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Effect of Artificial Intelligence on Predictive Financial Analysis in Selected Deposit Money Banks in Anambra State, Nigeria

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Abstract: Today, as the banking sector incorporates AI technologies, understanding their impact on customer satisfaction has become paramount. This study investigates therefore examines the effect of artificial intelligence on predictive financial analysis in selected deposit money banks in Anambra State, Nigeria. The research modelled several independent variables, including the level of AI technology adoption, the use of machine learning algorithms, the volume of data processed by AI systems, the number of personnel trained in AI technologies, financial resources allocated for AI development, and the compatibility of AI systems with existing banking infrastructure. Utilizing a sample of 216 respondents, the study employs the Ordinary Least Squares (OLS) econometric regression technique to analyze the data. The regression results reveal that all independent variables have a significant positive impact on customer satisfaction. Specifically, the coefficient estimates indicate that for every unit increase in AI technology adoption, customer satisfaction increases by 0.32 ($p < 0.01$). The implementation of machine learning algorithms correlates with a 0.25 rise in customer satisfaction ($p < 0.05$), while an increase in the volume of data processed leads to a 0.30 ($p < 0.01$) improvement. The training of personnel contributes a 0.18 increase ($p < 0.05$), and financial resources dedicated to AI development show a significant coefficient of 0.22 ($p < 0.01$). Lastly, compatibility of AI systems has a coefficient of 0.27 ($p < 0.01$), indicating its critical role in improving services. The findings suggest that banks should prioritize the strategic adoption and integration of advanced AI technologies by assessing existing processes and fostering a culture of innovation. Investing in tailored machine learning solutions, robust data management infrastructure, and ongoing staff training will enhance personalized services and customer satisfaction. Additionally, ensuring compatibility of new AI systems with current infrastructure through careful planning and phased implementation will facilitate seamless integration and sustained service quality. The implications of this study are profound, highlighting the necessity

for Nigerian banks to embrace AI not only as a technological upgrade but also as a driver for improved customer engagement and satisfaction. As the competitive landscape continues to evolve, those institutions that invest in AI-driven predictive analytics will likely secure a more stable and loyal customer base in the dynamic Nigerian financial market.

Key words: Artificial Intelligence, Deposit Money Banks, Financial Analysis, Digital Transformation, Customer Satisfaction, Banking Innovation, System Compatibility

INTRODUCTION

The proliferation of Artificial Intelligence (AI) in the banking sector has garnered significant attention globally, driven by the transformative potential of intelligent systems to redefine financial services. Historically, the integration of technological innovations in banking can be traced back to the introduction of Automated Teller Machines (ATMs) in the 1960s, which marked the beginning of automation in banking operations (Laukkanen, 2016; Singh & Mehta, 2021; Odunukwe, Dioha & Prince Okoli, 2025). Over subsequent decades, technological advancements such as online banking, mobile banking, and electronic payment systems further revolutionized banking services, setting the stage for more sophisticated AI-driven solutions. Today, AI encompasses a broad spectrum of technologies including machine learning, natural language processing, and robotics, which enable banks to automate complex tasks, enhance decision-making, and provide personalized services (Davenport, Guha, Grewal, & Bressgott, 2020; Patel & Khan, 2020). The basic characteristics of AI in banking involve its ability to analyze vast amounts of data, learn from patterns, and adapt responses dynamically, thereby offering significant efficiencies and improved customer experiences. As such, AI has become a critical component of digital transformation strategies within financial institutions worldwide. (Brynjolfsson & McAfee, 2017; Adepoju, Austin-Gabriel, Hussain, Ige, Amoo & Adeoye, 2021; Odunukwe, Prince Okoli & Dioha, 2025).

In Nigeria, the adoption of AI in banking is relatively nascent but rapidly expanding, especially in deposit money banks seeking to remain competitive in an increasingly digital economy. The focus of this study is on the compatibility of AI systems and their role in enhancing customer satisfaction in Nigerian banks. Customer satisfaction remains a vital metric for banks, influencing loyalty, retention, and overall profitability (Adepoju, Austin-Gabriel, Ige, Hussain, Amoo & Adeoye, 2022). Despite the technological advancements, many banks have faced challenges in effectively integrating AI systems that align with customer needs and operational workflows. This focus underscores the importance of understanding how AI compatibility - the degree to which these systems work seamlessly with existing processes and meet customer expectations - impacts customer satisfaction levels. The study aims to fill this gap by investigating whether the perceived compatibility of AI systems directly correlates with increased customer satisfaction in the Nigerian banking context. A latent problem that has fuelled this study is the persistent gap between the deployment of AI technologies and their actual impact on customer satisfaction. While banks have invested heavily in AI solutions, evidence suggests that many implementations have fallen short of expectations, largely due to poor system compatibility, inadequate integration, or failure to meet customers' operational needs (Adepoju, Austin-Gabriel, Hussain, Ige, Amoo & Adeoye, 2021; Odunukwe, Okeke, Dioha & Prince Okoli, 2025). Furthermore, many banks have adopted AI-driven services such as chatbots, automated loan processing, and predictive analytics without sufficiently considering the compatibility of these systems with existing infrastructure or

customer preferences. This disconnect has led to customer dissatisfaction, increased complaints, and underutilization of AI features. The underlying issue is that technological investments alone do not guarantee improved customer experiences unless these systems are compatible, user-friendly, and aligned with customer expectations.

One of the promising applications of AI in banking is predictive financial analysis, which involves leveraging machine learning algorithms to forecast market trends, customer behaviour, and credit risks. AI-driven predictive analytics can revolutionize financial decision-making by providing real-time insights, reducing risks, and enabling banks to offer tailored financial products (Ngai, Hu, Wong, Chen, & Sun, 2011). For example, AI can analyze transaction patterns and social data to predict customer defaults or identify potential fraudulent activities proactively. However, the effectiveness of such predictive models heavily depends on the quality, relevance, and integration of data sources, which hinge on the compatibility of AI systems within the bank's infrastructure. If these systems are incompatible or poorly integrated, the predictive accuracy diminishes, leading to misguided decisions and potential financial losses (Samson & Sarkindaji, 2022). The latent gap here is the insufficient emphasis on system compatibility as a critical factor influencing the success of predictive financial analytics and its consequent impact on customer satisfaction. Despite the recognition of AI's potential, efforts by stakeholders - including banks, regulators, and technology providers - to address these challenges have often fallen short. Many Nigerian banks have adopted AI solutions in a piecemeal fashion, primarily driven by competitive pressure and regulatory mandates rather than strategic alignment (Achumie, Oyegbade, Igwe, Ofodile. & Azubuike, 2022). These efforts have often lacked comprehensive integration strategies, leading to fragmented systems that do not communicate effectively or meet customer expectations for seamless service. Furthermore, the absence of robust frameworks for assessing AI system compatibility and customer-centric design has hampered their success. Consequently, customer dissatisfaction persists, and the anticipated benefits of AI - such as increased efficiency, accuracy, and customer engagement - remain partially unrealized (Adepoju, Oladosu, Ige, Ike, Amoo & Afolabi, 2022). This scenario underscores the necessity for a more deliberate focus on system compatibility, holistic integration, and user-centric design in AI deployment within Nigerian banks. Addressing the latent problem of AI system incompatibility and its impact on customer satisfaction is crucial for realizing the full potential of AI in banking. Enhancing system compatibility can foster smoother integration, reduce operational disruptions, and improve the accuracy of predictive financial analyses. The benefits extend beyond operational efficiencies; they include improved customer trust, loyalty, and overall satisfaction, which is essential for long-term business sustainability in Nigeria's competitive banking landscape. Moreover, a successful integration of AI systems aligned with customer needs can facilitate more precise risk assessment, customized financial products, and proactive service delivery, which are vital in an evolving financial environment characterized by rapid technological change (Choudhury & Sharma, 2022; Brynjolfsson & McAfee, 2017; Kumar & Verma, 2021).

Statement of the Problem

The immediate problem that informs this study is the observed disconnect between the deployment of Artificial Intelligence (AI) systems in Nigerian banks and the actual enhancement of customer satisfaction and financial decision-making. Despite substantial investments in AI-driven technologies such as chatbots, automated loan processing, and predictive analytics, many banks in Nigeria continue to experience low customer engagement and dissatisfaction, primarily due to poor system integration and compatibility issues **(Aremu & Ademola & Aremu, 2020**). This persistent gap suggests that the mere adoption of AI technologies does not automatically translate into improved service delivery or accurate predictive financial analysis. Instead, the effectiveness of AI systems heavily depends on their compatibility with existing banking infrastructure and their alignment with customer expectations, which many banks fail to optimize,

leading to suboptimal outcomes **(Obafemi, 2021).** The topicality and recency of this problem are underscored by the accelerated digital transformation in the banking sector worldwide, especially amidst the COVID-19 pandemic, which heightened the reliance on AI to ensure continuity of services (Davenport et al., 2020; Samson & Sarkindaji, 2022). In Nigeria, where financial inclusion and technological infrastructure are still developing, the challenge of effectively integrating AI systems remains acute. The rapid pace of technological change demands empirical investigation into how AI compatibility influences predictive financial analysis and customer satisfaction, as many banks have yet to harness AI's full potential due to systemic incompatibilities and operational mismatches. Without addressing these issues, banks risk facing increased customer attrition, financial inaccuracies, and operational inefficiencies, which could ultimately undermine their competitiveness in an increasingly digital economy.

Previous efforts by researchers to address the challenges of AI implementation in banking have largely focused on technological adoption and user acceptance models but have often overlooked the critical aspect of system compatibility and integration. For instance, Wegwu (2024) emphasized the importance of data quality and algorithm accuracy but paid limited attention to how system design and infrastructure compatibility influence predictive analytics outcomes. Similarly, **Asiyanbi and Adegoke (2025**) highlighted the potential of AI to optimize trading strategies but did not sufficiently explore the infrastructural or customer-centric factors that could hinder success in real-world banking environments. These gaps in research indicate that technological optimism alone does not solve the systemic issues that limit AI's efficacy, and without a comprehensive understanding of compatibility issues, efforts are unlikely to yield the desired improvements in predictive financial analysis and customer satisfaction. If this research is not undertaken, the inevitable consequence is that Nigerian banks will continue to invest heavily in AI technologies without realizing their full benefits, leading to wasted resources and persistent customer dissatisfaction. The lack of empirical evidence on the role of system compatibility in AI-driven financial analysis hampers the development of effective implementation strategies, which could impede the banks' ability to make accurate predictions, mitigate risks, and offer tailored financial products. Moreover, failure to address these issues could widen the existing financial exclusion gap, as technologically incompatible systems may alienate certain customer segments, especially those less familiar with digital platforms **(Asiyanbi & Adegoke, 2025**). Therefore, this study becomes crucial to fill the knowledge gap, inform stakeholders about best practices, and ensure that AI investments translate into tangible benefits for Nigerian banks and their customers.

Objectives of the Study

The main objective of the study is to examine the effect of artificial intelligence on predictive financial analysis in selected deposit money banks in Anambra State, Nigeria. The specific objectives of the study are to:

i. Ascertain the extent to which level of AI technology adoption has enhanced customer satisfaction in deposit money banks in Anambra State, Nigeria.

ii. Determine the extent to which machine learning algorithms has enhanced customer satisfaction in deposit money banks in Anambra State, Nigeria.

iii. Examine the extent to which volume of data processed by AI systems has enhanced customer satisfaction in deposit money banks in Anambra State, Nigeria

iv. Evaluate the extent to which number of personnel trained in AI technologies has enhanced customer satisfaction in deposit money banks in Anambra State, Nigeria.

v. Ascertain the extent to which financial resources allocated for AI development has enhanced customer satisfaction in deposit money banks in Anambra State, Nigeria.

vi. Examine the extent to which compatibility of AI systems has enhanced customer satisfaction in deposit money banks in Anambra State, Nigeria

THEORETICAL FRAMEWORK

The theoretical framework underpinning this study is grounded in the Technology Acceptance Model (TAM), originally proposed by Davis (1989). TAM posits that users' acceptance and usage of new technologies are primarily influenced by two key factors: perceived usefulness and perceived ease of use. Davis (1989) argued that when users believe a technology enhances their performance and is easy to operate, they are more likely to adopt and integrate it into their routines. This theory has been widely applied in information systems research, including banking and financial services, to understand how technological innovations, such as AI systems, are accepted by users. In the context of this study, TAM provides a lens to explore how customers' perceptions of AI system compatibility, usefulness, and ease of integration influence their satisfaction with banking services in Anambra State, Nigeria.

The assumptions of TAM are that users' behavioural intentions to use a technology are directly influenced by their perceptions of its usefulness and ease of use, which in turn are shaped by external variables such as system quality, compatibility, and support. TAM presumes that positive perceptions lead to greater adoption and satisfaction, while negative perceptions hinder acceptance. In applying TAM to the current study, it is assumed that the compatibility of AI systems - how well these systems integrate with existing banking processes and meet customer needs - affects perceived ease of use and usefulness. When AI systems are compatible with users' expectations and operational workflows, customers are more likely to perceive these systems as beneficial and user-friendly, ultimately leading to higher satisfaction levels.

In the context of deposit money banks in Nigeria, TAM offers a robust framework for examining how technological factors influence customer satisfaction. As banks increasingly deploy AI solutions to improve service delivery, understanding customers' perceptions of system compatibility becomes crucial. The application of TAM in this study helps to elucidate the relationship between AI system compatibility, perceived usefulness, and customer satisfaction. For instance, if customers perceive AI systems as compatible with their banking needs and easy to use, they are more likely to be satisfied with the services offered. This aligns with prior research by Venkatesh and Davis (2000), who extended TAM through the Unified Theory of Acceptance and Use of Technology (UTAUT), emphasizing the importance of system compatibility and perceived ease of use in technology adoption. Thus, TAM provides a comprehensive theoretical foundation to analyze how technological acceptance influences customer satisfaction in the banking sector, especially in the context of AI integration.

METHODOLOGY

This chapter outlines the comprehensive research methodology employed in this study, detailing the approach, procedures, instruments, and analytical techniques used to achieve the research objectives. The methodology is organized under the following subheadings: research design, area of the study, population, sampling procedures, data collection methods, data collection instruments, validation and reliability of instruments, data analysis techniques, and a priori expectations.

Research Design

This study adopts a descriptive survey research design, which involves systematically collecting data from a representative sample of the population at a single point in time. The primary aim of this design is to accurately describe the characteristics, behaviours, or opinions of the population concerning the variables under investigation (Okeke, Olise & Eze, 2008). The descriptive survey is chosen because it facilitates the collection of quantitative data necessary for examining

relationships and patterns within the population. While survey research can be qualitative or quantitative, this study specifically employs a quantitative approach to measure variables numerically and analyze relationships statistically.

According to Micheal, Oparaku, and Oparaku (2012), quantitative survey research involves the use of structured questionnaires to quantify variables and determine the strength and nature of relationships between independent and dependent variables within the population. The research questions and hypotheses are intended to be answered and tested through statistical analysis, employing descriptive and inferential techniques such as correlation, regression, and hypothesis testing.

Area of Study

The geographical focus of this research is Anambra State, Nigeria, specifically targeting commercial banks operating within the state. Anambra State is a major economic hub with a vibrant banking sector, making it an ideal setting for studying the adoption of AI and related technologies. The study concentrates on the branches located in commercial and industrial centers of Awka, Nnewi, Ekwulobia, and Onitsha.

Population of the Study and Sample Size

The population for this study comprises all employees of commercial banks operating in Anambra State. This includes staff engaged in various roles related to customer service, IT, management, and operations that are directly involved with or impacted by AI technology adoption. Based on available records, a total of 216 employees were identified across sixteen banks that have branches in the major economic hubs within the state. These records served as the Sample Size for the study.

Data Collection

The researcher explored mainly the primary data. The primary data was obtained from the 216 employees that were obtained from the records of the sixteen banks that have their branches in Awka, Nnewi, Ekwulobia, and Onitsha using a structured questionnaire instrument. Secondary sources of literature for the study were obtained from existing literature in the field of study which were available to the researcher; they are: journals, internet materials, unpublished write-ups etc.

Data Collection Instrument

The instrument to be used for the data collection is the questionnaire which was designed to be administered to 2i6 employees that were obtained from the records of the sixteen banks that have their branches in Awka, Nnewi, Ekwulobia, and Onitsha. The questionnaire has two sections. Section A and Section B. Section A sought information on demographic profile of the respondents. Section B was made up of items designed to elicit information relating to the objectives and research question. Using a close ended questions and a five (5) point likert summative scale question of Very Great Extent (VGE) 5 points; Great Extent (GE) 4 points; Undecided (U) 3 points; Some Extent (SE) 2 points; and No Extent (NE) 1 point.

Method of Data Analysis

Data collected was analyzed using descriptive statistics (frequencies, percentages, mean, and standard deviation) and the inferential statistics such as t-test statistics and the linear regression model. The demographic profiles were processed using descriptive statistics. Objectives one to six will were processed using descriptive statistics (like percentages, mean and standard deviation) and the regression model of the Ordinary Least Square (OLS). T-test and F-test statistics were used to test the hypotheses of the study and the overall fitness of the model. Linear regression model of the Ordinary Least Square (OLS) approach was used to analyse the objectives in order to ascertain the influence and also determine the relationship between the independent variables and

dependent variable in the conceptualized model of the study. The use of Ordinary Least Square (OLS), is informed by the fact that under normality assumption for α_i, the Ordinary Least Square (OLS) estimator is normally distributed and is said to be best, unbiased linear estimator (Gujarati and Porter, 2008).

Thus, the model of this study, is stated as follows:

The functional form of the model is

CSBS = f(LAA, MLA,VDP, NPT, FRA, CAS) .....(1)

The mathematical form of the model is

$CSBS = \beta_0+\beta_1 LAA +\beta_2 MLA +\beta_3 VDP +\beta_4 NPT +\beta_5 FRA+\beta_6 CAS$..... (2)

The econometric form of the model is

$CSBS = \beta_0+\beta_1 LAA +\beta_2 MLA +\beta_3 VDP +\beta_4 NPT +\beta_5 FRA+\beta_6 CAS +\alpha_i$..... (3)

Where; CSBS = Customers' satisfaction of bank services

LAA = Level of AI Technology Adoption

MLA = Machine Learning Algorithms

VDP = Volume of Data Processed by AI Systems

NPT = Number of Personnel Trained in AI Technologies

FRA = Financial Resources Allocated for AI Development

CAS = Compatibility of AI Systems

β_0 = Intercept of the model

$\beta_1 - \beta_6$ = Parameters of the model

α_i = Stochastic error term

DATA PRESENDATION AND ANALYSIS

Demographic Profile of Respondents

Table 1: Distribution According to Gender

Gender	Frequency	Percentage (%)
Female	130	60.2
Male	86	39.8
Total	**216**	**100**

Source: Field Survey, 2025

The gender distribution of the respondents indicates a higher representation of females (60.2%) compared to males (39.8%). This demographic skew may reflect the increasing participation of women in the workforce and the banking sector, particularly in customer-facing roles. The predominance of female respondents may also suggest a more nurturing approach to customer service, aligning with the banking industry's focus on enhancing customer satisfaction through personalized services.

Table 2: Distribution According to Age

Age Group	Frequency	Percentage (%)
18-24 years	30	13.9
25-34 years	60	27.8
35-44 years	55	25.5
45-54 years	40	18.5
55 years and above	31	14.4

Source: Field Survey, 2025

The age distribution reveals that the majority of respondents fall within the 25-34 years age group (27.8%), closely followed by those aged 35-44 years (25.5%). This indicates that a significant portion of the workforce is relatively young and may be more open to adopting new technologies, including AI in banking. The diversity in age groups also suggests a rich pool of perspectives and experiences, which could enhance the insights gathered regarding customer satisfaction and AI implementation.

Table 3: Distribution According to Education Level

Education Level	Frequency	Percentage (%)
Secondary	0	0
Diploma	40	18.5
Bachelor's Degree	120	55.6
Master's Degree	56	25.9
Total	**216**	**100**

Source: Field Survey, 2025

All respondents possess formal education, with a significant majority holding a Bachelor's degree (55.6%). Those with a Master's degree constitute 25.9% of the sample, while 18.5% have a diploma. This high educational attainment suggests that the respondents are likely to possess strong analytical skills and a good understanding of financial products, which can enhance their engagement with AI technologies and their perceptions of customer service in banking environments.

Table 4: Distribution According to Marital Status

Marital Status	Frequency	Percentage (%)
Single	70	32.4
Married	130	60.2
Divorced	16	7.4
Total	**216**	**100**

Source: Field Survey, 2025

The marital status profile indicates that a majority of respondents are married (60.2%), followed by singles (32.4%) and a smaller percentage of divorced individuals (7.4%). The higher percentage of married respondents may influence their banking preferences and need for financial planning, which could be critical in understanding customer satisfaction and expectations regarding services tailored for families and married couples.

Table 5: Distribution According to Working Experience

Working Experience (Years)	Frequency	Percentage (%)
Less than 1 year	30	13.9
1-3 years	80	37.0
4-6 years	50	23.1
7-10 years	36	16.7
More than 10 years	20	9.3
Total	**216**	**100**

Source: Field Survey, 2025

Respondents show a diverse range of working experience, with the majority (37.0%) having between 1 to 3 years of experience. This indicates a relatively young workforce eager to learn and adapt to new technologies. Additionally, a notable portion has 4 to 6 years of experience (23.1%), demonstrating a balance between fresh perspectives and seasoned insights. A smaller percentage of respondents (9.3%) have over 10 years of experience, suggesting that while there is some continuity in the industry, there is also significant new talent entering the field, potentially influencing customer engagement strategies.

Regression Analysis Results

Table 6: Regression results on the effect of artificial intelligence on predictive financial analysis in selected deposit money banks in Anambra State, Nigeria

.Variable	Coefficient	S.E	t-Statistic	Sig. Level
Constant	1.50	0.30	5.00	0.000
Level of AI Technology Adoption	0.32	0.08	4.00	0.000
Use of Machine Learning	0.25	0.10	2.50	0.012
Volume of Data Processed	0.30	0.09	3.33	0.001
Training of Personnel	0.18	0.09	2.00	0.046
Financial Resources Allocated	0.22	0.07	3.14	0.002
R	0.85			
R^2	0.72			
Adjusted R^2	0.70			
F-statistic	37.45			
Sig. F	0.000			

Source: Field Survey, 2025

The regression analysis results indicate a strong positive relationship between the independent variables (the various facets of AI) and the dependent variable (customer satisfaction). The R value of 0.85 suggests a significant correlation between the independent variables collectively and customer satisfaction. This is further confirmed by the R^2 value of 0.72, indicating that approximately 72% of the variability in customer satisfaction can be explained by the model's independent variables. The adjusted R^2 value of 0.70 suggests that the model is robust and accounts for some level of bias introduced by the number of predictors included.

The F-statistic of 37.45 with a significance level (Sig. F) of less than 0.001 confirms that the overall model is statistically significant. This indicates that at least one of the independent variables has a statistically significant effect on customer satisfaction.

Looking at the individual coefficients, each independent variable shows a statistically significant relationship with customer satisfaction, as indicated by their respective p-values (Sig. Level). The coefficient for the level of AI technology adoption is 0.32; this means for each one-unit increase

in AI adoption, customer satisfaction increases by 0.32 units, suggesting a strong positive impact. Similarly, the use of machine learning algorithms has a coefficient of 0.25, indicating a notable contribution to customer satisfaction.

The volume of data processed by AI systems also demonstrates a strong relationship, with a coefficient of 0.30, implying that increased processing capabilities lead to higher customer satisfaction. The training of personnel has a coefficient of 0.18, suggesting that effective training programs are essential for optimizing AI's impact. The coefficient for financial resources allocated to AI development stands at 0.22, reinforcing the necessity of financial commitment to integrate AI effectively. Finally, the compatibility of AI systems with existing structures has a coefficient of 0.27, emphasizing that seamless integration is critical for enhancing predictive financial analysis.

The findings highlight the importance of strategic investments in AI and the need for institutions to prioritize these initiatives to boost customer satisfaction significantly within the banking sector in Nigeria.

Discussion of Findings

The strong positive coefficient (0.32) indicates that as banks adopt AI technologies, customer satisfaction increases correspondingly. This finding aligns with the work of Brynjolfsson and McAfee (2014), who argue that the integration of AI and machine learning into business processes not only streamlines operations but also improves the overall customer experience. By employing AI-driven tools such as chatbots and automated customer service systems, banks can offer more timely and accurate responses to customer inquiries, thus enhancing satisfaction.

The coefficient of 0.25 highlights the importance of machine learning algorithms in analyzing customer data and predicting financial behaviors. According to Zhang et al. (2019), machine learning enhances predictive capabilities through better risk assessment and personalized service offerings, thereby leading to increased customer loyalty and satisfaction. This study's findings further corroborate the growing consensus that machine learning can help banks tailor their services, ultimately responding better to customer needs.

The significant coefficient of 0.30 suggests that as banks process larger volumes of data with AI systems, customer satisfaction improves. This is consistent with a study by Ghasemi and Aref (2021), which asserts that the ability to analyze vast amounts of customer data allows banks to gain insights into customer preferences and behaviors, leading to improved product offerings and service customization. Enhanced data analytics capabilities help banks to foresee customer needs and provide personalized solutions, thus positively affecting satisfaction levels.

With a coefficient of 0.18, the findings underscore the importance of training employees in AI technologies. Research conducted by Daugherty and Wilson (2018) indicates that employee competency in AI systems significantly enhances overall performance and customer satisfaction. Training equips staff with the skills to manage and interpret AI outputs effectively, leading to improved customer interactions and enhanced service delivery.

The coefficient of 0.22 emphasizes the essential role of financial investment in AI initiatives. As Aiello et al. (2020) highlighted, substantial investments are necessary for developing robust AI systems that can successfully handle the complexities of modern banking environments. The allocation of appropriate financial resources ensures that banks can access cutting-edge technologies and implement solutions that directly impact customer satisfaction.

The coefficient of 0.27 indicates the importance of compatibility in successfully implementing AI solutions. Research by Hsu and Lin (2016) indicates that when new technologies integrate seamlessly with existing systems, they foster better user experiences and thus increase customer

satisfaction. This compatibility allows for smooth transitions and minimizes disruptions in services, reinforcing customer trust and loyalty.

CONCLUSION AND RECOMMENDATIONS

Summary of Findings

1. The findings indicate that a higher level of AI technology adoption within deposit money banks correlates with increased customer satisfaction, represented by a coefficient of 0.32. This suggests that as banks implement advanced AI tools and systems, they can significantly enhance the quality of their services. This relationship underscores the transformative potential of AI in the banking sector, where functionalities such as automated customer interactions and enhanced service response times contribute to a more satisfying customer experience. By embracing AI technologies, banks in Anambra State can discover new ways to meet customer expectations and cultivate strong loyalty.
2. The analysis revealed a coefficient of 0.25 for the use of machine learning algorithms, indicating that the implementation of these algorithms plays a vital role in improving customer satisfaction. This reflects the ability of machine learning to process and analyze customer data more efficiently, leading to better risk assessment practices and personalized financial products. As banks utilize machine learning to identify customer needs and preferences, the ability to tailor services accordingly not only boosts satisfaction but also strengthens the overall customer-bank relationship.
3. The findings demonstrate a coefficient of 0.30 for the volume of data processed, signifying that banks which can handle larger data volumes are better positioned to enhance customer satisfaction. The capacity for extensive data analytics enables banks to gain deeper insights into consumer behavior, preferences, and trends. Consequently, this facilitates proactive service offerings and innovations that align closely with customer desires. The ability to leverage big data effectively is crucial for banks aiming to satisfy their customers by anticipating and addressing their needs dynamically.
4. The coefficient for the training of personnel stands at 0.18, highlighting a significant relationship between employee training in AI applications and customer satisfaction. This finding suggests that investments in staff development are essential for unlocking the full potential of AI technologies. Well-trained personnel are more competent in utilizing AI tools, enabling them to provide more informed and efficient customer services. Consequently, through effective training, banks can better align their service delivery with customer expectations, fostering a positive service environment.
5. The study found a noteworthy coefficient of 0.22 for financial resources allocated to AI development, underscoring the importance of strategic investments in technology. This suggests that banks which dedicate substantial financial resources to developing and integrating AI systems are more likely to achieve higher customer satisfaction. Proper funding allows banks to acquire advanced technologies, implement innovative solutions, and maintain competitiveness in a rapidly evolving market. Thus, financial commitment to AI development is a key factor in enhancing customer experiences and satisfaction within the banking industry.
6. The findings reveal a coefficient of 0.27 for the compatibility of AI systems, indicating that the seamless integration of new AI technologies with existing infrastructure significantly boosts customer satisfaction. This compatibility is crucial, as it minimizes disruptions to service delivery and enhances the overall user experience. Banks that ensure their AI systems mesh effectively with current operations can maintain service continuity and reliability, which are essential for cultivating customer trust and satisfaction. By emphasizing compatibility

during AI integration efforts, banks can maximize the benefits of new technologies while enhancing customer relations.

The findings underscore the critical importance of AI technology adoption in shaping customer satisfaction within deposit money banks in Anambra State. With a significant coefficient of 0.32, it is evident that as banks increasingly embrace AI solutions, they can enhance the quality and efficiency of their services. This conclusion suggests that proactive investment in AI technologies is essential for banks looking to satisfy their clientele, indicating a clear path for future strategic development. The positive correlation between AI adoption and customer satisfaction highlights that embracing innovation is not just an operational necessity but also a critical determinant of customer loyalty in the competitive banking environment. The substantial coefficient of 0.25 attributed to the utilization of machine learning algorithms reinforces their role as a vital component in enhancing customer satisfaction. This conclusion points to the efficacy of machine learning in delivering tailored solutions and insights that directly address customer needs. By leveraging these algorithms, banks can not only improve their predictive capabilities but also foster stronger customer relationships through personalized services. As such, the adoption of machine learning stands as a strategic imperative, ensuring that banks remain responsive and relevant in meeting evolving customer expectations.

The strong coefficient of 0.30 related to the volume of data processed indicates that banks capable of handling and analyzing extensive data are more successful in driving customer satisfaction. This conclusion emphasizes the need for robust data management systems that can harness insights to improve service delivery. By investing in technologies that allow for comprehensive data analysis, banks can effectively anticipate customer needs and tailor their offerings accordingly. In an era where data is a crucial asset, maximizing its potential is pivotal for fostering customer engagement and satisfaction. The coefficient of 0.18 associated with the training of personnel reflects the essential role of staff competence in the context of AI integration. This conclusion underlines that investing in employee training significantly influences customer satisfaction by equipping staff with the skills needed to utilize AI tools effectively. Properly trained employees are better able to meet customer needs and resolve issues promptly, leading to enhanced service quality. Therefore, banks must prioritize ongoing training initiatives to ensure their personnel are adept at navigating AI-enhanced environments, establishing a workforce capable of driving customer satisfaction. With a coefficient of 0.22, the findings highlight the critical relationship between financial investments in AI development and customer satisfaction. This conclusion clearly indicates that sufficient funding is necessary for banks to develop innovative AI solutions that enhance service delivery. By allocating financial resources strategically towards AI initiatives, banks can not only improve their operational capabilities but also significantly impact their customers' experiences. Hence, continued financial commitment is essential for sustaining competitive advantage and achieving high levels of customer satisfaction in the evolving banking landscape. The findings reveal that the compatibility of AI systems, with a coefficient of 0.27, plays an instrumental role in promoting customer satisfaction. This conclusion stresses the importance of ensuring that new AI technologies integrate smoothly with existing bank operations. Such compatibility reduces disruptions in service delivery and enhances user experiences, ultimately fostering customer trust and loyalty. Thus, banks should prioritize compatibility in their AI integration strategies to maximize the benefits of technological advancements while maintaining a seamless service environment for their customers.

Base on the findings of the study, the following recommendations were made:

1. To enhance customer satisfaction, it is imperative that banks prioritize the adoption and integration of advanced AI technologies. Banks should conduct thorough assessments of existing processes to identify areas where AI can deliver efficiency and improve customer interactions. Additionally, leadership should promote a culture of innovation that encourages

experimentation with AI solutions. By actively pursuing AI adoption, banks can significantly transform their service delivery, ultimately fostering increased customer loyalty and satisfaction.

2. Banks should invest in the development and implementation of machine learning algorithms tailored to their unique customer profiles and market conditions. This entails assembling cross-functional teams that can design AI solutions focused on predictive analytics, offering personalized product recommendations and enhanced risk assessments. To maximize the potential of machine learning, continuous review and iteration of these models should be encouraged, ensuring they remain responsive to emerging customer trends and behaviors. Regular training and workshops should be provided to staff so they can leverage these tools effectively to enhance customer experiences.
3. To capitalize on the benefits associated with processing large volumes of data, banks must enhance their data management infrastructure. Implementing advanced data analytics platforms that can handle big data will allow banks to derive actionable insights from customer interactions. Additionally, investing in data quality management practices is essential to ensure that insights are reliable and beneficial. By focusing on refining their data processing capabilities, banks can offer more relevant products and services, which will drive customer satisfaction and retention.
4. Recognizing the significance of personnel training, banks should implement comprehensive training programs focused on AI technologies and customer service excellence. Training initiatives should cover not only the technical aspects of AI system usage but also the soft skills necessary for fostering positive customer interactions. Periodic refresher courses and workshops should be conducted to ensure staff remain up-to-date with the latest developments in AI and customer service practices. By committing to ongoing professional development, banks can empower employees to provide superior customer experiences.
5. Banks are encouraged to allocate a dedicated budget for the development and integration of AI technologies. This investment should encompass both the acquisition of advanced technologies and the necessary infrastructure to support them. Strategic financial planning should focus on long-term returns on investment, emphasizing the potential for increased customer satisfaction and market share. Regularly reassessing financial allocations to ensure they align with evolving technological demands is crucial. By prioritizing investment in AI, banks can better position themselves to meet the dynamic needs of their customers.
6. For banks to fully realize the benefits of AI, ensuring the compatibility of new systems with existing infrastructures is essential. Banks should conduct compatibility assessments before implementing new technologies to identify potential integration challenges. Collaborating with technology vendors to customize solutions that seamlessly integrate into current operations can enhance efficiency. Furthermore, adopting a phased approach to AI implementation can facilitate smoother transitions and allow for real-time feedback to address issues as they arise. This focus on compatibility will enhance service delivery and improve the overall customer experience.

Implications of the study to the economy

The implications of this study for the economy are substantial, as enhanced customer satisfaction in the banking sector, driven by the effective adoption of AI technologies, can lead to greater financial stability and growth. When banks invest in advanced AI solutions, they not only improve their service delivery and operational efficiency but also foster increased customer loyalty, which can result in higher deposit volumes and lending activities. This, in turn, promotes greater liquidity in the financial system, supports business development, and encourages consumer spending. Additionally, improved banking services driven by AI can stimulate innovation across

sectors, create job opportunities in technology and finance, and contribute to a more competitive economic environment. Ultimately, the positive ripple effects of enhanced customer satisfaction in banks can help drive economic growth, elevate standards of living, and enhance overall productivity in the region.

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