

PERCEIVED IMPACT OF ARTIFICIAL INTELLIGENCE (AI) ON FINANCIAL MANAGEMENT OF SMALL AND MEDIUM ENTERPRISES (SMEs) IN THE NORTH-CENTRAL STATES, NIGERIA

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Abstract

This study investigated the influence of artificial intelligence (AI) on financial management of small and medium enterprises (SMEs) in the North-Central States, Nigeria. Specifically, the study examined the influence of artificial intelligence (AI) on financial budgeting, and financial control of small and medium enterprises (SMEs) the North-Central States, Nigeria. Two (2) research questions and two (2) research hypotheses respectively guided the study. The descriptive survey design was adopted for the study. The population of the study comprised 2,450 (two thousand four hundred and fifty) registered small and medium enterprises (SMEs) in the North-Central States, Nigeria. A sample of 344 (three hundred and forty-four) SMEs owners/managers in the North-Central States Nigeria, was used for the study. A multistage sampling technique involving purposive and simple random sampling methods was employed in selecting the respondents. A 20-item self-structured questionnaire titled “Influence of Artificial Intelligence on Financial Management among Small and Medium Enterprises Questionnaire (IAIFMSMEQ)” was used for data collection. Descriptive statistics of Mean and Standard Deviation were used to answer the research questions while the Chi-Square (χ^2) statistical tool was used to test the hypotheses at 0.05 level of significance. The findings revealed that artificial intelligence (AI) has significant impact on financial budgeting, and financial control among small and medium enterprises (SMEs) in the North-Central States, Nigeria. Conclusion were made and implication of the findings drawn. Based on the findings of the study, it was recommended amongst that finance managers and small and medium enterprises (SMEs) operators should use artificial intelligence (AI) forecasting to predict cash flow, income, and expenses, helping small and medium enterprises (SMEs) plan for seasonal peaks and avoid shortages.

Keywords: Artificial Intelligence, Financial Management, Small and medium enterprises (SMEs), Financial Budgeting, Financial Control

Introduction

The advancement of technology has continued to reshape business operations across the globe, impacting how organizations manage their resources, make decisions, and achieve competitive advantage. One of the most significant technological innovations of the twenty-first century is artificial intelligence. Artificial intelligence refers to the ability of computer systems and machines to perform tasks that traditionally require human intelligence, such as learning,

reasoning, problem-solving, decision-making, data analysis, and prediction (Ifegwu, Chidiebere & Okoliko, 2021). Over the years, artificial intelligence (AI) has evolved from a theoretical concept into a practical tool that is increasingly being adopted across various sectors, including healthcare, education, agriculture, manufacturing, banking, and business management. Its growing application has transformed traditional business practices and created new opportunities for efficiency, productivity, and innovation (Ayetigbo, Okoliko, & Adebayo, 2020).

Globally, organizations are increasingly integrating artificial intelligence into their financial management practices to improve productivity and competitiveness. Businesses now utilize AI for automated bookkeeping, intelligent auditing, cash flow forecasting, financial risk assessment, credit analysis, tax management, and investment planning. Elujekwute, Nwaokwa, Aja, and Oigoche (2021) affirm that these innovations have demonstrated the potential of artificial intelligence (AI) to revolutionize financial management by providing real-time insights and facilitating data-driven decisions. As digital transformation continues to gain momentum, SMEs are expected to leverage artificial intelligence (AI) technologies to remain competitive in rapidly changing business environments. Okeke, Bakare, and Achumi (2024) report that in developing countries such as Nigeria, the adoption of artificial intelligence (AI) among SMEs is gradually increasing, although several barriers remain. Factors such as inadequate technological infrastructure, high implementation costs, limited digital literacy, poor internet connectivity, and lack of awareness continue to affect the rate of AI adoption among SME operators. Okolie, (2022) points out that nevertheless, growing access to digital tools, mobile technologies, cloud computing, and fintech solutions have created opportunities for SMEs to integrate artificial intelligence (AI) into their financial management processes. As more businesses recognize the benefits of AI, there is increasing interest in understanding its impact on financial decision-making and organizational performance.

The emergence of Artificial intelligence presents new opportunities for addressing many of these financial management challenges. Olawoyin, Adebayo, and Ogunleye, (2025) explain that AI-powered technologies have the capacity to automate financial processes, analyze large volumes of financial data, generate accurate forecasts, detect fraudulent transactions, improve budgeting efficiency, and support strategic decision-making. Afokoghene, Ohre, and Uduezue, (2025) express that through machine learning algorithms and predictive analytics. AI can help business owners identify financial trends, anticipate risks, optimize resource allocation, and improve overall financial performance. Furthermore, AI-driven accounting software and financial management systems can reduce human errors, enhance accuracy in financial reporting, and increase operational efficiency. Mohammad and Suleiman (2022) postulates that in the business environment, financial management remains one of the most critical functions necessary for organizational survival and growth. Financial management involves the planning, organizing, directing, and controlling of financial activities such as budgeting, investment decisions, cash flow management, financial reporting, risk management, and resource allocation. Eze and Onyelewelu (2024) note that effective financial management enables businesses to maximize profits, minimize costs, maintain liquidity, and achieve long-term sustainability. For Small and Medium Enterprises (SMEs), financial management is particularly important because these enterprises often operate with limited financial resources and face numerous challenges related to access to finance, record-keeping, financial planning, and risk management.

Financial budgeting is one of the most important aspects of financial management because it involves estimating future income and expenditures, allocating resources, setting financial targets, and planning business activities within a specified period. Ayetigbo, Okoliko, and Adebayo (2020) state that effective budgeting enables SMEs to manage limited resources efficiently, control costs, and achieve organizational goals. However, traditional budgeting methods often rely heavily on manual calculations, historical records, and personal judgment, which may result in inaccuracies and poor financial decisions. Ebuka, Emmanuel, and Idogo (2023) affirm that the emergence of artificial intelligence (AI) has transformed budgeting practices by providing automated and data-driven solutions that improve forecasting accuracy and financial planning. Ebuka, Emmanuel and Idogo further maintain that AI systems can analyze large volumes of financial data, identify spending patterns, predict future financial trends, and generate realistic budget projections. Through machine learning and predictive analytics, AI assists SME owners in making informed budgeting decisions, reducing financial uncertainties, and optimizing resource allocation. In the North-Central States of Nigeria, where many SMEs operate under conditions of financial constraints and economic uncertainty, the adoption of AI-based budgeting tools has the potential to improve financial planning, enhance operational efficiency, and promote business sustainability (Elujekwute, Nwaokwa, Aja, & Oigoche, 2021).

Financial control refers to the processes and mechanisms used by organizations to monitor, regulate, and evaluate financial activities in order to ensure that resources are utilized efficiently and in accordance with established financial objectives (Nwagbala, Ezeanokwaza, Nwachukwu, Uzodike, & Nwosu, 2025). Effective financial control helps businesses prevent wastage, detect errors, reduce fraud, maintain accountability, and improve financial performance. Oguche, Agbo and Okoko (2024) note that many SMEs, however, face challenges in maintaining adequate financial control due to weak internal control systems, poor record keeping, and limited financial management expertise. Artificial intelligence has emerged as a valuable tool for strengthening financial control through the automation of financial monitoring and reporting processes. Umar, Abdulmumini, and Aisha (2024) report that AI-powered technologies can track transactions in real time, identify unusual financial activities, detect fraudulent transactions, minimize human errors, and provide timely financial reports for decision-making. Furthermore, AI systems can continuously monitor financial operations and alert managers to potential risks before they become significant problems. For SMEs in the North-Central States, Nigeria, the integration of AI into financial control systems can enhance transparency, improve accountability, strengthen financial discipline, and contribute to better financial management outcomes (Yusuf, Dorodola, Abubakar, Echeré & Adedamola, 2024).

Small and medium enterprises (SMEs) constitute a vital component of economic development in both developed and developing countries. They contribute significantly to employment generation, poverty reduction, industrial development, innovation, and economic diversification. In Nigeria, small and medium enterprises (SMEs) are recognized as the backbone of the economy due to their substantial contribution to Gross Domestic Product (GDP), job creation, and wealth generation (SMEDAN (2020)). Across the North-Central geopolitical zone of Nigeria, which comprises Benue, Kogi, Kwara, Nasarawa, Niger, Plateau States, and the Federal Capital Territory (FCT), SMEs play a crucial role in stimulating local economic activities, supporting livelihoods, and promoting regional development. These enterprises operate in diverse sectors such as agriculture, manufacturing, trade, transportation,

hospitality, and services. Despite their importance, SMEs in North-Central States, Nigeria continue to face significant financial management challenges (Nkwinika, & Akinola, 2023). Many SME owners lack adequate financial knowledge and technical expertise required for effective budgeting, accounting, financial forecasting, and investment decision-making. Nkwinika and Akinola further remark that poor record-keeping practices, inefficient cash flow management, limited access to credit facilities, fraud risks, and inadequate financial planning often hinder their growth and sustainability. These challenges have contributed to the high failure rate of SMEs in North-Central States, and Nigeria in general, thereby limiting their potential contribution to economic development. Muktar, Ufua and Uchechukwu (2024) explain that although several studies have examined artificial intelligence and business performance in developed economies, there remains limited empirical evidence regarding its perceived impact on the financial management practices of SMEs in North-Central States, Nigeria. Muktar, Ufua, and Uchechukwu further maintain that most existing studies focus on large corporations, banking institutions, or general technology adoption, with less attention given to SMEs operating within the unique socio-economic context of the region. Furthermore, the rapid advancement of AI technologies has created a need for continuous research to understand how these innovations affect financial management practices among small businesses. Therefore, it is against this background that this study intends to investigate the perceived impact of Artificial Intelligence on the financial management of Small and Medium Enterprises (SMEs) in the North-Central States of Nigeria,

Statement of the Problem

Financial management is a critical function that determines the survival, growth, and sustainability of small and medium enterprises (SMEs). Effective financial management enables enterprises to plan their financial activities, allocate resources efficiently, monitor expenditures, maintain financial discipline, and achieve organizational objectives. Among the key components of financial management are financial budgeting and financial control, which help businesses to forecast future financial needs, regulate expenditures, prevent financial losses, and ensure the efficient utilization of available resources. However, many SMEs in the North-Central States of Nigeria continue to experience challenges in these areas due to inadequate financial expertise, poor record-keeping practices, and limited access to financial information, and ineffective financial monitoring systems (Mohammad, & Suleiman, 2022).

Despite the significant role of SMEs in promoting employment, income generation, and economic development, many of these enterprises struggle with budgeting inaccuracies, cash flow problems, inefficient resource allocation, and weak financial control mechanisms. These challenges often result in poor financial decisions, business instability, reduced profitability, and, in some cases, business failure. The inability of SME operators to accurately predict financial trends and effectively monitor financial activities has continued to hinder their capacity to compete and grow in an increasingly dynamic business environment. The emergence of artificial intelligence (AI) has introduced innovative solutions capable of improving financial management practices within organizations. AI technologies can automate budgeting processes, analyze financial data, generate accurate forecasts, identify spending patterns, and provide real-time financial insights. Through predictive analytics and machine learning algorithms, AI can support SME owners in preparing realistic budgets, making informed financial decisions, and improving the efficiency of financial planning. Similarly, AI-powered systems can strengthen financial control by detecting irregular transactions,

minimizing human errors, monitoring financial activities, preventing fraud, and enhancing accountability within business operations.

Although the potential benefits of artificial intelligence in financial management have been widely acknowledged, the extent to which SMEs in the North-Central States of Nigeria perceive and utilize AI for financial budgeting and financial control remains uncertain. Many SME operators may still rely on traditional financial management methods due to inadequate awareness, limited technological knowledge, financial constraints, or lack of access to AI-based financial tools. Consequently, the perceived impact of AI on improving budgeting practices and strengthening financial control among SMEs in the region has not been sufficiently established. Based on these observations, this study intends to investigate the perceived impact of artificial intelligence on the financial management of small and medium enterprises (SMEs) in the North-Central States, Nigeria.

Purpose of the Study

The purpose of this study is to investigate the perceived impact of artificial intelligence on the financial management of small and medium enterprises (SMEs) in the North-Central States, Nigeria. Specifically, the study sought to:

1. Determine the perceived impact of artificial intelligence on financial budgeting among small and medium enterprises (SMEs) in the North-Central States, Nigeria.
2. Examine the perceived impact of artificial intelligence on financial control among small and medium enterprises (SMEs) in the North-Central States, Nigeria.

Research Questions

The following research questions guided the study.

1. What is the perceived impact of artificial intelligence on financial budgeting among small and medium enterprises (SMEs) in the North-Central States, Nigeria?
2. What is the perceived impact of artificial intelligence on financial control among small and medium enterprises (SMEs) in the North-Central States, Nigeria?

Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance.

1. Artificial Intelligence has no significant perceived impact on financial budgeting among small and medium enterprises (SMEs) in the North-Central States, Nigeria.
2. Artificial intelligence has no significant perceived impact on financial control among small and medium enterprises (SMEs) in the North-Central States, Nigeria.

Review of related Literature

This section reviewed the literature which is pertinent and relevant to the study.

Concept of Artificial Intelligence (AI)

Artificial intelligence (AI) refers to the development of computer systems that can perform tasks that typically require human intelligence, such as learning, problem-solving, decision-

making, and perception (Igomu, Kwaghbo, Nayla & Elujekwute, 2024). In the context of financial management, artificial intelligence (AI) involves the use of advanced technologies like machine learning, natural language processing, and predictive analytics to automate and improve financial tasks. In small and medium enterprises (SMEs) in North-Central States, Nigeria, AI can transform financial management by automating tasks like accounting and bookkeeping, which can help reduce errors, increase efficiency, and free up resources for more strategic activities. Elujekwute (2019) reports that artificial intelligence (AI) can also analyze financial data to predict cash flow and identify trends, enabling small and medium enterprises (SMEs) to make more informed decisions about investments, funding, and resource allocation.

Moreover, artificial intelligence (AI) can provide insights and recommendations for financial decision-making, helping small and medium enterprises (SMEs) to optimize their financial resources, manage risks, and capitalize on opportunities. AI-powered financial systems can also enhance financial security by detecting fraudulent activities, identifying potential risks, and improving compliance with financial regulations and standards. The perceived impact of artificial intelligence (AI) on financial management of small and medium enterprises (SMEs) in North-Central States, Nigeria is likely to be significant, as it can help small and medium enterprises (SMEs) improve financial efficiency, reduce costs, and make more informed financial decisions. According to Okeke, Bakare and Achumi (2024), by leveraging artificial intelligence (AI), small and medium enterprises (SMEs) can gain a competitive edge, optimize financial resources, and drive business growth. Artificial intelligence (AI) can also enable small and medium enterprises (SMEs) to expand their customer base, improve customer satisfaction, and increase revenue.

Furthermore, artificial intelligence (AI) can help small and medium enterprises (SMEs) in North-Central States, Nigeria, to overcome some of the challenges they face in financial management, such as limited access to financial resources, inadequate financial skills, and poor financial planning. Audu, Ngezack and Tseveriji (2023) affirm that artificial intelligence (AI) can provide small and medium enterprises (SMEs) with the tools and insights they need to manage their finances effectively, make informed decisions, and achieve their business objectives. Finally, the integration of artificial intelligence (AI) in financial management has the potential to revolutionize the way small and medium enterprises (SMEs) in North-Central States, Nigeria managed their finances, making them more efficient, effective, and competitive in the market.

Financial Management

Financial management is a critical aspect of business operations that involves planning, organizing, directing, and controlling the financial activities of an organization to achieve its goals and objectives. It encompasses a range of activities that are designed to optimize financial resources, manage risk, and ensure that financial decisions align with the organization's overall strategy. Ogunleye, Adebayo and Olawoyin (2019) maintain that the primary objective of financial management is to maximize shareholder value by making informed decisions about investments, financing, and managing risk. In the context of small and medium enterprises (SMEs) in North-Central States, Nigeria, financial management is essential for achieving business success. SMEs in North-Central States, Nigeria face numerous financial challenges, including limited access to capital, inadequate financial resources, and poor financial planning. Effective financial management can help SMEs in North-Central States, Nigeria to overcome

these challenges and achieve their business objectives. Okolie (2022) reports that financial management involves identifying financial goals, developing financial strategies and creating financial plans to achieve business objectives, and it also involves preparing financial budgets, managing financial resources, and ensuring that financial resources are allocated efficiently.

Financial control is another critical aspect of financial management, which involves monitoring financial transactions, identifying financial risks, and ensuring that financial decisions are aligned with business objectives and financial management is the core area being impacted by artificial intelligence (AI). Elujekwute, Nwaokwa, Aja and Oigochi (2021) postulate that perceived impact of artificial intelligence (AI) on financial management of small and medium enterprises (SMEs) is likely to be significant, as artificial intelligence (AI) can transform financial planning, budgeting, financial control, and investment decisions. Elujekwute, Nwaokwa, Aja and Oigochi further maintain that artificial intelligence (AI) can help small and medium enterprises (SMEs) to improve financial efficiency, reduce costs, and make more informed financial decisions, ultimately driving business growth and competitiveness. Artificial Intelligence (AI) can automate financial tasks such as accounting, bookkeeping, and financial reporting, freeing up resources for more strategic activities. Artificial intelligence (AI) can also analyze financial data to predict financial trends, identify risks, and provide insights for financial decision-making.

Perceived Impact of Artificial Intelligence on Financial Budgeting among Small and Medium Enterprises (SMEs) in the North-Central States, Nigeria

Financial budgeting is one of the most important functions of financial management because it provides a framework for planning, coordinating, and controlling the financial activities of an organization. Budgeting involves estimating future revenues and expenditures and allocating resources in a manner that supports the achievement of organizational goals (Chidiebere, Ifegwu & Okoliko, 2020). For small and medium enterprises (SMEs), effective budgeting is particularly important because of their limited financial resources and vulnerability to market fluctuations. A well-prepared budget enables business owners to manage cash flow efficiently, control expenses, anticipate future financial needs, and improve overall business performance. The emergence of artificial intelligence (AI) has significantly transformed budgeting practices across organizations worldwide. According to Tagwai, Abdullahi, Ahmed and Akinlabi (2022), artificial intelligence refers to computer systems and technologies capable of performing tasks that typically require human intelligence, such as learning, analyzing data, making predictions, and supporting decision-making. In financial management, artificial intelligence (AI) has become an essential tool for improving the accuracy, efficiency, and effectiveness of budgeting processes. The perceived impact of artificial intelligence on financial budgeting refers to the extent to which small and medium enterprises (SMEs) operators and managers believe that artificial intelligence (AI) contributes to improving budgeting activities and financial planning within their enterprises. One major way artificial intelligence influences financial budgeting is through enhanced financial forecasting (Olawoyin, Adebayo & Ogunleye, 2025).

Traditional budgeting methods often rely on historical records, assumptions, and manual calculations, which may lead to inaccuracies and unrealistic projections. Artificial intelligence (AI) systems utilize machine learning algorithms and predictive analytics to analyze large volumes of financial data and identify patterns that may not be easily detected by humans. Igomu, Kwaghbo, Nayla and Elujekwute (2024) postulate that through this capability, artificial

intelligence (AI) can generate more accurate forecasts of future revenues, expenditures, and cash flows. Small and medium enterprises (SMEs) owners who adopt AI-based budgeting tools are therefore better equipped to prepare realistic budgets that reflect current market conditions and future business expectations. Igomu, Kwaghbo, Nayla and Elujekwute further maintain that another perceived impact of artificial intelligence on financial budgeting is the improvement of decision-making processes. Budgeting requires managers to make numerous decisions regarding resource allocation, investment priorities, cost management, and operational planning. AI-powered systems provide timely and data-driven insights that support these decisions. By analyzing financial trends and performance indicators, artificial intelligence (AI) helps managers identify areas where costs can be reduced, revenues increased, and resources allocated more effectively. Consequently, budgeting decisions become more objective, strategic, and evidence-based. Artificial Intelligence also enhances the efficiency and speed of budgeting activities. Muhammad, Siska and Haim (2024) disclose that traditional budgeting processes can be time-consuming due to the need for extensive data collection, analysis, and report preparation. Artificial intelligence (AI) technologies automate many of these tasks, reducing the time required to prepare budgets and minimizing the burden on business owners and financial personnel. Automated budgeting systems can collect data from multiple sources, process information in real time, and generate financial reports almost instantly. This enables small and medium enterprises (SMEs) to respond quickly to changes in the business environment and adjust their budgets accordingly.

Oguche, Agbo and Okoko (2024) explain that artificial intelligence (AI) contributes to reducing human errors in budgeting. Manual budgeting processes are often susceptible to mistakes resulting from inaccurate calculations, data entry errors, and subjective judgments. Such errors can negatively affect the quality of financial plans and business decisions. Artificial intelligence (AI) systems improve accuracy by automating calculations and validating financial data before it is used for budgeting purposes. This increases confidence in budget estimates and improves the reliability of financial planning activities. Oguche, Agbo and Okoko further note that the application of artificial intelligence in budgeting also promotes effective resource allocation. Through advanced data analysis, artificial intelligence (AI) can identify areas where resources are underutilized or overspent and recommend appropriate adjustments. This enables small and medium enterprises (SMEs) to allocate financial resources more efficiently and prioritize activities that generate the highest returns. Effective resource allocation contributes to improved profitability, operational efficiency, and long-term business sustainability.

In addition, artificial intelligence facilitates continuous budget monitoring and evaluation. Unlike traditional budgeting systems that may require periodic reviews, AI-powered platforms can monitor financial performance in real time and compare actual results with budgeted figures. When deviations occur, the system can provide alerts and recommendations for corrective actions. Eze, and Onyelewelu (2024) report that this allows small and medium enterprises (SMEs) managers to maintain greater control over financial activities and ensure that budgets remain aligned with organizational objectives. The perceived impact of artificial intelligence on financial budgeting is also reflected in its ability to support strategic planning. Small and medium enterprises (SMEs) operate in dynamic and competitive environments characterized by economic uncertainties, changing consumer preferences, and technological advancements. Artificial intelligence (AI) enables businesses to simulate different financial scenarios and assess the potential outcomes of various strategic decisions. Such capabilities

help managers prepare for uncertainties, manage risks effectively, and develop sustainable business strategies.

In the North-Central States of Nigeria, many small and medium enterprises (SMEs) face challenges such as inadequate financial planning, poor budgeting practices, and limited access to financial expertise, and unstable economic conditions. These challenges often hinder business growth and sustainability (Muktar, Ufua & Uchechukwu, 2024). The adoption of artificial intelligence offers opportunities to address these challenges by improving budgeting accuracy, strengthening financial planning, and enhancing decision-making processes. Through AI-driven budgeting tools, small and medium enterprises (SMEs) can make more informed financial decisions, optimize resource utilization, and improve their overall financial performance. Therefore, the perceived impact of artificial intelligence on financial budgeting among SMEs in the North-Central States, Nigeria, can be viewed in terms of its ability to enhance forecasting accuracy, improve decision-making, reduce budgeting errors, automate financial planning processes, facilitate efficient resource allocation, support continuous budget monitoring, and strengthen strategic financial management. These benefits collectively contribute to the growth, competitiveness, and sustainability of small and medium enterprises (SMEs) in the region.

Perceived Impact of Artificial Intelligence on Financial Control among Small and Medium Enterprises (SMEs) in the North-Central States, Nigeria

Financial control is a fundamental aspect of financial management that involves the processes, procedures, and mechanisms established to monitor, regulate, and evaluate the financial activities of an organization. It ensures that financial resources are utilized efficiently, organizational objectives are achieved, and financial operations comply with established policies and standards (Oguche, Agbo & Okoko, 2024). Financial control also helps organizations prevent fraud, minimize wastage, ensure accountability, and maintain financial discipline. For small and medium enterprises (SMEs), effective financial control is particularly important because these businesses often operate with limited financial resources and are highly vulnerable to financial mismanagement, fraud, and operational inefficiencies. According to Ayetigbo, Okolico and Adebayo (2020), artificial intelligence refers to the ability of computer systems and machines to perform tasks that typically require human intelligence, including learning, reasoning, problem-solving, data analysis, and decision-making.

Okonkwo, Nnamani, Uzoechina and Ezezue (2024) explain that through technologies such as machine learning, predictive analytics, expert systems, and intelligent automation, artificial intelligence (AI) has become an important tool for strengthening financial control systems in modern organizations. The perceived impact of artificial intelligence on financial control refers to the extent to which small and medium enterprises (SMEs) owners, managers, and financial personnel believe that artificial intelligence (AI) contributes to improving the effectiveness, efficiency, and reliability of financial control practices within their enterprises. Adebayo, Olawoyin and Ogunleye (2020) assert that one of the most significant impacts of artificial intelligence on financial control is its ability to provide real-time monitoring of financial transactions. Traditionally, financial monitoring relied heavily on manual record-keeping and periodic reviews, which often resulted in delays in detecting financial irregularities. Adebayo, Olawoyin and Ogunleye further maintain that AI-powered systems can continuously track and analyze financial transactions as they occur, enabling organizations to identify unusual

activities and potential risks immediately. This real-time monitoring capability enhances financial transparency and allows managers to take prompt corrective actions whenever financial deviations are detected.

Artificial intelligence also strengthens financial control through improved fraud detection and prevention. Fraudulent activities, unauthorized transactions, and financial misappropriation remain major challenges facing many small and medium enterprises (SMEs). Ahmad, Ahmad and Bakar (2018) affirm that conventional methods of fraud detection often depend on manual audits and periodic inspections, which may fail to identify sophisticated fraudulent schemes. Artificial intelligence (AI) systems utilize advanced algorithms to analyze transaction patterns, identify anomalies, and detect suspicious financial activities that may indicate fraud. Ahmad, Ahmad and Bakar further note that by automatically flagging unusual transactions for further investigation, artificial intelligence (AI) helps organizations reduce financial losses and safeguard their assets. Another important contribution of artificial intelligence to financial control is the enhancement of financial reporting accuracy. Accurate financial reports are essential for evaluating organizational performance, making informed decisions, and maintaining accountability. However, manual preparation of financial reports is often associated with human errors, inconsistencies, and delays. AI-driven financial management systems automate data collection, processing, and reporting functions, thereby reducing errors and improving the quality of financial information. Ayib-Laida and Haitham (2024) posit that the availability of accurate and timely financial reports enables small and medium enterprises (SMEs) managers to assess financial performance effectively and implement appropriate control measures. Artificial intelligence further improves financial control by facilitating effective cash flow monitoring and management. Cash flow is a critical determinant of business survival, especially for small and medium enterprises (SMEs) that often face liquidity challenges.

Tagwai, Abdullahi, Ahmed and Akinlabi (2022) report that artificial intelligence (AI) technologies can analyze cash inflows and outflows, predict future cash requirements, and identify potential cash shortages before they occur. Furthermore, artificial intelligence enhances compliance with financial policies, regulations, and internal control procedures. Organizations are required to adhere to various financial standards, tax regulations, and reporting requirements. Failure to comply with these regulations can result in penalties, legal liabilities, and reputational damage. Artificial intelligence also contributes to risk management, which is an important component of financial control. Businesses operate in environments characterized by economic uncertainty, market volatility, and operational risks. Another perceived impact of artificial intelligence on financial control is the reduction of human errors and inefficiencies. Human involvement in financial processes often creates opportunities for mistakes arising from negligence, fatigue, or inadequate expertise.

In the context of the North-Central States of Nigeria, many small and medium enterprises (SMEs) encounter challenges such as inadequate financial control systems, poor record-keeping practices, weak monitoring mechanisms, and limited access to financial management expertise. Ebuka, Emmanuel and Idogo (2023) disclose that these challenges often expose businesses to fraud, financial leakages, operational inefficiencies, and business failure. The adoption of artificial intelligence presents significant opportunities for addressing these challenges by providing automated, accurate, and efficient financial control solutions. Therefore, the perceived impact of artificial intelligence on financial control among

small and medium enterprises (SMEs) in the North-Central States, Nigeria, can be understood in terms of its ability to enhance transaction monitoring, improve fraud detection, strengthen financial reporting, facilitate cash flow management, ensure regulatory compliance, support risk management, reduce human errors, improve internal auditing, and promote accountability. These contributions collectively enhance the effectiveness of financial control systems and improve the overall financial performance and sustainability of small and medium enterprises (SMEs) with in the region.

Methodology

This study adopted a descriptive survey research design. The population of the study comprised 2,450 registered small and medium enterprises (SMEs) owners, managers, accountants, and financial officers across the North-Central States, Nigeria. Using Taro Yamane's sample size determination formula at a 5% level of precision, a sample of 344 respondents was selected for the study. A multistage sampling technique involving purposive and simple random sampling methods was employed in selecting the respondents. Data was collected using a structured questionnaire titled Perceived Impact of Artificial Intelligence on Financial Management Questionnaire (PIAIFMQ). The instrument consisted of two clusters of items designed to elicit information on the influence of artificial intelligence on financial budgeting and financial control among small and medium enterprises (SMEs). The questionnaire was structured on a five-point Likert scale of Strongly Agree (5), Agree (4), Undecided (3), Disagree (2), and Strongly Disagree (1). The instrument was subjected to face and content validation by experts in Business Education and Measurement and Evaluation. Its reliability was established through a pilot study using the Cronbach Alpha reliability technique, which yielded a reliability coefficient considered adequate for the study. Data collected were analyzed using mean and standard deviation to answer the research questions, while Chi-Square statistics were used to test the null hypotheses at a 0.05 level of significance. Statistical analyses were carried out using the Statistical Package for Social Sciences (SPSS).

Results and Findings

Research Question 1:

What is the perceived impact of artificial intelligence on financial budgeting among small and medium enterprises (SMEs) in the North-Central States, Nigeria?

Table 1: Mean Ratings and Standard Deviation of Respondents on Perceived Impact of Artificial Intelligence on Financial Budgeting among SMEs in North-Central States, Nigeria

Item No.	Item Description	SA	A	D	SD	$\bar{X}$	STD	Decision
1	Artificial intelligence (AI) helps SMEs prepare accurate financial budgets.	145	123	46	30	3.11	0.94	Agreed
2	Artificial intelligence (AI) enables SMEs to forecast future revenues and expenditures effectively.	136	126	50	32	3.06	0.95	Agreed

3	Artificial intelligence (AI) improves the speed and efficiency of budget preparation in SMEs.	150	120	44	30	3.13	0.95	Agreed
4	Artificial intelligence (AI) assists SMEs in allocating financial resources appropriately during budgeting.	136	128	48	32	3.07	0.95	Agreed
5	Artificial intelligence (AI) enhances the ability of SMEs to monitor and adjust budgets based on financial trends.	142	124	47	31	3.10	0.95	Agreed
Cluster Mean/Standard Deviation						3.10	0.95	Agreed

Source: Field Survey, 2026

Table 1 showed that the mean ratings for items 1-5 were 3.11, 3.06, 3.14, 3.07 and 3.10 respectively with the corresponding standard deviation of 0.94, 0.95, 0.95, 0.95 and 0.95 respectively. All the mean ratings are above the cut-off point of 2.50. This means that the respondents had agreed that artificial intelligence (AI) helps small and medium enterprises (SMEs) prepare accurate financial budgets and artificial intelligence (AI) enables small and medium enterprises (SMEs) to forecast future revenues and expenditures effectively. More so, artificial intelligence (AI) improves the speed and efficiency of budget preparation in small and medium enterprises (SMEs). They also agree that artificial intelligence (AI) assists small and medium enterprises (SMEs) in allocating financial resources appropriately during budgeting and also, that artificial intelligence (AI) enhances the ability of small and medium enterprises (SMEs) to monitor and adjust budgets based on financial trends. The cluster mean of 3.10 with the standard deviation of 0.95 was also found to be above the cut-off point of 2.50. This implies that artificial intelligence (AI) has perceived impact on financial budgeting of small and medium enterprises (SMEs) in North-Central States, Nigeria.

Research Question 2:

What is the perceived impact of artificial intelligence on financial control among small and medium enterprises (SMEs) in the North-Central States, Nigeria?

Table 2:

Mean Ratings and Standard Deviation of Respondents on Perceived Impact of Artificial Intelligence on Financial Control among SMEs in North-Central States, Nigeria

Item No.	Item Description	SA	A	D	SD	$\bar{x}$	STD	Decision
6	Artificial intelligence (AI) helps SMEs monitor financial transactions effectively.	148	122	45	29	3.13	0.94	Agreed
7	Artificial intelligence (AI) improves the detection and prevention of financial errors in SMEs.	140	126	49	29	3.10	0.94	Agreed

8	Artificial intelligence (AI) enhances internal financial control systems within SMEs.	152	121	42	29	3.15	0.94	Agreed
9	Artificial intelligence (AI) assists SMEs in identifying fraudulent financial activities promptly.	137	127	49	31	3.08	0.95	Agreed
10	Artificial intelligence (AI) improves compliance with financial policies and procedures in SMEs.	145	123	46	30	3.11	0.94	Agreed
Cluster Mean/Std Dev.						3.11	0.94	Agreed

Source: Field Survey, 2026

Table 2, indicated that the mean ratings for items 6-10 were 3.13, 3.10, 3.15, 3.08 and 3.11, with their corresponding standard deviations of 0.94, 0.94, 0.94, 0.95 and 0.94 respectively. All the mean ratings are above the cut-off point of 2.50. This means that the respondents had agreed that artificial intelligence (AI) helps small and medium enterprises (SMEs) monitor financial transactions effectively and that artificial intelligence(AI) improves the detection and prevention of financial errors in small and medium enterprises (SMEs).They also agreed that artificial intelligence(AI) enhances their internal financial control systems within small and medium enterprises (SMEs).More so, that artificial intelligence(AI) assists small and medium enterprises (SMEs) in identifying fraudulent financial activities promptly and artificial intelligence(AI) improves their compliance with financial policies and procedures in small and medium enterprises (SMEs).The cluster mean of 3.11 with the standard deviations of 0.94 were also found to be above the cut-off point of 2.50. This implies that artificial intelligence has perceived impact on financial control of small and medium enterprises (SMEs) in North-Central States, Nigeria.

Testing Hypotheses

Hypothesis One:

Artificial Intelligence has no significant perceived impact on financial budgeting among small and medium enterprises (SMEs) in the North-Central States, Nigeria.

Table 3:

Chi-square (χ^2) Analysis of the Perceived Impact of Artificial Intelligence on Financial Budgeting among SMEs in North-Central States, Nigeria.

Response Options	Fo	Fe	O.E	Df	X ²	X ^{2-cal}	Sig.	Remark
Strongly Agree (SA)	142	86	36.47	3	106.52	7.815	0.05	Reject H ₀
Agree (A)	124	86	16.74					
Disagree (D)	48	86	16.74					
Strongly Disagree (SD)	30	86	36.47					
Total (N)	344	344	106.52					

Table 3 shows the Chi-square analysis of the perceived impact of artificial intelligence on financial budgeting among small and medium enterprises (SMEs) in the North-Central States, Nigeria. The calculated Chi-square value of 106.52 is greater than the critical Chi-square value of 7.815 at 0.05 level of significance and 3 degrees of freedom. Since the calculated value exceeds the critical value, the null hypothesis is rejected. This indicates that artificial intelligence has a significant impact on financial budgeting among small and medium enterprises (SMEs) in the North-Central States, Nigeria. The finding implies that the use of artificial intelligence (AI) contributes to improved budgeting processes through enhanced financial forecasting, budget preparation, resource allocation, and budget monitoring.

Hypothesis Two:

Artificial intelligence has no significant perceived impact on financial control among small and medium enterprises (SMEs) in the North-Central States, Nigeria.

Table 4: Chi-square (χ^2) Analysis of the Perceived Impact of Artificial Intelligence on Financial Control among SMEs in North-Central States, Nigeria

Response Options	Fo	Fe	O.E	Df	X ²	X ^{2-cal}	Sig.	Remark
Strongly Agree (SA)	145	86	40.01	3	111.00	7.815	0.05	Reject H ₀
Agree (A)	123	86	15.92					
Disagree (D)	46	86	18.60					
Strongly Disagree (SD)	30	86	36.47					
Total (N)	344	344	111.00					

Table 4 presents the Chi-square analysis of the perceived impact of artificial intelligence on financial control among small and medium enterprises (SMEs) in the North-Central States, Nigeria. The calculated Chi-square value of 111.00 is greater than the critical Chi-square value of 7.815 at 0.05 level of significance and 3 degrees of freedom. Therefore, the null hypothesis is rejected. The result indicates that artificial intelligence has a significant impact on financial control among small and medium enterprises (SMEs) in the North-Central States, Nigeria. This suggests that artificial intelligence (AI) enhances financial control practices by improving transaction monitoring, fraud detection, error prevention, compliance with financial policies, and the overall effectiveness of internal control systems within small and medium enterprises (SMEs).

Discussion of Findings

The first finding of this study revealed that perceived impact of artificial intelligence (AI) has significant impact on financial budgeting among small and medium enterprises (SMEs) in North-Central States, Nigeria. This finding is in line with the views of Muhammad, Siska and Haim (2024) who revealed that artificial intelligence provides small and medium enterprises (SMEs) with improved opportunities for financial budgeting through automated data analysis, financial forecasting, expenditure monitoring, and the generation of timely financial information for managerial decisions. Muhammad, Siska and Haim further noted that AI-supported financial tools can assist business managers in estimating future income and expenditure, identifying possible financial risks, and allocating available resources more effectively. The finding is also consistent with the views of Nkwinika and Akinola (2023) who

observed that artificial Intelligence, enhances the budgeting process by enabling businesses to analyze previous financial records and use such information to make more accurate financial projections. Similarly, Nwagbala, Ezeanokwaza, Nwachukwu, Uzodike and Nwosu (2025) noted that the application of Artificial Intelligence in financial management improves the speed and accuracy of financial planning among small and medium enterprises (SMEs). Artificial Intelligence (AI) applications can process large volumes of financial information within a short period, thereby reducing the time required for traditional budgeting procedures.

The second finding of this study revealed that perceived impact of artificial intelligence (AI) has significant influence on financial control among small and medium enterprises (SMEs) in North-Central States, Nigeria. This finding is in line with the views of Eze and Onyelewele (2024), who revealed that artificial intelligence contributes significantly to financial control by automating the monitoring of financial transactions and identifying unusual patterns that may indicate errors, fraud, or inappropriate expenditure. Eze and Onyelewele further noted that AI-powered systems can provide managers with timely financial information, thereby enabling them to respond quickly to financial irregularities and strengthen internal control mechanisms. Elujekwute (2019) collaborated this finding stated that artificial intelligence improves financial control by reducing dependence on manual financial processes. Elujekwute further observed that automated financial systems can minimize calculation errors, improve transaction recording, and provide reliable financial information for management decisions. This can enhance accountability and make it easier for small and medium enterprises (SMEs) managers to monitor the use of organizational funds.

Conclusion

Based on the findings of this study, it was concluded that perceived impact of artificial intelligence on financial budgeting and financial control has significant impact on small and medium enterprises (SMEs) in the North-Central States, Nigeria.

Recommendations

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

1. Finance managers, Small and medium enterprises (SMEs) operators should use artificial intelligence (AI) forecasting to predict cash flow, income, and expenses, helping small and medium enterprises (SMEs) plan for seasonal peaks and avoid shortages and also, managers should ensure staff is trained on artificial intelligence (AI) tools to interpret predictive insights, so they can proactively adjust budgets and make data driven decisions that improve financial resilience.
2. Entrepreneurs/Managers should implement AI-driven monitoring systems that automatically flag suspicious transactions; helping small and medium enterprises (SMEs) prevent fraud and protect cash flow in Nigeria's business environment. Also, managers should conduct regular audits of artificial intelligence (AI) generated reports to ensure accuracy, compliance, and continuous strengthening of internal controls for small and medium enterprises (SMEs).

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