

## AN OVERVIEW OF NIGERIA'S NATIONAL ARTIFICIAL INTELLIGENCE STRATEGY

Nigeria's ministry of communications, innovation and digital economy recently drafted a National Artificial Intelligence Strategy (NAIS). Its objectives are to develop a high-level national AI strategy and implementation plan for the country. This strategy adoption becomes necessary to help Nigeria harness her AI transformative capacity while also addressing socio-economic challenges and accelerating economic growth.

NAIS' vision is to rank Nigeria as one of the global leaders in harnessing the transformative power of AI through responsible, ethical, and inclusive innovation, fostering sustainable development through collaborative efforts. Responsible and ethical conducts, inclusivity and shared prosperity, innovation and adaptation, sustainability, collaboration, global leadership, etc. are some of the guiding principles identified in the NAIS.

NAIS identifies three broad objectives for AI namely- AI as a tool for economic growth and competitiveness, AI as a tool for social development and inclusion and AI as a tool for technological advancement and leadership.

Economic growth and competitiveness boosts economic productivity by enhancing efficiency and innovation across various sectors including agriculture, manufacturing, and the services sector(s). For AI to be deployed as a tool for economic growth and competitiveness, the up-skilling of the workforce for new opportunities that would arise in the relevant sectors is a necessity. Therefore, individuals will be required to up-skill (learn additional skills) to improve their capacity. The second objective (social development and inclusion) seeks to improve access to essential services, utilize AI to enhance healthcare delivery, education, and financial inclusion for all Nigerians. It leverages AI to tackle social challenges including poverty, inequality, and climate change. This objective also empowers citizens by equipping them with the skills and knowledge necessary to participate actively in an AI-driven future. The third objective - technological advancement and leadership, focuses on the development of indigenous AI expertise, by building a strong research and AI- development ecosystem to foster innovation and local solutions. It establishes ethical and regulatory frameworks by ensuring responsible and transparent development and deployment of AI, while also ensuring Nigeria becomes a regional and global leader in the AI landscape.

NAIS outlines 5 key pillars that strengthens AI regulation and propels Nigeria towards achieving her AI vision. The 5 pillars are: building foundational AI infrastructure, building and sustaining a world-class AI ecosystem, accelerating AI adoption and sector transformation, ensuring responsible and ethical AI development, and developing a robust AI governance framework. The five pillars will be briefly considered subsequently.

Pillar 1, pertaining to the building of foundational AI infrastructure, this pillar addresses building affordable and localized infrastructure foundations and the computing capacity to support the thriving AI ecosystem in Nigeria. Some of the anticipated outcomes of this pillar includes; the reduction of cost and dependence on virtual AI environments, increased AI research and development capacity, fostering faster innovation cycles, and time-to-market for AI solutions. One of the ways of achieving this is by localizing the deployment of AI within Nigeria. This will require massive investments not only in AI infrastructure but also in cloud storage services.

Pillar 2, focuses on the building and sustaining a world-class AI ecosystem. This pillar is focused on building a highly skilled AI workforce, which will champion international collaboration leadership, and nurture a culture of innovation. The outcome is to have a thriving network of stakeholders collaborating on practical AI applications with a positive impact on the society and economy. To build the ecosystem required by this pillar, a flourishing network of successful AI startups, a well-established national AI conference, as well as a thriving ecosystem of AI startups and established companies will be required to commercialize AI solutions. The global demand for AI talents and skills is growing, and a highly skilled workforce is a critical long-term need of any well-functioning AI ecosystem. The issue of skills and talent in an AI ecosystem is both fundamental and monumental. However, Nigeria suffers from massive brain drain which if not properly managed will negatively impact the workforce needed for achieving Nigeria's AI strategy. NAIS admits that AI will take over certain jobs while creating other different kinds of jobs. For instance, while AI might replace a waiter, it will create a new job for people to curate, maintain and update such AI systems. Therefore, (re)education of the future workforce on new and emerging AI topics, training the existing workforce, attracting and retaining talent to AI, are all necessary to build a world class AI ecosystem. Nigeria must invest heavily in the education and incentivization of AI experts across all AI relevant fields if this pillar is to be achieved.

The theme of Pillar 3 revolves around accelerating AI adoption and sector transformation. This pillar focuses on driving widespread AI adoption across various sectors, transforming industries and propelling economic growth. AI tools and solutions will drive AI accessibility across education, agriculture, healthcare and other sectors. This it can achieve by leveraging on data to optimize decision-making across these sectors, developing a talent pipeline with the required knowledge and skills, promoting and integrating AI solutions across diverse industries, maximizing its impact on the Nigerian economy and society, focus on green and sustainable AI initiatives etc. Some of the anticipated outcomes include improved transparency and replication of AI research, holistic data governance standards that adhere to the Nigeria Data Protection Act 2019 (NDPA), increased number of scholars producing AI-related intellectual contributions, increased awareness and understanding of AI among stakeholders, leading to accelerated adoption and problem-solving through AI, Portfolio of commercially viable green AI solutions/projects. There is no doubt that access to quality data is fundamental to the development of a robust and reliable AI ecosystem. Job displacement, bias, privacy and data protection issues are among the top ethical and social concerns associated with AI which poses significant threats to its development in Nigeria. Flowing from the above it will appear that NAIS favors a sustainable use of AI that does not damage the environment. This pillar is quite vocal about the prioritization of the protection of personal data and privacy in the use and deployment of AI. In other words, while AI development is been promoted on one hand, privacy and data protection principles will also be promoted and protected on the other.

Pillar 4, ensures a responsible and ethical AI development; a clear and comprehensive framework is essential to guide the development and deployment of trustworthy AI. Since AI can disrupt the society in various ways, anticipating these potential disruptions and preparing for them is essential. Some of the expected outcomes include; a clear and comprehensive set of ethical principles for AI, which addresses fairness, transparency, accountability, privacy, and human well-being and a legal framework that promotes responsible AI development and protects human rights and privacy. Addressing ethical and social concerns is crucial for fostering a supportive environment for AI development in Nigeria.

NAIS identifies some AI risks attendant to the deployment of AI in Nigeria. Some of these risks include national-level risks which comprise economic risks (e.g., job displacement, loss of institutional knowledge), ethical risks (e.g., lack of values, goal misalignment), and societal risks (e.g., reputation, intelligence divide.) The national-level risks are far-reaching and impact the socio-economic environment in which AI systems operate. These are issues that need to be resolved at the national, supranational, or societal level.

The U.S. National Institute of Standards & Technology (NIST) framework for AI risk management has been identified as a valuable tool for designing, developing, implementing, and using responsible AI systems while elevating reliability. The AI Risk Management Framework (AI RMF) provides four essential functions which are to Govern, Map, Measure, and Manage. Nations can adopt these functions to develop and deploy trustworthy AI systems across various use cases and domains. The NIST approach is a practical but fluid systematic approach to accommodate emerging developments in AI and enable successful outcomes across diverse entities and systems. A survey was conducted among executives across multiple sectors to determine their views of the risks associated with AI. Some of the identified risks pertain to data integrity, statistical validity, model accuracy, transparency, fairness, resiliency and reliability. According to McKinsey, adopting AI can lead to significant and far-reaching unintended consequences, both maliciously intended and unintentional, affecting individuals, organizations, and society. These unintended consequences can have a profound impact, making it crucial to address and mitigate them proactively to ensure responsible AI integration and minimize potential harm. NAIS notes that AI poses significant risks if not properly understood and mitigated.

Finally, NAIS acknowledges the volume of work, adaptation and investment that is required for a successful AI adoption in Nigeria. The fact that ethical considerations have been prioritized in the NAIS is a good step in the right direction to prevent abuse of human rights by AI systems. Nigeria must also incentivize its AI professionals to curb the brain drain which is a major challenge for Nigeria. If Nigeria is to become a serious player in the AI space, then the commitment indicated in the NAIS document must be implemented.



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