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ARTIFICIAL INTELLIGENCE ADOPTION AND FINANCIAL DECISION-MAKING AMONG SMALL AND MEDIUM ENTERPRISES IN WEST AFRICA

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ABSTRACT

This study was necessitated by the growing need for artificial intelligence (AI) as a tool that enhances financial decision-making and the observed low level of AI adoption among Small and Medium Enterprises in West Africa despite the various benefits it proffers. The study explored how AI adoption is reshaping financial decision-making among businesses in West Africa and identified the opportunities and challenges influencing its adoption. The study utilized a qualitative research approach, and secondary qualitative data was obtained from peer-reviewed literature published between 2020 and 2026 and analyzed the data using thematic analysis to synthesize existing empirical evidence. The findings showed that AI is transforming financial decision-making by enhancing financial intelligence, predictive analytics, financial forecasting, investment analysis, risk management, operational efficiency, and corporate governance. Key opportunities such as, improved organizational performance, enhanced strategic competitiveness, digital transformation, and greater transparency in financial management, were identified. Inadequate digital infrastructure, limited financial resources, shortages of AI-related skills, weak organizational readiness, governance and ethical concerns, and insufficient institutional and policy support, were highlighted as major challenges. The study concluded that although AI offers considerable potential to transform financial decision-making and improve business performance in West Africa, realizing these benefits requires strengthening organizational capabilities, improving digital infrastructure, promoting responsible AI governance, and establishing supportive policy frameworks. The study therefore recommended, among others, increased investment in digital infrastructure and workforce capacity development by businesses.

Key words: *Artificial Intelligence, AI Adoption, Financial Decision-Making, West Africa, Business Performance, Digital Transformation, Thematic Analysis.*

INTRODUCTION

The foundation of many recent businesses now is unavoidably on Fourth Industrial Revolution. Currently, Artificial Intelligence (AI) has jumped from a tech-bro experiment straight into the center of corporate boardrooms. It dictates how firms manage their risk profiles and divide up tight cash reserves. This is happening globally, spanning both Western financial capitals and emerging markets. Many businesses across Africa, are moving quickly

to deploy machine learning, natural language processing, and automated tracking systems. These tools provide an immediate, raw alternative to the old, static accounting spreadsheets that corporate managers used to lean on for forecasting metrics (Gwagwa et al., 2020; Mogaji & Nguyen, 2022; Udo et al., 2024; Siddiqui, 2025). At the very core of the survival of many Small and Medium Enterprises (SMEs) today, is financial decisions. This managerial function defines exactly how an executive leadership team acquires, tracks, and spends cash reserves to hit operational targets (Ashiedu et al., 2023). Few years ago, owners and managers, traditionally made decisions. They used old financial statements, personal gut feelings, and rigid accounting formulas to make major strategic moves. Today, that approach fails completely. Markets move too fast, sudden technological shifts, wild currency volatility, and massive waves of unorganized data have completely broken the real-world usefulness of traditional, human-led corporate decision models (Kokogho et al., 2024).

Most modern finance departments are now exploring AI. SMEs now adopt AI algorithms directly into their daily workflows to handle heavy computational math. These local programs do everything from real-time fraud spotting and credit risk mapping to dynamic budgeting. In reality, corporate data pools now easily exceed what a human brain can process. Because of this, software crunching the numbers gives managers fast, empirical evidence for long-term planning. Various researchers have highlighted this operational change. For instance, integrated financial intelligence systems combine disconnected internal data lines to improve corporate oversight (Ashiedu et al., 2023). This shift changes the core purpose of business reporting. AI-driven big data tools push financial analysis away from old descriptive summaries, replacing them with predictive metrics that drive real strategy (Adewale et al., 2023). In spite of the magical fix AI brings to businesses especially SMEs which often experience a high level of competition, because of its large number, it has been observed that there is still a low adoption rate recorded across SMEs in West Africa. Studies confirms that poor organizational readiness, tight budgets, and terrible digital infrastructure delays progress of adoption (Jaldi, 2023; Azaroual, 2024; Plantinga, 2024).. Also, basic issues like severe local AI expertise shortages and weak institutional support keep holding firms back (Tjebane et al., 2022; Arachie et al., 2025; Henry et al., 2025; Uwagaba et al., 2023). Most SMEs in West Africa, lack the skilled workforce or baseline managerial competencies required to turn machine-driven data into actual business strategies (Hassan, 2024; Ikpe, 2024). Ethical concerns are also exploding right now as algorithms take over corporate finance tasks. Managers are forced to choose between terrifying risks surrounding data privacy, systemic

algorithmic bias, cybersecurity gaps, and strict regulatory compliance (Owolabi et al., 2024; Turlapati et al., 2024; Plantinga et al., 2024; Mutitu, 2024). If these conditions continue, these SMEs may face risks such as poor-quality decision making, loss of competitive advantage, reduced productivity, slower response to changes in the market, inaccurate financial forecasting, higher operational costs, lower customer satisfaction which in a long run may lead to death of such business. Furthermore, although previous studies have examined AI adoption from perspectives such as governance, organizational readiness, financial services, accounting, sustainability, and marketing, there remains limited integrative evidence on how AI is reshaping financial decision-making among SMEs in West Africa.

Objectives

Generally, this study examines Artificial Intelligence Adoption and Financial Decision-Making among SMEs in West Africa. Specifically, the study:

1. Explores how artificial intelligence adoption is reshaping financial decision-making processes among SMEs in West Africa.
2. Identifies the opportunities and organizational challenges, influencing the adoption of artificial intelligence for financial decision-making among SMEs in West Africa.

Research Questions

1. How is artificial intelligence adoption reshaping financial decision-making processes among SMEs in West Africa?
2. What opportunities and organizational challenges influence the adoption of artificial intelligence for financial decision-making among SMEs in West Africa?

LITERATURE REVIEW

Artificial Intelligence Adoption

Artificial intelligence (AI) adoption refers to the process by which organizations integrate AI technologies into their business operations, managerial processes, and strategic decision-making to improve efficiency, innovation, and overall organizational performance. AI encompasses technologies such as machine learning, natural language processing, predictive analytics, intelligent automation, and expert systems that enable organizations to analyse large volumes of data, identify patterns, generate insights, and support informed decision-making (Gwagwa et al., 2020; Arakpogun et al., 2021). Unlike traditional information systems that primarily automate routine tasks, AI possesses the capability to learn from data, adapt to

changing environments, and provide predictive and prescriptive insights that enhance business performance. In Africa, the growing interest in AI is driven by its potential to accelerate economic development, improve productivity, foster innovation, and strengthen organizational resilience despite existing infrastructural and institutional challenges (Jaldi, 2023; Gikunda, 2023; Azaroual, 2024).

The theoretical understanding of AI adoption is largely explained through innovation and technology adoption theories, particularly the Technology Organization Environment (TOE) framework, the Diffusion of Innovation (DOI) theory, and the Technology Acceptance Model (TAM). These theories suggest that organizations adopt new technologies when they perceive them to offer significant relative advantages and when they possess the technological, organizational, and environmental capabilities necessary for successful implementation. The TOE framework emphasizes that technological readiness, organizational resources, leadership support, and external environmental conditions jointly influence technology adoption, while the DOI theory explains that adoption depends on perceived attributes such as relative advantage, compatibility, complexity, trialability, and observability (Assidi et al., 2025). Similarly, TAM posits that perceived usefulness and perceived ease of use determine users' willingness to accept and utilize new technologies (Tjebane et al., 2022; Hassan, 2024).

Abrokwah-Larbi and Awuku-Larbi (2024) found that AI adoption significantly improves the performance of SMEs by enhancing marketing effectiveness, customer engagement, and organizational responsiveness. Similarly, Danquah (2025) reported that AI strengthens managerial decision-making among Ghanaian SMEs by improving analytical capabilities, reducing uncertainty, and enabling faster strategic responses to market changes. Olubiyi (2025) further observed that AI adoption enhances the profitability of family-owned businesses in Sub-Saharan Africa through improved operational efficiency, resource optimization, and strategic planning. Likewise, Nwangwu et al. (2025) established that AI positively influences supply chain decision-making by improving forecasting, operational coordination, and organizational responsiveness, while Akinlabi and Olubiyi (2025) found that AI-powered business analytics significantly influence intelligent decision-making and business competitiveness among African SMEs. Despite these demonstrated benefits, the adoption of AI across many African businesses remains constrained by several organizational, technological, financial, and institutional challenges. Organizational readiness is consistently identified as one of the most important determinants of successful AI implementation. Tjebane et al. (2022) found that leadership commitment, organizational culture, technological

capability, employee competence, and financial resources significantly influence AI adoption decisions. Similarly, Hassan (2024) identified organizational competence, managerial support, technological compatibility, and perceived usefulness as critical drivers of AI adoption within South Africa's financial services sector. However, inadequate digital infrastructure, limited financial resources, poor internet connectivity, shortages of AI-skilled professionals, insufficient technological expertise, and weak institutional support continue to hinder AI implementation across many African organizations, particularly SMEs (Uwagaba et al., 2023; Ikpe, 2024; Arachie et al., 2025; Henry et al., 2025). In addition, ethical and governance concerns, including algorithmic bias, transparency, accountability, cybersecurity, privacy protection, and regulatory compliance, have emerged as significant barriers that require organizations to establish responsible AI governance frameworks (Owolabi et al., 2024; Turlapati et al., 2024; Mutitu, 2024). At the policy level, scholars advocate increased investment in digital infrastructure, AI education, regulatory development, and innovation-friendly institutional environments to accelerate responsible AI adoption across Africa (Okolo et al., 2023; Plantinga et al., 2024; Frimpong, 2025).

Financial Decision-Making

Financial decision-making is a critical managerial process that involves the identification, evaluation, and selection of financial alternatives to achieve organizational objectives while maximizing firm value and ensuring long-term sustainability. It encompasses decisions relating to capital investment, budgeting, financing, cash flow management, risk assessment, financial reporting, and resource allocation. Effective financial decision-making requires managers to analyse financial and non-financial information, assess risks and opportunities, and make informed choices that enhance organizational performance and competitiveness. Traditionally, financial decisions were based largely on historical financial reports, managerial experience, and intuition. However, the increasing complexity of business environments, rapid technological advancements, and the growing availability of real-time data have transformed financial decision-making into a more data-driven and analytical process supported by advanced technologies such as artificial intelligence (AI), big data analytics, and business intelligence systems (Ashiedu et al., 2023; Adewale et al., 2023; Udo et al., 2024).

From a theoretical perspective, financial decision-making is grounded in decision theory, resource-based theory, and dynamic capability theory, which emphasize that organizations achieve superior performance by making rational, evidence-based decisions and effectively

utilizing valuable organizational resources. These perspectives suggest that the quality of financial decisions depends on the availability of accurate information, analytical capabilities, managerial competence, and the ability to adapt to changing business environments. The emergence of AI has strengthened these theoretical assumptions by enhancing organizations' capacity to analyse large volumes of financial data, identify hidden patterns, forecast future outcomes, and support strategic decision-making with greater speed and precision. Amoako et al. (2021) argued that AI improves entrepreneurial decision-making by integrating customer preferences, industry benchmarks, and employee involvement into managerial processes. Similarly, Mogaji and Nguyen (2022) found that managers increasingly perceive AI as a valuable decision-support tool capable of improving financial service delivery and strategic planning. Assidi et al. (2025) further explained, using the Diffusion of Innovation theory, that the integration of AI into accounting and financial management enhances decision quality by improving information accuracy, reducing uncertainty, and supporting evidence-based managerial decisions.

Empirical evidence consistently demonstrates that AI-enabled financial decision-making enhances organizational performance by improving forecasting accuracy, financial planning, investment analysis, risk management, and resource allocation. Ashiedu et al. (2023) found that AI-powered financial intelligence systems enable African corporates to make real-time financial decisions by integrating multiple sources of financial data into actionable insights. Similarly, Adewale et al. (2023) reported that big data-driven financial analysis has transformed financial management by providing strategic insights that improve organizational planning and decision quality. Celestin (2024) further observed that AI-powered decision support systems have significantly transformed managerial accounting practices by improving budgeting, cost control, performance evaluation, and financial reporting. Likewise, Siddiqui (2025) concluded that AI-enhanced business intelligence systems strengthen financial and strategic planning through predictive analytics and intelligent decision support, while Vyas (2025) highlighted the role of AI in improving financial risk management, forecasting, and investment decision-making. Within the African context, Danquah (2025) reported that AI enhances managerial decision-making among Ghanaian SMEs by improving forecasting capability and reducing uncertainty, whereas Nwangwu et al. (2025) found that AI positively influences supply chain and operational decisions through improved data processing and real-time analytics.

Several factors influence the effectiveness of financial decision-making within organizations. The literature identifies data quality, technological capability, organizational readiness, managerial competence, digital infrastructure, and governance mechanisms as critical determinants of sound financial decisions. Organizations that possess advanced analytical capabilities, skilled personnel, and integrated information systems are better positioned to leverage AI for financial planning, forecasting, investment appraisal, and risk management (Ashiedu et al., 2023; Udo et al., 2024). Conversely, inadequate digital infrastructure, poor data quality, limited analytical expertise, financial constraints, and weak organizational readiness can undermine decision quality and limit the benefits derived from AI adoption (Arachie et al., 2025; Henry et al., 2025 Although previous studies have established the importance of AI in improving financial reporting, business intelligence, managerial accounting, forecasting, and strategic planning, most have examined financial decision-making within specific sectors, individual countries, or broader organizational contexts. Comparatively limited attention has been given to understanding how AI adoption is reshaping financial decision-making among businesses in West Africa, where unique institutional, technological, and socio-economic conditions influence the adoption and application of AI technologies. Furthermore, existing studies have seldom integrated the opportunities, organizational challenges, and governance considerations associated with AI-enabled financial decision-making within the region.

Empirical Review

Abrokwah-Larbi and Awuku-Larbi (2024) investigated the impact of artificial intelligence in marketing on the performance of small and medium-sized enterprises (SMEs) in Ghana. The study employed a quantitative survey design involving 225 SMEs registered with the Ghana Enterprise Agency in the Eastern Region of Ghana. Data were collected using structured questionnaires and analysed using Structural Equation Modelling (SEM). The findings indicated that AI adoption significantly improves financial performance, customer performance, internal business processes, and organizational learning and growth through AI applications such as the Internet of Things (IoT), collaborative decision-making systems, virtual and augmented reality, and personalization. The study concluded that AI serves as a strategic organizational resource that enhances business competitiveness and performance.

Danquah (2025) assessed the role of artificial intelligence in enhancing decision-making among small and medium-sized enterprises in Ghana. The study adopted a concurrent triangulation mixed-methods descriptive survey design involving 400 SME owners and

administrators selected through a multi-stage sampling technique, of which 396 valid responses were analysed. Data were collected through structured questionnaires administered in both online and paper-based formats and analysed using descriptive statistics, Partial Least Squares Structural Equation Modelling (PLS-SEM), and thematic analysis. The findings showed that SMEs are increasingly adopting AI to improve decision-making, automate routine activities, and support long-term strategic planning. However, adoption remains constrained by inadequate digital infrastructure, financial limitations, shortage of skilled personnel, low awareness, and regulatory uncertainty, particularly among resource-constrained SMEs.

Olubiyi (2025) examined the effect of artificial intelligence on the profitability of family-owned businesses in Nigeria. The study adopted a quantitative survey design involving selected family-owned SMEs in Lagos State, Nigeria. A sample size of 387 was determined using the Research Advisor Table, while an additional 113 respondents were included to address non-response, resulting in 503 respondents with a response rate of 93.2%. Data were analysed using descriptive statistics, Pearson Product Moment Correlation, and regression analysis. The findings established that AI significantly predicts business profitability, indicating that AI functions not only as a technological innovation but also as a strategic organizational asset capable of improving financial performance.

Nwangwu et al. (2025) investigated the effect of artificial intelligence on decision-making in the supply chain management of lubricant firms in Anambra State, Nigeria. The study adopted a survey research design anchored on the Technology Acceptance Theory (TAT). The population comprised 281 management staff from thirteen lubricant firms, of which 269 valid questionnaires were returned and analysed using correlation analysis with SPSS Version 23. The findings revealed that machine learning significantly improves decision support systems, while neural networks positively influence creative decision-making in supply chain management. The study concluded that AI technologies enhance managerial decision-making and operational efficiency within organizational supply chain processes.

Arachie et al. (2025) assessed the technological readiness of small businesses for artificial intelligence-powered transformation within the West African context. The study adopted a qualitative research design using secondary qualitative data and thematic analysis to examine existing empirical evidence on AI adoption among SMEs. The findings revealed a substantial gap between awareness and actual implementation of AI technologies. Although SMEs

demonstrated positive perceptions regarding AI's potential to improve customer relationship management, content creation, and operational efficiency, widespread adoption remains hindered by inadequate digital infrastructure, digital skill shortages, high implementation costs, organizational resistance to change, and challenges associated with data quality and integration.

METHODOLOGY

This study utilized a qualitative method, by collecting and analyzing secondary data in order to examine how artificial intelligence (AI) adoption is reshaping financial decision-making among SMEs in West Africa. A qualitative approach was considered appropriate because it facilitates an in-depth understanding of complex organizational and contextual issues surrounding AI adoption, financial decision-making, governance, and digital transformation. The study reviewed scholarly literature published between 2020 and 2026, reflecting the period during which AI adoption gained significant momentum across business organizations and financial management. Secondary data were obtained from peer-reviewed journal articles, conference proceedings, book chapters, and other credible academic publications indexed in reputable databases, including Scopus, Web of Science, ScienceDirect, Google Scholar, SpringerLink, Emerald Insight, Taylor & Francis Online, Semantic Scholar, ResearchGate, and Academia.edu. The review focused on studies addressing AI adoption, financial decision-making, business analytics, digital transformation, corporate governance, accounting, financial services, and organizational performance, particularly within Africa and other developing economies.

To ensure the quality and relevance of the reviewed literature, clear inclusion and exclusion criteria were established. Only studies published between 2020 and 2026, written in English, peer-reviewed, and available in full text were included in the review. In addition, eligible studies were required to examine AI adoption and its implications for organizational performance, financial decision-making, governance, or related business functions within African or comparable emerging economy contexts. Studies published before 2020, non-peer-reviewed publications, articles unrelated to AI adoption or financial decision-making, and studies without accessible full texts were excluded. An initial search identified 62 relevant publications from the selected databases. After screening for relevance and applying the inclusion and exclusion criteria, 30 studies were retained for the final qualitative synthesis.

RESULTS AND DISCUSSIONS

The study employed thematic analysis to analyse and synthesize the selected literature. The reviewed studies constituted the primary dataset, with each publication carefully examined to ensure alignment with the objectives of the study. Relevant information relating to AI adoption, financial decision-making, organizational readiness, technological capabilities, opportunities, implementation barriers, and policy recommendations was systematically extracted from each study. The analysis began with repeated reading of the selected publications to gain familiarity with the data and identify recurring concepts and patterns. Initial codes were then generated and grouped into broader categories based on similarities in meaning and context. Through an iterative process of reviewing and refining the codes, major themes were developed to explain how AI adoption is influencing financial decision-making among SMEs in West Africa. The final themes provided the basis for the synthesis and discussion of findings, enabling the study to identify common trends, emerging issues, and gaps in the existing literature while addressing the study's research objectives.

Findings and Discussion

Objective 1: To Explore how artificial intelligence adoption is reshaping financial decision-making processes among SMEs in West Africa.

Theme 1: Data-Driven Intelligence: AI-powered technologies, including machine learning, predictive analytics, intelligent decision support systems, and business intelligence tools, enable organizations to analyse large volumes of financial and operational data in real time, thereby improving the speed, accuracy, and quality of financial decisions (Ashiedu et al., 2023). Rather than relying solely on historical financial statements, businesses increasingly utilize AI to generate forecasts, evaluate investment alternatives, detect financial risks, and optimize budgeting and resource allocation (Adewale et al., 2023; Celestin, 2024; Siddiqui; 2025; Danquah, 2025)

Theme 2: Enhancing Organizational Performance and Financial Competitiveness: AI adoption strengthens financial performance and organizational competitiveness by improving efficiency, innovation, and strategic resource utilization. AI reduces operational costs, automates repetitive financial processes, enhances productivity, and supports evidence-based managerial decisions that improve organizational outcomes. AI-enabled business transformation significantly improves organizational and process performance through automation and intelligent decision-making (Wamba-Taguimdje et al., 2020; Abrokwah-Larbi and Awuku-Larbi, 2024; Olubiyi, 2025).

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Theme 3: Organizational Readiness Determines Successful AI Adoption: Successful adoption requires adequate technological infrastructure, skilled personnel, supportive leadership, financial investment, and an organizational culture that encourages innovation and digital transformation. Leadership commitment, technological capability, employee competence, organizational culture, and financial resources are critical determinants of AI adoption (Tjebane et al., 2022; Hassan, 2024; Arachie et al., 2025; Henry et al., 2025; Uwagaba et al., 2023).

Theme 4: Governance and Ethical Considerations are Becoming Central to AI-Enabled Financial Decisions: Since AI increasingly influences financial reporting, auditing, investment decisions, and risk management, organizations must establish governance mechanisms that ensure transparency, accountability, fairness, privacy, and regulatory compliance (Owolabi et al., 2024; Turlapati et al. (2024; Mutitu, 2024; Assidi et al., 2025).

Theme 5: Institutional and Policy Support is Essential for Sustainable AI Adoption: Although organizations increasingly recognize the strategic value of AI, the reviewed studies indicate that broader institutional constraints continue to limit widespread implementation. Jaldi (2023), Okolo et al. (2023), Azaroual (2024), and Plantinga et al. (2024) collectively argued that governments must strengthen digital infrastructure, promote AI education, establish clear regulatory frameworks, improve data governance, and support innovation ecosystems capable of facilitating responsible AI adoption. Frimpong (2025) similarly emphasized that AI investment decisions within resource-constrained African economies should balance financial feasibility, strategic priorities, ethical considerations, and long-term sustainability.

Table 1: Thematic Analysis of AI Adoption and Financial Decision-Making among SMEs in West Africa

S/N	Codes	Theme	Description	References
1	Predictive analytics, machine learning, business intelligence, financial forecasting, budgeting, investment analysis, decision support systems, risk management	AI-Driven Financial Decision-Making Transformation	AI is transforming financial decision-making by enabling businesses to analyse financial data in real time, improve forecasting accuracy, automate financial processes, optimize investment decisions, and strengthen risk management through intelligent decision-support systems.	Ashiedu et al. (2023); Adewale et al. (2023); Celestin (2024); Siddiqui (2025); Danquah (2025); Nwangwu et al. (2025)
2	Operational efficiency, profitability, automation, innovation, customer performance, business	Strategic Opportunities of AI Adoption	AI creates strategic value by improving operational efficiency, profitability, organizational learning,	Wamba-Taguimdje et al. (2020); Abrokwah-Larbi & Awuku-Larbi (2024); Olubiyi (2025);

	intelligence, competitive advantage, strategic planning		innovation, customer engagement, and overall business competitiveness.	Akinlabi & Olubiyi (2025)
3	Organizational readiness, leadership commitment, technological capability, employee competence, digital infrastructure, financial resources, AI skills, organizational culture	Organizational Readiness and Adoption Challenges	Successful AI adoption depends on organizational readiness, including technological infrastructure, managerial commitment, skilled personnel, and financial capacity.	Tjebane et al. (2022); Uwagaba et al. (2023); Hassan (2024); Ikpe (2024); Arachie et al. (2025); Henry et al. (2025)
4	Transparency, accountability, explainability, algorithmic bias, cybersecurity, privacy, ethical AI, corporate governance, regulatory compliance	Governance and Ethical Considerations	The increasing use of AI in financial reporting, auditing, investment, and risk management requires robust governance frameworks that promote transparency, accountability, fairness, privacy, cybersecurity, and responsible AI use.	Owolabi et al. (2024); Turlapati et al. (2024); Mutitu (2024); Assidi et al. (2025); Mgbemena et al. (2025)
5	Digital infrastructure, AI policy, education, regulatory framework, innovation ecosystem, data governance, institutional support	Policy and Institutional Support for AI Adoption	Sustainable AI adoption requires enabling policy environments characterized by investments in digital infrastructure, AI education, regulatory development, innovation support, and effective data governance to accelerate digital transformation and financial decision-making.	Jaldi (2023); Okolo et al. (2023); Azaroual (2024); Plantinga et al. (2024); Frimpong (2025)

Table 1 presents the major themes demonstrating that AI is reshaping financial decision-making among SMEs in West Africa through enhanced financial intelligence, organizational performance, governance, and institutional support, while highlighting the organizational factors influencing its successful adoption.

Objectives 2: Identify the opportunities and organizational challenges, influencing the adoption of artificial intelligence for financial decision-making among SMEs in West Africa.

Opportunities

Theme 1: Enhanced Financial Intelligence and Decision Quality: AI-powered technologies such as predictive analytics, machine learning, and business intelligence enable organizations to process large volumes of structured and unstructured financial data in real time, generating accurate forecasts and actionable insights for financial decision making (Ashiedu et al., 2023; Adewale et al., 2023; Celestin, 2024).

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Theme 2: Improved Operational Efficiency: AI automates repetitive financial activities, including transaction processing, auditing, budgeting, financial reporting, and compliance monitoring, thereby reducing operational costs and improving organizational productivity (Wamba-Taguimdje et al., 2020; Assidi et al., 2025; Olubiyi, 2025).

Theme 3: Strengthened Strategic and Financial Performance: AI adoption creates opportunities for improved strategic planning, investment decision-making, profitability, and competitive advantage. AI provides organizations with predictive capabilities that support investment appraisal, capital allocation, market analysis, and long-term financial planning (Abrokwah-Larbi & Awuku-Larbi, 2024; Akinlabi and Olubiyi, 2025; Danquah, 2025).

Theme 4: Improved Risk Management and Financial Control: AI enhances organizational risk management by improving fraud detection, financial monitoring, compliance, and predictive risk analysis. AI enables organizations to identify anomalies, assess financial risks, and implement proactive risk mitigation strategies before significant financial losses occur (Ashiedu et al., 2023; Assidi et al. (2025; Mgbemena et al., 2025).

Theme 5: Digital Transformation and Organizational Innovation: Another important opportunity emerging from the literature is AI's role in accelerating digital transformation and organizational innovation. AI enables businesses to modernize financial management practices, integrate intelligent technologies into business operations, and respond more effectively to changing market conditions. (Wamba-Taguimdje et al., 2020; Gikunda, 2023), Jaldi, 2023; Azaroual, 2024).

Table 2: Thematic Analysis of Opportunities Influencing AI Adoption for Financial Decision-Making among Businesses in West Africa

S/N	Codes	Theme	Description	References
1	Predictive analytics, financial forecasting, real-time data analysis, intelligent decision support, business intelligence	Enhanced Financial Intelligence and Decision Quality	AI enables businesses to analyse large volumes of financial data, generate predictive insights, improve forecasting accuracy, and support evidence-based financial decisions.	Ashiedu et al. (2023); Adewale et al. (2023); Celestin (2024); Siddiqui (2025); Danquah (2025)
2	Process automation, cost reduction, operational efficiency, resource optimization, productivity	Improved Operational Efficiency	AI automates repetitive financial tasks such as budgeting, auditing, reporting, and transaction processing, reducing operational costs while improving efficiency and productivity.	Wamba-Taguimdje et al. (2020); Assidi et al. (2025); Olubiyi (2025); Nwangwu et al. (2025)
3	Strategic planning, investment decisions,	Strengthened Strategic and	AI supports strategic financial planning by improving investment	Abrokwah-Larbi & Awuku-Larbi (2024); Olubiyi (2025); Danquah

	competitive advantage, innovation, profitability	Financial Performance	analysis, capital allocation, profitability, and long-term business sustainability.	(2025); Akinlabi & Olubiyi (2025)
4	Risk assessment, fraud detection, compliance monitoring, predictive risk analytics, financial control	Improved Risk Management and Financial Control	AI strengthens organizational risk management by identifying financial anomalies, detecting fraud, monitoring compliance, and supporting proactive risk assessment through predictive analytics.	Ashiedu et al. (2023); Assidi et al. (2025); Mgbemena et al. (2025); Vyas (2025)
5	Digital transformation, AI capability, organizational innovation, business resilience, technology adoption	Digital Transformation and Organizational Innovation	AI adoption accelerates digital transformation by fostering innovation, improving organizational adaptability, and strengthening business resilience.	Wamba-Taguimdje et al. (2020); Gikunda (2023); Jaldi (2023); Azaroual (2024); Nwangwu et al. (2025)

Table 2 summarizes the key opportunities associated with AI adoption, showing that AI enhances financial intelligence, operational efficiency, strategic performance, risk management, digital transformation, and corporate governance, thereby strengthening financial decision-making among SMEs in West Africa.

Challenges

Theme 1: Inadequate Technological Infrastructure: Inadequate technological infrastructure is one of the most significant barriers to AI adoption for financial decision-making in West Africa. Successful AI implementation depends on reliable internet connectivity, robust digital infrastructure, cloud computing capabilities, and access to modern information and communication technologies. However, many businesses in the region continue to operate within environments characterized by poor internet services, unreliable electricity supply, outdated technological systems, and limited digital infrastructure (Uwagaba et al., 2023; Arachie et al., 2025; Henry et al., 2025; Jaldi, 2023; Azaroual, 2024).

Theme 2: Financial Constraints: Financial limitations emerged as another major challenge influencing AI adoption. The high cost of acquiring AI technologies, implementing digital systems, maintaining technological infrastructure, and training employees discourages many businesses, particularly SMEs, from investing in AI solutions (Henry et al., 2025; Tjebane et al., 2022; Arachie et al., 2025; Frimpong (2025).

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Theme 3: Human Capital and Organizational Readiness: The successful adoption of AI requires employees and managers who possess digital literacy, analytical skills, AI competencies, and the ability to integrate AI-generated insights into financial decision-making. However, many organizations in West Africa continue to experience shortages of qualified personnel and insufficient organizational preparedness for digital transformation (Tjebane et al., 2022; Hassan, 2024; Ikpe, 2024; Uwagaba et al., 2023; Arachie et al., 2025).

Theme 4: Governance and Ethical Challenges: The increasing use of AI in financial reporting, investment analysis, auditing, and risk management has introduced significant governance and ethical concerns. Organizations remain cautious about adopting AI because of issues relating to algorithmic bias, transparency, explainability, accountability, privacy protection, cybersecurity, and regulatory compliance Owolabi et al., 2024; Turlapati et al., 2024; Mutitu, 2024; Assidi et al., 2025; Mgbemena et al., 2025).

Theme 5: Weak Policy and Institutional Support

The final theme highlights the role of weak policy and institutional environments in limiting AI adoption. Many African countries have yet to establish comprehensive AI policies, regulatory frameworks, and institutional support mechanisms capable of promoting responsible AI implementation (Okolo et al., 2023; Jaldi. 2023; Azaroual, 2024; Plantinga et al., 2024; Frimpong, 2025).

Table 3: Thematic Analysis of Challenges Influencing AI Adoption for Financial Decision-Making among Businesses in West Africa

S/N	Codes	Theme	Description	References
1	Digital infrastructure, internet connectivity, technological readiness, AI infrastructure, ICT facilities	Inadequate Technological Infrastructure	Limited digital infrastructure, poor internet connectivity, inadequate ICT facilities, and low technological readiness constrain the effective deployment of AI for financial decision-making.	Uwagaba et al. (2023); Arachie et al. (2025); Henry et al. (2025); Jaldi (2023); Azaroual (2024)
2	High implementation cost, limited funding, investment constraints, financial resources, affordability	Financial Constraints	High acquisition and implementation costs, inadequate access to finance, and limited government incentives reduce businesses' capacity to invest in AI technologies.	Henry et al. (2025); Tjebane et al. (2022); Arachie et al. (2025); Frimpong (2025)
3	AI skills, digital literacy, employee competence, managerial support, organizational learning, leadership commitment	Human Capital and Organizational Readiness	A shortage of AI expertise, limited digital literacy, inadequate employee training, weak managerial support, and insufficient organizational readiness	Tjebane et al. (2022); Hassan (2024); Ikpe (2024); Uwagaba et al. (2023); Arachie et al. (2025)

			hinder successful AI implementation.	
4	Algorithmic bias, transparency, accountability, privacy, cybersecurity, explainability, regulatory compliance	Governance and Ethical Challenges	Concerns regarding AI transparency, accountability, privacy, cybersecurity, ethical compliance, and algorithmic bias limit organizational confidence in AI-enabled financial decision-making.	Owolabi et al. (2024); Turlapati et al. (2024); Mutitu (2024); Assidi et al. (2025); Mgbemena et al. (2025)

Table 3 highlights the major challenges affecting AI adoption for financial decision-making, including inadequate technological infrastructure, financial constraints, limited organizational readiness, governance and ethical concerns, and weak institutional and policy support.

Discussion of Findings

Findings from this study showed that artificial intelligence (AI) is increasingly reshaping financial decision-making among SMEs in West Africa by improving financial intelligence, operational efficiency, strategic planning, and corporate governance. The analysis showed that AI-powered technologies, including machine learning, predictive analytics, business intelligence, and intelligent decision support systems, enable organizations to process large volumes of financial data, improve forecasting accuracy, strengthen investment decisions, automate financial processes, and enhance risk management. These findings agree with earlier studies by Wamba-Taguimdje et al. (2020), who reported that AI-enabled transformation enhances organizational performance through automation and intelligent decision-making, and by Abrokwah-Larbi and Awuku-Larbi (2024), who found that AI adoption significantly improves financial performance and organizational competitiveness among SMEs. Also, Danquah (2025), Ashiedu et al. (2023), Adewale et al. (2023), and Olubiyi (2025) also agrees that AI strengthens managerial decision-making by providing real-time financial intelligence that supports strategic planning and evidence-based decision-making. The findings also align with Assidi et al. (2025) and Mgbemena et al. (2025), who emphasized that AI is transforming accounting, auditing, and corporate governance by improving transparency, monitoring, and financial reporting.

The study also explored various opportunities and challenges influencing AI adoption for financial decision-making. It was revealed that while AI presents significant opportunities through improved operational efficiency, profitability, digital transformation, financial intelligence, and governance, its adoption remains constrained by inadequate technological infrastructure, limited financial resources, shortages of AI-skilled professionals, weak

organizational readiness, governance concerns, and insufficient institutional support. These findings are in line with the work of Tjebane et al. (2022). they identified leadership commitment, technological capability, organizational culture, employee competence, and financial resources as determinants of AI adoption. Uwagaba et al. (2023), Henry et al. (2025), and Arachie et al. (2025) also found that inadequate digital infrastructure, funding constraints, and shortages of technical expertise continue to hinder AI implementation among African SMEs. The governance-related findings also support the work of Owolabi et al. (2024), Turlapati et al. (2024), and Mutitu (2024), who emphasized that responsible AI adoption requires robust governance frameworks that promote transparency, accountability, privacy, and ethical compliance. The findings also establish the recommendations of Jaldi (2023), Okolo et al. (2023), Azaroual (2024), Plantinga et al. (2024), and Frimpong (2025), who argued that strengthening digital infrastructure, regulatory frameworks, AI education, and institutional support is essential for accelerating responsible AI adoption across Africa.

CONCLUSION AND RECOMMENDATIONS

This study examined how artificial intelligence (AI) adoption is reshaping financial decision-making among SMEs in West Africa through a qualitative thematic synthesis of recent literature published between 2020 and 2026. By adopting a qualitative research approach and synthesizing evidence from peer-reviewed studies using thematic analysis, the study revealed that AI is increasingly transforming financial decision-making by improving financial intelligence, predictive analytics, investment analysis, financial forecasting, risk management, operational efficiency, and corporate governance. The findings further demonstrated that AI offers significant opportunities for SMEs to improve strategic decision-making, organizational competitiveness, and sustainable business performance. However, despite the growing recognition of AI's strategic value, its adoption across SMEs in West Africa remains constrained by inadequate digital infrastructure, financial limitations, shortages of AI-skilled professionals, weak organizational readiness, governance and ethical concerns, and insufficient institutional and policy support.

Based on the findings of this study, the recommends that SMEs in West Africa should strategically integrate artificial intelligence into their financial management systems by adopting AI-powered tools for financial forecasting, budgeting, investment analysis, and risk management. Managers of SMEs should also strengthen corporate governance frameworks to support AI-enabled financial decision-making by establishing policies that promote transparency, accountability, ethical AI use, data privacy, and cybersecurity. It is also

important that owners of SMEs should invest in organizational readiness by developing digital infrastructure and building AI-related competencies among employees and managers. Finally, governments and policymakers should create an enabling environment for AI adoption by investing in digital infrastructure, strengthening regulatory frameworks, providing financial incentives for AI adoption, and promoting collaboration among industry, academia, and technology providers.

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