingly capable of creating diverse ad copy, headlines, social media posts, visual assets, and even basic video scripts.
- **Chatbots and Virtual Assistants:** These AI-powered tools provide instant customer service, answer queries, guide consumers through sales funnels, and collect valuable feedback, enhancing real-time engagement.

These AI tools collectively aim to reduce human error, enhance campaign return on investment (ROI), streamline workflows, and foster deeper, more relevant consumer engagement.

Theoretical Framework

This study is underpinned by three key communication and technology theories, providing robust frameworks for analyzing the role of AI in advertising:

- 1. Technological Determinism Theory (McLuhan, 1964):** This theory posits that technology is the primary driver of social and cultural change. In the context of this study, it suggests that the introduction and evolution of AI technologies are fundamentally shaping how advertising is conceptualized, planned, executed, and consumed in Nigeria. AI is seen not merely as a tool, but as a force reshaping industry structures, professional roles, and consumer experiences.
- 2. Diffusion of Innovations Theory (Rogers, 2003):** This theory explains how new ideas, practices, and technologies spread through a social system over time. It identifies various adopter categories (innovators, early adopters, early majority, late majority, laggards) and factors influencing adoption rates (relative advantage, compatibility, complexity, trial ability, observe ability). This framework helps to understand the varying rates of AI adoption among different categories of Nigerian advertising professionals and agencies, as well as the drivers and barriers to its widespread integration.
- 3. Social Construction of Technology (SCOT) (Bijker & Pinch, 1987):** In contrast to technological determinism, SCOT argues that technological development is not a linear, predetermined process but is actively shaped by societal needs, cultural values, and the interpretations of relevant social groups. Applied to AI in Nigerian advertising, this theory suggests that the design, implementation, and impact of AI tools are mediated by local factors such as specific market demands, cultural attitudes towards data and privacy, regulatory environments, and existing infrastructural limitations, leading to unique patterns of AI integration.

Methodology

Research Design

This study adopted a quantitative descriptive survey research design. This approach was selected to systematically collect numerical data from a large sample of advertising professionals, allowing for the quantification of AI adoption levels, perceptions, and challenges, and for testing the stated hypotheses regarding AI's influence.

Population and Sample Size

Target population: An estimated 10,000 advertising practitioners working in registered advertising agencies across Nigeria.

Sample size: A sample size of 400 advertising professionals was deemed representative. This was calculated using Taro Yamane's formula for finite populations ($n=N/(1+N+e^2)$), with a population of $N=10,000$ and a margin of error (e) of 0.05 (5%), resulting in a required sample size of approximately 385. The selected sample of 400 exceeded this minimum, providing a slightly larger and more robust dataset.

Sampling Technique

A multi-stage sampling technique was employed:

Stage 1: Purposive Selection of States: Enugu and Abuja were purposively selected due to their status as major economic hubs and primary centers for advertising activities in Nigeria, ensuring a concentration of relevant professionals.

Stage 2: Simple Random Sampling of Advertising Agencies: From comprehensive lists of registered advertising agencies in Enugu and Abuja, 50 agencies were selected using a simple random sampling method.

Stage 3: Convenience Sampling of Respondents per Firm: Within each of the 50 selected advertising agencies, 8 advertising professionals were recruited using convenience sampling. This approach facilitated practical data collection given accessibility constraints, though its potential for selection bias is acknowledged as a limitation.

Instrument of Data Collection

A structured questionnaire served as the primary instrument for data collection. It was divided into five sections:

Section A: Demographic information of respondents.

Section B: Current usage and types of AI tools in advertising practices.

Section C: Perceptions of AI's influence on advertising performance, targeting, and engagement, utilizing 5-point Likert scale items.

Section D: Ethical concerns associated with AI use in advertising.

Section E: Perceived implications of AI on job roles and creativity within the industry.

Method of Data Analysis

Collected data were coded and analyzed using SPSS (Statistical Package for the Social Sciences) Version 25.

Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize AI adoption levels, general perceptions, and specific challenges, addressing Research Questions 1-5.

Inferential statistics were employed to test the formulated hypotheses. Specifically, a One-Sample T-Test was conducted to determine the statistical significance of AI's perceived positive influence on advertising practices and outcomes, comparing a composite "AI Influence" score to a neutral benchmark. The significance level (α) was set at 0.05.

Table 1: Demographic Profile of Advertising Professionals (N=400)

Demographic Variable	Category	Frequency (n)	Percentage (%)	Cumulative Frequency (n)	Cumulative Percentage (%)
Gender	Male	220	55.0	220	55.0
	Female	180	45.0	400	100.0
Age Group	20-29	120	30.0	120	30.0
	30-39	160	40.0	280	70.0
	40-49	90	22.5	370	92.5
	50+	30	7.5	400	100.0
Year of Experience	1-5 years	150	37.5	150	37.5
	6-10 years	130	32.5	280	70.0

	11-15 years	80	20.0	360	90.0
	16+years	40	10.0	400	100.0
Role in Agency	Creative	100	25.0	100	25.0
	Media Buying	90	22.5	190	47.5
	Account Management	80	20.0	270	67.5
	Digital Marketing	130	32.5	400	100.0

Source: Field survey 2025

Table 1: provides a comprehensive overview of the socio-demographic characteristics of the 400 surveyed advertising professionals. The sample was predominantly male (55.0%), with the largest age group falling between 30-39 years (40.0%). A significant portion of respondents had 1-5 years of experience (37.5%), indicating a relatively young and dynamic workforce. In terms of roles, Digital Marketing professionals constituted the largest group (32.5%), reflecting the growing emphasis on digital advertising.

Table 2: Extent of AI Tool Adoption in Advertising Practices (N=400)

AI Tool/Application Used	Frequency (n)	Percentage of Respondents (%)
Personalized Advertising (Audience Targeting)	290	72.5
Automated Content Creation	261	65.4
Programmatic Ad Buying/Optimization	241	60.3
Chatbots for Customer Service/Engagement	215	53.8
Predictive Analytics for Consumer Behavior	198	49.5
AI-powered CRM (Customer Relationship Management)	160	40.0
Voice Search Optimization	120	30.0

Source: Filed survey 2025

Table 2: addresses Research Question 1, revealing a significant adoption of AI tools across various advertising functions. Personalized advertising (audience targeting) was the most widely adopted AI application, with 72.5% of respondents reporting its use. Automated content creation tools were utilized by 65.4% of professionals, indicating a strong trend towards AI-assisted content generation. Programmatic ad buying/optimization also showed substantial adoption at 60.3%. Chatbots were used by just over half the professionals (53.8%), while predictive analytics and AI-powered CRM were used by nearly half and 40% respectively.

Table 3: Perceived Influence of AI on Advertising Performance (N=400)

Aspect of Influence	Rating Category	Frequency (n)	Percentage (%)	Cumulative Percentage (%)
Improved Accuracy Targeting (Mean 4.15, SD 0.72)	Strongly Disagree (1)	8	2.0	2.0
	Disagree (2)	12	3.0	5.0
	Neutral (3)	68	17.0	22.0
	Agree (4)	192	48.0	70.0
	Strongly Agree (5)	120	30.0	100.0
Reduced Campaign Costs (Mean 3.89, SD-0.85)	Strongly Disagree (1)	14	3.5	3.5
	Disagree (2)	22	5.5	9.0
	Neutral (3)	100	25.0	34.0
	Agree (4)	156	39.0	73.0
	Strongly Agree (5)	108	27.0	100.0
Enhanced Engagement Consumer	Strongly Disagree (1)	10	2.5	2.5

(Mean 3.92, SD=0.78)	Disagree (2)	18	4.5	7.0
	Neutral (3)	80	20.0	27.0
	Agree (4)	180	45.0	72.0
	Strongly Agree (5)	112	28.0	100.0
Increased Efficiency Campaign	Strongly Disagree (1)	6	1.5	1.5
Mean 4.01, SD=0.69)	Disagree (2)	10	2.5	4.0
	Neutral (3)	84	21.0	25.0
	Agree (4)	196	49.0	74.0
	Strongly Agree (5)	104	26.0	100.0
Better ROI for Campaigns	Strongly Disagree (1)	18	4.5	4.5
(Mean3.75, SD=0.81)	Disagree (2)	28	7.0	11.5
	Neutral (3)	120	30.0	41.5
	Agree (4)	152	38.0	79.5
	Strongly Agree (5)	82	20.5	100.0

Source: field Survey 2025

Table 3: addresses Research Question 2, illustrating how advertising professionals perceive the influence of AI on key performance indicators. The mean scores consistently above 3.0 (Neutral) indicate a general agreement among professionals regarding AI's positive impact. Improved targeting accuracy recorded the highest mean score (4.15), with 78.0% of respondents agreeing or strongly agreeing to its positive influence. Reduced campaign costs also showed strong positive perception, with a mean of 3.89 and 66.1% agreement. Similarly, enhanced consumer engagement (Mean-3.92) and increased campaign efficiency (Mean-4.01) were largely seen as positively influenced by AI

Table 4: Perceptions of AI Advantages and Challenges in Advertising (N=400)

Perception Category	Statement	Frequency (n)	Percentage (%)
Advantages	AI enhances personalization.	320	80.0
	AI improves data analysis.	310	77.5
	AI boosts campaign efficiency.	300	75.0
	AI frees up time for creativity.	250	62.5
Challenges/Concerns	Fear of job displacement.	259	64.7
	Concerns about data misuse/privacy.	233	58.3
	Lack of adequate skills/training.	220	55.0
	High implementation costs.	195	48.8
	Algorithmic bias concerns.	170	42.5

Source: Field Survey 2025

Table 4: Addresses Research Questions 3 and 4, detailing the specific advantages and challenges professionals associate with AI. While advantages like enhanced personalization (80.0%) and improved data analysis (77.5%) were highly recognized, significant concerns emerged. A notable 64.7% of professionals expressed fear of job displacement due to AI automation, and 58.3% voiced concerns about data misuse and privacy breaches. Lack of adequate skills/training (55.0%) and implementation costs (48.8%) were also considerable challenges.

Table 5: One-Sample T-Test Results for AI Influence on Advertising Outcomes (N = 400)

Measure Tested	Mean	SD	Test Value	t-value (Calculated)	Df	p-value	Decision on H ₀₁	Conclusion Regarding H _{a1}
Composite AI Influence Score	3.94	0.68	3.0	27.647	399	< 0.001	Reject H ₀₁	AI significantly improves advertising outcomes in Nigeria
Improved Targeting Accuracy	4.01	0.877	3.0	22.930	399	< 0,001	Reject H ₀₁	AI significantly improves targeting accuracy.
Reduced Campaign Costs	3.805	0.979	3.0	16.438	399	< 0.001	Reject H ₀₁	AI significantly reduces campaign costs.
Enhanced Consumer Engagement	3.92	0.885	3.0	20.797	399	< 0.001	Reject H ₀₁	AI significantly enhances consumer engagement.
Increased Campaign Efficiency	4.01	0.816	3.0	24.647	399	< 0.001	Reject H ₀₁	AI significantly increases campaign efficiency.
Better ROI for Campaigns	3.75	0.920	3.0	16.304	399	< 0.001	Reject H ₀₁	AI significantly improves ROI for AI campaigns.

Source: Field Survey 2025

Summary of Calculations and Assumptions:

Test Type: One-sample t-test comparing each mean to a neutral benchmark value of 3.0 on a 5-point Likert scale.

Significance Level: $\alpha = 0.05$ (one-tailed).

Degrees of Freedom: $df = n - 1 = 400 - 1 = 399$.

Standard Error (SE): Calculated for each measure as SD/\sqrt{n} .

p-value: All measures returned $p < 0.001$, indicating statistically significant positive deviations from the test value.

Interpretation: AI has a statistically significant positive influence across all measured advertising outcomes.

Discussion of Findings

The quantitative survey of 400 advertising professionals in Enugu and Abuja provides a comprehensive insight into the integration of Artificial Intelligence (AI) in Nigeria's advertising sector, addressing the research questions and hypotheses systematically. The data indicate widespread AI adoption, with personalized advertising leading at 72.5%, followed by automated content creation (65.4%) and programmatic ad buying (60.3%). These trends align with global patterns, where AI enhances targeting precision and campaign efficiency (Davenport et al., 2020). The prominence of personalization reflects Nigeria's expanding digital infrastructure and rising internet penetration (56% in 2025, per Statista), enabling data-driven campaigns. However, lower adoption of tools like voice search optimization (30.0%) suggests gaps in awareness or infrastructure, particularly for emerging AI applications. AI significantly boosts advertising outcomes, with professionals reporting improved targeting accuracy (Mean 4.15, 78.0% agreement), enhanced campaign efficiency (Mean 4.01, 75.0% agreement), reduced costs (Mean-3.89, 66.1% agreement), and better ROI (Mean-3.75, 58.5% agreement). These findings echo global research by Luo et al. (2021), emphasizing AI's role in optimizing engagement. In Nigeria's resource-constrained market, AI's cost-efficiency is critical, enabling agencies to achieve more with limited budgets. Professionals highly value AI's benefits, with 80.0% citing enhanced personalization and 77.5% noting superior data analytics. However, challenges are significant, including job displacement fears (64.7%), data privacy concerns (58.3%), and skill shortages (55.0%). These align with Adegbite and Salawu's (2022) findings on adoption barriers in Nigeria. Smaller agencies, in particular, face hurdles due to high implementation costs (48.8%), underscoring the need for accessible AI solutions. Ethical issues are prominent, with 58,3% of respondents concerned about data misuse and 42.5% highlighting algorithmic bias. Nigeria's limited regulatory framework amplifies these risks, potentially undermining consumer trust. This supports Ekeanyanwu's (2023) warnings about digital manipulation

and emphasizes the urgency of ethical guidelines to ensure responsible AI use. While 64.7% of professionals fear job losses due to AI automation, 62.5% believe it enhances creative output by automating repetitive tasks. This duality suggests a potential for human-AI synergy, as noted by Okonkwo (2023), provided professionals acquire skills to leverage AI strategically. The one-sample t-test (Table 5) strongly rejects the null hypothesis (H01), with a composite AI influence score (Mean=3.94, 1-27.647, $p < 0.001$), confirming AI's transformative impact. Specific metrics like targeting accuracy (1-22.930, $p < 0.001$) and efficiency ($t=24.647$, $p < 0.001$) further support Hal, highlighting AI's pivotal role in Nigeria's advertising landscape.

These findings reveal AI's dual nature as a driver of efficiency and innovation and a source of ethical and practical challenges. Addressing these requires targeted strategies to enhance skills, ethics, and access.

Conclusion

This study establishes Artificial Intelligence as a transformative force in Nigeria's advertising industry, significantly improving targeting, efficiency, and engagement. The rejection of H01 confirms AI's measurable impact, with tools like personalized advertising and programmatic buying driving substantial outcomes. However, challenges such as job displacement concerns, skill gaps, and ethical risks, including data misuse and algorithmic bias, highlight the need for careful management. Robust ethical frameworks, enhanced AI literacy, and inclusive policies are essential to ensure sustainable adoption, enabling Nigeria's advertising sector to balance innovation with responsibility.

Recommendations

To maximize AI's benefits while addressing its challenges in Nigeria's advertising industry, the following recommendations are proposed:

- 1. Develop Ethical AI Guidelines:** The Advertising Regulatory Council of Nigeria (ARCON) should establish regulations ensuring data transparency, consumer consent, and bias mitigation to foster trust and ethical AI use.
- 2. Expand AI Training Programs:** Government and industry stakeholders should partner with universities to provide affordable, practical AI training, focusing on applications like programmatic buying and analytics, to bridge skill gaps, especially for smaller agencies.
- 3. Promote Human-AI Collaboration:** Agencies should adopt workflows that combine AI's automation capabilities with human creativity, reducing job displacement fears while enhancing strategic campaign development.
- 4. Subsidize AI Access for SMEs:** Public-private partnerships or subsidies should be introduced to lower AI tool costs, enabling smaller agencies to adopt technologies like automated content creation and compete effectively.
- 5. Strengthen Regulatory Oversight:** An independent body should monitor AI-driven advertising practices, ensuring compliance with ethical standards and addressing consumer concerns to maintain trust and accountability.

These strategies aim to foster a responsible, inclusive, and innovative AI-driven advertising ecosystem in Nigeria.

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