THE NIGERIAN ECONOMIC SUMMIT GROUP

LEVERAGING ARTIFICIAL INTELLIGENCE FOR TRANSFORMATION

The Impact of Artificial Intelligence on Nigeria's Tax Ecosystem

BY

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This report is the outcome of a webinar themed "Leveraging Artificial Intelligence for Transformation: The Impact of Artificial Intelligence on Nigeria's Tax Ecosystem" organised by the Fiscal Policy and Planning Thematic Group under the Trade, Investment, and Competitiveness Policy Commission of the Nigerian Economic Summit Group (NESG).

The webinar, which held on 23 May 2024, involved public and private sector experts who assessed the likely impact of innovative processes and AI on Nigeria's Tax Ecosystem, potential challenges, and strategies for building a future-ready tax system.

As a key output from the webinar, this report draws upon contributions by the experts who engaged in dialogue and is expected to be a valuable resource for policymakers in articulating and evaluating the impact of innovative technologies in Nigeria's tax systems and administration.

1.0 Background

Digitising the tax ecosystem has become increasingly critical as nations, especially in Africa, seek digital solutions to streamline tax administration and enhance revenue collection. The integration of artificial intelligence (AI) and other innovative technologies in tax systems promises to address inefficiencies, revenue leakages, compliance issues and a largely untaxed informal sector. The digitisation of the tax system is essential for Nigeria, where the tax-to-GDP ratio remains low, with the IMF reporting a tax-to-GDP ratio of 9.4% in 2023. Innovative technologies like machine learning, AI technologies, natural language processing, robotic process automation, advanced data analytics, e-invoicing, etc., offer promising solutions to these challenges by enhancing efficiency and compliance, expanding the tax base, and enhancing taxpayers' experience while combating tax evasion.

Nigeria's tax system is pivotal for economic stability, with expected non-oil tax revenue accounting for 19.2% of the 2024 Federal Government Budget. However, current challenges like low compliance and administrative inefficiencies may impact the expected earnings from tax revenue. Thus, emerging technologies such as AI and Big Data offer transformative solutions and enhance efficiency, transparency, and revenue collection, aligning Nigeria with global tax administration standards. AI's rapid data analysis can improve decision-making and uncover tax evasion patterns, while big data analytics can enhance understanding of taxpayers' behaviour (Aliyu, 2023). Globally, these technologies have boosted compliance and optimised revenue collection, promising significant benefits for Nigeria in terms of efficiency and effectiveness. Nigeria is gradually integrating innovative technologies into its tax system, as seen with the Finance Act, 2021, which allows the Federal Inland Revenue Service (FIRS) use third-party technology for tax automation.

AI can automate repetitive and mundane tasks, allowing tax authorities to focus on more strategic activities. For example, machine learning can analyse vast amounts of data to identify patterns and predict taxpayer behaviour, thereby detecting anomalies and potential tax evasion activities (Baghdasaryan et al., 2022). Natural language processing can enhance taxpayer communication by providing real-time, automated responses to inquiries, thus improving taxpayer engagement and compliance. Robotic process automation can handle routine data entry and processing tasks, reducing errors, and freeing up human resources for more complex tasks. New data and analytics technology enables tax authorities to quickly sort through millions of records to identify issues, risk-assess taxpayers and reduce timeframes for tax audits. As a result, the authorities are swiftly improving their ability to reduce errors, prevent fraud and ensure corporate taxpayers meet their income, indirect and other tax obligations (KPMG, 2018). For example, predictive analytics can help identify potential tax defaulters by analysing historical data and identifying patterns that indicate non-compliance. This proactive approach can significantly reduce tax evasion and increase revenue collection.

The integration of innovative technologies and AI in tax administration is not without challenges. Issues such as data privacy, the need for robust IT infrastructure, and the potential displacement of jobs must be addressed.

However, the benefits of AI in enhancing tax compliance, improving efficiency, and increasing revenue collection outweigh these challenges. For example, the US Internal Revenue Service in its 2023 Strategic Operating Plan identified AI models and data management as a priority to enhance operations and innovation ahead of 2025. The Department of Treasury recovered $375 million in 2023 by using AI to mitigate, check fraud and strengthen processes to reclaim potentially fraudulent payments, demonstrating that when used appropriately, AI can improve the agency's efficiency and effectiveness (U.S Treasury Department, 2024).

2.0 Fiscal Context

At 9.4% in 2023, Nigeria's tax-to-GDP ratio was down 1.46 percentage points from the 10.86% reported by the National Bureau of Statistics (NBS) in 2021 (IMF, 2024; NBS, 2023a) and 6.2 percentage points lower than the average of the 33 African countries in 2023 (15.6%) (OECD, 2023).

The country faces challenges such as tax evasion as a result of low tax compliance and tax morale, a largely untaxed informal sector, inadequate tax administration infrastructure, etc. In 2021, the FIRS reported that Nigeria lost about $178 billion to tax evasion by multinationals between 2007 and 2017. The informal sector in Nigeria, which constitutes a significant part of the economy, remains largely untaxed due to lack of proper documentation and monitoring mechanisms. According to data from the NBS, the informal sector accounted for approximately 92.7% of Nigeria's total employment in the second quarter of 2023 (NBS, 2023b). The sector's tax contributions are minimal, thereby limiting the government's revenue-generation capacity. Additionally, the reliance on oil revenues makes the economy vulnerable to global oil price fluctuations, necessitating diversification of revenue sources through improved tax collection.

Nigeria's tax administration is hampered by outdated systems and processes that are not equipped to handle the complexities of modern tax collection. These inefficiencies lead to revenue leakages and a lack of trust in the tax system among taxpayers. The integration of AI can address these issues by providing a more efficient, transparent, and taxpayer-friendly system (PwC, 2023).
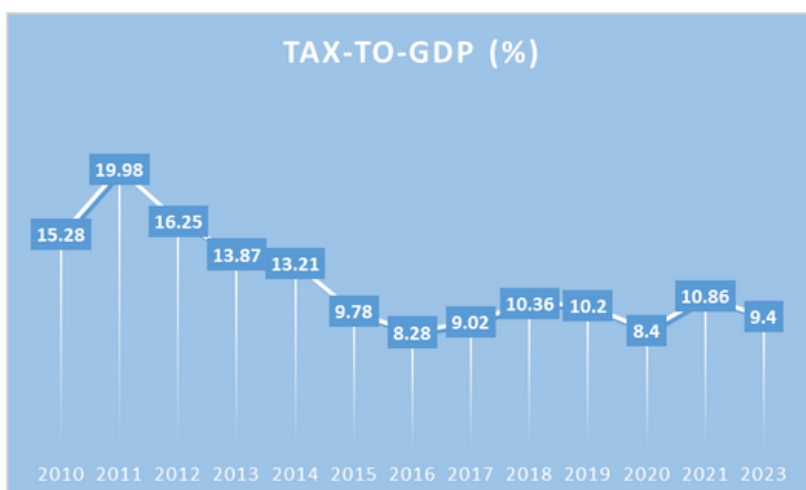
Source: NBS (2023a); IMF (2024)

To foster trade, collaboration and economic integration within the African continent and beyond, it is imperative that Nigeria puts in place an efficient tax system that adopts suitable innovative technologies with minimal risks/challenges that do not outweigh the benefits. In this context, Nigeria's tax authorities must address significant challenges, such as data quality, integration of multiple data sources, and the need for transparency and taxpayer engagement. For instance, countries like Australia and South Africa exemplify the benefits of well-managed innovative technologies such as AI and business intelligence tools in tax administration. Australia's Tax Office (ATO) uses AI to analyse vast sets of data, improving compliance and reducing fraud. The ATO utilises AI on an industrial scale to identify more than $530 million of unpaid tax bills and stop $2.5 billion being fraudulently claimed (Bennett, 2023). The South African Revenue Service utilises AI for risk assessment and fraud detection and has successfully enhanced efficiency and boosted tax collection by 15% since AI adoption.

Embracing innovative technologies such as AI could help Nigeria bridge the gap between current tax revenues and the potential tax base by improving taxpayer identification and expanding the tax net to include the informal sector. Additionally, the implementation of AI-driven solutions can facilitate better risk assessment and fraud detection, which are crucial for minimising tax evasion and maximising compliance. As Nigeria continues to explore AI technologies, it must ensure that these solutions are tailored to the unique challenges of its fiscal environment, fostering a more resilient and robust tax administration system.

3.0 Key Issues and Implications

Some of the critical considerations and implications of adopting innovative technologies and AI include:

3.1 Data Quality and Accuracy

Accurate and comprehensive data is the backbone of any technological solution and AI system. In Nigeria, the quality of data available for tax administration is often compromised due to outdated records, incomplete information, and manual entry errors. These data issues can significantly impair the performance of AI systems, leading to inaccuracies in tax assessments and collections.

3.2 Technological Infrastructure and Investment

The successful implementation of innovative technologies and AI requires a robust technological infrastructure. Nigeria's current IT infrastructure is inadequate to support advanced AI applications, requiring significant upgrades in areas such as high-speed internet connectivity, reliable power supply, and modern computing facilities. Substantial investment in these areas is crucial to creating an environment where AI can thrive.

3.3 Cybersecurity and Data Protection

With the integration of innovative technologies and AI into tax systems, safeguarding sensitive taxpayer data has become increasingly critical. AI systems are vulnerable to cyberattacks, and any breach could have severe implications on taxpayers' trust and system integrity. Thus, ensuring cybersecurity measures and data protection policies in line with best practices are in place will protect taxpayer data and enhance confidence in a technology-driven tax administration system.

3.4 Addressing the Skill Gap

Managing and maintaining AI systems require specialised knowledge and expertise. One of the significant barriers to AI implementation in Nigeria's tax system is the dearth of skilled personnel.

3.5 Regulatory and Ethical Considerations

The deployment of innovative technologies and AI in tax administration must be governed by robust regulatory and ethical frameworks. These frameworks should be able to address issues such as transparency, algorithmic bias, and taxpayer privacy and ensure that AI systems operate fairly and justly.

3.6 Building Taxpayers' Trust and Engagement

The adoption of innovative technologies and AI in tax administration represents a significant shift that may be met with resistance from taxpayers and tax officials. Therefore, building trust and ensuring engagement with the relevant stakeholders are critical for successful implementation so that innovative technologies and AI are seen as tools for improving the tax system rather than as threats.

3.7 Integration with Existing Systems

For AI to be effective, it must seamlessly integrate with existing tax administration processes and technologies. This integration can be complex and rigorous requiring thorough assessments of current workflows and identification of areas for improvement which may be perceived as disruptive to current operations and, thus, be faced with resistance from taxpayers and tax officials.

4.0 Recommendations

4.1 Enhance Data Management

A concerted effort to improve data collection processes, ensure regular updates, and implement rigorous data validation protocols is essential. This can be achieved through prioritising the improvement of data quality and accuracy, implementing standardised data collection methods, regular data audits, and validation processes to ensure the reliability of information. Also, it is important to establish centralised data repositories to facilitate better data management and accessibility, as high-quality data is essential for AI systems to perform accurate analysis and generate reliable insights.

Enhancing data management processes through the above would enable effective tax compliance monitoring and identification of tax evasion patterns.

4.2 Upgrade Technological Infrastructure

Developing a comprehensive IT infrastructure investment plan, possibly in partnership with private sector stakeholders and international organisations, can help bridge the existing gaps and pave the way for effective AI deployment in tax administration. This includes enhancing internet connectivity, ensuring a reliable power supply, and upgrading current computing facilities. Building a robust technological foundation is crucial for the effective deployment and operation of innovative technologies in tax administration. Improved infrastructure will support advanced data analytics and real-time processing, which are vital for efficient tax management and service delivery.

4.3 Strengthen Cybersecurity Measures

Implementing advanced and robust cybersecurity measures to protect sensitive taxpayer data, including encryption, multi-factor authentication, and regular security audits, is imperative. Additionally, establishing rapid response teams to address potential breaches and conducting continuous monitoring can help mitigate risks. Ensuring data security is critical for maintaining public trust and safeguarding the integrity of AI systems. Strong cybersecurity measures will prevent unauthorised access, data breaches, and cyber-attacks, thereby preserving the confidentiality and integrity of taxpayer information.

4.4 Invest in Human Capital

To address the issue of dearth of specialised knowledge and expertise, the government must invest in education and training programs focused on AI and data science. Partnerships with academic institutions, industry experts, and international organisations can help develop specialised curricula and certification programs tailored to the needs of tax administrators and taxpayers. Continuous professional development is also essential for maintaining a proficient workforce that can adapt to evolving AI technologies. By investing in human capital, Nigeria can ensure that its tax officials are well-equipped to use AI tools and leverage them effectively for improved tax administration.

4.5 Establish Regulatory Frameworks

Developing comprehensive and robust regulations that guide and govern the ethical use of AI in tax administration will prevent misuse, ensure transparency, prevent biases, and protect taxpayers' privacy. Establishing oversight bodies to monitor AI implementation and to address ethical concerns will enhance accountability and public trust.

A robust regulatory framework will guide the ethical and fair use of AI, ensuring that AI systems are used responsibly, and that taxpayers' rights are protected.

4.6 Implement Change Management Strategies

To address resistance to change from the adoption of innovative technologies and AI, there is a need to develop and implement effective change management strategies by constantly engaging all relevant stakeholders in transparent communication and open dialogue, demonstrating the benefits of the AI solutions in qualitative and quantitative terms, and providing support throughout the transition process. Building a culture that embraces innovation and continuous improvement is also crucial for the successful adoption of AI.

An effective change management strategy will facilitate the acceptance of AI technologies and encourage collaboration among tax officials and taxpayers.

4.7 Facilitate Integration with Existing Systems

To ensure seamless integration of AI systems with existing tax administration processes and technologies, it is important to carry out thorough assessments of current workflows, identify areas for improvement, and implement necessary modifications. A collaborative effort with technology providers and industry experts will facilitate a smooth and seamless integration, enable AI systems to complement and enhance existing tax administration processes and lead to improved efficiency and effectiveness. For instance, by integrating with existing databases, such as the GSM, National Identification Number, Bank Verification Number and Central Securities Clearing System Limited databases, the Nigerian government could apply AI to expand the tax net and consequently increase tax revenue by getting everyone into the tax system and leveraging digital identity and fintech for ease of payment.

5.0 Key Priority Areas, Action Steps and Responsibilities

In addressing the challenges of Nigeria's tax system, a multifaceted approach is necessary. The table below outlines possible interventions on key priority areas that can be driven by the private sector, public sector, and joint public-private collaborations, as well as specific responsibilities of the stakeholders and necessary action steps.

These interventions focus on key priorities areas that are crucial to improving tax collection and compliance.

Key Priority Areas	Public Sector Driven		Private Sector Driven	
	Responsibility	Action Step	Responsibility	Action Step
Data Management	FIRS/ States Internal Revenue Service (SIRS)	1. Implement standardised data collection methods 2. Establish centralised data repositories	Private tech firms & data management consulting firms	Develop data management software, tools and solutions tailored to the needs of tax authorities and customised to suit various taxpayers
Technological Infrastructure	Federal Ministry of Communications and Digital Economy	1. Invest in upgrading IT infrastructure	Major players/ companies in the ICT and Power sectors	Partner with the government to enhance internet connectivity, power supply and provide technical support

Key Priority Areas	Public Sector Driven		Private Sector Driven	
	Responsibility	**Action Step**	**Responsibility**	**Action Step**
Technological Infrastructure	Federal Ministry of Communications and Digital Economy	2. Collaborate with major private players in the Information and Communications Technology (ICT) and Power sectors to enhance internet connectivity and ensure reliable power supply	Major players/ companies in the ICT and Power Sectors	Partner with the government to enhance internet connectivity, power supply and provide technical support
Cybersecurity Measures	National Information Technology Development Agency Nigeria Data Protection Commission	1. Develop advanced cybersecurity frameworks 2. Implement encryption protocols 3. Monitor and regulate	Cybersecurity firms/ Cybersecurity Experts Association of Nigeria/ NESG	Provide cybersecurity solutions and conduct regular security audits Advocate for best information security and cybersecurity practices
Investment in Human Capital/Upskill	Federal Ministry of Education/ FIRS / SIRS	1. Launch training programs and collaborate with academic institutions to develop specialised AI curricula. 2. Upskilling through training programs to tax administrators on adoption of innovative technologies and AI	Certified training providers Private academic institutions	Offer certification programs and continuous professional development for tax officials.

Key Priority Areas	Public Sector Driven		Private Sector Driven	
	Responsibility	**Action Step**	**Responsibility**	**Action Step**
Investment in Human Capital/Upskill	Federal Ministry of Education/ FIRS / SIRS	3. Collaborate with public and private sector to improve human resource capacity and knowledge of AI	Certified training providers Private academic institutions	Offer certification programs and continuous professional development for tax officials.
Regulatory Frameworks	The National Assembly, Attorney General of the Federation, NPF National Cybercrime Centre, Nigeria Data Protection Commission, The Nigerian Communications Commission	1. Develop comprehensive regulations for AI use in tax administration, ensuring ethical considerations and transparency. 2. Streamline and harness the activities/mandates of regulatory agencies involved in Cybersecurity	Legal Advisory Firms/ NESG/ Industry experts	Assist in the formulation or review of regulations/ policies Advise on ethical considerations for AI deployment. Facilitate dialogue sessions between the industry experts and the government
Change Management Strategies	Federal Ministry of Finance, Ministry of Budget and Economic Planning/ FIRS Board/ Management/ SIRS	Engage stakeholders through transparent communication and demonstrate the benefits of AI.	Change Management Consulting Firms	Provide support for change management and conduct workshops to facilitate the transition.
Integration with Existing Systems	FIRS, SIRS and other regulatory agencies such as Nigeria Customs Service etc.	Conduct assessments of current workflows and implement necessary modifications for AI integration.	IT Solutions Providers	Collaborate with tax authorities to ensure smooth integration and provide technical expertise.

6.0 Conclusion

Although it is evident that innovative technologies and AI hold transformative potentials for Nigeria's tax ecosystem and administration, their successful integration demands a strategic approach to overcoming existing challenges. Addressing key issues such as data quality, technological infrastructure, and cybersecurity is crucial. It is also important to invest in human capital and establish comprehensive regulatory frameworks to guide ethical implementation and use of AI. Effective change management, seamless integration with existing systems, and a commitment to continuous improvement will further enhance the benefits of innovative technologies and AI.

By implementing the above recommendations, Nigeria can significantly enhance tax compliance and tax morale, improve taxpayers' experience, reduce tax leakages and boost revenue generation, paving the way for a more robust and effective tax system.

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ABOUT THE NESG

The NESG is an independent, non-partisan, non-sectarian organisation committed to fostering open and continuous dialogue on Nigeria's economic development. The NESG strives to forge a mutual understanding between leaders of thought so as to explore, discover and support initiatives directed at improving Nigeria's economic policies, institutions, and management.

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