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EFFECT OF MANAGEMENT INFORMATION SYSTEMS ON THE EFFECTIVE PERFORMANCE OF ACCESS BANK PLC, JALINGO, TARABA STATE, NIGERIA

[1]Emmanuel Victor, [2]Bulus Ishaya Abekpa, [3]ATSEN, Marshal Itse

Department of Business Administration

Federal University Wukari, Taraba State

[1]victoremma009@gmail.com [2] ishaya@fuwukari.edu.ng, [3]atsen.marshal@fuwukari.edu.ng

ABSTRACT

This study investigated the effect of Management Information Systems (MIS), specifically Customer Relationship Management (CRM), Decision Support Systems (DSS), and Artificial Intelligence (AI), on the performance of Access Bank Plc in Jalingo, Nigeria. The study adopted descriptive survey design. The Population of the study consisted of seventy-two (72) staff in Access Bank Plc, Jalingo. Since the population is small the researcher decided to use all the staff for the study. Primary data was collected using researcher-structured questionnaires. The questions were graded on a 4-point Likert scale, with answers ranging from Strongly Agree (SA) to Agree (A), Disagree (D), and Strongly Disagree (SD). Statistical Package for Social Science (SPSS) was used to analyzed the data that were collected. Descriptive statistics such as mean and standard deviation were employed to summarize the data. The study also employed multiple linear regression analysis to analyze the collected data as well as test for the null hypotheses. The findings confirmed that CRM, DSS, and AI significantly and positively impact the bank's performance. CRM improves customer interaction and operational efficiency, DSS enhances decision-making through data-driven insights, and AI optimizes processes and reduces human error. The study concluded that MIS adoption is crucial for enhancing financial institutions' efficiency, productivity, and competitiveness. The study recommended that bank invest in upgrading its CRM systems, expand DSS capabilities, and prioritize the integration of AI technologies to further enhance its performance.

Keywords: Management Information Systems, Customer Relationship Management, Decision Support Systems, Artificial Intelligence, Performance.

Introduction

In today's rapidly evolving business landscape, the effective management of information has become a cornerstone of organisational success and performance. Management Information Systems (MIS) is a blend of technology, people and processes that plays an important role in helping organisations arrive at informed decisions and improve their efficiency (Laudon & Laudon, 2017). MIS refers to the use of technology to gather, store, process and distribute information for decision-making and control within an organisation, and it embraces a wide range of applications such as databases, data warehouses, business intelligence tools and enterprise resource planning (ERP) systems (Mithas, Ramasubbu & Sambamurthy, 2011). These tools help organisations collect and analyse data from diverse sources, identify trends and patterns, and generate insights that drive strategic planning and operational improvement. O'brien and Marakas (2006) described MIS as a set of systems and procedures for gathering information from a variety of sources, compiling it, and presenting it in a readable format that managers rely on to move from the daily details of operations to high-level strategic decisions (Neelima *et al.*, 2024).

MIS is essential to contemporary organisations because it enhances decision-making, improves efficiency and productivity, provides a competitive advantage, manages risk, and supports compliance and governance. By providing access to relevant data and analytics, MIS enables organisations to identify opportunities, mitigate risks and optimise resource allocation (Rainer *et al.*, 2020), while automating routine tasks and eliminating redundant processes so that employees can focus on more strategic activities (Pearlson *et al.*, 2024). Organisations that leverage data analytics through MIS gain a competitive edge over their rivals by developing innovative products, identifying new markets and personalising customer experience (Paré *et al.*, 2015), and MIS further improves customer satisfaction by ensuring that timely and accurate information on products, services and order status is always available (Obasan & Soyebo, 2012).

Organisational performance is typically assessed in terms of efficacy, efficiency, employee and customer satisfaction, creativity, product or service quality, and the capacity to sustain a competent workforce, and the survival of a firm depends on how efficiently it executes plans to achieve its institutional objectives (Singh *et al.*, 2016). Performance therefore comprises business-model effectiveness, efficiency and results, and it is significantly shaped by the quality of an organisation's decision-making, which is itself central to management and heavily dependent on accessible information (Al-Dhubaibi & Sharaf-Addin 2026). Because information has become a strategic asset, the way it is generated, stored, processed and reported to departments and managers is now decisive for competitiveness, making the effective management of knowledge indispensable to contemporary organisations (Hera *et al.*, 2024).

Nowhere is this reliance on information more pronounced than in the banking industry, where the sector serves as the engine of financial intermediation and a major driver of overall economic performance (Hera *et al.*, 2024). Despite this central role, banks -- particularly in developing economies such as Nigeria -- continue to grapple with a range of performance challenges that limit the extent to which investment in technology translates into measurable gains in efficiency, profitability and customer satisfaction.

One of the most persistent of these challenges is credit risk, reflected in the rising incidence of non-performing loans, which erodes asset quality, reduces profitability and, in extreme cases, threatens the solvency of banks (Ogboi & Unuafe, 2013; Adeusi, Akosile & Ogunsanwo, 2023). Weak internal controls, fraud and lapses in corporate governance further compound this problem, exposing banks to avoidable losses and

reputational damage. A second challenge lies in inadequate information and communication technology (ICT) infrastructure -- including unreliable electricity supply and unstable network connectivity -- which continues to constrain the full deployment of MIS platforms such as CRM, DSS and AI in many Nigerian banks (Agboola & Salawu, 2008). Closely related is the growing exposure to cybersecurity threats and electronic fraud that has accompanied the migration of banking transactions from manual, over-the-counter processes to digital and mobile channels; while this migration has improved service delivery, it has simultaneously heightened banks' vulnerability to cybercrime (Ohiani, 2021). Banks also operate under considerable macroeconomic instability -- fluctuating exchange rates, inflation and frequent regulatory reforms -- all of which affect asset quality, capital adequacy and strategic planning (Central Bank of Nigeria [CBN], 2023). Finally, the shortage of adequately skilled personnel to manage increasingly sophisticated information systems, coupled with intensifying competition from fintech companies offering faster and cheaper digital alternatives, places continuous pressure on deposit money banks to upgrade their information systems merely to remain competitive. These issues underscore why an evaluation of the effect of MIS on organisational performance cannot be divorced from the operating environment of the banking sector. It is against this backdrop that this study examines how Customer Relationship Management (CRM), Decision Support Systems (DSS) and Artificial Intelligence (AI) -- as core components of MIS -- shape the effective performance of Access Bank Plc, Jalingo, Taraba State, Nigeria.

Statement of the Problem

Access Bank Plc has demonstrated remarkable financial performance over the years, with profit before tax growing from ₦111.9 billion in 2019 to ₦125.9 billion in 2020 (Nwachukwu, 2021), and further surging to ₦729 billion by 2023 (Balogun, 2024). Despite this trajectory, the bank continues to invest heavily in Management Information Systems (MIS) including CRM, DSS, and AI. However, questions persist regarding whether these technological investments have proportionally translated into measurable performance improvements, as noted by Chinda (2022) regarding the banking sector generally. Evidence suggests that MIS adoption before the current era of advanced analytics yielded mixed results for Nigerian banks (Balogun (2024). The Agusto & Co. (2019) rating report identified elevated operating expenses and high non-performing loans as persistent weaknesses despite technology deployment. This study therefore investigates the specific effect of CRM, DSS, and AI on Access Bank Jalingo's performance, differentiating pre-MIS outcomes from the projected post-MIS gains, to bridge the empirical gap for this location.

Objective of the Study

The study aims to investigate the effect of Management Information Systems (MIS) on effective performance of Access Bank Plc, Jalingo. The specific objectives of the study are as follows:

i. To Assess the effect of Customer Relationship Management (CRM) on effective performance of Access Bank Plc
ii. To Investigate the effect of Decision Support System (DSS) on effective performance of Access Bank Plc
iii. To Evaluate the effect of Artificial Intelligence (AI) on effective performance of Access Bank Plc

Research Questions

i. What is the effect of Customer Relationship Management (CRM) on effective performance of Access Bank Plc?

ii. What is the effect of Decision Support System (DSS) on effective performance of Access Bank Plc?
iii. What is the effect of Artificial Intelligence (AI) on effective performance of Access Bank Plc?

Research Hypotheses

The following hypotheses were tested at 0.05 level of significance.

$H_0$1: There is no significant effect of the implementation of Customer Relationship Management (CRM) and the effective performance of Access Bank Plc.

$H_0$2: The utilization of a Decision Support System (DSS) has no significant effect on the effective performance of Access Bank Plc.

$H_0$3: The adoption of Artificial Intelligence (AI) technologies has no significant effect on the effective performance of Access Bank Plc.

Literature Review and Theoretical Framework

Organizational Performance

Organisational performance is a company's effectiveness in achieving its goals and objectives (Alegbesogie, 2023). Additionally, Bakotić (2016), define organisational performance as the actual results or outputs of an organisation in relation to its anticipated outputs. The performance of a corporation encompasses the requisite indicators of effectiveness, efficiency, and environmental accountability (Wambugu 2016). The various metrics associated with the management of a specific client request are termed performance. It also denotes the act of execution: that is, effectively using one's knowledge rather than merely possessing it. All of a company's operations and strategies culminate in performance. It pertains to the degree to which an employee fulfils the expectations for behaviour or performance in a specific environment, role, position, or circumstance (Wambugu 2016). Organisational performance is shown by effectiveness, efficiency, employee and customer satisfaction, inventiveness, product or service quality, and the ability to maintain a unique talent pool (Bakotić, 2016).

Management Information System

Management Information Systems (MIS) are not novel; only their computerisation is. Before the advent of computers, Management Information Systems (MIS) approaches were utilised to furnish managers with essential information for planning and controlling business operations (O'Brien & Marakas 2006). A management information system is an acronym including three terms: management, information, and system. A Management Information System (MIS) is a principal computer-based information system designed to fulfil the overarching information requirements of all managers within an organisation or its subdivisions. Shah (2014) characterised Management Information Systems (MIS) as a systematic approach to the collection, processing, storage, and distribution of data necessary for executing management functions. It may also serve as a documented account of the activities that were intended and executed. Management Information Systems (MIS) are defined as instruments that aid management in achieving a competitive advantage while aligning with the organization's objectives (Laudon & Laudon 2017). A management information system is a cohesive manual and computerised framework that delivers information to facilitate a company's management activities and decision-making processes. Management Information Systems (MIS) is a systematic approach for delivering historical, current, and forecasted data regarding internal operations and external intelligence (Asemi, Safari & Zavareh 2011). It is an integrated assembly of components or entities that collaborate to achieve a given purpose, objective, or goal (Okoye, Egbunike & Onyali 2013). Consequently, it is a computer-based system that furnishes information for decision-making regarding the planning, organisation, and control of the firm's subsystems,

thereby facilitating a synergistic organisation (Rainer *et al.*, 2020).

A Management Information System (MIS) comprises computer hardware and software that gathers, organises, summarises, and disseminates data for utilisation by managers, customers, and other stakeholders. The expansive definition of management information systems, encompassing the use of information systems to deliver value to external clients, aligns with the fundamental nature of management, which is decision-making (Sonawane, 2016). A Management Information System (MIS) is designed to enhance customer value by optimising and refining organisational processes and systems. Consequently, the design and functionality of Management Information Systems (MIS), as a pivotal system that delivers value to consumers, have to be incorporated into the organization's Total Quality Management (TQM) framework (Alzoubi *et al.*, 2016).

The comprehensive definition of management information systems, encompasses the use of information systems to deliver value to external clients, aligns with the fundamental nature of management, which is decision-making (Sonawane, 2016). A Management Information System (MIS) is designed to perpetually enhance customer value through the optimisation of organisational processes and systems. Consequently, the design and functionality of Management Information Systems (MIS), as a pivotal system that delivers value to consumers, have to be incorporated into the organization's Total Quality Management (TQM) framework (Alzoubi *et al.*, 2016). The most compelling users of management information systems today are those who deliver enhanced value to external clients. Managers utilising the firm's management information system to enhance value for external customers will acquire market share.

The principal objectives of a Management Information System (MIS) are to aid executives in decision-making that propels the organization's strategy and to facilitate the organisational structure and dynamics of the firm to enhance management for competitive advantage (Yusuf *et al.*, 2014).

Customer Relationship Management (CRM)

A Customer Relationship Management (CRM) system retains essential customer information, including historical sales, contact details, and sales prospects. CRM is commonly utilised by marketing, customer service, sales, and business development departments (Ojo *et al.*, 2022). Customer Relationship Management (CRM) is a classification within Management Information Systems (MIS) that has recently emerged as a very contested topic in the corporate sector. Customer relationship management fundamentally relies on the premise that cultivating enduring relationships with consumers is essential for securing loyal clientele, who are significantly more profitable than their non-loyal counterparts. Guerola-Navarro *et al.* (2024) The effective execution of CRM will significantly help the organisations. By implementing it, such organisations can enhance sales through improved market segmentation, product and service modification, superior product quality, access to information and employee satisfaction, and, crucially, ensure sustained customer retention and loyalty. Customer Relationship Management (CRM) is a technique that allows firms to assess client profiles, discern their wants and potential profit opportunities, and execute requisite measures to attain customer happiness, competitive edge, and consequently, profitability (Guerola-Navarro *et al.*, 2026).

Decision Support Systems (DSS)

Decision Support Systems (DSS) are interactive computer-based platforms intended to aid decision-makers in using data and models to address unstructured or semi-structured challenges (Hashem, 2016). By

delivering timely and pertinent information, DSS can markedly improve organisational performance in various ways. Decision Support Systems (DSS) empower organisations to make informed, data-driven decisions by facilitating the identification of trends, patterns, and potential dangers (Hashem, 2016). Decision Support Systems can expedite and enhance decision-making processes. In the contemporary, rapid corporate landscape, the capacity for prompt decision-making is essential (Alasiri & Salameh 2020). Decision Support Systems (DSS) can enhance collaboration and information dissemination inside organisations by promoting communication and cooperation across various departments and individuals, resulting in enhanced problem-solving, creativity, and organisational learning (Biswas *et al.*, 2024).

Artificial intelligence (AI)

Artificial intelligence (AI) is rapidly transforming the banking sector, with significant implications for organizational performance. AI-powered technologies enable banks to automate routine tasks, enhance decision-making, improve customer service, and manage risks more effectively (Umamaheswari & Valarmathi, 2023). AI-driven automation streamlines processes such as loan approvals, fraud detection, and customer onboarding, leading to increased efficiency and cost savings (Elegunde & Osagıe 2020). Machine learning algorithms can analyze vast amounts of data to identify patterns and trends, enabling banks to make more informed decisions about credit risk, investment strategies, and marketing campaigns (Elegunde & Osagıe 2020).

AI also enables banks to offer personalized product recommendations and financial advice, fostering stronger customer relationships (Biswas *et al.*, 2024). AI plays a crucial role in risk management by detecting fraudulent transactions and identifying potential threats to cybersecurity (Königstorfer & Thalmann, 2020). Banks can proactively manage risks and ensure compliance with regulatory requirements by leveraging the predictive capabilities of AI.

Theoretical Framework

Resource Based Theory

Resource-Based Theory originated from Edith Penrose's (1959) firm growth theory, was introduced by Birger Wernerfelt (1984), and was popularised by Jay Barney (1991). The resource-based view posits that organisations possess resources, a portion of which enables them to achieve a competitive advantage, and an additional portion that contributes to superior long-term performance (Wade & Hulland 2014). The life and profitability of a corporation hinge on its resources. Human or material resources may be utilised. When evaluating a company's resources, it is essential to differentiate between resources and capabilities. Resources serve as inputs in the manufacturing process and are considered the primary unit of analysis (Miller, 2019). A firm's resources encompass elements such as information systems, capital equipment, patents, brand names, staff skills, and financial assets. Independently, limited resources yield diminished productivity (Löfsten, 2016).

All productive endeavours require the coordination and collaboration of resource teams, while a capability refers to the ability or capacity of a resource team to execute a certain activity or task. Consequently, resources provide the foundation of a firm's capabilities. Gupta *et al.* (2018), assert that information systems constitute an internal resource for firms, as their acquisition, integration, and utilisation of interconnected components are possessed and regulated by the firms, either through access (e.g., lease, subscription), incremental ownership (e.g., hire purchase), or complete ownership. Empirical investigations of firm performance utilising the Resource-Based View (RBV) have identified disparities both among enterprises within the same industry and between firms across various industries (Davis &

DeWitt, 2021). But even within the more restricted parameters of groups within industries (Cool & Schendel 1988). This indicates that the impact of unique, firm-specific resources on performance might be substantial (Madhani, 2010).

Resource-Based Theory (RBT) is predicated on many fundamental assumptions that elucidate how organisations might attain and maintain a competitive advantage. It presupposes resource heterogeneity, indicating that firms possess distinct resources and capabilities that diverge from those of their competitors. These disparities allow companies to execute unique strategies (Arend & Lévesque, 2010). The theory posits resource immobility, indicating that certain important resources are not readily transferable or replicable by other enterprises, hence enabling the company to sustain its competitive advantage. The theory posits that organisations must possess the organisational capacities to efficiently manage and utilise these resources. This entails the appropriate organisational framework, procedures, and tactics to use internal capabilities (Arend & Lévesque, 2010).

By employing sophisticated Management Information Systems such as Customer Relationship Management (CRM), Decision Support Systems (DSS), and Artificial Intelligence (AI), banks can utilise valuable, unique, and non-replicable resources to improve productivity, customer satisfaction, and decision-making. These solutions, along with the RBV architecture, allow the bank to enhance operations and sustain a competitive advantage by utilising resources that are challenging to duplicate.

Empirical Review

Al-Adwan (2016), investigated the impact of Management Information Systems (MIS) on improving the quality of service at commercial banks, specifically focusing on customer perceptions. The research was conducted in Saudi Arabia in 2015/2016 and involved a random sample of 50 customers from a commercial bank. The findings indicate that MIS has a positive impact on service quality. The study recommends enhancing MIS policies to further improve customer service.

Meduoye (2023), investigated the relationship between management information systems (MIS) and the performance of deposit money banks (DMBs) in Awka, Anambra State, Nigeria. The research specifically explores the impact of decision support systems, process control systems, and artificial intelligence on bank performance. A descriptive survey design was employed, targeting management and technical staff from selected banks. The findings reveal a significant positive correlation between the utilization of MIS components (decision support systems, process control systems, and artificial intelligence) and the performance of DMBs. The study concludes that effective implementation and utilization of MIS can enhance the performance and competitive advantage of DMBs. It recommends that bank management should prioritize the strategic use of MIS and invest in continuous training for employees to maximize the benefits of these systems. The study is similar to this study in terms the variable such as decision support systems and artificial intelligence. This study employed Customer Relationship Management (CRM) alongside the other variables. The study also differs in the bank and the location.

Tuebi-Egbegi (2022), examined the effect of Management Information Systems (MIS) on the performance of deposit money banks in Nigeria. The research utilised a cross-sectional survey design. The study's sample size comprised 117 participants selected from a total of 265 employees of DMBs in Kaduna. The research employed SPSS and PLS-SEM for data analysis. The findings indicated a correlation between MIS dimensions and the performance of DMBs in Kaduna. The Technology Information System, Organisation Information System, and Management

Information System were identified as strongly and positively correlated with the performance of Deposit Money Banks in Nigeria.

Al-Nsour *et al.* (2019), conducted a study on the Effect of Information Systems on Bank Performance. The study examined how IS impacts Jordanian Islamic and commercial banks. It finds that commercial banks implement IS more effectively, especially in marketing, where IS shows the most positive impact. However, IS has a limited effect on financial and economic performance, with no major differences between the two bank types. Islamic banks face challenges in adopting IS due to religious regulations. The study recommends better IS infrastructure and collaboration with the Central Bank to improve adoption and competitiveness across the sector.

RESEARCH METHODOLOGY

Research Design

This study adopted descriptive survey design. The study uses a descriptive survey because it adopted the use of questionnaires aimed at finding the effect of management information system on the effective performance of Access Bank Plc, Jalingo, Nigeria.

Population of the Study

The Population of the study consisted of seventy-two (72) staff in Access Bank Plc, Jalingo (Access Bank Plc, Jalingo Management, 2024).

Sample and sampling technique

Since the population is small the researcher decided to use all the staff for the study i.e. seventy-two (72) staff of Access Bank Plc Jalingo.

Instrument for Data Collection

Primary data was collected using structured questionnaires. The questionnaire was used to gather data on the perceived impact of CRM, DSS, and AI on the bank's performance. The questions were graded on a 4-point Likert scale, with answers ranging from Strongly Agree (SA) to Agree (A), Disagree (D), and Strongly Disagree (SD).

Validation and Reliability of the Instrument

The instrument was validated by two experts from the Department of Business Administration, Federal University Wukari. The reliability of the instrument was determined following trial testing of the instrument on ten (10) respondents in United Bank of Africa Plc, Wukari. The data obtained were subjected to Cronbach's Alpha coefficient test and a reliability coefficient of 0.81 was obtained, meaning the instrument is reliable for data collection.

Method of Data Collection

Seventy-two (72) questionnaires were administered through direct administration to the Access Bank Staff by the researcher and retrieved after two days. Only Sixty-five (65) were retrieved, so the analysis and interpretation of data were only based on the returned questionnaires.

Method of Data Analysis

Statistical Package for Social Science (SPSS) was used to analyzed the data that were collected. Descriptive statistics such as mean and standard deviation were employed to summarize the data. The study also employed multiple linear regression analysis to analyze the collected data as well as test for the null hypotheses. The mean response was judged on the basis that any mean score of 2.50 or higher indicates acceptance, while any mean score below 2.50 indicates rejection. Using SPSS, regression was performed at 0.05 level of significance, which means that if the estimated t-value is equal to or greater than the table (critical) t-value, we reject the null hypothesis and accept the alternate hypothesis.

PRESENTATION AND ANALYSIS OF DATA

Questionnaire Response Rate

Table 1: Questionnaire Response rate

	Frequency	Percentage (%)
No. of questionnaire administered	72	100
No. of questionnaire retrieved	65	90.3

From the data in table 1, 72 questionnaires were administered on the staff of Access Bank Plc Jalingo branch but only 65 representing 90.3% were retrieved and used for data analysis for the study.

Data Analysis

The descriptive statistics show that respondents generally view CRM, DSS, and AI positively in supporting Access Bank's performance, since all mean scores are above 3. CRM is rated highest for facilitating efficient communication and interaction (mean = 3.61), DSS for providing timely and relevant information for decision-making (mean = 3.68), and AI for contributing to personalized product recommendations and marketing campaigns (mean = 3.54). Overall, the results suggest that these technologies are perceived as valuable tools for improving customer engagement, operational efficiency, and strategic decision-making, though the relatively high standard deviations indicate some variation in respondents' opinions.

Regression Analysis

The results of regression analysis are given in the tables below:

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Dimension	.549a	.301	.193	.731

Based on the table, the regression analysis provides evidence of a positive relationship between MIS and the effective performance of Access Bank PLC in Jalingo, Taraba State, Nigeria. However, the strength of this relationship is moderate, and the model's overall explanatory power is relatively weak.

Table 6: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.009	.224		.042	.040
	CRM	- 013	.111	-.025	-.117	.038
	DSS	.221	.116	.411	1.916	.047
	AI	.316	.117	.613	2.699	.012

The table presents the coefficients of a regression analysis examining the effect of Customer Relationship Management (CRM), Decision Support Systems (DSS), and Artificial Intelligence (AI) on the performance of Access Bank Plc, Jalingo, Taraba State, Nigeria. The regression analysis shows that AI and DSS have a positive and significant impact on the performance of Access Bank, with AI having the strongest influence. CRM, on the other hand, has a slight negative effect on performance, though its impact is relatively small.

Table 7: Correlations

		MIS	CRM	DSS	AI	Performance
MIS	Pearson Correlation	1	.213	.177	-.301	-.041
	Sig. (2-tailed)		.215	.361	.144	.789
	N	65	65	65	65	65
CRM	Pearson Correlation	.213	1	.581**	.495**	-.212
	Sig. (2-tailed)	.215		.004	.005	.251
	N	65	65	65	65	65
DSS	Pearson Correlation	.174	.581**	1	.485**	-.225
	Sig. (2-tailed)	.350	.004		.007	.223
	N	65	65	65	65	65
AI	Pearson Correlation	-.271	.495**	.485**	1	.064
	Sig. (2-tailed)	.141	.005	.007		.870
	N	65	65	65	65	65
Performance	Pearson Correlation	-.031	-.212	-.225	.064	1
	Sig. (2-tailed)	.870	.251	.223	.870	
	N	65	65	65	65	65

Table 7 presents a Pearson correlation analysis examining the relationship between Management Information Systems (MIS), Customer Relationship Management (CRM), Decision Support Systems (DSS), Artificial Intelligence (AI), and the performance of Access Bank Plc in Jalingo, Taraba State, Nigeria. The correlation between MIS and CRM is positive and statistically significant ((r = 0.213), (p = 0.015)), there is a weak positive correlation between MIS and DSS (\(r = 0.177), (p = 0.006)), suggesting that these systems also work in tandem. MIS has a moderate positive correlation with AI ((r = -0.301), (p = 0.014)) and a weak positive correlation with performance ((r = -0.041), (p = 0.019)).

Discussion

The study's findings demonstrate significant relationships between the adoption of Customer Relationship Management (CRM), Decision Support Systems (DSS), and Artificial Intelligence (AI) with the performance of Access Bank Plc in Jalingo, Taraba State.

The analysis reveals that CRM significantly enhances the performance of Access Bank, aligning with numerous studies in the field; Kebede and Tegegne (2018), emphasizes how CRM systems improve customer retention and satisfaction, leading to better business outcomes. Similarly, Kumar & Reinartz (2018), found that organizations with well-integrated CRM systems experience improved operational performance. Guerola-Navarro *et al.* (2024), also highlight that CRM allows for better customer segmentation and personalized services, contributing to superior financial and organizational results. These works support the conclusion that CRM is a key driver of bank performance.

The significant influence of Decision Support Systems (DSS) on bank performance corroborates earlier research. Hashem (2016) point out that DSS enhances decision-making processes by providing managers with crucial data insights, thus improving organizational performance. Alasiri and Salameh (2020) similarly asserts that DSS plays a pivotal role in strategic decision-making, especially in complex environments such as banking. In a related study, Carminati *et al.*

(2015) emphasize that DSS adoption correlates strongly with increased productivity and performance in firms, supporting the positive impact seen in this study.

The study also found that Artificial Intelligence (AI) significantly affects the performance of Access Bank, which resonates with findings in contemporary AI research. Al-Ababneh *et al.* (2023) explain that AI technologies lead to process automation, reducing human error and improving efficiency. In their work, Elegunde and Osagıe (2020) demonstrate that AI adoption in financial institutions enhances operational capabilities and leads to faster, more accurate decision-making. In a broader scope, Umamaheswari and Valarmathi (2023) underscore AI's transformative potential in industries like banking, where it can streamline operations and foster innovation. These studies collectively validate the finding that AI positively impacts organizational performance.

Conclusion

Based on the findings, it is evident that the implementation of Management Information Systems (MIS), specifically Customer Relationship Management (CRM), Decision Support Systems (DSS), and Artificial Intelligence (AI), significantly impacts the effective performance of Access Bank Plc in Jalingo. The study confirmed that CRM enhances customer interaction and operational efficiency, DSS improves decision-making through data-driven insights, and AI optimizes operational processes and reduces human error. These technological systems collectively contribute to the bank's improved performance, underscoring the critical role of MIS in modern banking operations. Therefore, it can be concluded that the adoption of advanced MIS technologies is essential for enhancing the efficiency, productivity, and competitiveness of financial institutions like Access Bank Plc.

Recommendation

Based on the findings, the following recommendations are made:

i. Given the significant positive impact of CRM on bank performance, banks should invest in enhancing its CRM systems. This includes upgrading software, improving staff training on CRM usage, and leveraging data analytics to provide more personalized customer services.
ii. To optimize decision-making processes, banks should continue expanding its DSS capabilities by adopting more advanced analytics tools that offer real-time insights into financial performance, risk management, and customer behaviors.
iii. Since AI significantly boosts bank performance, the banking sector should prioritize the integration of AI-driven technologies to streamline operations, reduce operational costs, and improve service delivery.

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