



Artificial Intelligence on Modern Marketing Environment of Selected Deposit Money Banks in Asaba, Delta State, Nigeria

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Abstract: The study examined the effect of Artificial Intelligence on Modern Marketing Environment of selected deposit money banks in Asaba, Delta State, Nigeria. Artificial Intelligence (AI) proxy with Chatbot Artificial Intelligence (CBAI), Natural Language Processing (NLP), Personalization Engine (PE) and Predictive Analytic (PA) as (independent) explanatory variables in relation to Modern Marketing Environment (MME). A descriptive research design was employed for the study and responses were collected with the aid of structure questionnaire of 5-Likert scale model. A total of two hundred (200) questionnaire were administered, out of the two hundred (200) questionnaire administered to staff of First bank Plc, Zenith bank Plc, United Bank for Africa (UBA), Access Bank Plc, Sterling bank and Stanbic IBTC in Asaba, Delta State, one hundred and fifty eight (158) 79% were retrieved and properly filled while forty-two (42) 21% were not returned. Thus, the sample to be used for the study was the total of one hundred and fifty eight (158) respondents. The data was analyzed with descriptive statistics, correlation and multiple regression with aid of SPSS version 23. The findings revealed that CBAI has significant positive relationship with MME; NLP has a significant positive relationship with MME; PE has a positive significant relationship with MME and PA has a significant positive relationship with MME. From the findings of the study, it can be concluded that, overall the Artificial Intelligence had a significant effect on Modern Marketing Environment in the banking industry. It therefore recommends that Efforts should be made by management to organize CBAI on AI from time to time for the employees. This will enable employees learn about AI and how it can be effectively managed for organization effectiveness and improve MME.

Keywords: Artificial, Intelligence, Processing, Analytic and Marketing.

INTRODUCTION

Artificial Intelligence refers to the simulation of human intelligence in machines that are programmed to perform tasks that typically require human intelligence. It involves the development of computer systems that can learn, reason, and solve problems, enabling them

to perform complex tasks autonomously (Hendarl, *et al*, 2021). As technology is evolving like never before, Artificial intelligence is considered a major innovation that is altering the existing marketing landscape in the digital marketing environment. Several business concerns have undergone major makeovers due to AI existence and the transformation of marketing practices has rapidly taken place. Marketers may now use massive data sets to delight customers and boost corporate efficiency. AI has helped marketers cease guessing about consumer behaviour (Alford, 2019). AI machines can make boring tasks fun (Weng, *et al*, 2021). An artificially intelligent system performs repetitive tasks for humans, collates massive volumes of data, and analyses it quickly and accurately (Mchergui, 2021).

Information on people and machines from numerous sources emerges on an artificially intelligent system asynchronously or simultaneously. AI-enabled systems are programmed to watch, react, and anticipate future events. AI uses previous data to predict machine breakdown and inform us (Fornell & Langley (2020). It helps marketers understand how modern consumers buy (Hendar, *et al*, 2021. In these competitive times, most organisations are smartening and streamlining their processes with AI. Wang and Siau (2019) found that current marketers can go beyond the box when creating their strategies. Today's businesses use AI in various ways. It is widely employed in medical, e-commerce, education, legal, and manufacturing, and it continues to help many global businesses. As organisations progress towards industry, AI and other emergent technologies evolve. Scientists are developing technologies to support the theory of mind and self-awareness of artificially intelligent systems (Aaker, 2022).

The widely used emerging technology of artificial intelligence (AI) helps an organisation track real-time data to analyse and respond quickly to customer requirements and offers consumer insights on behaviours essential for customer attraction and retention as it incites customers' next move and redefines the overall experience. AI predicts customer expectations and conduct (Tjepkema, 2019). Technology has created a global network. Technology, consumer behaviour, and competition change the marketing environment (Wang and Siau, 2019). Modern marketing uses social media for brand promotion, customer engagement, influencer marketing, and content dissemination. This medium helps marketers create brand awareness, customer relationships, and leads. Mobile marketing is essential in the modern marketing environment due to the growing use of smart phones. Marketers must optimise their globalisation to reach more customers, so they must differentiate their brands, create unique value propositions, and stay ahead of competitors. New entrants make modern marketing competitive (Stayman, 2022).

Modern marketing uses AI. According to Henke, *et al*, 2016), 98% of marketers planned to employ AI soon, and 20% had already done so by 2017. This gap is narrowing. However, AI uptake and use in Nigeria are still understudied. Thus, this study examined AI-powered banking marketing in Asaba, Delta State, Nigeria.

Statement of the Problem

Artificial Intelligence has made its presence felt in almost every aspect of business and it is believed to be quite common in the modern marketing arena. In Marketing, AI can be termed the application of machine learning and other innovative technologies to leverage customer data. This innovative marketing concept acts as the bridge that helps to

overcome the gap between data science and execution. Lately, AI in marketing activities is gaining high degree of attention as it gives a deeper insight to marketers about various elements towards engaging in marketing activities. AI is a vital tool that empowers marketers to have a competitive advantage in the dynamic and competitive market settings. The AI technologies especially computer algorithms enable marketers to assess bulky data for identifying patterns in customer behaviour and predicting the outcome for the business undertaking. Due to its usefulness, it is believed that Artificial Intelligence is the very future of marketing which can completely transform the marketing landscape.

The banking business environment in Nigeria has evolved as a result of the changes in regulations of the government, movement of service quality, technology, productivity pressures, marketing restrictions and globalization has resulted in dynamism in the banking service sectors, intense competition and informed customers is the norm of the sector. For survival, banking operators need to practice the differentiation strategy. As such there is a need to incorporate marketing practices in responding to the market needs. Firms employ marketing strategies aligning to their resources and skills available to the external opportunities available in the market, hence, service organizations are adopting artificial intelligence in their marketing strategies as a response to the changing business environment. Studies on AI by local researchers exist. Nyang'anga, (2015) researched the AI application in pest management in maize production where he established that AI can be used to provide extension services. Cheruiyot, (2018) researched on artificial intelligence and operational performance of selected service organizations in Nairobi he established a knowledge gap existing on understanding the applicability of AI without using other technology needs to be filled in all aspects of organization operations. From the foregoing emanate a glaring gap into the relationship between AI and modern marketing environment, the research question would therefore: To what extent does artificial intelligence influenced marketing strategy among banking industries in Asaba, Delta state, Nigeria?

REVIEW OF RELATED LITERATURES

Artificial Intelligence

The act of mimicking and outperforming human intelligence in some given tasks by robots and applications is termed Artificial Intelligence (AI). Abid, *et al*, (2022) defined AI as a computer science technology that educates computers to mimic human communication and behaviour. Narkhede, (2021) defined it as systems and machines that mimic human behaviours to complete a goal. It involves machines that think and act like humans. According to Arvind, & Prithwiraj, (2022), artificial intelligence helps organisations track real-time data to understand and respond quickly to client needs. AI bots and programmes use data to develop themselves. Thus, they grow smarter from the knowledge generated. Abid, *et al*, (2022) predict that artificial intelligence will soon be essential to every business worldwide. Siri, Alexa, Google, and Facebook use AI-powered speech recognition (Prakash, 2023). AI has industrial, business, security, and military applications. Manufacturing companies use robotics to produce things faster and more accurately than humans can. AI improves facility and data security. Booz Allen Hamilton, In (2022), claimed that artificial intelligence is helping the government satisfy heightened security standards for cyber security, defence,

and national security. AI uses machine learning to recognise network patterns and cluster them to identify deviations or security incidents before responding to them, improving security in the future by detecting and blocking similar potential threats (Engati, *et al.*, 2021).

Credit card firms are utilising AI to protect billions of dollars in fraud (Prakash, 2023). Due to advances in AI cognitive mechanisms, machine learning, and the ability to create new data, AI has grown rapidly in recent years (Lieto, Bhatt, Oltramari, & Vernon, 2017). Data processing is equally powerful for AI. Artificial intelligence gives visuals, phrases, and sounds meaning and importance (Dhar, 2016). According to Marketing Evolution (2022), artificial intelligence technologies automate decisions based on data gathering, analysis, and audience or economic trends that may impact marketing activities. Tjepkema, (2016) defined AI Marketing as using customer data and artificial intelligence ideas like machine learning to predict and optimise business customers' journeys. AI marketing, according to Nwachukwu & Affen, (2023), uses machine learning algorithms, natural language processing, and other AI technologies to personalise marketing messages, optimise campaigns, and boost customer engagement. "Artificial Intelligence for Marketing," by Jim Sterne, defines AI Marketing as "the use of advanced algorithms and data analytics to automate, personalise, and optimise marketing efforts in real-time, improving customer engagement and ultimately driving revenue growth" (Sterne, 2017).

AI-powered marketing could transform client relationships. AI algorithms can find patterns and insights in massive data sets that humans cannot. Data analysis can be used to create personalised marketing efforts based on customer preferences and behaviours (Verma, *et al.*, 2021). It also personalises client experiences. Businesses can learn client preferences and behaviours by analysing data. AI marketing improves firms. Improved efficiency, personalised customer experiences, and marketing campaign results. AI-powered chatbots and automated email campaigns free up marketers to focus on more difficult duties. Cost reductions and productivity can result (Prakash, 2023).

AI marketing can personalise customer experiences. Chatbots can assist consumers while AI-powered recommendation engines analyse customer data to make product recommendations. AI marketing helps improve marketing campaigns. AI can help firms reach the right customers with the right message at the right time by analysing and predicting customer behaviour. This can boost conversions and income (Picreel, 2023). So far, AI has been drawing the attention of Information Technology (IT) experts, engineers and analysts, but is now advancing outside its customary areas of occurrence, making a progressively stronger mark in management and marketing. The ever-growing amount of consumer data available in big data systems, online or on mobile devices makes AI a vital marketing partner since it is grounded on analysis of data in its application.

Chatbot AI and Modern Marketing Environment

Chatbots use conversational automation for lead generation, qualification, conversion, customer interaction, and support (Poels, 2019). Marketing chatbots can be used on Facebook Messenger, WhatsApp, and native brand apps. It can be used organically or paidly. Adamopoulou (2020). Miami-based growth marketing agency triples Google Ads leads and cuts CPL by 30% with Chatbot marketing. Chatbots offer 24/7 client service. Chatbot answers questions, solves problems, and makes personalised recommendations (Ashfaq, 2020).

Chatbot speeds up and streamlines customer assistance, increasing customer satisfaction. Chatbot reservations are essential for some firms. Others employ chatbots for product demos. Reservations and appointments are one of the best methods to use bots for marketing, especially for offline businesses (Yun, 2020). Chatbots can qualify and engage leads 24/7, regardless of whether your marketing and sales team is online. Marketing chatbots may engage website visitors, qualify prospects, and upsell customers, just like support chatbots (Sweezy, 2019).

Natural Language Processing (NLP) and Modern Marketing Environment

NLP is used in marketing to gain a qualitative understanding of the “why” and “what” of a situation, and enable users to make more insightful decisions (Chen, 2017). In Marketing Analytics, NLP can be used to understand your audience intentions so that you can create smart and more efficient marketing strategies (Luo, 2018). NLP is a powerful asset in marketing analytics tool kit and can be applied to help better understand organization’s data and what it can do for (Sun, 2020). To achieve a great deal of NLP in marketing, the followings can be utilised;

Personalisation Engine and Modern Marketing Environment

Personalization engines help marketers identify, deliver, and measure the best customer or prospect experience based on past interactions, present context, and expected intent. Personalization engines let marketers pick, tailor, and deliver information, offers and other interactions across customer touchpoints (Helberger, *et al*, 2019). Personalization engines use user profiles or anonymous web user behaviour. Affinity, real-time behaviour, transactions, geography, and more are added to such profiles. A personalization engine segments and targets audiences and triggers communications and content in one or more marketing channels (Strycharz, 2020). Marketers can leverage these customization engines to improve the user experience by showing users the information they want, and when they want it (van Noort, 2021). College students may notice more video alternatives on a webpage than seniors who want large print. A New York Giants fan may notice merchandise advertising while a Philadelphia Eagles fan receives products (Vrabec, 2019). Smart firms use conversion optimisation tools and services to capitalise on this customer experience approach.

Predictive Analytics and Modern Marketing Environment

AI systems analyse customer data to forecast client behaviour (Greengard, 2023). Understanding client preferences helps firms choose products, prices, and marketing techniques. Marketing predictive analytics uses data mining, predictive modelling, and machine learning to forecast trends, customer behaviour, and campaign outcomes. Predictive analytics helps marketers comprehend past events and how to improve future results by analysing massive amounts of consumer and market data (Yadav, 2021). Predictive Analytics helps marketers predict campaign results and make faster decisions. Marketers may better understand consumer requirements and wants, create customised messages and offers, and increase customer engagement by reviewing historical customer data. John Edwards. Marketing can use predictive analytics to predict seasonal sales trends and create promotions. "Predictive analytics lets marketers listen to more interesting and complex

customer insights to inform a precision marketing strategy," Balis (2022), Predictive Analytic stimulates demand precisely. Predictive analytics helps marketers acquire, maintain, and increase revenues. Marketing uses predictive analytics to segment, target, acquire, and retain customers and determine what advertising to show and which are most effective (Kannan, 2022).

Theoretical Review

This study will be steered by the Technology Acceptance Model (TAM) theory as well as the Disruptive Innovation theory.

Technology Acceptance Theory

The theoretical underpinning for the study is the Technology Acceptance Model (TAM) which was originally developed by Fred Davis in 1989. The TAM is a well-established theory that is commonly used to explain user behavior toward new technologies (Davis, 1989). It proposes that user acceptance of a technology depends on two primary factors: perceived usefulness and perceived ease of use. In the context of AI and Marketing, the TAM could be used to explore how customers perceive AI-powered marketing tools, such as chatbots or recommendation engines. For instance, the study could examine how customers perceive the usefulness of these tools in helping them find the products they need, and how easy it is for them to interact with these tools.

Disruptive Innovations Theory

This theory was hypothesized by Christensen in 1995 (Gachigo, *et al*, 2019). According to him, innovation offer varying values from technologies that are main stream and they do not matter as much to the main stream clients. Christensen, and Raynor, (2015), explains that disruption involve challenges by a small firm with few resource on an already established company in the market by coming up with a simple application product or service positioned at the bottom of the market which steadily improves its performance in the market and eventually outperforming the already existing organizations.

Disruptive innovation theory acknowledges that technology is a powerful tool in businesses. According to the theory, it's a powerful tool that either result in the failure or success of a business with respect to how it is utilized Ab Rahman, Airini; *et al*. (2017). AI is a complex technology; hence its use may either result in either the success or fall down of businesses. The theory opines on the necessity to know the market and the technology in order to avoid having a disruptive technology in the market. Hence, marketing officials are strategizing on using AI to increase their sales and improve performance; they need to be aware that the type of technology and the way the technology is used may either lead to their success or failure.

Empirical Reviews

The study by Ho and Chow (2023), investigated the influence of artificial intelligence on consumers' brand preference for retail banks in Hong Kong. The study adopted a quantitative research design method and structural equation modelling was utilized in analyzing 300 responses collected from a questionnaire survey of Generation Z subjects. The research findings prove that AI marketing efforts affected brand experience, brand preference, and repurchase intention. The study by Noreen, *et al*, (2023): they study aims to investigate the

consumer's perspective on artificial intelligence's adoption in Asian countries. The study used a quantitative research design and the questionnaire was designed and distributed to collect data from five Asian countries (China, Pakistan, Iran, Thailand, and Saudi Arabia,). The study had 799 usable responses and found that attitude, awareness, perceived usefulness, subjective norms, and knowledge of AI technology had a significant and positive relationship with the intention to adopt AI in banking.

Zhao *et al*, (2023) study investigates how the unique characteristics of AI apps influence the tasktechnology fit and drive the intention of use. The study used an empirical research design, adopting the survey data and SEM method. The findings of the study showed that AI-enabled app positively affects the intention to use significantly.

Al-Araj, *et al*, (2022) examined how artificial intelligence affects Jordanian banking service quality and customer happiness. 270 Jordanian banking users were surveyed using questionnaires. Exploratory factor analysis analysed sample data with SPSS. The study demonstrated that AI affects service quality and customer satisfaction statistically.

Chen, *et al*, (2022) examined how trust and AI affect customer engagement and loyalty in the home-sharing sector. The Chinese survey included home-sharing site users. Structural equation modelling suggests AI may negatively moderate host trust and customer engagement.

Sakib, S M Nazmuz, (2022) explained how AI marketing eliminated human weaknesses like delays. AI-using enterprises increased customer loyalty and acquired new clients. Also emphasises that AI can quickly detect consumer purchases and offer instant discounts based on those sales, improving company revenue.

Ameen, *et al*, (2021) examines how AI might improve shopping experiences. An online survey was sent to beauty brand customers who used AI-enabled services. Partial least squares-structural equation modelling analysed 434 respondent responses. AI significantly improved consumer experience, according to the study.

Amoako, G., *et al*, (2021) found that firms are digital and dynamic. Artificial intelligence has a similar capability for growth and may eventually take over some jobs in industry, education, and society. AI-driven algorithmic machine learning and self-learning open new avenues for innovation. AI affects banking, healthcare, production, retailing, procurement, logistics, and utilities.

RESEARCH METHODOLOGY

A descriptive research design was employed for the study. The population for this study consists of 6 licensed commercial bank operators in Nigeria. This research work takes the form of a field survey as established earlier, and it is expedient to maintain that the population of this study was limited to DMBs in Delta State, specifically in Asaba, Oshimili South local government area of Delta state which are; First bank Plc., Zenith bank Plc., United Bank for Africa (UBA), Access Bank Plc., Sterling bank and Stanbic IBTC. The managerial staff comprise of the heads of various department, while the non-managerial staff comprise of employees of the operation department, marketing department and customer care representatives. Hence, from this selected branches of First bank Plc, Zenith bank Plc, United Bank for Africa (UBA), Access Bank Plc, Sterling bank and

Stanbic IBTC in Asaba, Delta State, Nigeria, the staff served as our respondents. The total population of the staff of the both branches according to the branches service managers is depicted in Table 3.1 below;

Table 3.1: Organizations Description.

Name of Bank	Location	Number Staffs
FIRST BANK PLC	Nnebisi Road, Asaba.	86
ZENITH BANK PLC	FMC, Asaba	78
UBA PLC	Ibusa-Junction, Asaba	68
ACCESS BANK PLC	FMC, Asaba	73
STERLING BANK PLC	Nnebisi Road, Asaba.	49
STANBIC IBTC	Nnebisi Road, Asaba.	47
Total		401

Source: Branches Service Managers, 2023.

The total sample size for this study was obtained using the Yard Formulae developed by Cooper and Schinder, (2013) together with (Kothari, 2014).

$$n = N / 1 + N (\alpha)^2$$

Where: n= the sample size,

N= the sample frame (population)

α = the margin of error (0.05%).

$$n = 401 / 1 + 401(0.05)^2 = 200.25$$

The sample size is 200.

Stratified random sampling technique was use in the study. The stratified random sampling method was best suited in this research because the population consisted of different people who work in different departments in the banks. This method was appropriate because it was able to represent not only the overall population but also the key sub groups at the populations.

The study used primary data to collect through self-administered questionnaires. In total the study will distribute 200 research instruments. Prior to collecting the data the researcher will produce an introductory letter which will be obtained from the university, granting the researcher permission to gather research data. The researcher will educate the participants on the objective of the research. Moreover, the researcher will assure the participants of utmost confidentiality. The questionnaires shall adopt a Likert scale model. The questionnaires will be split into two sectors. The first section will gather the general information data of the respondent (the age, education background, gender, work background). The second part will gather data with respect to the research objective.

Cronbach's alpha was used to determine the internal reliability of the questionnaire that would be used in this study. Values ranged between 0 and 1.0; while 1.0 indicated perfect reliability, the value 0.70 will be deemed to be the lower level of acceptability. The recommended value of greater than 0.7 will be adopted for this study. The researcher administered the questionnaire to staff of UBA PLC in Warri, Delta State, Nigeria. The questionnaire was administered in person to give a high response rate. The next step after testing the validity is conducting the reliability test. The results of the reliability test can be seen in the table below:

Table 3.1: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.807	.815	5

Source: SPSS Output, 2023.

It is evident from the table that the five variables are reliable because its Cronbach Alpha value is greater than 0.6 that is 0.807. Therefore, all items are reliable, hence, the questionnaire used in this study can be considered as an instrument for measuring.

DATA ANALYSIS

The data would be scrutinized for completeness, consistency and accuracy. It will then be fed into a computer to using SPSS for analysis. Descriptive statistics that is frequencies, percentages, mean and standard deviation would be applied to analyze data to establish extent of AI use, motivation for AI use and the outcomes of AI use. While the relationship between Artificial Intelligence and Modern Marketing Environment would be examined by use of regression analysis. This hypothesis was tested using the multiple regressions with the aid of SPSS version 23, to find the relationship between Artificial Intelligence (AI) and Modern Marketing Environment (MME) of selected deposit money banks in Asaba, Delta State, Nigeria. Multiple regression with Modern Marketing Environment (MME) as dependent variable is conducted with the four Artificial Intelligence (AI) proxy with Chatbot Artificial Intelligence (CBAI), Natural Language Processing (NLP), Personalization Engine (PE) and Predictive Analytic (PA) as (independent) explanatory variables.

The multiple regression equation was as follows;

$$MME = f(AI)$$

$$MME = f(CBAI, NLP, PE, PA)$$

$$MME = \beta_0 + \beta_1 CBAI + \beta_2 NLP + \beta_3 PE + \beta_4 PA + \epsilon$$

Where;

MME = Modern Marketing Environment

AI= Artificial Intelligence

β_0 = Intercept of regression line

$\beta_1 - \beta_4$ = Partial regression coefficient of the Independent Variables

CBAI = Chatbot Artificial Intelligence

NLP = Natural Language Processing

PE = Personalization Engine

PA = Predictive Analytic

ϵ = error term or stochastic term.

RESULTS AND DISCUSSION

A total of two hundred (200) questionnaire were administered, out of the two hundred (200) questionnaire administered to staff of First bank Plc, Zenith bank Plc, United Bank for Africa (UBA), Access Bank Plc, Sterling bank and Stanbic IBTC in Asaba, Delta State, one hundred

and fifty eight (158)79% where retrieved and properly filled while fourty-two (42)21% were not returned. Thus, the sample to be used for the study was the total of one hundred and fifty eight (158) respondents. This response was excellent and representative of the population and conforms to Cooper & Schindler (2014) stipulation that a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and above is excellent. Thus, the sample to be used for the study will be the total of one hundred and fifty eight (158) respondents which represent 79% of the sample size of 158.

4.1. Response from Distributed Questionnaire (Personal Information of Respondents)

S/N	Variables	Frequency	Percentage (%)
1.	Gender		
	Male	51	32.28
	Female	107	67.72
		158	100
2.	Marital Status		
	Single	77	48.73
	Married	52	32.91
	Divorced	29	18.35
		158	100
3.	Organization		
	First	32	20.25
	Zenith	60	37.97
	UBA	14	8.86
	Access	13	8.23
	Sterling	17	10.76
	Stanbic	22	13.92
		158	100
4	Age		
	18-25	58	36.71
	26-35	69	43.67
	36-45	24	15.19
	45 and above	7	4.43
		158	100
5	Work Experience		
	0-5 years	116	73.42
	6-10 years	34	21.52
	10-15 years	5	3.16
	Above 16 years	3	1.90
		158	100
6	Level of Management		
	Top	19	12.02
	Middle	57	36.08
	Low	82	51.90
		158	100

Source: Field Survey, 2023.

Table 4.1 above sought to determined the demographic characteristics; gender, marital status, organization, age, work experience and level management. It was established that gender of (51)32.28% of the respondents were male while (107)67.72% of the respondents were female. The findings showed that respondents were evenly distributed across the

gender divide although there were more female than male respondents. Also, respondent that are single formed the greatest number of people that filled the questionnaire. This group constituted (77)48.73% of the respondents to the questionnaires. Similarly, the majority of the respondents that filled the questionnaire are from Zenith Bank Plc, the constituted a higher score of 60, which is 37.97% percent of the responses. From the Table 4.1, the age bracket 26- 30 years formed the greatest number of people that filled the questionnaire. This group constituted 43.67% of the respondents to the questionnaires. Similarly, the highest group of staff that filled the questionnaire is staff with 0-5years work experience, which constitutes about 73.42% of the total respondents. Finally, the staff at the lower level of management has the modal score of 82 staff with a percentage of 51.90%

Analysis of Data According to Research Questions

This section seeks to analyze each of the research questions and analyze the responses of the respondents and fetch out the effect of the study for proper analysis. These were done with the aid of descriptive statistics. The descriptive statistics (DS) which comprises of the minimum, maximum, mean and standard deviation was employed proper and thorough description of the independent variables AI are; CBAI, NLP, PE and PA; dependent variable [MME] for this study.

Table 4.1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
CBAI	158	12	20	16.89	1.967
NLP	158	12	20	16.07	2.151
PE	158	12	20	16.28	1.889
PA	158	11	20	16.16	2.012
MME	158	13	20	16.73	1.995
Valid N (listwise)	158				

Source: SPSS Version 23 Output, 2023.

From the table 4.1 the DS for CBAI indicate a mean of 16.89 and a Std. Dev. of 1.967 with the difference in the maximum and minimum values which stood at 8. This implies that the CBAI is one major AI in handling customers in First bank Plc, Zenith bank Plc, United Bank for Africa (UBA), Access Bank Plc, Sterling bank and Stanbic IBTC branches in Asaba, Delta State since the mean value is greater than Std. Dev. value. Similarly, the DS for NLP indicate a mean of 16.07 and a Std. Dev. of 2.151 with the difference in the maximum and minimum values which stood at 8. This implies that the NLP is a major AI strategy adopted by First bank Plc, Zenith bank Plc, United Bank for Africa (UBA), Access Bank Plc, Sterling bank and Stanbic IBTC branches in Asaba, Delta State since the mean value is greater than Std. Dev. value. More also, the DS for PE indicate a mean of 16.28 and a Std. Dev. of 1.889 with the difference in the maximum and minimum values which stood at 8. This implies that the PE is a major AI tool in First bank Plc, Zenith bank Plc, United Bank for Africa (UBA), Access Bank Plc, Sterling bank and Stanbic IBTC branches in Asaba, Delta State, since the mean value is greater than Std. Dev. value. From the table 4.1 the DS for PA indicate a mean of 16.16 and a Std. Dev. of 2.012 with the difference in the maximum and minimum values which stood at 9. This implies that the PA is one of the major AI in handling complaints in First bank Plc, Zenith bank Plc, United Bank for Africa (UBA), Access Bank Plc, Sterling bank and Stanbic IBTC branches in Asaba, Delta State, since the mean value is greater than Std. Dev. value. MME

depicted the maximum and minimum values of 20 and 13 leading to the mean and Std. Dev. of 16.73 and 1.995. This implies that MME for First bank Plc, Zenith bank Plc, United Bank for Africa (UBA), Access Bank Plc, Sterling bank and Stanbic IBTC branches in Asaba, Delta State varies tremendously because of the various measures of AI adopted by the branches of the banks.

Correlation Results

The Table 4.2 below shows the correlation between the dependent variable which is MME and independent variables, which are; CBAI, NLP, PE and PA.

Table 4.2: Correlation Output

		MME	CBAI	NLP	PE	PA
Pearson Correlation	MME	1.000				
	CBAI	.114	1.000			
	NLP	.120	.437	1.000		
	PE	.220	.523	.519	1.000	
	PA	.489	.381	.326	.366	1.000

Source: SPSS Version 23 Output, 2023.

The correlation matrix in Table 4.2 indicates the various independent variables together with the dependent variable, their various correlation coefficients and the type of relationship that exist between the independent variables {CBAI, NLP, PE and PA} and dependent variable {MME}. Firstly, CBAI has a coefficient of ($r = 0.114 > 0.05$) which reveals that CBAI has strong positive correlation with MME. This implies that an increase in the use of CBAI would have strong positive effects on MME in First bank Plc, Zenith bank Plc, United Bank for Africa (UBA), Access Bank Plc, Sterling bank and Stanbic IBTC branches in Asaba, Delta State, Nigeria. Secondly, NLP has a coefficient of ($r = 0.120 > 0.05$) which reveals that NLP has strong positive correlation with MME. This implies that an increase in NLP of handling AI would have strong positive effects on MME in First bank Plc, Zenith bank Plc, United Bank for Africa (UBA), Access Bank Plc, Sterling bank and Stanbic IBTC branches in Asaba, Delta State, Nigeria. Thirdly, PE has a coefficient of ($r = 0.220 > 0.05$) which reveals that PE has strong positive correlation with MME. This implies that an increase in PE of AI would have strong positive effects on MME in First bank Plc, Zenith bank Plc, United Bank for Africa (UBA), Access Bank Plc, Sterling bank and Stanbic IBTC branches in Asaba, Delta State, Nigeria. Finally, PA has a coefficient of ($r = 0.489 > 0.05$) which reveals that PA has strong positive correlation with MME. This implies that an increase in PA would have strong positive effects on MME in First bank Plc, Zenith bank Plc, United Bank for Africa (UBA), Access Bank Plc, Sterling bank and Stanbic IBTC branches in Asaba, Delta State, Nigeria.

The study is focused on enhancing MME through AI. The results of the correlation analysis involving all the measures of AI measures reported positive correlation coefficient values among the measures. This indicated that they are appropriate dimensions of AI.

Test of Hypotheses

- HO₁ There is no significant effect between Chatbot AI and Modern Marketing Environment
- HO₂ There is no significant effect between Natural Language Processing and Modern Marketing Environment

- HO₃ There is no significant effect between Personalisation Engine and Modern Marketing Environment
- HO₄ There is no significant effect between Predictive analytic and Modern Marketing Environment

Decision Rule: Reject the Null hypothesis when the p-value is greater the 0.05 and accept the Alternate hypothesis, when the p-value is lesser than 0.05 level of confidence.

Table 4.3: Multiple Regression Analysis

Table 4.3.1: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	9.351	1.525		6.132	.000
CBAI	.121	.057	.119	2.123	.003
NLP	.075	.026	.074	2.885	.002
PE	.134	.065	.127	2.062	.006
PA	.507	.077	.502	6.509	.001

a. Dependent Variable: MME

Source: SPSS Version 23 Output, 2023.

CBAI's 0.003 p-value from Table 4.4.1 is noteworthy because it is less than 0.05 (5%). The confidence interval is 99.7% higher than 95%, which is acceptable. Thus, we accept the alternate hypothesis and reject the null hypothesis (Ho1) that CBAI and MME have no significant relationship in First Bank Plc, Zenith Bank Plc, United Bank for Africa (UBA), Access Bank Plc, Sterling Bank, and Stanbic IBTC branches in Asaba, Delta State, Nigeria. With a regression coefficient (r) of 0.119, 1% CBAI increases MME 11.9%. According to disruptive innovation theory, innovations offer different values from mainstream technology and don't mean as much to mainstream clientele. Contrary to Chen, *et al*, (2022), Ho and Chow (2023) and Zhao, *et al*, (2023) found this.

Table 4.4.1 showed that NLP's 0.002 p-value is significant because it is less than 0.05 (5%). The confidence interval is 99.8% higher than 95%, which is acceptable. Thus, we accept the alternate hypothesis and reject the null hypothesis (Ho2) that NLP and MME have no significant relationship in First Bank Plc, Zenith Bank Plc, United Bank for Africa (UBA), Access Bank Plc, Sterling Bank, and Stanbic IBTC branches in Asaba, Delta State, Nigeria. A regression coefficient (r) of 0.074 shows that 1% NLP increases MME by 7.4%.

PE's 0.006 p-value is noteworthy because it's smaller than 0.05 (5%). The confidence interval is 99.4% higher than 95%, which is acceptable. Thus, we accept the alternate hypothesis and reject the null hypothesis (Ho3) that PE and MME are significantly related in First Bank Plc, Zenith Bank Plc, United Bank for Africa (UBA), Access Bank Plc, Sterling Bank, and Stanbic IBTC branches in Asaba, Delta State, Nigeria. With a regression coefficient of 0.127, 1% PE increases MME by 12.7%.

0.001 is less than 0.05 (5%), making it significant. The confidence interval is 99.9% higher than 95%, which is acceptable. Thus, we accept the alternate hypothesis and reject the null hypothesis (Ho4) that PA and MME have no significant relationship in First Bank Plc, Zenith Bank Plc, United Bank for Africa (UBA), Access Bank Plc, Sterling Bank, and Stanbic IBTC branches in Asaba, Delta State, Nigeria. With a regression coefficient (r) of 0.074, 1% PA increases MME by 50.7%.

4.4.1 Summary of the Model

Table 4.4.2: Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.976 ^a	.953	.950	.441	1.883

a. Predictors: (Constant), CBAI, NLP, PA, PE

b. Dependent Variable: MME

Source: SPSS Version 23 Output, 2023.

Table 4.4.3: ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	159.138	4	39.785	13.071	.000 ^b
	Residual	465.697	153	3.044		
	Total	624.835	157			

a. Dependent Variable: MME

b. Predictors: (Constant), CBAI, NLP, PA, PE

Source: SPSS Version 23 Output, 2023.

Additionally, the model summary table (Table 4.4.2) shows that the correlation coefficient (R) of the regression is 0.976 (98%) and that there is a very strong positive relationship between the dependent variable (MME) and the independent variables (CBAI, NLP, PE, and PA) in Asaba, Delta State branches of First Bank Plc, Zenith Bank Plc, United Bank for Africa (UBA), Access Bank Plc, Sterling Bank, and Stanbic IBTC. The independent variables [CBAI, NLP, PE, and PA] account for 95% (0.953) of the variation in the dependent variable [MME] in First Bank Plc, Zenith Bank Plc, United Bank for Africa (UBA), Access Bank Plc, Sterling bank, and Stanbic IBTC branches, leaving 5% of the variation in the model unaccounted for. The strong positive relationship is further substantiated with an R² value of 95%. The adjusted R² evaluates how well the model fits the data. This demonstrates the model's goodness of fit and explains the dependent variable's relationship to the independent variables in 95 different ways. The error term and additional factors outside the model make up the 5% remaining. Given the information presented, there is undeniable proof of serial or autocorrelation because the Durbin Watson computed value of 1.883 is less than "2".

Last but not least, the F(13.071) with p-value estimated at 0.000 in the ANOVA table 4.4.3 above illustrates the overall importance of the significance of the model. This shows that the model is good because all the independent variables—CBAI, NLP, PE, and PA—have an impact on the dependent variable (MME) jointly in the First Bank Plc, Zenith Bank Plc, United Bank for Africa (UBA), Access Bank Plc, Sterling Bank, and Stanbic IBTC branches in Asaba, Delta State.

CONCLUSION AND RECOMMENDATIONS

The modern marketing environment in the banking sector was significantly impacted by artificial intelligence overall. Particularly, there is a strong positive association between CBAI and MME. Therefore, Nigerian banks should preserve and develop CBAI channels because they have improved MME, which helps the banks function better. Significantly beneficial relationships exist between NLP and MME. Based on the results, it was evident that NLP has made a significant contribution to the promotion of MME in the Nigerian banking sector. PE and MME have a strong positive link, hence Nigerian banks keep strengthening their PE mechanism because doing so will significantly boost MME. PA and MME have a very good working connection. According to the results, PA significantly affects MME in the Nigerian banking sector.

The suggestions are based on the study's findings and offer the researcher's counsel to Nigerian banks on how to enhance their MME and friendly operations. The study makes the following recommendations in light of its findings:

- 1) Management should make an effort to periodically organise CBAI on AI for the staff. Employees will be able to learn about AI and how to handle it for organisational effectiveness and MME improvement.
- 2) Staff should receive NLP training in order to improve organisational harmony and promote MME.
- 3) Both management and employees must make a commitment to collaborate peacefully by developing successful PE plans and maintaining acceptable PE as useful tools for boosting MME.
- 4) Aiming to MME of the Nigerian banks, credible PA outlets must be supported.

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