



Exploring artificial intelligence in the Nigerian tax system: An emergent imperative exegesis

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Abstract

The prediction that artificial intelligence has come to rule the world is nothing short of axiomatic. Key sectors of the global economy like medicine, law, architecture, transportation, aviation, railways, entertainment, etc, are already being transformed by AI. Taxation is not an exception. The Nigerian government has acknowledged AI's potential benefits by establishing initiatives such as the National Centre for Artificial Intelligence and Robotics (NCAIR) since 2020, yet AI integration particularly within its tax ecosystem has remained at an embryonic stage. The country's crude oil revenue has continued to decline due to shock arising from fluctuations in global oil price leading to budget deficits and forcing the government to rely on external borrowing with all its attendant economic implications, to finance her expenditure, making it imperative to refocus attention on the non-oil sector, particularly taxation, to stabilise the economy. This article's main objective is to propose that the integration of AI to the Nigerian tax system, especially with the anticipated operationalization of the recently passed Nigerian Tax Act of 2025, will guarantee greater success in using taxation as an alternative revenue source for the country. The article adopted the doctrinal research approach, using statutes and opinions of authors expressed in books and legal articles, internet sources as primary and secondary sources respectively. The article found that AI in Nigerian taxation will enhance efficiency, accuracy and accountability than our current traditional use of human labour, and recommends, inter alia, an integration of AI into the Nigerian tax system, provision of requisite infrastructure for the effective application of AI in the sector, the establishment of a robust legal and digital framework for its ethical implementation and security. The article concludes by stating that the integration of AI into our tax ecosystem will enhance revenue generation and thus help the overall economy.

Keywords: Algorithm, analytics, artificial intelligence, data processing, tax

Introduction

Artificial intelligence (hereafter AI) has come to stay and has taken over systems and professions like medicine, law, architecture, pharmacy, finance, insurance, transportation, healthcare, just to mention a few. AI in spite of all its inadequacies appear to be the driving force in system analysis, saving time, energy and manpower. In a world where AI is swiftly gaining prominence ^[1], it goes without saying that there is need to key into it since it is a technological mechanism whose swift evolution has led to its increased utilization and its adoption has proved to be effective in aiding tax authorities prevent fraud and improving the effectiveness of internal processes. Its rapid data analysis has improved decision-making and uncover tax evasion patterns, while big data analytics has enhanced the understanding of ta

From the above, we can say that AI has been a transformative force utilised by different countries to enhance tax compliance and financial regulations, with countries enacting laws to maximise tax revenue collections. Some of these laws, have unfortunately been violated either through tax evasion or tax avoidance ^[2]. AI-driven solutions offer unprecedented opportunities for governments to streamline tax administration processes, detect non-compliance, and mitigate tax evasion. Machine learning algorithms can analyse vast volumes of financial data with remarkable speed and accuracy, identifying patterns indicative of tax fraud or evasion ^[3]. Furthermore, AI-powered predictive analytics enable tax authorities to

anticipate taxpayer behaviour and allocate resources effectively for enforcement purposes.

By leveraging AI, governments can enhance revenue collection efficiency while minimizing compliance burdens on taxpayers. In financial regulation, AI technologies play a crucial role in monitoring and enforcing compliance with complex regulatory frameworks. With the exponential growth of financial transactions and the increasing sophistication of financial instruments, traditional regulatory mechanisms often struggle to keep pace. AI systems equipped with natural language processing capabilities can sift through immense volumes of regulatory documents and financial data to identify potential violations and assess systemic risks ^[4].

Moreover, AI-based risk assessment models enable regulators to proactively identify emerging threats to financial stability, thereby facilitating timely interventions to prevent crises ^[5]. However, the integration of AI in tax compliance and financial regulation also presents challenges and ethical considerations. The reliance on algorithmic decision-making raises concerns regarding transparency, accountability, and bias mitigation. Moreover, the proliferation of AI-driven solutions may exacerbate existing socio-economic disparities, as access to advanced technology remains uneven across jurisdictions and economic strata, but so does life without it. The Nigerian Economic Summit Group (NESG) through its fiscal policy and planning thematic group of trade, investment and competitiveness policy Commission, agrees with this

prognosis when it stated unequivocally that ‘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’^[6].

There is no doubt that digitising the tax ecosystem of Nigeria has become increasingly critical as nations, especially in Africa, seek digital solutions to streamline tax administration and enhance revenue collection. 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^[7]. 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^[8].

The current economic realities in Nigeria where there is undue reliance on crude oil revenue leading to budget deficits arising from shocks experienced from fluctuations in global oil prices and forcing the government to continuously rely on external borrowing to finance its expenditure, has increasingly exposed the pivotal role that the non-oil sector must play to stabilise the economy. Taxation being a promising viable alternative to oil revenue, must be organised in such a manner that will optimise revenue generation from that source.

Artificial Intelligence

Artificial intelligence is an innovative and transformative technology that has been making waves across various industries in recent years. It refers to developing computer systems that are capable of performing tasks that typically require the indulgence of human intelligence, such as decision-making, visual perception, and speech recognition^[9]. As AI evolves and becomes more sophisticated, its impact on society will only grow. Understanding AI can be daunting for beginners, but gaining a basic understanding of this technology is essential, given its increasing importance in our daily lives^[10].

Artificial Intelligence in Taxation

The concept of inanimate objects endowed with intelligence has been around since ancient times. The Greek god Hephaestus was depicted in myths as forging robot-like servants out of gold^[11], while engineers in ancient Egypt built statues of gods that could move, animated by hidden mechanisms operated by priests^[12].

Throughout the centuries, thinkers from the Greek philosopher Aristotle, to the 13th-century Spanish theologian, Ramon Llull, to mathematician René Descartes and statistician Thomas Bayes, used the tools and logic of their times to describe human thought processes as symbols^[13]. Their work laid the foundation for AI concepts such as general knowledge representation and logical reasoning. The late 19th and early 20th centuries brought forth foundational work that would give rise to the modern computer. In 1836, Cambridge University mathematician Charles Babbage and Augusta Ada King, Countess of Lovelace, invented the first design for a programmable machine, known as the Analytical Engine^[14]. Babbage outlined the design for the first mechanical computer, while Lovelace (often considered the first computer programmer)

foresaw the machine's capability to go beyond simple calculations to perform any operation that could be described algorithmically^[15]. As the 20th century progressed, key developments in computing shaped the field that would become AI. In the 1930s, British mathematician and World War II code breaker, Alan Turing, introduced the concept of a universal machine that could simulate any other machine^[16]. His theories were crucial to the development of digital computers and, eventually, AI.

In the 1940s, Princeton mathematician John Von Neumann, conceived the architecture for the stored-program computer (the idea that a computer's program and the data it processes can be kept in the computer's memory)^[17]. Warren McCulloch and Walter Pitts proposed a mathematical model of artificial neurons, laying the foundation for neural networks and other future AI developments^[18]. With the advent of modern computers, scientists began to test their ideas about machine intelligence. In 1950, Turing devised a method for determining whether a computer has intelligence, which he called the ‘imitation game’, but has become more commonly known as the Turing test^[19]. This test evaluates a computer's ability to convince interrogators that its responses to their questions were made by a human being^[20].

The modern field of AI is widely cited as beginning in 1956 during a summer conference at Dartmouth College sponsored by the Defence Advanced Research Projects Agency^[21]. The conference was attended by 10 luminaries in the field, including AI pioneers Marvin Minsky, Oliver Selfridge and John McCarthy, who is credited with coining the term ‘artificial intelligence’^[22]. Also in attendance were Allen Newell, a computer scientist, and Herbert A. Simon, an economist, political scientist and cognitive psychologist. The two presented their ground-breaking ‘Logic Theorist’, a computer program capable of proving certain mathematical theorems and often referred to as the first AI program. A year later, in 1957, Newell and Simon created the General Problem Solver algorithm that, despite failing to solve more complex problems, laid the foundations for developing more sophisticated cognitive architectures^[23]. In the 1960s, in the wake of the Dartmouth College conference, leaders in the fledgling field of AI predicted that human-created intelligence, equivalent to the human brain was around the corner, attracting major government and industry support. Indeed, nearly 20 years of well-funded basic research generated significant advances in AI. McCarthy developed Lisp, a language originally designed for AI programming that is still used today^[24]. In the mid-1960s, MIT Professor Joseph Weizenbaum developed Eliza, an early NLP program that laid the foundation for today's Chatbots^[25]. In the 1970s, achieving AGI proved elusive, not imminent, due to limitations in computer processing and memory as well as the complexity of the problem. As a result, government and corporate support for AI research waned, leading to a fallow period lasting from 1974 to 1980 known as the first AI winter^[26]. During this time, the nascent field of AI saw a significant decline in funding and interest.

In the 1980s, research on deep learning techniques and industry adoption of Edward Feigenbaum's expert systems, sparked a new wave of AI enthusiasm. Expert systems, which use rule-based programs to mimic human experts' decision-making, were applied to tasks such as financial analysis and clinical diagnosis. However, because these systems remained costly and limited in their capabilities,

AI's resurgence was short-lived, followed by another collapse of government funding and industry support. This period of reduced interest and investment, known as the second AI winter, lasted until the mid-1990s [27]. Increases in computational power and an explosion of data sparked an AI renaissance in the mid to late 1990s, setting the stage for the remarkable advances in AI we see today. The combination of big data and increased computational power propelled breakthroughs in NLP, computer vision, robotics, machine learning and deep learning [28]. A notable milestone occurred in 1997, when Deep Blue an advance chess-playing computer, developed by IBM computer defeated Kasparov, becoming the first computer program to beat a world chess champion [29]. By the 2000s, further advances in machine learning, deep learning, NLP, speech recognition and computer vision gave rise to products and services that have shaped the way we live today. Major developments include the 2000 launch of Google's search engine and the 2001 launch of Amazon's recommendation engine [30]. Also, in the 2000s, Netflix developed its movie recommendation system, Facebook introduced its facial recognition system and Microsoft launched its speech recognition system for transcribing audio. IBM launched its Watson question-answering system, and Google started its self-driving car initiative, Waymo [31]. The decade between 2010 and 2020 saw a steady stream of AI developments. These include the launch of Apple's Siri and Amazon's Alexa voice assistants, [32] IBM Watson's victories on 'Jeopardy', [33] the development of self-driving features for cars [34], and the implementation of AI-based systems that detect cancers with a high degree of accuracy [35]. The first generative adversarial network was developed, and Google launched Tensor Flow, an open source machine learning framework that is widely used in AI development [36]. A key milestone occurred in 2012 with the ground-breaking Alex Net, a convolutional neural network that significantly advanced the field of image recognition and popularized the use of GPUs for AI model training [37]. In 2016, Google Deep Mind's Alpha Go model, defeated world Go champion, Lee Sedol [38], showcasing AI's ability to master complex strategic games. The previous year saw the founding of research lab, OpenAI, which would make important strides in the second half of that decade in reinforcement learning and NLP [39]. The current decade has so far been dominated by the advent of generative AI, which can produce new content based on a user's prompt. These prompts often take the form of text, but they can also be images, videos, design blueprints, music or any other input that the AI system can process. Output content can range from essays to problem-solving explanations, to realistic images based on pictures of a person. In 2020, OpenAI released the third iteration of its GPT language model, [40] but the technology did not reach widespread awareness until 2022. That year, the Generative AI wave began with the launch of image generators, Dall-E 2 and Midjourney in April and July, respectively [41]. The excitement and hype reached full force with the general release of ChatGPT that November [42]. OpenAI's competitors quickly responded to ChatGPT's release by launching rival LLM Chatbots, such as Anthropic's Claude [43].

Generative AI technology is still in its early stages, as evidenced by its ongoing tendency to hallucinate and the continuing search for practical, cost-effective applications. But regardless, these developments have brought AI into the

public conversation in a new way, leading to both excitement and trepidation.

Types of AI

AI can be categorized into four types [44], beginning with the task-specific intelligent systems in wide use today and progressing to sentient systems, which do not yet exist.

The categories are as follows:

Reactive machines: These AI systems have no memory and are task specific. An example is Deep Blue, the IBM chess program that beat Russian chess grandmaster Garry Kasparov in the 1990s [45]. Deep Blue was able to identify pieces on a chessboard and make predictions, but because it had no memory, it could not use past experiences to inform future ones.

Limited memory: These AI systems have memory, so they can use past experiences to inform future decisions [46]. Some of the decision-making functions in self-driving cars are designed this way [47].

Theory of mind: Theory of mind is a psychology term. When applied to AI, it refers to a system capable of understanding emotions [48]. This type of AI can infer human intentions and predict behaviour, a necessary skill for AI systems to become integral members of historically human teams [49].

Self-awareness: In this category, AI systems have a sense of self, which gives them consciousness [50]. Machines with self-awareness understand their own current state. This type of AI does not yet exist [51].

Advantages of AI

- 1. Excellence in detail-oriented jobs:** AI is a good fit for tasks that involve identifying subtle patterns and relationships in data that might be overlooked by humans. For example, in oncology, AI systems have demonstrated high accuracy in detecting early-stage cancers, such as breast cancer and melanoma [52], and hereby highlighting areas of concern for further evaluation by healthcare professionals.
- 2. Efficiency in data-heavy tasks:** AI systems and automation tools have dramatically reduce the time required for data processing [53]. This is particularly useful in sectors like finance, insurance and healthcare that involve a great deal of routine data entry and analysis, as well as data-driven decision-making. For example, in banking and finance, predictive AI models can process vast volumes of data to forecast market trends and analyse investment risk [54]. Little wonder why advertisement companies are able to predict your preferred choice items, games and videos in your phones.
- 3. Time savings and productivity gains:** AI and robotics can, not only automate operations but also improve safety and efficiency. In manufacturing, for example, AI-powered robots are increasingly used to perform hazardous or repetitive tasks as part of warehouse automation, thus reducing the risk to human workers and increasing overall productivity [55].

4. **Consistency in results:** Today's analytics tools use AI and machine learning to process extensive amounts of data in a uniform way, while retaining the ability to adapt to new information through continuous learning. For example, AI applications have delivered consistent and reliable outcomes in legal document review and language translation ^[56].
 5. **Customization and personalization:** AI systems can enhance user experience by personalizing interactions and content delivery on digital platforms. On e-commerce platforms, for example, AI models analyse user behaviour to recommend products suited to an individual's preferences, increasing customer satisfaction and engagement ^[57].
 6. **Round-the-clock availability:** AI programs do not need to sleep or take breaks. For example, AI-powered virtual assistants can provide uninterrupted, 24/7 customer service even under high interaction volumes, improving response times and reducing costs ^[58].
 7. **Scalability:** AI systems can scale to handle growing amounts of work and data. This makes AI well suited for scenarios where data volumes and workloads can grow exponentially, such as internet search and business analytics ^[59].
 8. **Accelerated research and development:** AI can speed up the pace of R&D in fields such as pharmaceuticals and materials science. By rapidly simulating and analysing many possible scenarios, AI models can help researchers discover new drugs, materials or compounds more quickly than traditional methods ^[60].
 9. **Sustainability and conservation:** AI and machine learning are increasingly used to monitor environmental changes, predict future weather events and manage conservation efforts. For example, machine learning models can process satellite imagery and sensor data to track wildfire risk, pollution levels and endangered species populations ^[61].
 10. **Process optimization:** AI is used to streamline and automate complex processes across various industries. For example, AI models can identify inefficiencies and predict bottlenecks in manufacturing workflows, while in the energy sector, they can forecast electricity demand and allocate supply in real time ^[62].
2. **Technical complexity:** Developing, operating and troubleshooting AI systems (especially in real-world production environments) requires a great deal of technical know-how ^[65]. In many cases, this knowledge differs from that needed to build non-AI software. For example, building and deploying a machine learning application involves a complex, multistage and highly technical process, from data preparation to algorithm selection to parameter tuning and model testing ^[66].
 3. **Talent gap:** Compounding the problem of technical complexity, there is a significant shortage of professionals trained in AI and machine learning compared with the growing need for such skills ^[67]. This gap between AI talent supply and demand means that, even though interest in AI applications is growing, many organizations cannot find enough qualified workers to staff their AI initiatives ^[68].
 4. **Algorithmic bias:** AI and machine learning algorithms reflect the biases present in their training data, and when AI systems are deployed at scale, the biases scale, too ^[69]. In some cases, AI systems may even amplify subtle biases in their training data by encoding them into reinforce-able and pseudo-objective patterns. In one well-known example, Amazon developed an AI-driven recruitment tool to automate the hiring process that inadvertently favoured male candidates ^[70], reflecting larger-scale gender imbalances in the tech industry. Racist AI has also been dictated ^[71].
 5. **Difficulty with generalization:** AI models often excel at the specific tasks for which they were trained but struggle when asked to address novel scenarios. This lack of flexibility can limit AI's usefulness; as new tasks might require the development of an entirely new model. An NLP model trained on English-language text, for example, might perform poorly on text in other languages without extensive additional training ^[72]. While work is underway to improve models' generalization ability (known as domain adaptation or transfer learning), this remains an open research problem.
 6. **Job displacement:** AI can lead to job loss if organizations replace human workers with machines. This is a growing area of concern as the capabilities of AI models become more sophisticated and companies increasingly look to automate workflows using AI ^[73]. For example, some copywriters have reported being replaced by large language models such as ChatGPT. While widespread AI adoption may also create new job categories, these may not overlap with the jobs eliminated, raising concerns about economic inequality and reskilling.
 7. **Security vulnerabilities:** AI systems are susceptible to a wide range of cyber threats, including data poisoning and adversarial machine learning. Hackers can extract sensitive training data from an AI model, for example, or trick AI systems into producing incorrect and harmful output. This is particularly concerning in security-sensitive sectors such as financial services, election results and government generally.

Down Side of AI

1. **High costs:** Developing AI can be very expensive. Building an AI model requires a substantial upfront investment in infrastructure, computational resources and software to train the model and store its training data ^[63]. After initial training, there are further ongoing costs associated with model inference and retraining. As a result, costs can rack up quickly, particularly for advanced, complex systems like generative AI applications. OpenAI CEO Sam Altman has stated that training the company's GPT-4 model cost over \$100 million ^[64].

8. **Environmental impact:** The data centres and network infrastructures that underpin the operations of AI models consume large amounts of energy and water. Consequently, training and running AI models has a significant impact on the climate. AI's carbon footprint is especially concerning for large generative models, which require a great deal of computing resources for training and ongoing use.
9. **Legal issues:** AI raises complex questions around privacy and legal liability, particularly amid an evolving AI regulation landscape that differs across regions. Using AI to analyse and make decisions based on personal data has serious privacy implications for example, and it remains unclear how courts will view the authorship of material generated by LLMs trained on copyrighted works.

Practical Advantages of Using AI within the Nigerian Tax System

1. **Personal Productivity:** Automating routine tasks such as tax documents handling and responses to standard queries frees up capacity for professionals to focus on strategic activities.
2. **Process Productivity:** Tax professionals benefit from faster tax reporting, improved risk assessment and insights into hidden patterns in complex datasets.
3. **Ecosystem Integration:** AI supports a more integrated and agile tax environment thanks to seamless connection with financial systems, tax platforms and collaboration tools.

Potential Practical Uses of AI in Nigeria Tax System.

AI is no longer just a concept; it is delivering real value in today's tax departments. From streamlining compliance tasks to enabling data-driven decision-making, Nigerian tax leaders can begin to unlock the practical potential of AI across multiple areas. Some examples include Automated tax classification (AI models can classify transactions or expenses according to relevant tax codes with minimal manual intervention); regulatory monitoring (GenAI tools can scan and summarize changes in Nigeria and international tax legislation in real time); indirect tax determination (AI can improve accuracy in VAT calculations across jurisdictions, reducing risk and manual errors); tax provisioning (Enhanced data analysis speeds up provisioning processes during closing cycles).

Also, practical uses include AI in accounting services (Intelligent automation supports reconciliation, ledger management, and anomaly detection, enhancing the accuracy and efficiency of accounting processes that feed into tax workflows); client or internal query bots (AI-powered assistants can provide quick, consistent answers to common tax questions) and audit readiness (AI helps compile supporting documentation and flag anomalies in data ahead of audits). The right AI applications for your business not only drive efficiency but also elevate the strategic role of tax within the broader business.

Implementation Steps for AI success in Taxation

KPMG Switzerland has articulated some five key action for AI success in tax. A painstaking comprehensive

implementation of these critical key steps will guarantee a successful leverage of the promises of advanced technologies like AI. The steps are as follows:

1. **Establish structured AI governance:** Implementing AI in tax requires a robust governance framework to oversee its integration, ethical use and alignment with regulatory standards. Clear accountability structures, policies and processes for data management, privacy and AI-driven decision-making must be in place. Governance ensures that AI applications are compliant with the Nigerian and global tax regulations, while also maintaining transparency and fairness in automated outputs.
2. **Build AI skills and capabilities within the system:** As AI becomes an integral part of tax operations, it's critical for tax administrators to have the right skills to harness its full potential. Besides training for existing staff, organizations will need to define a new strategic AI role and foster a culture of continuous learning. Up-skilling in areas like data analysis, AI interpretation and automation will empower tax administrators to collaborate with AI tools effectively and make informed decisions.
3. **Define and prioritise clear use cases:** Not all AI applications are suitable for every aspect of tax operation. Tax administrators must identify and prioritise specific, high-impact use cases where AI can drive tangible value for their businesses, for example, automating routine compliance tasks, enhancing risk assessment or streamlining reporting processes. Prioritising the right areas will ensure that AI implementation is focused and aligned with business objectives, delivering measurable results.
4. **Optimise tax-relevant content for AI use:** AI thrives on high-quality, structured data, whether that is legislation, case law or transactional data. To get the most out of AI, tax functions must ensure that the content they work with is properly organised and optimised for AI processing. This might involve digitising paper records, normalising datasets and structuring information in ways that AI models can easily access and interpret. Up-skilling in areas like data analysis, AI interpretation and automation will empower tax administrators to collaborate with AI tools effectively and make informed decisions.
5. **Invest in secure, future-proof AI technology and platforms:** To ensure long-term success, the tax system must choose secure and scalable AI technology platforms that can evolve with the rapidly changing AI landscape. Future-proofing involved selecting tools that are flexible enough to integrate with new and existing financial and tax systems. They should also offer robust security features, and adapt to new technological advancements. Investing now in the right platforms will pay dividends in supporting AI growth and ensuring tax compliance as regulations and technologies evolve. This will ultimately lead to enhanced revenue, economic stability and sustainable growth and development^[74].

Successful Use of AI by Tax Administrations

According to the report of the OECD Tax Administrations 2019, ^[75] more than 40 tax Administrations are making use of AI, or plan to do so ^[76].

In the area of prevention, many countries are already making progress in various ways. First, to assist taxpayers by informing them of their tax obligations or by resolving doubts through virtual assistants or Chatbots that, unlike traditional information programs, can assist dynamically. According to the information contained in Tax Administrations 2019, by 2017, 10 countries already have Chatbots, 7 are implementing them and 23 are planning to do so ^[77]. In Spain, the Tax Agency collaborated with IBM Watson to resolve doubts related to the immediate supply of VAT information, creating an AI-based virtual assistant whose functioning is proving very positive ^[78]. According to information from the Tax Agency, the number of emails received has been reduced by 80%, and the number of queries to the virtual assistant has increased tenfold in the first week ^[79]. Secondly, tax compliance is also encouraged when, if an irregular situation is detected, taxpayers are deterred from carrying on with it. In this context, the Spanish Tax Agency has sent letters to small businesses informing them that, according to their information obtained through AI, the revenues declared by them are below the average in the sector ^[80].

On the other hand, in the fight against fraud, big data and AI are used in many countries (Spain, the United States or Canada) in order to assess tax risks, which allows for segmenting taxpayers according to the probability of non-compliance, with controls being initiated in the most likely cases of fraud ^[81]. As the European Commission points out, due to the growth of computing capacity, the availability of data and the advances in algorithms, we are facing one of the most strategic technologies of the 21st century ^[82].

Foreseeable Challenges to the Use of AI in Taxation in Nigeria

AI companies often rely on data-driven, algorithmic business models that do not fit neatly into traditional tax categories. For example, AI-powered advertising platforms generate revenue from global user interactions, making it difficult to attribute income to Nigeria. Subscription based models further complicate matters, especially where pricing is determined regionally or globally ^[83]. These complexities raise concerns around double taxation and create room for profit shifting or tax avoidance if income attribution is not clearly defined.

Another foreseeable challenge is in terms of Companies Income Tax (CIT) for Local and Foreign companies (including AI companies), as provided in the Nigeria Tax Act 2026, ^[84] Nigerian-incorporated AI businesses will be taxed based on their annual turnover:

- 30% for large companies (over ₦100 million),
- 25% for medium companies (turnover of above ₦50 million to ₦100 million)
- 0% for small companies (turnover of ₦50 million and above).

Foreign AI firms without a physical presence may still be taxed under the Significant Economic Presence (SEP) provision, ^[85] a foreign AI company is subject to CIT if it:

- a. Uses a Nigerian agent or representative to market or support its AI products (e.g., Software as a Service platforms) ^[86]
- b. Provides digital services or tools accessed by Nigerian users;
- c. Earns above ₦50 million annually from Nigerian sources through digital channels ^[87].

In such cases, tax is payable on the portion of income attributable to Nigerian users ^[88]. Importantly, many AI services are billed in foreign currency. Federal Inland Revenue Service (FIRS) determines tax liability by converting revenue using the Central Bank of Nigeria's open market exchange rate. For instance, \$100,000 earned in 2024 at ₦1,500/\$1 translates to ₦150 million in Nigerian income placing the company in the 30% CIT bracket.

Also, on withholding Tax on Remote AI Services: Foreign AI firms offering technical, management, or professional services to Nigerian clients are subject to Withholding Tax (WHT) at a flat rate of 10%, regardless of whether the Nigerian recipient is an individual or a company ^[89]. This withholding serves as a final tax for non-resident providers, meaning no further tax filings are required for that income in Nigeria. The obligation to deduct and remit the WHT rests with the Nigerian client, who must do so before making payment to the Foreign Service provider ^[90].

For value Added Tax (VAT) on Digital Services, AI services delivered digitally (including Software as a Service (SaaS), AI-powered platforms, and data analytics tools are now classified as import services and subject to 7.5% VAT under the VAT Act ^[91]. Therefore, foreign AI businesses with a Significant Economic Presence in Nigeria must register for VAT ^[92] with FIRS and this may be a disincentive ^[93].

On personal Income Tax, AI businesses operating as sole proprietorships or partnerships are taxed under Income, profits or gains of a person accruing in or derived from Nigeria, including profits or gains from any trade, business, profession or vocation for whatever period of time such trade or business may have been carried on ^[94]. This Tax under the Personal Income Tax Act (PITA) on net profits at progressive rates ranging currently from 0% to 25% depending on income ^[95]. Such businesses must register with the relevant State Internal Revenue Service, obtain a Tax Identification Number (TIN), and file annual tax returns. Given Nigeria's layered tax structure, AI firms (particularly those offering cross-border services) must plan carefully, reflect VAT and WHT in contracts, and remit taxes promptly to avoid penalties ^[96].

Recommendations

There should be an urgent integration of AI into the Nigerian tax ecosystem in order to leverage the huge potentials of AI in our tax administrative system to unlock efficient revenue generation, enhance transparency, tackle tax evasion and avoidance and combat tax fraud.

Alongside this integration of AI, there should be provision of digital infrastructure for efficient implementation of AI integration.

There is the need for Nigeria to establish a comprehensive regulatory and legal framework for AI Implementation and operation.

There is the need to put a tighter safeguard in place, reworking the Cyber Crime Act and the Data Protection Act

for a more efficient application and protection of users of the digital space to enhance digital security.

Another recommendation is to build AI skills and capabilities within the system and among tax administrators. As AI becomes an integral part of tax operations, it's critical for tax administrators to have the right skills to harness its full potential.

Conclusion

AI technology can play a critical role in the ongoing taxation transformation in Nigeria. By automating routine tasks, analysing large datasets, and providing actionable insights, AI significantly enhances the efficiency and accuracy of tax functions. AI in tax is not just about reducing manual tasks, it's about unlocking strategic value. With AI-driven tax technology, tax teams can improve accuracy and efficiency, enhance governance and support smarter tax planning. By customising AI solutions to the unique needs of our tax function, we can stay ahead of the curve and create long-term value in an ever-evolving landscape. AI is creating tangible impact across all levels of the tax function. It can bring tax research directly into the workflow, provide anticipatory prompts based on client data and changing regulations, and reduce the time needed to conduct the research, verify the sources, and understand the implications. Artificial intelligence (AI), and more recently, generative AI (GenAI), is rapidly reshaping the tax function, and Nigeria must not be left behind. As regulatory complexity grows and the country has just signed into law a new Nigerian Tax Act that is scheduled to commence (becoming operational from January 2026), and the pressure for real-time decision-making intensifies, Nigerian tax leaders are facing a critical inflection point which AI can help resolve. From predictive analytics to intelligent document processing, AI is already streamlining tax compliance, enhancing risk management and uncovering strategic value in tax data. GenAI further accelerates this transformation, introducing powerful capabilities in natural language processing and automation that are redefining how tax departments operate. With leading tax authorities worldwide already integrating AI into audits and tax administration, the urgency for Nigeria's tax functions to act has never been greater. Early adopters stand to gain a significant competitive edge, not just in efficiency, but also in strategic influence across the enterprise. Nigeria imperatively must embrace the future of tax with AI and position the sector for success. GenAI is an advanced form of artificial intelligence that creates new content, such as text, code or reports, based on patterns it has learned from large datasets. Unlike traditional AI, which focuses on specific tasks like automation or classification, GenAI uses powerful pre-trained models and natural language capabilities to generate human-like responses. For tax leaders, this means faster analysis, easier access to complex insights and scalable support for drafting, summarising and decision-making. GenAI makes AI more intuitive and impactful across the entire tax function. While AI holds immense promise for enhancing tax compliance and financial regulation, its implementation must be accompanied by robust governance frameworks and ethical guidelines. Collaborative efforts between policymakers, regulators, and technology developers are essential to harnessing the full potential of AI while safeguarding against unintended consequences. Through responsible

deployment and continuous refinement, AI can serve as a powerful tool in promoting fiscal transparency, regulatory effectiveness, and economic resilience. We must key into the future possibilities of all taxpayers' doubts being resolved by virtual assistants, of intelligent machines filing our tax returns and relieving taxpayers of that burden, of verification procedure being sorted out without the intervention of tax officials. The possibilities are indeed endless.

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