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Artificial Intelligence (AI) And Financial Performance of the Financial Service Industry in Kenya

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Abstract

This study evaluates the effect of Artificial Intelligence (AI) on the financial performance of Kenya's financial services industry, with a particular focus on the banking sector. Drawing from global and local perspectives, the paper explores how AI technologies—such as chatbots, credit scoring tools, predictive analytics, and robo-advisors—are being deployed to improve operational efficiency, enhance customer service, reduce risk, and drive profitability. Anchored on three theoretical frameworks—the Technology Acceptance Model (TAM), Resource-Based View (RBV), and Innovation Diffusion Theory (IDT)—the research uses a desk review methodology to synthesize recent empirical studies and industry reports published between 2020 and 2025. Findings reveal that AI adoption significantly contributes to enhanced financial performance through improved service delivery, expanded financial inclusion, and streamlined decision-making. However, challenges related to data quality, regulatory compliance, algorithm transparency, and limited focus on non-financial impacts persist. The paper concludes that while AI presents transformative potential for Kenya's financial institutions, its strategic implementation must be inclusive, ethical, and aligned with institutional capabilities to achieve sustainable growth.

Keywords: Artificial Intelligence, Financial Performance, Banking Sector, Financial Inclusion, Predictive Analytics, Robo-Advisors, Digital Transformation, Kenya

1. Introduction

Artificial Intelligence (AI) is revolutionizing the global financial services industry by automating complex tasks, improving decision-making, and increasing efficiency. Financial institutions around the world are utilizing AI in areas such as fraud detection, customer service, credit scoring, and algorithmic trading. For example, Mastercard has deployed AI to protect more than 159 billion transactions annually, significantly improving fraud detection rates and reducing false positives (Business Insider, 2024). Additionally, financial institutions are investing heavily in AI to boost profitability, with Citigroup estimating that AI could increase global banking sector profits by up to $170 billion over the next five years (Financial News London, 2024).

Furthermore, leading global banks such as the Royal Bank of Canada are forming AI-driven teams to integrate smart systems into trading and operations, aiming to generate new revenue streams through AI-enabled services (Reuters, 2024). However, central banks and regulators have raised concerns about potential systemic risks. The Bank of England, for instance, cautioned that widespread use of similar AI models by market participants could result in herd behavior, threatening financial stability (The Times, 2024). Similarly, the Reserve Bank of India has warned that concentrated dependence on a few AI providers could lead to vulnerabilities if these systems fail (Reuters, 2024).

In Africa, AI adoption is increasingly viewed as a catalyst for digital transformation within the financial services sector. Banks are leveraging AI to improve service delivery, reduce fraud, and reach unbanked populations through mobile and digital platforms. A 2024 report by African Business revealed that AI has surpassed cybersecurity as the most critical trend driving digital transformation in African banks, particularly through AI-powered chatbots and risk-scoring models (African Business, 2024).

AI is also being used to foster financial inclusion by analyzing alternative data such as mobile usage patterns and social media behavior to assess creditworthiness for individuals without traditional credit histories. This enables banks to offer microloans and personalized financial services (Business Tech Africa, 2024). Moreover, global tech firms are investing in Africa's AI infrastructure. For instance, Amazon Web Services (AWS) announced a $1.7 billion investment to expand its AI capabilities across Africa by 2029, focusing on cloud infrastructure and AI-driven financial tools (Credence Research, 2024).

In Kenya, AI adoption within the banking sector is rapidly gaining traction, with institutions like financial service industry in Kenya leading the charge. Financial Service Industry has implemented AI-powered tools in customer service, loan processing, and fraud detection. AI-driven chatbots now handle thousands of daily inquiries, enhancing customer engagement and reducing wait times (Digital Banking News Kenya, 2025). Additionally, the bank uses predictive analytics for credit scoring, leveraging data from mobile money and transaction histories to offer targeted financial solutions (African Business, 2024).

Kenya's Financial Service Industry's digital transformation strategy also includes partnerships with fintech firms to integrate AI-enabled investment tools and automate compliance monitoring. These tools enhance operational efficiency, reduce human error, and improve financial performance (The Star, 2023). According to the Central Bank of Kenya, AI technologies such as generative AI could boost front-office productivity in banks by 27% to 35%, suggesting a strong link between AI adoption and improved organizational performance (Digital Banking News Kenya, 2025).

2. Literature Review

2.1. Theoretical Review

Theoretical framework provides a foundation for understanding the theoretically expected relationship among the study variables. The applicable theories for this research are; Resource-Based View (RBV) Theory, Technology Acceptance Model (TAM) and Innovation Diffusion Theory (IDT).

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) was developed by Fred Davis in 1989 to explain and predict user behavior regarding technology adoption. The model is based on the Theory of Reasoned Action (TRA) and posits that two primary factors determine the intention to use a new technology: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). Perceived usefulness refers to the degree to which a person believes that using a particular technology will enhance their job performance, while perceived ease of use denotes the degree to which a person believes that using the technology will be free of effort (Davis, 1989). These perceptions influence the individual's attitude toward using the system, which in turn shapes behavioral intentions and ultimately actual usage behavior.

In the context of Artificial Intelligence (AI) in the financial service industry, particularly in banking, TAM provides a valuable lens through which to understand how bank employees and managers accept and utilize AI technologies. AI tools, such as robo-advisors, automated fraud detection systems, and virtual assistants, are only effective if employees perceive them as beneficial to their work and easy to operate.

Moreover, the acceptance of AI solutions in banking institutions is also influenced by organizational support and training. If financial service providers invest in training programs and user-friendly AI platforms, they can increase perceived ease of use among staff. This, in turn, fosters more favorable attitudes toward AI adoption, positively affecting the bank's overall financial performance through increased efficiency, improved customer service, and better risk management. Research by Al-Emran, Mezhuyev, and Kamaludin (2018) supports this notion, indicating that institutions that promote positive user experiences and perceived value see higher levels of technology assimilation and performance outcomes.

TAM has evolved over time, and researchers have expanded it into more comprehensive models such as TAM2 and the Unified Theory of Acceptance and Use of Technology (UTAUT). However, the original TAM remains foundational in studies involving early-stage technology adoption like AI in emerging markets, where both ease of use and perceived benefits are crucial determinants of uptake. In the case of Kenya, where AI integration is still developing in many financial institutions, TAM helps explain the varied pace of adoption across different branches, departments, and roles (Kariuki & Kamau, 2021).

Resource-Based View (RBV) Theory

The Resource-Based View (RBV) is a strategic management theory that emphasizes the importance of internal resources in achieving and sustaining competitive advantage. Introduced by Barney (1991), the RBV argues that organizations gain a competitive edge when they possess resources that are valuable, rare, inimitable, and non-substitutable (commonly

referred to as the VRIN framework). These resources can be tangible, such as financial assets, or intangible, such as brand reputation, organizational culture, and advanced technological capabilities like Artificial Intelligence (AI).

In the context of the financial services industry, and particularly in commercial banks, AI is increasingly viewed as a strategic resource. When deployed effectively, AI technologies such as predictive analytics, chatbots, algorithmic trading tools, and fraud detection systems can serve as valuable and rare capabilities that improve operational efficiency, reduce costs, enhance customer experience, and support data-driven decision-making. According to the RBV, these AI capabilities—when uniquely tailored to the bank's infrastructure and customer base—can become difficult for competitors to imitate, thereby offering a sustained competitive advantage (Barney, 1991; Wernerfelt, 1984).

Furthermore, the RBV theory suggests that it is not merely the possession of AI technologies that matters, but how these technologies are integrated with the organization's other resources, such as skilled human capital, managerial expertise, and data infrastructure. This alignment transforms AI from a generic technology into a core competency unique to the institution (Grant, 1996).

Empirical studies support the RBV perspective in the context of AI adoption in banking. A study by Chatterjee, Rana, and Dwivedi (2020) found that AI, when embedded in an organization's processes and supported by top management, significantly enhances firm performance by creating efficiencies and fostering innovation. Thus, for Banks, leveraging AI as a strategic resource rather than a mere operational tool may be key to unlocking its full financial benefits and market competitiveness within Mombasa and beyond.

Overall, the RBV framework is critical to this study as it underlines the idea that strategic deployment of AI resources, combined with internal organizational capabilities, directly influences financial performance. This theory will guide the assessment of how AI adoption by Financial Service Industry in Kenya contributes to the institution's sustained performance, efficiency, and long-term strategic advantage.

Innovation Diffusion Theory (IDT)

The Innovation Diffusion Theory (IDT), developed by Everett Rogers in 1962, explains how, why, and at what rate new technologies and innovations spread within a social system. According to Rogers (2003), the diffusion process involves five stages: knowledge, persuasion, decision, implementation, and confirmation. The theory identifies five attributes of innovation that influence its adoption: relative advantage, compatibility, complexity, trialability, and observability. These characteristics shape how quickly an innovation like Artificial Intelligence (AI) is embraced by individuals and organizations.

In the financial services industry, the application of IDT helps to understand the rate at which AI technologies are adopted by banks and financial institutions. AI innovations such as algorithmic credit scoring, robo-advisors, and intelligent chatbots offer significant relative advantages, including improved accuracy, speed, and cost-efficiency over traditional methods. These advantages can drive faster adoption if stakeholders perceive that the new technologies align with their operational needs and customer expectations (Rogers, 2003).

Compatibility plays a vital role in determining whether AI systems will be effectively adopted by financial institutions. If AI technologies are compatible with the existing banking infrastructure, workflows, and regulatory frameworks, their integration is likely to be smoother. According to Oliveira and Martins (2011), compatibility with an organization's values, needs, and past experiences enhances the likelihood of adoption.

The complexity of AI tools can also affect their acceptance. If potential users such as bank employees or IT managers find AI systems difficult to understand or use, the adoption process may slow down. Financial institutions must invest in staff training and capacity building to lower perceived complexity and increase trialability and observability.

The IDT is particularly relevant to this study as it provides a framework for analyzing how Bank's stakeholders both internal (employees and management) and external (customers and regulators) respond to the introduction of AI. It helps to identify the enablers and barriers of adoption and links the speed of adoption to tangible performance outcomes. Studies such as those by Yu and Tao (2009) have applied IDT in financial sectors and found that organizations that manage the innovation attributes effectively tend to experience improved financial results.

Overall, Innovation Diffusion Theory offers a useful lens for assessing how the introduction and spread of AI technologies influence the financial performance of institutions. By understanding the dynamics of innovation diffusion, the bank can better strategize its AI implementation for optimal effect.

2.2. Empirical Literature

Artificial Intelligence (AI) and its influence on financial performance have become a central theme in contemporary research within the financial services sector, particularly as institutions increasingly integrate AI technologies to enhance efficiency, profitability, and customer experiences. The momentum surrounding AI adoption is rooted in its ability to transform both operational and strategic dimensions of financial institutions. Recent empirical evidence suggests that AI has the potential to significantly improve key financial indicators such as Return on Assets (ROA), reduce operational costs, and deepen financial inclusion, especially within emerging markets such as Kenya.

Globally, Arner et al. (2023) conducted a comprehensive study across 20 countries and established that banks deploying AI tools in customer service and risk management reported a 15% improvement in ROA and a 12% decline in operational costs. This study highlights AI's capacity to boost both efficiency and customer satisfaction—critical drivers of financial performance. These global findings provide a useful benchmark for assessing AI's impact in the Kenyan context, where

the financial services sector is rapidly digitizing.

In Kenya, Kimoni (2023) examined the adoption of AI and digital technologies within commercial banks and found a compelling link between technological adoption and financial performance. According to the study, digital innovation explained 90.3% of the variation in the performance of commercial banks. This underscores the importance of technological investment in enhancing profitability, improving service delivery, and streamlining banking operations. The study concluded that Kenyan banks must continue to embrace AI to remain competitive and responsive to customer expectations in an increasingly digital economy.

Similarly, Muhuni and Ouma (2024) explored how innovation influences the competitive structure of Tier 1 commercial banks in Kenya. Their study established a positive correlation between innovation approaches, including AI, and competitive advantage. This reinforces the view that innovation is no longer optional but a strategic necessity for sustaining relevance in the fast-evolving financial landscape.

AI's role extends beyond performance enhancement into risk management and financial inclusion. Omotosho (2025) examined AI-driven credit scoring systems and their impact on financial inclusion in emerging economies. The study revealed that AI technologies, including mobile banking and remote service platforms, allow for the creation of detailed credit histories using unconventional data sources. This has enabled banks to extend financial services to individuals who were previously excluded from formal lending frameworks due to insufficient credit data. Similarly, Mwange et al. (2025) reported a significant positive long-term and bi-directional relationship between AI and financial inclusion, concluding that AI is pivotal in enhancing access to financial services in the digital era. Complementing these findings, Fazal et al. (2025) highlighted that AI fosters economic growth and poverty reduction by enabling wider participation in the formal financial system.

On the customer service front, AI continues to revolutionize engagement models within the banking sector. Udodiugwu et al. (2024) found that while AI enhances non-financial aspects such as service speed and availability, robust cybersecurity measures are crucial for translating these innovations into improved financial outcomes. Mensah et al. (2025) provided further insight into AI-powered chatbots deployed by Kenyan banks. These chatbots are increasingly integrated into social media platforms such as WhatsApp, offering users 24/7 access to services. However, the study also noted that customers sometimes face usability challenges, signaling a need for further refinement of user interfaces and customer education.

Theuri and Olukuru (2022) explored the use of AI in both customer-facing and internal functions. Their study illustrated how AI facilitates cost reduction through automated customer identification, voice assistants, and personalized financial insights. In the middle-office, AI is being used to enhance anti-money laundering (AML) processes, improve Know Your Customer (KYC) compliance, and detect payment fraud—areas that are vital to operational integrity and financial performance.

At a strategic level, AI is reshaping financial planning, monitoring, and reporting. Marri (2025) identified several sophisticated AI applications, including real-time financial health monitoring, rolling forecasts, automated financial statement generation, and strategic resource allocation. These capabilities allow financial institutions to respond to dynamic market conditions with agility. Nonetheless, Marri also noted several implementation challenges such as data quality issues, algorithm transparency, resistance to change, system integration complexities, and regulatory constraints.

The integration of AI is also prompting shifts in the accounting profession. Kamau and Ilamoya (2023) observed that AI's growing role in financial functions is transforming accounting education and practice. The study emphasized that future accountants will need to understand AI-driven tools and systems, given their expanding influence in banking and finance.

Lastly, Aswin (2024) provided a broad overview of AI applications in the finance industry, from algorithmic trading to robo-advisors. The study acknowledged the promise of AI in enhancing efficiency and accuracy while also cautioning about the potential ethical and systemic risks associated with its use.

The existing body of empirical literature demonstrates that AI significantly contributes to improved financial performance in Kenya's financial services industry. From boosting profitability and customer satisfaction to enhancing risk management and promoting financial inclusion, AI is proving indispensable in the digital transformation of finance. However, for these benefits to be fully realized, institutions must address the associated challenges and commit to responsible, transparent, and inclusive implementation strategies.

2.3. Critique

The literature on artificial intelligence (AI) and financial performance in Kenya's financial services industry generally highlights the positive impact of AI, including improved profitability, operational efficiency, and financial inclusion. Studies like those by Kimoni (2023) and Arner et al. (2023) demonstrate that AI adoption—particularly in customer service and risk management—can significantly boost financial outcomes. Similarly, Mwange et al. (2025) and Omotosho (2025) show that AI plays a vital role in expanding access to financial services.

However, a critical review reveals several gaps. Many studies focus heavily on financial metrics while neglecting non-financial factors such as ethics, employee impacts, and long-term sustainability. Although challenges like data quality and algorithmic bias are mentioned (Marri, 2025), they are often addressed superficially. The literature also lacks strong theoretical foundations and is limited by its reliance on short-term, quantitative data, making it difficult to assess the long-term or causal effects of AI.

Moreover, most research centers on commercial banks, excluding important institutions like SACCOs and mobile money providers. Customer experiences with AI are underexplored, and there is limited attention to regulatory and ethical issues,

such as data privacy and algorithm transparency (Theuri & Olukuru, 2022). In summary, while AI is shown to positively influence financial performance in Kenya's financial sector, the current literature is overly optimistic and narrow in scope. Future research should be more holistic, theoretically grounded, and inclusive of broader institutions, ethical concerns, and user experiences.

3. Research Methodology

This study adopted a desk review methodology, which involved the systematic identification, selection, and analysis of existing literature related to artificial intelligence (AI) and financial performance within the financial services industry, with a focus on Kenya. Peer-reviewed journal articles, empirical studies, policy papers, and sector-specific reports published between 2020 and 2025 were critically examined. The review focused on studies that explored the relationship between AI applications—such as customer service automation, risk management systems, credit scoring tools, and financial inclusion platforms—and various financial performance indicators, including profitability, operational efficiency, and return on assets. Relevant literature was sourced from academic databases, institutional repositories, and reputable journals. The findings were synthesized thematically, allowing for comparison of global and local trends, identification of recurring patterns, and critical assessment of methodological and contextual gaps in the existing body of knowledge. This approach enabled the development of a comprehensive understanding of the current state of research and informed the formulation of conclusions and recommendations.

4. Application of AI in Financial Service Industry in Kenya

Artificial intelligence (AI) has increasingly become integral to the strategic operations of financial institutions, particularly through its application in customer service, risk assessment, decision-making, and investment advisory functions. In Kenya, where the financial sector is rapidly digitizing, AI adoption in these domains has shown a notable influence on financial performance metrics such as profitability, operational efficiency, cost reduction, and customer retention.

4.1. AI-Driven Customer Service Solutions

AI-driven customer service tools—such as chatbots, virtual assistants, and automated response systems—have significantly transformed how financial institutions engage with clients. These systems provide 24/7 support, reduce the burden on human agents, and improve response time and accuracy. According to Mensah et al. (2025), Kenyan banks have increasingly integrated AI-powered chatbots into social media platforms such as WhatsApp to provide seamless and responsive customer interaction. These innovations have enhanced customer satisfaction and loyalty, contributing to increased client retention and, consequently, improved revenue generation. Moreover, as highlighted by Theuri and Olukuru (2022), such automation reduces operational costs by minimizing the need for large customer service departments, thus positively influencing banks' cost-to-income ratios.

4.2. AI-Based Risk Assessment

Risk assessment and management have been fundamentally reshaped by AI technologies. AI algorithms can process large volumes of structured and unstructured data to detect patterns, forecast risks, and identify potential defaults in real-time. In the Kenyan context, AI-based credit scoring systems have played a pivotal role in expanding financial access. Omotosho (2025) found that by leveraging alternative data sources—such as mobile usage and transaction histories—AI has enabled banks and fintechs to assess creditworthiness among previously unbanked populations. This not only promotes financial inclusion but also enhances portfolio quality by reducing non-performing loans (NPLs), thus improving financial performance. AI's capacity to detect fraud and anomalies also strengthens institutional resilience, reducing financial losses and reputational damage.

4.3. AI in Strategic and Operational Decision-Making

AI contributes to financial performance through its role in data-driven decision-making. By integrating machine learning and predictive analytics, financial institutions can make faster and more accurate strategic decisions. Marri (2025) noted that AI supports dynamic scenario analysis, real-time financial health monitoring, and variance analysis, enabling proactive resource allocation and risk mitigation. In Kenyan banks, such tools facilitate the identification of profitable market segments, optimize branch operations, and guide product development. This intelligence translates into more targeted strategies, improved efficiency, and greater profitability, particularly in competitive urban financial markets.

4.4. AI-Powered Investment Tools

AI is also revolutionizing investment services through robo-advisors and algorithmic trading platforms. These tools provide automated, data-driven investment recommendations tailored to individual risk profiles and market conditions. Aswin (2024) explained that such platforms offer consistent and low-cost investment advice, enabling financial institutions to serve a wider clientele, including low-income and tech-savvy young investors. While this trend is more nascent in Kenya, early adoption by investment banks and asset management firms is already showing positive outcomes in terms of expanded product offerings and enhanced revenue streams. The ability to scale investment services through AI without proportional increases in cost contributes to stronger profit margins and improved financial sustainability.

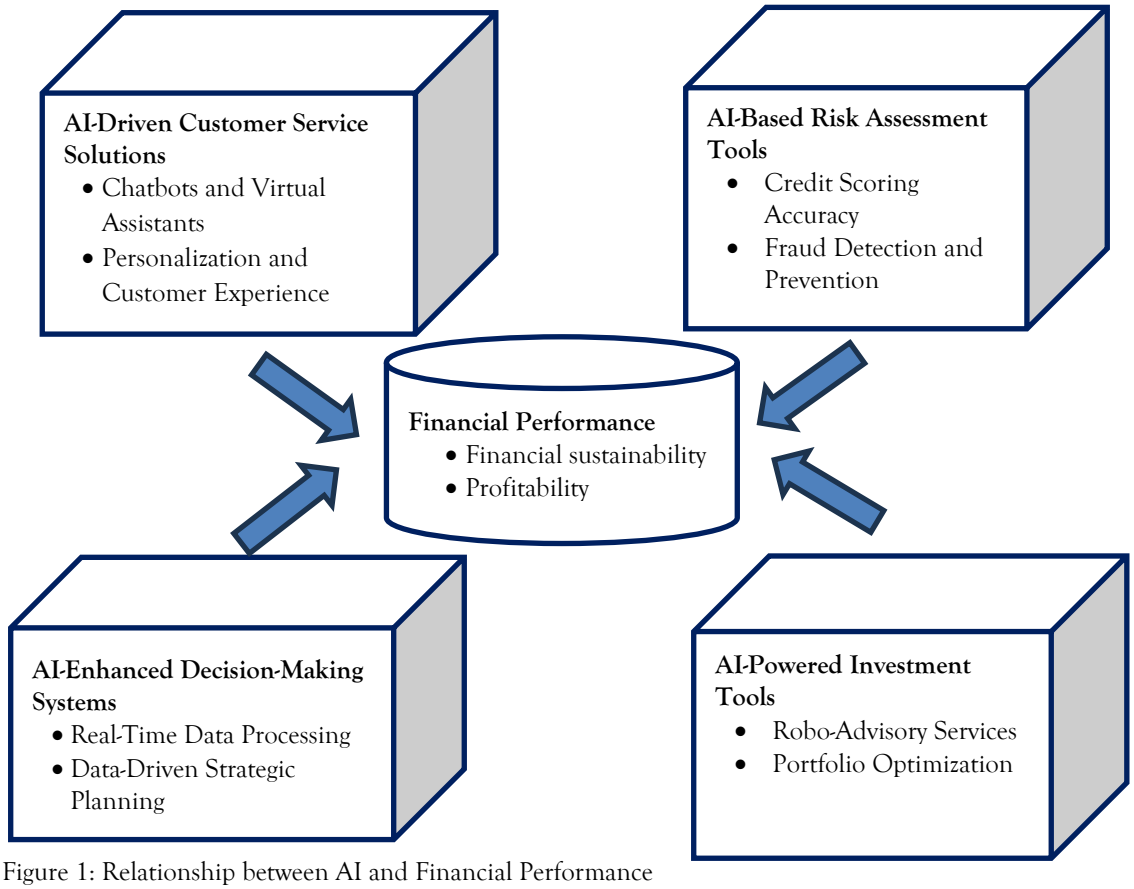

Figure 1: Relationship between AI and Financial Performance

Figure 1 effectively demonstrates that AI applications are not merely technological enhancements but are strategic assets that influence key drivers of financial performance. For financial institutions in Kenya, the adoption of AI presents an opportunity to improve customer service delivery, mitigate risk, enhance decision-making, and expand investment offerings—all of which translate into improved efficiency, reduced costs, and increased revenue. As AI technologies continue to mature, their role in shaping the financial performance of Kenyan financial institutions will likely become even more pronounced.

4.5. Discussion

The integration of artificial intelligence (AI) into financial institutions has become a key driver of improved financial performance, especially in emerging markets such as Kenya. The figure under discussion presents a conceptual framework that illustrates the relationship between AI technologies and financial performance by highlighting four core AI applications: AI-driven customer service solutions, AI-based risk assessment tools, AI-enhanced decision-making systems, and AI-powered investment tools. Each of these components contributes in a unique way to improving operational efficiency, customer engagement, risk mitigation, and revenue growth—all of which are central to strong financial outcomes.

To begin with, AI-driven customer service solutions—such as chatbots and virtual assistants—have significantly transformed how banks and other financial institutions in Kenya interact with clients. These tools provide 24/7 service, address queries instantly, and offer personalized communication based on customer data. The ability to personalize services fosters stronger client relationships and enhances customer loyalty, which can lead to increased client retention and higher lifetime value per customer. From a financial performance perspective, these outcomes contribute to increased revenue generation while reducing the costs associated with human-led customer service.

Similarly, AI-based risk assessment tools have revolutionized how financial institutions handle credit scoring and fraud detection. In the Kenyan context, where access to formal credit is often limited by traditional credit rating models, AI offers more inclusive and accurate risk assessment by leveraging alternative data sources such as mobile money usage and social media behavior. Improved credit scoring enhances loan portfolio quality, while advanced fraud detection minimizes financial losses. Both outcomes directly impact profitability and reduce credit risk exposure, thereby strengthening the institution's financial stability.

In addition, AI-enhanced decision-making systems enable financial institutions to process and analyze vast amounts of data in real time. This capability supports faster and more informed strategic and operational decisions. For instance, Kenyan banks can now use AI to predict market trends, assess customer behavior, and dynamically adjust pricing or product offerings. Improved decision-making enhances operational agility and allows institutions to respond quickly to changes in the economic or regulatory environment—factors that are essential for sustaining financial performance in a

competitive and volatile market.

Lastly, AI-powered investment tools, such as robo-advisory services and algorithmic portfolio optimization, are increasingly being adopted by financial service providers in Kenya. These tools make investment services more accessible and affordable to a broader segment of the population. By automating advisory functions and enabling better asset allocation decisions, institutions can improve investment outcomes for clients while reducing the cost-to-serve. As a result, these tools contribute to both client satisfaction and institutional profitability.

AI technologies—across customer service, risk assessment, decision-making, and investment advisory functions—have a demonstrable impact on the financial performance of Kenyan financial institutions. These innovations enhance operational efficiency, improve customer experiences, reduce risks, and create new revenue opportunities. However, to fully realize these benefits, institutions must address challenges such as system integration, data quality, user acceptance, and regulatory compliance. As AI adoption deepens, it is expected to remain a critical enabler of competitiveness and growth in Kenya's evolving financial landscape.

5. Conclusion and Recommendations

5.1. Conclusion

This study set out to examine the role of Artificial Intelligence (AI) in shaping the financial performance of Kenya's financial services industry. The findings clearly demonstrate that AI technologies have become indispensable in enhancing operational efficiency, improving customer experiences, reducing risk, and driving profitability. Applications such as AI-powered chatbots, predictive credit scoring, fraud detection systems, and automated investment tools have enabled financial institutions to streamline processes, expand outreach, and better serve an increasingly digital clientele.

Grounded in the Technology Acceptance Model (TAM), Resource-Based View (RBV), and Innovation Diffusion Theory (IDT), the study confirms that AI adoption is both a technological and strategic undertaking. Institutions that align AI with internal capabilities, invest in staff training, and ensure ease of use are more likely to realize improved financial outcomes. Empirical evidence from Kenya and other emerging economies affirms the positive correlation between AI integration and key financial indicators, including return on assets (ROA), cost-to-income ratio, and customer retention.

However, the review also reveals notable challenges. Issues such as data quality, algorithm transparency, regulatory uncertainty, and resistance to change continue to affect the effective deployment of AI. Additionally, the literature often overlooks ethical considerations, employee impacts, and the inclusion of non-bank financial institutions in AI discourse.

5.2. Recommendation

To fully harness the transformative potential of Artificial Intelligence (AI) in Kenya's financial services industry, several strategic actions are necessary. First, financial institutions should treat AI not merely as a technological upgrade, but as a core strategic asset. This means integrating AI into key areas such as credit risk assessment, investment advisory, compliance monitoring, and strategic decision-making, rather than limiting its application to customer service functions alone. Such holistic integration can significantly enhance operational efficiency and competitiveness.

Second, capacity building should be prioritized. Many of the challenges associated with AI adoption—such as resistance to change and underutilization—stem from limited user knowledge and confidence. Financial institutions must therefore invest in comprehensive training programs for staff to build digital literacy, foster positive attitudes toward AI tools, and ensure seamless user experiences. Emphasizing ease of use and supporting employees through change management initiatives will enhance adoption rates and system effectiveness.

In addition, closer collaboration between financial institutions and regulatory bodies is critical. The development of clear, AI-specific regulatory frameworks will help address emerging issues related to data privacy, algorithmic accountability, and systemic risk. Proactive engagement with regulators, such as the Central Bank of Kenya, will also ensure that AI innovations evolve within a safe and enabling environment. Another essential recommendation is the improvement of data governance structures. Since AI systems rely heavily on data to function accurately and fairly, financial institutions must ensure data integrity, security, and ethical use. This involves establishing clear data management protocols, addressing potential biases, and maintaining transparency in how AI-generated decisions are made.

Furthermore, there is a strong need to leverage AI to foster financial inclusion. Banks and fintech companies should focus on using alternative data sources—such as mobile money usage and social media behavior—to serve populations with little or no formal credit history. By designing AI tools tailored to the needs of low-income and underserved communities, financial institutions can expand their customer base and contribute to inclusive economic development. Lastly, the scope of AI research and implementation should be broadened. Most current studies focus on large commercial banks, leaving out other important players like SACCOs, microfinance institutions, and mobile money providers. Future research should explore how these entities can adopt AI and what unique challenges they face. Additionally, more long-term and qualitative studies are needed to understand the broader implications of AI, including its impact on jobs, ethics, and institutional culture. By addressing these areas, Kenya's financial service industry can maximize the benefits of AI while minimizing potential risks, ultimately driving sustainable financial innovation and performance.

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The authors declare that they are not aware of any competing financial interests or personal relationships that may have influenced the work described in this document.

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Ethical considerations

The article followed all ethical standards appropriate for this kind of research.

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