Policy Brief on Recommendations Towards

Crafting Nigeria's Artificial Intelligence (AI) Strategy

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Executive Summary

The decline in traditional skills is now more prominent than ever as more people lean towards technology to solve problems or create things due to what some people have called “human imperfections”. Following the decline in the need for traditional skills, there is an urgent call to invest in AI infrastructure as it creates a ripple effect for employment opportunities. For instance, someone interested in starting a farm or Agricultural startup could use AI to design a business model and learn how to improve crop yield prediction, disease detection, and precise farming techniques. The same thing is applicable in Healthcare, AI can assist in medical diagnosis, drug discovery, and personalized treatment plans. This can lead to new roles for healthcare professionals specializing in AI-assisted healthcare delivery and data management. Several successful AI initiatives in healthcare have led to job creation, one of which is 247Medic, an online subscription-based platform, 247Medic leverages technology to connect patients with qualified doctors, enabling them to receive timely medical advice and support from the comfort of their homes. This innovative approach eliminates barriers to healthcare access, particularly for individuals residing in remote rural areas with limited access to medical facilities.

In Finance, AI can automate fraud detection, credit risk assessment, and personalized financial services. This creates opportunities for data scientists, customer service, sales, AI developers, and financial advisors skilled in leveraging AI tools. Like Zenith Bank’s ZIVA. In education, AI can be used to recommend learning modules based on the level of understanding of students and they can also be used to generate data on how to improve systems, platforms, and features. All of these initiatives can go on to contribute towards the estimated number of how the strategic adoption of AI could add up to $234 billion to Africa’s GDP by 2030. Nigeria in this loop is considered to have a fast-growing technology start-up ecosystem (having attracted 25% of the $1.3 billion funding to African tech start-ups in 2021) and with proactive leadership, is well-positioned to leverage AI for economic diversification and inclusive growth.

This policy brief outlines key recommendations for the Nigeria National AI Strategy. These recommendations focus on establishing a robust framework for AI development and deployment. Additionally, it emphasizes the importance of prioritizing skills development. Finally, the brief recommends improving internet connectivity which if available, can provide a wide range of resources to learn, innovate, and create.

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https://triumphias.com/blog/does-technology-cause-traditional-skills-to-disappear/

Challenges & Opportunities

To discuss the challenges hindering AI adoption in Nigeria, we would have to highlight the issues of skills inefficiency, inadequate infrastructure, lack of internet connectivity, lack of datasets, and ethical considerations.

Lack of Skills

AI, as a new and growing innovation, will improve existing jobs while also creating new ones, necessitating the acquisition of new skills. According to a Gartner research circle survey,

56% of participants believe that learning new skills would be essential to execute both existing and newly developed jobs. In the development and implementation of an AI system,

there is a need to incorporate expert knowledge. Although IT professionals (software developers and engineers) design and develop AI applications, they are not the primary users of AI. In developing markets such as the African market, a scarcity of AI-ready workers is a major issue.

A lack of skilled professionals in AI means that companies may struggle to find employees who can develop, implement, and maintain AI systems. This shortage can slow down the adoption process as businesses may be unable to effectively utilize AI technologies. Skills inefficiency can stifle innovation, as there may not be enough knowledgeable individuals to push the boundaries of AI research and development. This can result in a reliance on foreign technology and a lag in local advancements. Without the proper skills, the risk of incorrect implementation of AI systems increases. The dent in inefficient processes, errors, and potentially harmful outcomes, further discourages adoption. The inability to fully leverage AI can slow down economic growth, as industries that could benefit from AI such as healthcare, agriculture, and finance may not achieve their full potential.

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https://www.gsma.com/mobilefordevelopment/region/africa/can-ai-help-tackle-the-most-pressing-challenges-in-developing-countries/

Inadequate Infrastructure, Lack of Internet Connectivity

The digital divide and limited access to affordable and reliable internet is another major challenge. Investing in expanding broadband access and reducing data costs is crucial.

A recent report from Data Reportal states that

45.5%

of Nigerians have access to mobile internet.

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Furthermore, the lack of affordable devices like computers further widens the gap, as highlighted by a 2023 World Bank study. Without proper access to these resources, fostering a skilled AI workforce and deploying AI solutions in under-connected regions becomes challenging. A clear example is a scenario where there is a young developer with a brilliant AI concept but no consistent electricity and internet connection to access online learning platforms to collaborate with others or deploy their creation. Inconsistent power supply in Nigeria hampers AI adoption by causing frequent disruptions in the operation of AI systems, which require reliable electricity for continuous data processing and analysis. This instability increases operational costs and risks, discouraging businesses from investing in and implementing AI technologies.

Lack of Datasets

AI initiatives rely on the quality and quantity of data content to provide accurate information or responses to users in each situation. In many cases, an AI will fail if the data used to train the AI system does not reflect the demographic variables in the targeted population. A Chatbot system, for example, requires comprehensive information about its operations to provide correct responses to users; if the information requested by the user is not in the data bank, the system will fail. Data shortages in Africa are well known in the context of development, as such, high-quality data are essential indicators of growth in relation to the Sustainable Development Goals (SDGs) and a key input for the development of modern technologies.

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https://www.worldbank.org/en/news/feature/2021/09/24/narrowing-the-digital-divide-can-foster-inclusion-and-increase-jobs.
https://shorturl.at/tdN11

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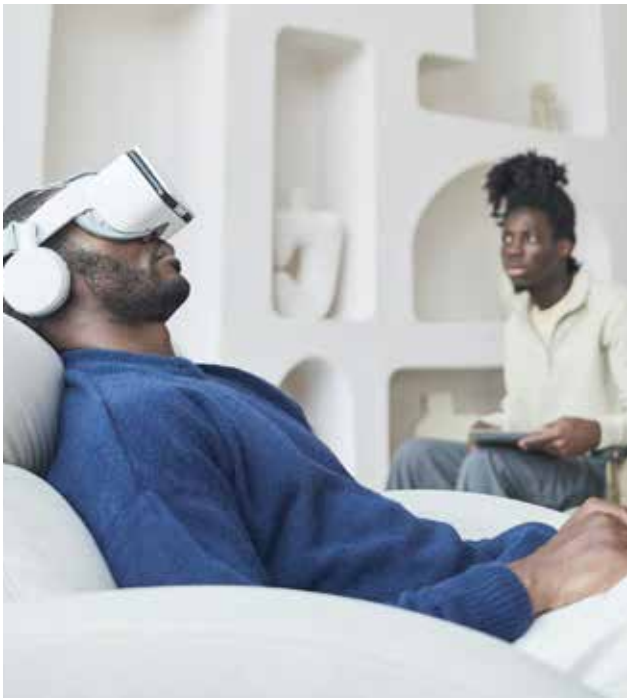
Ethical Considerations

While AI has enormous potential, it also poses major difficulties for businesses and governments, notably in terms of ethics. The moral, economic, and social repercussions of the Second and Third Industrial Revolutions are still being debated in many African countries. AI has already been implicated in several examples of ethical issues. Studies have revealed some major areas of AI's possible implications on the African social world including accountability, data bias, transparency, and socio-economic risks.

AI undermines established moral and legal paradigms that place human agency solely in the hands of humans. Using biased data, AI has been noted to create socio-economic inequality.

In addition, the design of AI systems involves some complex algorithms which in turn compromise trust and transparency. Data is used to train these algorithms. As pointed out above, it has been claimed that there is a data scarcity in Africa and that the majority of acquired data does not correctly reflect the African experience, implying that many algorithms may not be appropriately adapted to the features of local populations. To provide an acceptable basis for AI adoption in Africa, stakeholders must have open discussions on the ethical implications of AI and take necessary steps including measures like privacy by design.



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Opportunities

Opportunities

In today's fast-paced digital landscape, businesses are constantly seeking innovative ways to stay competitive and drive economic growth. AI encompasses a range of technologies, including machine learning, natural language processing, and predictive analytics, that enable computers to perform tasks traditionally requiring human intelligence. AI enables businesses to deliver personalized and targeted experiences to customers, thereby enhancing engagement and loyalty. Through advanced analytics and machine learning algorithms, organizations can analyze customer behavior, preferences, and sentiment to tailor products, services, and marketing campaigns to individual needs. Chatbots and virtual assistants powered by AI provide real-time support and assistance, improving customer satisfaction and driving conversions.

Furthermore, AI technologies, such as robotic process automation (RPA) and machine learning algorithms, can automate repetitive and mundane tasks, freeing up valuable time for employees to focus on more strategic and creative endeavors. AI-powered systems can analyze and optimize complex business processes, identifying bottlenecks, reducing inefficiencies, and streamlining operations. This leads to improved productivity and cost savings.

In classrooms, teachers invest significant time and effort into learning how to observe without judgment, avoid labels, and become skilled investigators who can connect their observations to established theories of child development. Renowned theorists such as Piaget, Vygotsky, and others have provided invaluable frameworks for understanding how children learn and grow, and these frameworks serve as essential guides for educators in their everyday practice. By collecting, measuring, and analyzing data related to students' interactions and performance, learning analytics can help educators identify patterns and trends, providing valuable insights into each child's learning journey. In early childhood education, the benefits of learning analytics are particularly significant, as they allow teachers to make informed decisions about their instruction, identify potential areas of concern, and support each child's unique developmental path.

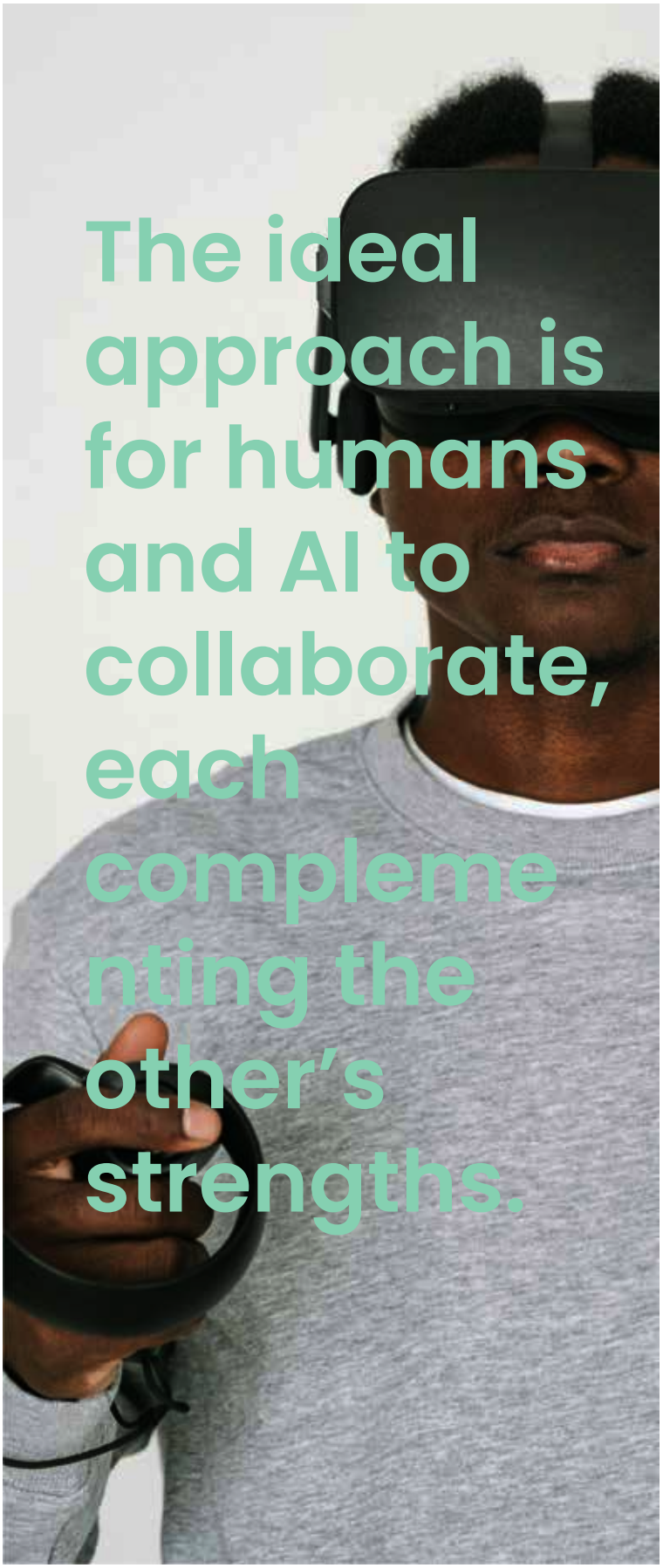
Hence, the rise of AI doesn't necessarily spell doom for human employment. There will be a risk in demand for humans who can manage, train, and sustain AI models.

According to a recent Oxford study, workers with AI skills are 'particularly valuable', and will command salaries 21% higher than average. The top 5 in-demand skills include Machine Learning, TensorFlow, Deep Learning, Natural Language Processing, and Data Science.

https://www.up.ac.za/media/shared/7/ZP_Files/ai-forafrica.zp165664.pdf
https://doi.org/10.7196/sajbl.2018.v11i2.00664
https://cremnigeria.org/embracing-ai-transforming-business-development-in-the-digital-age/
https://nnroad.com/blog/rise-of-ai-in-business/

In Nigeria, the opportunities at which AI can support the thriving economy are broad and diverse, this can include building AI systems that can monitor and predict certain economic challenges such as the rising cost of fuel by helping stakeholders optimize supply chains, reduce waste, and mitigate price fluctuations.

The ideal approach is for humans and AI to collaborate, each complementing the other's strengths. The future of work holds opportunities for those who possess irreplaceable human skills. AI can complement human cognitive skills, augmenting decision-making processes. Rather than a complete replacement, this collaboration allows humans to focus on high-level tasks that require creativity, empathy, and ethical judgment.



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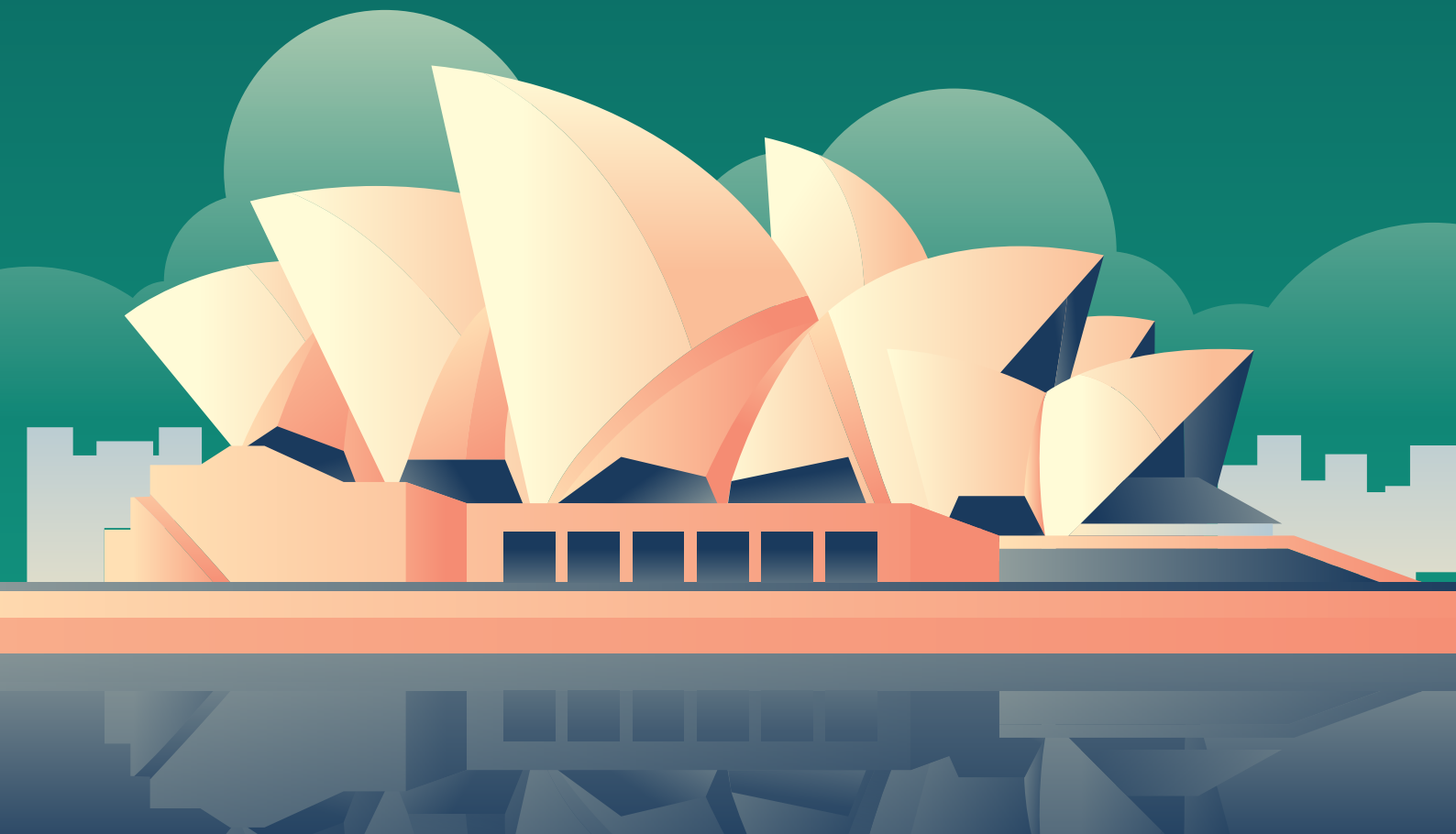
https://www.magicedtech.com/blogs/the-rise-of-irreplaceable-human-skills-in-the-age-of-ai/

Recommendations



Recommendations

To maximize AI's benefits, Nigeria will have to improve its existing infrastructure, both physical and digital. This includes consistency in power supply because everything else relies on there being electricity, there is also the need to improve internet connectivity and increase the number of digitally literate persons to support the development and deployment of AI systems and tools. All of these, are the bedrock to making Nigeria a key player in the AI landscape.

In addressing Internet Affordability

- This policy brief recommends programs offering subsidized data packages or internet access vouchers for low-income citizens and students.
- There could be tax breaks or other incentives for telecom companies to offer lower data prices and encourage wider broadband deployment.
- There is also the opportunity to explore the possibility of open-access models where public Wi-Fi hotspots are established in strategic locations, especially in underserved rural areas that cannot afford the lowest data plan.

The Universal Service Access Funds (USAFs) Optimization recommends strategies to optimize the use of the Universal Service Provision Fund (USPF) in Nigeria, ensuring it effectively targets infrastructure development projects in underserved regions. With the USPFs, public-private partnerships can be leveraged to advocate for strong PPP models to attract private sector investment for expanding broadband infrastructure, particularly in rural areas. This brief also encourages government initiatives that promote the availability of affordable smartphones and digital devices to increase access for low-income populations.

In Improving Digital Literacy

- Digital Literacy Programs tailored to different age groups and communities, should be developed to focus on basic computer skills, internet safety, and responsible online behavior. As PPDC's online safety curriculum has done in the past, this initiative can be replicated to ensure more young people are fully equipped with the skills to thrive in the digital age.
- To reach a wider audience, we can use existing community centers, schools, and libraries as hubs for digital literacy training programs.
- To further ensure the achievement of digital literacy. This is to ensure the responsible usage of AI tools making sure they can be used without prejudice, or bias and learning how to filter information that is provided when a prompt is generated.

https://www.uspf.gov.ng/

https://www.ppdc.org/online-safety/

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Strengthening Galaxy Backbone

Despite the efforts of Nigeria's Ministry of Communications, Innovation, and Digital Economy and the **'Project 774 LG Connectivity,'** which aims to connect 774 local government secretariats in Nigeria to the Internet, the digital divide is still wide.

- This brief recommends that Galaxy Backbone prioritizes expanding its fiber optic network to reach underserved regions and rural communities.
- This brief also encourages Galaxy Backbone to adopt a wholesale and open-access model for its services, allowing other internet service providers (ISPs) to utilize its infrastructure and offer competitive prices to consumers.
- Partnerships between Galaxy Backbone and local ISPs can be fostered to empower local players (Internet Service Providers (ISPs) operating at a regional or community level) to provide affordable Internet access in their regions.
- It is also recommended that we advocate for Galaxy Backbone to invest in capacity-building initiatives for its staff, ensuring they possess the expertise to manage and maintain a cutting-edge digital infrastructure.

In Strengthening the Digital Public Infrastructure (DPI)

- The Nigeria National Information Number (NIN) portals should be properly verified to ensure there isn't a data breach. The number of third-member parties involved in registration should be cut down or if there must be, they should be well-trained to ensure they are adhering to the National Data Protection Act.
- Single treasury accounts can be made more efficient by integrating AI systems to help monitor AI algorithms that can analyze vast amounts of transaction data within the STA in real time, identifying unusual patterns or suspicious activities that might indicate potential fraud attempts. It can also analyze data and government receipts and expenditures.
- This proactive approach allows for quicker detection and mitigation of fraudulent transactions, safeguarding public funds.
- As iterated above, the Nigerian DPI strategy includes measures, methods, and means to improve learning for civil servants and citizens and to fully realize the potential of the Nigerian DPI strategy, public servants must be equipped with robust digital literacy skills. This is essential for effectively implementing and managing digital public infrastructure initiatives.
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Conclusion

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AI is poised to be a pivotal driver of Nigeria's future economic growth and development. The country stands at a crossroads where strategic decisions can either position it as a leader or a follower in the global AI landscape.

To fully harness AI's potential, Nigeria must shift from being a mere consumer of AI technologies to a producer. This necessitates a concerted effort to build a robust AI ecosystem, characterized by robust research, development, and innovation. By investing in human capital development, particularly in fields like software engineering, machine learning, and data science, Nigeria can cultivate a skilled workforce capable of building world-class AI solutions.

Furthermore, the creation of an enabling environment for AI startups and entrepreneurs is crucial. This involves providing access to funding, infrastructure, and supportive policies. Government, academia, and industry must collaborate to foster a culture of innovation and experimentation.

Nigeria has the opportunity to leverage its vast datasets and unique challenges to develop AI solutions tailored to its specific needs. By focusing on areas such as agriculture, healthcare, education, and finance, the country can address pressing social and economic issues while positioning itself as a global AI leader.

Ultimately, the successful integration of AI into Nigeria's development trajectory will depend on a holistic approach that addresses both the technological and socio-economic dimensions. By asking fundamental questions about how AI can serve the needs of its citizens, Nigeria can unlock the full potential of this transformative technology.