

THE IMPACT OF ARTIFICIAL INTELLIGENCE ON FINANCIAL REGULATIONS IN NIGERIA: CHALLENGES AND PROSPECTS

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Abstrak

Kecerdasan buatan (AI) dengan cepat mengubah sistem keuangan di seluruh dunia, khususnya di Afrika dan Nigeria, dengan mengotomatiskan kepatuhan terhadap peraturan, meningkatkan deteksi penipuan, dan meningkatkan manajemen risiko. Namun, mengintegrasikan AI ke dalam peraturan keuangan memiliki potensi dan tantangan. Artikel ini mengkaji dampak inovasi yang digerakkan oleh AI pada pengawasan keuangan, sistem kepatuhan, dan kerangka kerja peraturan dalam kaitannya dengan undang-undang keuangan Nigeria. Laporan ini menarik perhatian pada sejumlah masalah signifikan, seperti kemungkinan bias dalam algoritma AI, dilema moral, ancaman terhadap keamanan siber, kesenjangan hukum, dan infrastruktur teknologi yang tidak memadai. Selain itu, yang ditekankan adalah potensi kecerdasan buatan (AI) untuk meningkatkan inklusi keuangan, meningkatkan kemandirian peraturan, dan meningkatkan pengambilan keputusan sektor keuangan. Kebijakan peraturan keuangan Nigeria saat ini, peran Bank Sentral Nigeria (CBN) dan lembaga pengatur keuangan lainnya dalam beradaptasi dengan perkembangan AI, dan praktik terbaik global yang berpotensi mengubah lanskap peraturan Nigeria semuanya diperiksa dalam studi kualitatif ini. Makalah ini diakhiri dengan rekomendasi untuk kerangka regulasi yang kuat yang mempromosikan keterbukaan dalam AI, menyeimbangkan inovasi dan pengawasan, dan memperkuat kolaborasi antara regulator keuangan, pengembang AI, dan lembaga keuangan. Hasilnya menunjukkan bahwa meskipun kecerdasan buatan (AI) memiliki banyak keuntungan, regulasi yang tepat diperlukan untuk mengurangi risiko terkait, menjamin penggunaan AI yang etis, dan menjaga stabilitas keuangan.

Kata kunci: Kecerdasan Buatan, Regulasi Keuangan, Deteksi Penipuan, Nigeria, Manajemen Risiko, Kerangka Regulasi.

Abstract

Artificial intelligence (AI) is rapidly transforming financial systems worldwide, particularly in Africa and Nigeria, by automating regulatory compliance, enhancing fraud detection, and improving risk management. However, integrating AI into financial regulations comes with both potential and challenges. This article examines the impact of AI-driven innovations on financial oversight, compliance systems, and

regulatory frameworks regarding Nigerian financial legislation. The report draws attention to several significant problems, such as possible biases in AI algorithms, moral dilemmas, threats to cybersecurity, legal gaps, and insufficient technology infrastructure. Additionally, the potential of artificial intelligence (AI) to enhance financial inclusion, increase regulatory efficacy, and enhance financial sector decision-making is emphasised. Nigeria's present financial regulatory policies, the role of the Central Bank of Nigeria (CBN) and other financial regulatory agencies in adapting to AI developments, and global best practices that have the potential to alter Nigeria's regulatory landscape are all examined in this qualitative study. The paper ends with recommendations for a robust regulatory framework that promotes openness in AI, balances innovation and oversight, and strengthens collaboration between financial regulators, AI developers, and financial institutions. The results show that although artificial intelligence (AI) has many advantages, appropriate regulation is necessary to reduce related risks, guarantee ethical AI use, and safeguard financial stability.

Keywords: Artificial Intelligence, Financial Regulations, Fraud Detection, Nigeria, Risk Management, Regulatory Framework.

Introduction

As AI-driven financial services proliferate, financial regulators in Nigeria, including the Central Bank of Nigeria (CBN), the Securities and Exchange Commission (SEC), and the Nigerian Financial Intelligence Unit (NFIU), are under increasing pressure to update their regulatory frameworks (Akinbami & Johnson, 2022). By improving operational efficiency, fraud detection, risk assessment, and regulatory compliance, artificial intelligence (AI) has completely transformed the global banking industry (Idris & Iyere, 2025). To solve compliance issues, enhance financial supervision, and reduce systemic risks in financial institutions, artificial intelligence (AI)-powered regulatory technology, or RegTech, is increasingly embraced (Adebayo et al., 2021).

Significant advantages have resulted from the incorporation of AI into financial laws, including enhanced anti-money laundering (AML) procedures, automated regulatory reporting, and predictive analytics for fraud prevention (Moffitt et al., 2018). Algorithmic prejudice, data privacy issues, cybersecurity risks, and the possibility of AI-driven financial crimes are some of the legislative obstacles that come with the deployment of AI (Martin, 2013). Notwithstanding these problems, the use of AI in Nigeria's financial sector is growing in fintech, digital banking, credit scoring, and investment advice services, which calls for a strong regulatory response (Longinus, 2018).

AI is becoming increasingly important in banking operations, financial markets, and risk management as the Nigerian financial sector transforms digitally (Adebayo et al., 2021). Although AI can enhance compliance and fraud detection, there are ethical and regulatory issues with its incorporation into the financial sector. Nigeria's unclear regulatory framework for AI governance raises concerns regarding accountability, transparency, and data privacy in financial decision-making (Eze & Chinedu, 2020).

The intricacies of AI-driven financial technology cannot be adequately addressed by the regulatory frameworks now in place, which were created mainly for conventional financial systems (Oladipo & Akinyele, 2021). This disparity has raised worries about biased AI algorithms that impact loan approvals and credit scores, cyberthreats enabled by AI in financial transactions, and the requirement that regulatory bodies create compliance policies tailored to AI (Nguyen & Aiello, 2020). Furthermore, financial institutions and fintech businesses in Nigeria face ambiguity due to the lack

of a clear legal framework for AI-powered RegTech solutions (Muhammad et al., 2025b).

The transformational potential and accompanying risks of artificial intelligence in financial laws have been examined in previous studies. Olayemi (2020) highlighted the importance of AI-powered RegTech in improving financial supervision and regulatory effectiveness. Oladipo & Akinyele (2021) looked at the legal and compliance issues surrounding AI in banking and pointed out that autonomous financial systems and algorithmic decision-making are complex for established regulatory frameworks to manage.

Significant gaps in the regulations governing AI-powered banking and fintech services were found by Akinbami & Johnson (2022), who looked into AI applications in Nigeria's financial industry. The ethical concerns of AI in finance, such as algorithmic prejudice and data security flaws, were the primary focus of Issa et al. (2016). Furthermore, Raphael (2020) and Muhammad et al. (2025a) emphasised the necessity for flexible legal frameworks to handle hazards associated with AI and the worldwide trends in AI legislation.

Given how quickly AI is developing in the financial industry, Nigerian authorities need to find a balance between encouraging innovation and guaranteeing consumer safety, financial stability, and the ethical application of AI. In order to fill in the gaps in the current regulatory framework and offer policy proposals to close them, this study aims to investigate the opportunities and difficulties of AI in Nigerian financial regulations. Nigeria lags in creating organised regulations that direct the implementation of AI in banking, despite global developments in AI regulation. AI misuse, financial exclusion from biased algorithms, and regulatory inefficiencies in fraud detection and AML compliance are all risks associated with inadequate regulatory control. Therefore, this study aims to critically examine how AI affects Nigerian financial regulations, pointing out gaps and suggesting fixes to guarantee the responsible application of AI in the financial industry. Despite these studies, a thorough study on Nigerian financial regulations about AI is still lacking, especially concerning regulatory adaptability, risk reduction techniques, and ethical issues in AI deployment. By examining Nigeria's regulatory environment, evaluating AI-related issues, and suggesting ways to improve financial regulation, this study aims to close this gap.

The frame of study on AI in Nigerian financial legislation has revealed several research gaps, including:

1. **Regulatory Gaps:** Although research has looked at AI rules worldwide (e.g., Ogoun, 2020), little is known about Nigerian financial regulations unique to AI.
2. **AI-Related Risks:** While Gentner et al. (2018) examined ethical issues in AI-driven finance, little attention has been paid to how Nigerian regulators handle cybersecurity risks, compliance issues, and AI biases.
3. **Regulatory Adaptation:** While previous studies have reviewed AI's involvement in Nigerian banking (e.g., Nwanyanwu, 2017), few have examined how prepared financial regulators are to modify AI governance frameworks.
4. **Policy Recommendations:** Although several studies address the difficulties posed by AI, not enough studies have been done to suggest specific legislative measures to control AI in Nigeria's financial industry.

By delivering a thorough examination of AI's influence on Nigerian financial rules, evaluating regulatory obstacles, and making policy proposals to guarantee a safe and moral AI-driven financial environment, this paper seeks to close these gaps.

Metodology

1. *Research Design:*

A mixed-methods approach with a qualitative focus is used in this investigation. The qualitative component examines the changing link between financial rules and artificial intelligence (AI) through in-depth interviews and document analysis. Structured questionnaires are used in the quantitative component to collect numerical data from important stakeholders. This approach was selected to allow for both explanatory and exploratory insights into the potential and difficulties of artificial intelligence in Nigeria's financial regulatory environment.
2. *Study Area:*

The study is situated in Nigeria, with a specific focus on key financial hubs such as Lagos, Abuja, and Port Harcourt, where AI technologies are increasingly being integrated into financial institutions and where major financial regulatory bodies (e.g., CBN, SEC, NDIC, and EFCC) are headquartered or actively operate. These locations provide a rich context for studying AI adoption and regulatory dynamics.
3. *Population of the Study:* The population includes:
 - Experts in legal and financial technology;
 - Policymakers and stakeholders in the governance of the digital economy;
 - Representatives of financial regulatory bodies (such as the Central Bank of Nigeria, Securities and Exchange Commission, and Nigerian Deposit Insurance Corporation);
 - IT and compliance officers of banks and fintech companies;
4. *Sample Size and Sampling Methods:* *Purposive and snowball sampling are used.* Purposive sampling makes it possible to choose experts with pertinent experience, and snowball sampling finds more key informants than the original respondents suggested.
 - 100 responders in all will be chosen:
 - 30 banking and fintech experts
 - 20 legal/ AI researchers
 - 30 politicians and advisors
 - 20 regulatory authorities

This sample is thought to be adequate for producing a variety of expert-based perspectives on the topic.
5. *Data Collection Methods and Instruments:*

The following instruments will be used in the study:

 - A structured questionnaire was created to collect respondents' opinions regarding artificial intelligence's scope, difficulties, and advantages in financial regulation.
 - Key Informant Interviews (KIIS): Semi-structured interviews with top experts in banking, regulation, law, and artificial intelligence (AI) to get in-depth viewpoints and professional opinions.
 - Review of Documents and Policies: Examining pertinent literature, laws, policy documents, frameworks (such as the Nigerian Data Protection Act, the NDPR, and the CBN regulatory guidelines), and international best practices in financial regulation and artificial intelligence.
 - Instrument Validation: Scholars and finance, computer science, and law experts validated the instruments. A pilot test was conducted with 10 respondents to assess clarity, consistency, and reliability. With a Cronbach's

Alpha of 0.81, the questionnaire's internal consistency and dependability were reliable.

6. *Data Analysis Method*

- With the use of SPSS, descriptive statistics including frequency distributions, percentages, and charts will be used to examine quantitative data (from questionnaires).
- Thematic content analysis will examine qualitative data (from document reviews and interviews). Recurring problems, including regulatory gaps, innovation readiness, compliance, ethical dilemmas, and AI governance, will be the basis for developing themes.
- Triangulating the results from both approaches will enhance the interpretation and offer comprehensive knowledge.

7. *Moral Points to Remember:*

Research ethics will be closely followed in this study, which includes:

- All participants' informed consent;
- Responses from participants will be kept private and anonymous.
- Participants' right to withdraw at any time
- Data protection and secure storage of information in compliance with NDPR regulations. Before any data is collected, ethical clearance from an established institutional review board will be requested.

8. *Methodological Restrictions*

Institutional secrecy restricts access to high-level regulatory data; self-reported data may be biased; and the rapid advancements in AI technology could make certain conclusions less current. The study will leverage current sources and ensure data is collected on time to minimise them.

Discussion

The research findings about the influence of artificial intelligence (AI) on Nigerian financial rules are thoroughly discussed in this section. The study's central themes, such as the incorporation of AI in financial regulatory procedures, advantages, difficulties, ethical issues, and possible regulatory remedies, form the basis of the analysis. The results are also examined in light of current research and international best practices.

1. *AI Integration into Financial Regulations in Nigeria*

According to the survey, artificial intelligence is being incorporated into Nigeria's financial industry more and more, especially in areas like automated customer care, risk management, fraud detection, and regulatory compliance. Banks and financial companies use AI-driven technology, including machine learning algorithms, natural language processing (NLP), and regulatory bodies to enhance efficiency and accuracy in financial oversight.

However, despite its increasing use, artificial intelligence is still mostly uncontrolled in Nigeria's banking industry. To regulate AI applications in financial services, regulatory bodies like the Securities and Exchange Commission (SEC) and the Central Bank of Nigeria (CBN) have not yet created thorough rules. This supports earlier research by Falana et al. (2023), which found that financial regulators in many developing nations are slow to implement AI-specific regulations. Financial institutions face uncertainty due to unclear AI legislation, which could put them at risk for noncompliance.

2. *AI's advantages for financial regulation*

The results point to several benefits of AI-driven financial legislation, such as Enhanced Fraud Detection and Risk Management.

The financial system's stability depends heavily on fraud detection and risk management, especially in Nigeria, where money laundering, cybercrime, and fraud have presented severe difficulties. Financial security has been revolutionised by using artificial intelligence (AI) in risk mitigation and fraud detection, making it possible to identify fraudulent activity more quickly, accurately, and proactively. Artificial intelligence (AI)-powered systems analyse enormous volumes of financial data, identify irregularities, and flag questionable transactions instantly using machine learning algorithms, predictive analytics, and natural language processing (NLP). This section examines the efficacy, difficulties, and regulatory ramifications of artificial intelligence (AI) in improving fraud detection and risk management in Nigeria's financial sector.

Nigerian banks and financial organisations frequently utilise AI-powered fraud detection systems to spot fraudulent transactions quickly. In order to identify suspicious activity that deviates from typical behaviour, machine learning algorithms examine transaction patterns. This is in line with the findings of Dogan and Birant (2021), who discovered that AI dramatically improves the ability to detect fraud in digital banking settings.

3. Fraud Detection in Nigerian Financial Institutions Powered by AI

In Nigeria's financial sector, fraud can take many forms, including account takeovers, identity theft, insider fraud, cyber fraud, and card fraud. Conventional fraud detection techniques, such as manual monitoring and rule-based systems, have been unable to keep up with the latest sophisticated cyberthreats. Using machine learning models to detect anomalous transaction patterns and anticipate fraudulent activity before it intensifies, AI-powered fraud detection provides a dynamic and data-driven approach—AI-Powered Real-Time Transaction Monitoring.

Real-time AI algorithms examine transaction data to spot anomalous spending trends, inconsistent geolocation, and quick transactions that could be signs of fraud. Nigerian banks and fintech companies, including Access Bank, GTBank, and Flutterwave, have implemented AI-driven fraud detection systems to identify suspicious activity and monitor high transaction volumes automatically. For instance, machine learning is used by AI-powered fraud detection solutions like FICO Falcon Fraud Manager to evaluate the risk of certain transactions. Financial institutions in Nigeria have implemented these techniques to identify and stop illegal transactions.

Supporting Literature: By lowering false positives and raising the accuracy of fraud identification, Commerford et al. (2019) discovered that AI-driven fraud detection greatly enhances fraud protection capacities in African digital banking platforms. *Machine Learning for Pattern Recognition and Anomaly Detection*

In order to identify anomalies that depart from typical behavioural patterns, machine learning models examine transaction data from the past. AI systems can continuously improve their detection algorithms by learning from previous fraud occurrences. For instance, Nigerian banks can use AI-powered tools to examine consumer spending patterns and identify transactions that substantially differ from past patterns. AI can, for example, cause a security alert and momentarily halt a transaction if a customer makes large purchases in several places in a matter of minutes. **Supporting Literature:** Chen (2021) and Lasmiatun & Manteghi (2025) point out that AI-driven anomaly detection systems improve fraud detection efficiency by drastically lowering false alarms and allowing financial institutions to concentrate on high-risk transactions.

i. I.III.Biometric Verification and AI-Powered Identity Fraud Prevention

In Nigeria's financial industry, identity fraud is a significant problem since thieves use credentials they have stolen to get access to bank accounts. Biometric authentication enabled by AI, such as voice recognition, fingerprint scanning, and facial recognition, improves security and stops unwanted access. For instance, through programs like the Bank Verification Number (BVN) system, the Central Bank of Nigeria (CBN) has required the incorporation of biometric authentication in financial transactions. AI-driven biometric verification has reinforced identity security in fintech and mobile banking. Supporting Literature: According to Chassignol et al. (2018) and Al-Sayyed et al. (2021), biometric AI authentication improves security by adding another line of defence against account access and identity theft.

ii. AI-Powered Credit Risk Assessment

Financially disadvantaged people are frequently left out of traditional credit risk assessment methodologies, which rely on scant financial information like income statements and credit histories. AI-enhanced credit scoring algorithms examine data from other sources, such as online transactions, utility bill payments, and mobile phone usage, for a more thorough risk assessment. For instance, Nigerian fintech firms like Carbon and FairMoney examine loan applications using non-traditional financial metrics and AI-driven credit risk assessment tools. Making credit available to those with modest incomes has increased financial inclusion. Supporting Literature: Cannon and Bedard (2016); Ahmadi (2024) contend that AI-powered credit scoring lessens financial exclusion by offering a more precise evaluation of borrowers' creditworthiness than conventional financial criteria.

iii. IVAI for Anti-Money Laundering (AML) and Counter-Terrorism Financing (CTF)

Financial institutions must abide by AML and CTF requirements to stop illegal financial flows. AI-powered AML compliance systems monitor financial transactions, identify questionable activity, and send real-time notifications. For instance, to examine financial transactions and identify trends in money laundering, the Nigerian Financial Intelligence Unit (NFIU) has put AI-based surveillance systems into place. By automating compliance checks, AI-enhanced AML solutions assist banks in adhering to Know Your Customer (KYC) and AML rules. Supporting Literature: According to Blair and Stout (2016) and Atadoga et al. (2024), AI-driven AML monitoring lowers compliance costs for banks while increasing the efficacy of financial crime detection.

iv. IV AI-Powered Cybersecurity and Fraud Prevention

The banking sector in Nigeria is at risk from cybersecurity threats such as ransomware, phishing, and data breaches. AI-driven cybersecurity systems make real-time threat prevention, anomaly detection, and network traffic analysis possible. For instance, Nigerian institutions, including First Bank and Zenith Bank, have incorporated AI-based cybersecurity systems to track network activity, identify malware, and stop unwanted access. Real-time threat identification, automated incident response, and behavioural analytics are examples of AI-driven cybersecurity techniques. Supporting Literature: AI-enhanced cybersecurity dramatically lowers the danger of financial data breaches and increases the resilience of digital banking networks, according to Bachinskiy (2019).

4. Challenges of AI-Powered Fraud Detection and Risk Management in Nigeria

The main obstacles to AI adoption in Nigerian financial regulation are examined in this section, along with their consequences for stakeholders and potential remedies. Uncertainty in regulations and unclear AI governance

For financial institutions and authorities, the absence of defined legal and regulatory frameworks controlling AI in Nigeria's financial industry breeds ambiguity. Current financial regulations, primarily created for conventional

banking operations, do not explicitly cover AI-driven financial services. The main problem is that the CBN and SEC, among other Nigerian authorities, have not yet created thorough regulations tailored to AI that outline AI's ethical and legal bounds in financial compliance. For instance, Banks and fintech companies are uncertain about how AI-driven compliance solutions fit into current regulatory frameworks due to the lack of clear AI guidelines.. Implication: This regulatory gap limits AI adoption, as financial institutions fear potential non-compliance with future policies. Possible Solution: The Nigerian government should establish an AI Regulatory Framework for Financial Services to provide clear guidelines on AI governance, ethical AI deployment, and accountability measures. Data Privacy and Protection Concerns

Massive volumes of consumer data are necessary for AI systems in financial regulation to detect fraud, track compliance, and evaluate risk. However, managing such data creates privacy issues, particularly given Nigeria's 2019 Data Protection Regulation (NDPR), which requires stringent data handling guidelines. The main problem is that AI-powered compliance solutions need access to private client financial information, which raises the possibility of data breaches and illegal access. For instance, Nigerian fintech companies like Flutterwave and OPay are susceptible to data breaches since they use AI to manage big datasets. Implication: Financial institutions might find it challenging to balance NDPR compliance and AI-driven analytics, which would limit AI's full potential. Possible Solution: Data security can be ensured while enabling AI-powered financial compliance by putting privacy-preserving AI approaches (such as federated learning and differential privacy) into practice. III.III. Algorithmic Bias and Ethical Concerns

Biases from training data may be inherited by AI systems, resulting in unfair financial judgments. Unfair financial exclusion of some populations may arise from bias in AI-driven fraud detection, loan approvals, and credit scores. Key Issue: Because of skewed training data or faulty algorithms, AI models may inadvertently prejudice against underrepresented groups. For instance, an AI system may incorrectly identify rural clients as high-risk, restricting their access to loans if trained exclusively on urban banking data. Implication: Algorithmic prejudice may result in regulatory penalties and harm financial organisations' reputations. Possible Solution: One potential remedy is for regulators to require AI fairness audits and implement bias-mitigation strategies in financial services powered by AI.

i. High Implementation Costs and Technical Expertise Gap

Developing software, hiring qualified staff, and investing heavily in infrastructure are all necessary to implement AI-powered financial regulation instruments. Many Nigerian financial institutions lack the technological know-how to create and manage AI-driven compliance systems. Key Issue: Adoption of AI necessitates expensive ongoing model training, sophisticated computing infrastructure, and AI specialists. For instance, smaller banks and microfinance organisations find it challenging to buy AI-powered compliance solutions, but major banks such as First Bank and Access Bank can afford them. Implication: The digital gap widens due to smaller financial institutions' limited adoption of AI and its expensive implementation costs. Possible Solution: By offering funds, research partnerships, and AI training courses for financial regulators and institutions, public-private partnerships can encourage the deployment of AI.

ii. Cybersecurity Threats and AI Manipulation Risks

Financial regulation AI systems are susceptible to data poisoning, adversarial manipulation, and hacks. Financial security can be jeopardised by cybercriminals who can circumvent fraud detection systems by using AI models. Key Issue: By inserting false data into AI models, hackers can modify them and make fraudulent transactions invisible. For instance, fraudsters can fool AI-driven anti-money laundering (AML) systems by using pattern obfuscation and synthetic identities. Implication: Financial institutions must regularly upgrade their AI models to keep ahead of new cyberthreats. Possible Solution: AI manipulation risks can be reduced by implementing AI cybersecurity frameworks that incorporate threat intelligence, adversarial testing, and ongoing monitoring.

iii. Resistance to Change and Organizational Culture

Due to traditional compliance procedures, concerns about job displacement, and a lack of confidence in AI systems, many financial institutions and regulatory authorities in Nigeria are reluctant to implement AI-driven regulatory tools. Adoption of AI necessitates a culture change away from manual regulatory procedures and toward automated compliance monitoring. For instance, traditional compliance officers may oppose AI integration since they are unfamiliar with AI-based solutions or fear losing their jobs. Implication: AI adoption initiatives may encounter opposition without organisational support, impeding innovation. Possible Solution: Regulatory incentives, AI literacy initiatives, and change management techniques can facilitate financial organisations' adoption of AI.

iv. Inconsistent Data Quality and Availability

For AI models to work well, they need high-quality, organised data. However, inconsistent, fragmented, and insufficient data records plague Nigeria's financial system, which limits the accuracy of AI in fraud detection and compliance monitoring. Key Issue: AI's ability to detect financial crimes and regulatory infractions is diminished by poor data quality. For instance, the absence of standard data formats in certain Nigerian financial institutions makes it challenging for AI systems to conduct smooth risk evaluations. Implication: Inaccurate insights produced by AI-driven compliance solutions could result in regulatory violations. Possible Solution: To increase data accuracy in financial compliance, data standardisation programs and AI-driven data cleaning methods should be prioritised.

Conclusion

Incorporating Artificial Intelligence (AI) in Nigeria's financial sector has substantially impacted risk management, fraud detection, and regulatory compliance. AI-driven technologies have improved financial stability, efficiency, and security. Examples include automated risk assessment tools and machine learning algorithms for transaction monitoring. However, a clear financial regulatory framework tailored to AI is necessary, as these developments also bring new difficulties, such as data privacy problems, algorithmic bias, cybersecurity dangers, and regulatory gaps. According to the study, Nigeria's current financial regulations, which were created for conventional banking and financial services, are insufficient to handle the complexity brought forth by artificial intelligence. Unfair lending practices, noncompliance, and financial fraud are among the serious hazards of the lack of explicit norms on AI governance, accountability, and ethical standards. Even though artificial intelligence (AI) has enormous promise for financial regulation, obstacles like legislative ambiguity, data privacy issues, algorithmic bias, exorbitant prices,

cybersecurity risks, and change aversion prevent widespread use in Nigeria's financial industry. A cooperative strategy, which includes financial regulators, technological specialists, legislators, and financial institutions, is needed to address these issues. Nigeria may realise AI's full potential in financial regulatory compliance by implementing explicit AI governance policies, encouraging AI ethics, strengthening cybersecurity, and cultivating AI literacy.

Recommendations for Future Policy and Research

Based on the research's conclusions, the following suggestions are put out to improve Nigeria's financial rules' use of artificial intelligence (AI), guaranteeing that the technology is used sensibly, morally, and effectively:

- **Create an AI-Specific Financial Regulatory Framework:** To create financial regulations tailored to AI, the National Information Technology Development Agency (NITDA), Securities and Exchange Commission (SEC), and Central Bank of Nigeria (CBN) should cooperate. In order to prevent algorithmic bias in financial decision-making, this framework should define ethical AI principles for fairness, transparency, and accountability; guarantee consumer protection against AI-related risks in banking and financial services; and encourage responsible AI usage while promoting innovation in the fintech industry.
- The implementation of real-time transaction monitoring to detect fraudulent activities, the use of machine learning algorithms to detect suspicious banking behaviors, the strengthening of cybersecurity protocols to protect AI-powered financial services, and the encouragement of regulatory bodies to incorporate AI into Anti-Money Laundering (AML) and Counter-Terrorism Financing (CTF) compliance mechanisms are all ways that financial institutions can improve AI-driven fraud detection systems.
- **Enhance AI Regulatory Compliance and Supervision:** create Regulatory Sandboxes where fintech companies and financial institutions can test AI innovations under strict supervision prior to full implementation; implement AI Explainability Standards to guarantee transparency in AI-driven financial decisions; and have the CBN, SEC, and NITDA adopt automated regulatory compliance tools that use AI for real-time auditing of financial transactions.
- **Address Ethical and Legal Issues Associated with AI:** Implement AI fairness audits to stop discriminatory lending or credit assessment models; create explicit accountability frameworks to allocate accountability for AI-generated decisions; and enforce data protection laws that are in line with international standards such as the EU's General Data Protection Regulation (GDPR) and Nigeria's Data Protection Act.
- **Develop Financial Sector AI Capacity and Infrastructure:** To support AI-driven financial analysis and regulatory oversight, invest in high-performance computing systems and cloud-based AI solutions; create national AI training programs to advance financial professionals' knowledge of AI-based risk management; and promote academic research collaborations between financial regulators and universities to investigate novel AI applications in the financial services industry.
- **Encourage Public-Private Partnerships (PPPS)** to support AI-driven financial solutions; create a National AI Financial Regulation Taskforce with representatives from the government, financial institutions, fintech startups, and AI developers; and host AI finance conferences, hackathons, and innovation hubs to hasten the adoption of AI in Nigeria's financial ecosystem. Carry out additional research on the long-term effects of AI on the financial

sector in Nigeria: Examine the sustainability of AI adoption in regulatory frameworks in comparison to international best practices; evaluate the ethical and socioeconomic ramifications of AI-driven financial decisions; and look into the efficacy of AI-powered regulatory compliance solutions in Nigeria.

Conclusion

Adopting AI in Nigeria's financial rules methodically and proactively will improve fraud detection, foster regulatory compliance, and fortify financial stability. However, cooperation between legislators, financial institutions, AI specialists, and legal players is necessary to realise AI's promise fully. Nigeria may establish itself as an African leader in AI-powered financial regulations by filling legislative gaps, enhancing AI governance, and encouraging innovation.

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