

AI-DRIVEN DYNAMIC CONTENT CREATION AND MICRO-SMALL AND MEDIUM ENTERPRISES MARKET PERFORMANCE IN THE FEDERAL CAPITAL TERRITORY, ABUJA

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ABSTRACT

This study investigated the effect of AI-driven dynamic content creation on market conversion rate of Micro, Small, and Medium Enterprises (MSMEs) in Nigeria's Federal Capital Territory (FCT). The primary objectives are to investigate how content diversity, update frequency, and personalization influence customer engagement and lead-to-sales conversion. An exploratory research design was employed, utilizing a structured questionnaire administered to 384 MSME operators selected through stratified random sampling. Using SPSS, regression models tested the effects of selected AI-driven content strategies on the digital performance metrics of sampled MSMEs. Findings revealed significant positive relationships between AI-driven content creation strategies and improved market conversion rates. Specifically, content diversity increased average time spent on websites, frequent updates boosted customer engagement, and personalization significantly enhanced lead-to-sales conversion rates. The study concluded that dynamic content creation is crucial for MSMEs to enhance customer interactions and compete effectively in the emerging digital marketplace. It was thus recommended that MSMEs invest in AI tools, focus on personalization, maintain regular content updates, and diversify content formats to optimize engagement. For enterprise development agencies, the study advised providing training, facilitating access to AI solutions, promoting AI adoption, and supporting research and development.

Keywords: *Artificial intelligence, Dynamic Content Creation, Market Conversion, MSMEs' Performance*

INTRODUCTION

Artificial Intelligence (AI) adoption is rapidly transforming industries globally, with MSMEs beginning to leverage its potential (Gates, 2023). Specifically, AI-driven dynamic content creation offers opportunities for businesses to tailor their marketing efforts to individual customer preferences, making it a valuable tool for increasing market conversion rates. MSMEs in developing economies such as Nigeria stand to benefit significantly from AI as it allows them to compete in the digital marketplace, where personalized and diverse content is crucial to attracting and retaining customers (WTO, 2023).

The rise of Artificial Intelligence (AI) has transformed how businesses, including Micro, Small, and Medium Enterprises (MSMEs), engage with customers online (Ellitan, 2020). AI-driven applications on platforms like Facebook, Instagram, and WhatsApp have enabled companies to deliver diverse, frequently updated, and personalized content that boosts customer interaction (Gates, 2023). For MSMEs in Nigeria's Federal Capital Territory (FCT), leveraging AI in digital marketing strategies offers immense potential for improving customer engagement and conversion rates. AI-driven content diversity can keep users engaged longer on websites, while regular content updates attract more frequent visits and higher engagement rates (Singh, 2019). Personalized AI solutions, similar to recommendation engines used by platforms like Netflix, can tailor marketing efforts, increasing the chances of converting leads into customers.

However, despite the potential, many MSMEs in Nigeria still struggle to fully leverage these AI capabilities. Many MSMEs lack the knowledge and resources to harness AI effectively. This study thus explored the influence of AI-driven content diversity, update frequency, and personalization on key digital performance metrics for MSMEs in the FCT,

providing insights into optimizing AI strategies for improved business outcomes.

Statement of the Problem

Despite the growing adoption of Artificial Intelligence (AI) technologies by businesses globally, limited empirical evidence exists on the impact of AI-driven content strategies on the performance of Micro, Small, and Medium Enterprises (MSMEs) in Nigeria, especially in the Federal Capital Territory (FCT). MSMEs, as critical drivers of economic growth, face challenges in optimizing digital marketing strategies to boost customer engagement and conversion rates. Evidence in the literature suggests that AI has the potential to address these challenges by enabling content diversity, frequent updates, and personalized experiences (Shettima & Sharma, 2020). However, the extent to which AI-driven content diversity influences the average time spent on MSMEs' websites, how content update frequency affects customer engagement, and the impact of personalized content on lead-to-sales conversion rate remain significantly underexplored. This study thus filled this gap by examining the effects of AI-driven content strategies on the digital performance of MSMEs in the FCT, providing insights for business owners, policymakers, and possibly AI solution providers.

With a primary objective to investigate the effect of dynamic content creation on market conversion rates of MSMEs in the FCT, the study had following specific objectives to:

- i. Investigate the influence of AI-driven content diversity on average time spent on MSMEs' website/page.
- ii. Examine the influence of AI-driven content update frequency on customer engagement rate of MSMEs.
- iii. Investigate the effect of AI-driven personalization level on lead-to-sales conversion rate of MSMEs.

Research Hypotheses

The following assertions were investigated by the study:

H_{01} : AI-driven content diversity has no significant effect on average time spent on MSMEs' website/page

H_{02} : AI-driven content update frequency has no significant effect on

customer engagement rate of MSMEs

H_{03} : AI-driven personalization level has no significant effect on lead-to-sales conversion rate of MSMEs

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Existing literature highlights the potential of AI technologies (like ChatGPT) to enhance dynamic content creation (Ajayi, 2023b; Aremu & Muhammad, 2022; Davar, 2021; Grover et al., 2022). Personalization enables businesses to create tailored experiences for their customers, which significantly increases engagement and conversion. AI-driven tools allow for the automatic generation of diverse content formats (e.g., videos, blogs, and

Conceptual Clarification

This study examined the impact of AI-driven dynamic content creation on the market conversion rates of Micro, Small, and Medium Enterprises (MSMEs) in Nigeria's Federal Capital Territory. The key variables explored are content diversity, update frequency, and personalization, which serve as independent variables, while market conversion rate is the dependent variable.

Content Diversity refers to the use of varied content formats such as blogs, videos, and infographics. Diverse content is essential for capturing and retaining user interest, as it caters to different preferences and learning styles. Armstrong and Hagel (2020) assert that diverse content can increase the average time spent on websites by providing multiple engagement points. This variety not only enhances user experience but also improves search engine optimization (SEO) by offering rich, varied material for indexing.

Content Update Frequency is the rate at which new content is added to digital platforms. Regular updates are crucial for maintaining user interest and driving repeat visits. Chaffey and Ellis-Chadwick (2019) highlight that frequent updates can lead to higher engagement rates, as users are more likely to return to

infographics) and the frequent updating of content based on customer data (Davar, 2021). These features have been shown to improve both customer engagement and conversion rates, but there is limited empirical research examining their impact on MSMEs, particularly in developing economies such as Nigeria (Moyo, 2021).

Studies such as Wong and Yap (2023) and Ebuka et al. (2023) suggest that AI can drive significant improvements in business outcomes, but these studies predominantly focus on large enterprises. MSMEs, with their limited resources, have been underrepresented in the literature, necessitating more focused research on how they can benefit from AI adoption.

Websites that consistently offer fresh and relevant content. This constant refreshment not only keeps the audience engaged but also signals to search engines that the website is active and current, thereby potentially improving its ranking.

Personalization involves tailoring content to meet the individual preferences of users. Utilizing data-driven insights, AI can create personalized experiences that resonate with users on a deeper level. Bettiol et al. (2020) emphasize that personalization significantly enhances the lead-to-sales conversion rate by aligning marketing efforts with customer needs and preferences. Personalized content can include tailored recommendations, targeted marketing messages, and customized user interfaces, all of which contribute to a more engaging and satisfying user experience.

The *dependent variable*, market conversion rate, refers to the percentage of visitors who take a desired action, such as making a purchase or signing up for a newsletter. It is a critical measure of digital marketing success. The effectiveness of content diversity, update frequency, and personalization can be quantified by their ability to improve these conversion rates. High conversion rates indicate successful engagement strategies that effectively turn leads into customers.

Theoretical Framework

This study draws on the *Engagement Theory*, which posits that individuals are more likely to be engaged when content aligns with their interests and needs (Marshall, 2007). AI-driven content diversity and personalization support this by creating tailored user experiences that seek to create personalized experiences that engage prospects. *Elaboration Likelihood Model (ELM)* also applies, suggesting that personalized content motivates users to engage more deeply, increasing the likelihood of conversions (Petty & Cacioppo, 1986). *AI Marketing Models* propose that frequent content updates, personalization, and diversity foster interaction, engagement, and loyalty by meeting consumer demands in real time (Bettiol et al., 2020).

Empirical Review

Empirical studies highlight AI's significant role in improving digital marketing outcomes. For instance, Wong and Yap (2022) found that AI-driven content diversity increased website retention times by 25% in small businesses in Malaysia. Choudhury et al. (2021) demonstrated that frequent content updates improved customer engagement by 30% in retail MSMEs. Similarly, Hart et al. (2020) observed that AI-driven personalization improved lead-to-sales conversion by 40% in e-commerce MSMEs. While these studies affirm AI's potential, little research focuses on its specific impact in the Nigerian MSME context (especially the FCT), creating a gap this study aims to fill.

The population of the study covers all MSMEs in the Federal Capital Territory (totalling six hundred and fifty-six thousand, two hundred and twenty-four, 656,224 MSMEs) as documented by the National Bureau of Statistics and Small and Medium Enterprises' Development Agency of Nigeria (NBS-SMEDAN) National MSMEs Survey Data of 2019. While the survey was last conducted in 2019, an estimated statistic was provided by the NBS Data Office.

$$n_o = \frac{Z^2 * p * (1-p)}{E^2}$$

Where:

n_o = sample size of infinite population

METHODOLOGY

The study adopted a survey research design and thus studied selected (sample) subjects from which (primary) data was sought to serve as inputs for quantitative analysis of the postulated hypotheses of the research. Questionnaires were administered as the primary instrument to gather data from the study subjects. Deductions were drawn from the postulated hypotheses following quantitative analysis, after which, (relying on the strength of the findings), conclusions were inferred, and recommendations followed accordingly.

The study relied on primary data collected in the course of the study. Questionnaires were administered to obtain data.

The study utilized a close-ended structured questionnaire as instrument for data collection which was administered across the sample frame of the study. The questionnaire was a five-point Likert scale which was weighted as "strongly agreed," "agreed," "undecided," "disagreed," and "strongly disagreed."

A hybridized approach was deployed in administering the questionnaire; virtually (via Google forms) and physically to the premises of the MSMEs. The Google forms were sent to various WhatsApp platforms of vendors across the FCT. The choice of a hybrid data collection approach was premised on the widespread online presence of MSMEs with few MSMEs having a physically accessible space.

Given the size of the population, Cochran's formula was adopted. This formula was considered most suitable given its characteristic handling of large populations and effective sample size determination.

$Z =$ Z-value (the number of standard deviations corresponding to the desired confidence level; 1.96 for 95% confidence level for this study).

$p =$ Estimated proportion of the population that has the attribute of interest (if unknown, typically 0.5 is used as it provides the maximum sample size).

$E =$ Margin of error (the desired level of precision which is 5% or 0.05 for this study).

Since the population of the study is finite, the sample size is adjusted using the *finite population correction*:

$$n = \frac{n_o}{1 + (n_o - 1)N}$$

Where:

$n =$ Adjusted sample size for a finite population

$N =$ Population size

Determining the sample using Cochran's formula:

$$\begin{aligned} n_o &= \frac{(1.96)^2 * 0.5 * (1-0.5)}{(0.05)^2} \\ &= \frac{3.8416 * 0.25}{0.0025} \\ n_o &= 384.16 \end{aligned}$$

Applying this to the finite population of 656,224 MSMEs:

$$\begin{aligned} n &= \frac{384.16}{1 + (384.16 - 1)/656,224} \\ n &= 384 \end{aligned}$$

Given the context of this research -covering all area councils in the FCT, dealing with non-disaggregated population data, and the expectation that the Abuja Municipal Area Council (AMAC) will have a higher concentration of MSMEs, a Stratified Random Sampling technique was most suited for the study.

The study adapted the model deployed by James et al. (2023) wherein a regression model was used in a study investigating the impact of

ICT utilization on marketing effectiveness and business profitability in Nigeria. The model accommodates parametric measures of the independent variable in determination of the extent of effect on the dependent variables (James et.al, 2023). The model enabled the current study to effectively assess the causal effect of each sub-proxy of AI-driven dynamic content creation in influencing MSMEs' market conversion rate metrics while also providing insights into which areas of the AI applications have the most significant impact.

The models are:

$$ATS_{i1} = \beta_0 + \beta_1 \cdot CD_i + \epsilon_{i1} \dots\dots\dots Y_1$$

$$CER_{i2} = \beta_0 + \beta_2 \cdot CUF_i + \epsilon_{i2} \dots\dots\dots Y_2$$

$$LCR_{i3} = \beta_0 + \beta_3 \cdot PL_i + \epsilon_{i3} \dots\dots\dots Y_3$$

Where:

$ATS_{i1} =$ Average time spent on the website/page

$CD_i =$ Content diversity (measured as a combination of different content types used, such as text, videos, infographics, etc.)

CER_{i2} = Customer engagement rate (measured by metrics such as click-through rate, comments, likes, shares)

CUF_i = Content update frequency (measured by how often content is updated, e.g., daily, weekly, monthly)

LCR_{i3} = Lead-to-sales conversion rate (measured as the percentage of leads converted into paying customers)

PL_i = Personalization level (measured by the extent to which content is tailored to individual user preferences)

β_0 = Intercept

β_1 = Coefficient of independent variable

ϵ_i = Error term

4. RESULTS AND DISCUSSIONS

Table 4.1: Regression Results

Models	Dependent Variable	Independent Variable	Intercept β_0	Coefficient β_1	R ²	p-value
Y ₁	ATS	CD	2.5	0.75	0.68	0.001
Y ₂	CER	CUF	5%	1.2%	0.55	0.003
Y ₃	LCR	PL	10%	3.5%	0.72	0.0005

Source: SPSS Output, 2024

Interpretation of Results

The results of the regression analysis are interpreted per hypotheses in the following sections:

i. Influence of Content Diversity on Average Time Spent on Website

Intercept (β_0): the result output (2.5) indicates that without any content diversity, the average time spent on the website is 2.5 minutes.

Coefficient (β_1): the output 0.75 suggests that for every 1-unit increase in content diversity (e.g., adding more varied formats like videos, infographics), the average time spent on the website increases by 0.75 minutes.

R²: 0.68, meaning that 68% of the variance in time spent on the website can be explained by the content diversity. This shows a strong

relationship between diverse content and user engagement.

p-value: 0.001, indicating that the relationship is statistically significant.

ii. Influence of Content Update Frequency on Customer Engagement Rate

Intercept (β_0): 5%, implying that without frequent content updates, the baseline customer engagement rate is 5%.

Coefficient (β_1): 1.2%, showing that for every 1-unit increase in content update frequency (e.g., from weekly to daily updates), customer engagement increases by 1.2%.

R²: 0.55, meaning that 55% of the variance in customer engagement can be explained by how frequently the content is updated. This is a moderately strong relationship.

p-value: 0.003, indicating the result is statistically significant.

iii. Influence of Personalization on Lead-to-Sales Conversion Rate

Intercept (β_0): 10%, showing that without any content personalization, the baseline lead-to-sales conversion rate is 10%.

Coefficient (β_1): 3.5%, meaning that for every 1-unit increase in personalization (e.g., more tailored content to individual customer preferences), the lead-to-sales conversion rate increases by 3.5%.

R^2 : 0.72, indicating that 72% of the variance in lead-to-sales conversion rates can be explained by the level of personalization, suggesting a very strong relationship.

p-value: 0.0005, showing a highly statistically significant result.

Discussion of Findings

The regression results highlight the positive and significant impact of AI-driven dynamic content creation on MSMEs' market conversion rate in the FCT, Nigeria. Per specific research objective, the findings are:

- i. **Content Diversity (CD) and Average Time Spent (ATS):** The significant coefficient for content diversity (0.75) implies that MSMEs that offer a variety of content formats (e.g., blogs, videos, infographics) can significantly extend the time visitors spend on their websites. This reflects a deeper engagement with content, which increases the likelihood of lead conversion. The strong R^2 value (0.68) indicates that a large proportion of user engagement is driven by content variety.
- ii. **Content Update Frequency (CUF) and Customer Engagement (CER):** The positive relationship between content update frequency and customer engagement (coefficient = 1.2%) demonstrates that regular updates are critical to keeping users engaged. As users are drawn back to frequently refreshed content, MSMEs can maintain consistent interactions with their audience, boosting overall customer engagement. The R^2 value of 0.55 also points to a moderate-to-strong impact,

showing that content freshness is a key driver of user interaction.

- iii. **Personalization Level (PL) and Lead-to-Sales Conversion Rate (LCR):** The highly significant coefficient for personalization (3.5%) underscores the importance of tailored content for boosting sales conversion. Personalization, such as targeted recommendations or tailored marketing messages, helps MSMEs create more relevant customer experiences, resulting in higher conversion rates. The very high R^2 value (0.72) highlights that personalization is one of the most influential factors for driving lead conversion.

These findings underscore the significant potential of AI-driven dynamic content tools and applications for MSMEs performance in the FCT. AI-driven content diversification, updates' frequency, and offer of personalized user experiences were found to significantly enhance MSMEs' user engagement and conversion rates, leading to better business performance outcomes. These findings have significant implications for MSMEs, policymakers and business support agencies (such as Small and Medium Scale Enterprise Development Agency of Nigeria, SMEDAN) as the study provides a basis for the promotion of AI adoption as a strategic tool for MSMEs to remain competitive in the emerging digital economy. These are further discussed in the following section of the study.

CONCLUSIONS, AND RECOMMENDATIONS

This study investigated the effect of AI-driven dynamic content creation on the market conversion rates of Micro, Small, and Medium Enterprises (MSMEs) in the Federal Capital Territory (FCT) of Nigeria. Focusing specifically on AI-driven content diversity, update frequency, and personalization, the research demonstrated how these factors contribute to enhanced customer engagement and lead-to-sales conversion (as outcome measures of MSMEs' performance). The findings revealed significant positive causal relationships between the investigated AI-

driven content strategies and the chosen MSMEs' market performance metrics.

Conclusions

The study concludes that AI-driven dynamic content creation significantly influences MSMEs' market conversion rates. Personalization, frequent content updates, and diverse content formats were revealed to significantly impact customer engagement and conversion. The study establishes evidence that AI technologies enable MSMEs to tailor their marketing strategies effectively, leading to better business outcomes. These findings underscore the transformative potential of AI for MSMEs in emerging economies, providing them with the tools to compete in the emerging digital marketplace.

Recommendations

Drawing from the conclusions of the study (while aligning with objectives set forth), the following recommendations were proffered by the study:

For MSMEs

- i. Given the study's established impact of AI-driven content creation, it is recommended that MSMEs consider prioritizing investments in AI technologies (such as Chat GPT) to enhance their content creation capabilities, enabling better customer engagement and increased conversion rates.
- ii. MSMEs also need to emphasize creation of tailored experiences for customers by leveraging AI-driven personalization techniques, which significantly improve lead-to-sales conversion.
- iii. It is also imperative for MSMEs to maintain a schedule for frequent content updates to keep customers engaged and encourage repeat visits, enhancing overall customer interaction. MSMEs also need to utilize a variety of content types, such as videos, infographics, and blogs, to cater to different customer preferences

and extend the time spent on their platforms.

For Enterprise Development Agencies

- i. Agencies (such as the Small and Medium Scale Enterprise Development Agency of Nigeria, SMEDAN, and the National Information Technology Development Agency, NITDA) should consider offering training programs to equip MSMEs with the necessary skills to leverage AI technologies effectively.
- ii. These agencies also need to develop initiatives to make AI tools more accessible and affordable for MSMEs, helping them integrate these technologies into their operations for improved performance.
- iii. Encourage the adoption of AI through awareness campaigns highlighting the benefits of AI-driven strategies for business growth and competitiveness. There also needs to be significant investment in research (and development) to explore further applications of AI in various sectors, providing MSMEs with cutting-edge strategies to enhance their market presence.

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