Charting Nigeria's AI for Education Roadmap

A Strategic Policy Framework Equitable

Ethical Implementation —————————————— April 2025

Executive Summary

Artificial Intelligence (AI) is rapidly transforming education systems around the world by improving how students learn, how teachers deliver content, and how institutions manage learning outcomes. In Nigeria, the integration of AI in education presents a major opportunity to enhance teaching effectiveness, personalise learning, and expand access to quality education—particularly for students in rural and underserved communities. However, the country currently lacks a national policy framework to guide the ethical, inclusive, and sustainable use of AI in its education sector. A National AI for Education Policy is urgently needed to set clear rules and standards for the responsible deployment of AI technologies in schools and learning environments. Such a policy must prioritise ethical use, data protection, and fairness, ensuring that AI tools do not reinforce existing biases or widen the digital divide.

Without these safeguards, the growing adoption of AI could further marginalise already vulnerable learners. To harness AI effectively, the government must also address foundational challenges. These include inadequate digital infrastructure, limited internet access, and unequal access to devices, especially in rural areas. In parallel, there is a critical need to invest in teacher training to equip educators with the skills required to integrate AI tools into their classrooms and curricula confidently. Collaboration will be key to success. Policymakers, civil society, educators, technology experts, and the private sector must work together to design and implement an AI strategy that reflects Nigeria's educational goals and socio-economic realities. By taking a proactive and inclusive approach, Nigeria can build a future-ready education system that not only embraces innovation but also ensures that all learners—regardless of geography or background—can benefit equitably from the power of artificial intelligence.

This policy brief shares the findings from the Civil Society Consultation on the need for a National AI for Education Strategy. It provides a clear plan for using AI responsibly in education, improving learning quality, protecting students' rights, and ensuring everyone has equal access to the benefits of AI. It culminates by providing a detailed technical goal, priorities and implementation plan for the development and deployment of a comprehensive but contextually relevant national Artificial Intelligence (AI) strategy towards enhancing inclusive digital transformation, strengthening human capital development, promoting ethical AI use, and fostering innovation that aligns with Nigeria's socio-economic development goals.

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INTRODUCTION

Comprehensive Problem Analysis and Data

The advancement of technology has continually led to the improvement of education. Technology has evolved education from computers to mobile devices and Artificial intelligence making it possible for education to improve on every side. Education over the years has taken a huge turn in Nigeria, with various improvements in the sector but despite the notable advancements in recent years, Nigeria's education system still faces significant challenges in ensuring equitable and ethical access to learning opportunities.

The rapid emergence of Artificial Intelligence (AI) presents both transformative potential and critical concerns. AI has a lot of benefits ranging from education by personalising learning, automating administrative tasks, and enhancing digital literacy. Studies have shown that successfully adopting AI in education depends on factors such as access to technology, digital literacy, regulatory frameworks, and ethical safeguards. Yet, there is limited research on how AI's deployment in Nigeria might affect educational equity, data privacy, and teacher-student relationships. This gap raises crucial policy questions: Will AI deepen inequalities by favouring students with greater digital access? How can AI be implemented while ensuring child protection and data security? What measures are needed to prevent AI-driven biases from influencing learning outcomes? These questions can not be ignored.

The historical underfunding of public education infrastructure in Nigeria, with less than 7% of the national budget allocated to education for the past decade, directly contributes to the current digital divide, making widespread AI adoption challenging. Digital access in education remains a major challenge, with only about 35% of schools having access to the internet and technology. This limited connectivity creates a digital divide, leaving many students without the tools they need for modern learning.

Meanwhile, in countries like Kenya and India, adaptive learning platforms have helped improve literacy rates by 25%. The contrast highlights just how far behind Nigerian schools are in integrating technology into classrooms, making it harder for students to keep up with global education trends.

A major gap in Nigeria's education system is the lack of a national framework to guide the ethical and inclusive adoption of AI. Without clear policies, AI is being used without regulation, exposing students to risks such as data privacy breaches, algorithmic bias, and even potential safety concerns. With no specific rules in place, there is no way to ensure that AI is used responsibly, leaving both students and teachers in a vulnerable position.

Another critical issue is the absence of AI ethics policies and data protection guidelines. A 2023 survey by the National Bureau of Statistics revealed that 65% of reported student data breaches in Nigerian schools were linked to inadequately secured third-party AI educational platforms, leading to identity theft attempts for 15% of affected students Right now, there are no concrete measures in place to safeguard students' personal information, meaning their data could be collected and used without proper oversight. Without ethical guidelines, there is also the risk of AI systems reinforcing bias or making unfair decisions, which could further disadvantage students rather than support their learning.

Teachers, who play a key role in shaping students' education, often lack the necessary training to use AI tools effectively. Without proper knowledge, many either underuse or misuse AI technologies, preventing students from fully benefiting from them. This gap in training means that even where AI tools are available, they are not being used in ways that could truly enhance learning.

Another challenge is the lack of a structured approach to integrating AI into the curriculum. There is no unified system for how schools should adopt AI, leading to scattered and inconsistent implementation. Some schools may try to use AI-driven learning tools, while others lack the resources or guidance to do so, creating an uneven learning experience across the country.

Many schools, especially in rural areas, still struggle with poor infrastructure and unreliable internet access. Without basic connectivity, AI-powered learning remains out of reach for many students in an underserved environment. This growing divide means that while some students may get the opportunity to engage with AI and technology, countless others are left behind, widening the gap in educational opportunities across Nigeria.

Key Findings

Nigeria currently lacks a comprehensive and national policy framework guiding AI integration in education. Without clear regulations, AI adoption remains inconsistent, raising concerns about ethical use, privacy, and accountability. This policy gap makes it difficult to standardise AI-driven learning across schools and ensure its responsible deployment.

The high teacher-student ratio in public schools limits personalised learning opportunities. AI has the potential to bridge this gap by providing adaptive learning experiences tailored to students' needs. However, without proper guidelines and investment, the benefits of AI-driven education may remain out of reach for many students, particularly those in underserved communities.

The current education curriculum does not adequately incorporate AI-driven skill-based learning. As the global job market evolves, Nigerian students risk being left behind due to a mismatch between traditional education and the skills required in the digital economy. AI integration in curriculum design can help align education with future workforce demands.

A significant digital divide exists among teachers, with many lacking AI literacy and training. This gap prevents teachers from effectively using AI tools in classrooms and widens disparities between students with access to AI-trained teachers and those without. Continuous professional development is necessary to ensure teachers can integrate AI into their teaching methods.

Ethical and privacy concerns also pose challenges to AI adoption in education. Bias in AI algorithms, potential misuse of student data, and a lack of accountability mechanisms can lead to discrimination and privacy violations. Without strong regulatory oversight, these risks could undermine trust in AI-powered education.

Children's online safety is another major concern. AI-powered learning tools can expose students to inappropriate content, data exploitation, and security threats if not properly monitored. There is a need for stricter regulations to protect children from online harm while using AI technologies.

Despite these challenges, AI presents an opportunity to enhance equitable learning. AI-powered adaptive learning tools can bridge educational gaps, improve digital literacy, and engage students more effectively when designed with inclusivity in mind. Proper implementation can ensure that all students, including those with disabilities or from marginalised backgrounds, benefit from AI in education.
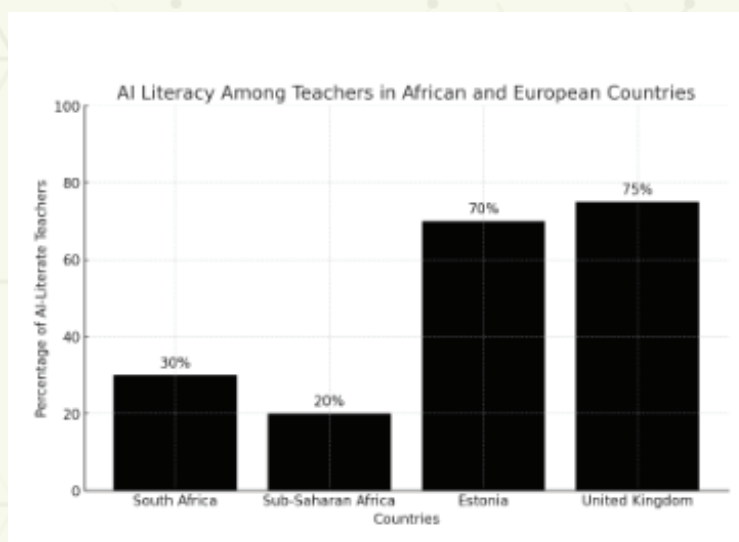
Key Findings

For AI to be successfully integrated into Nigeria's education system, strong governance and regulation are essential. Establishing an AI ethics framework, enforcing data protection laws, and conducting regular AI audits will help ensure responsible AI deployment. AI should complement, not replace, teachers, and policies must reinforce the role of educators in guiding AI-enhanced learning.

Finally, the need for collaboration among stakeholders is crucial. Government agencies, private sector partners, academic institutions, and international organisations must work together to ensure responsible AI adoption. Aligning Nigeria's AI education policies with global best practices will help maximise the benefits of AI while addressing its risks effectively.

Statistics

Internet Access in Selected African and European Countries

AI Literacy Among Teachers in African and European Countries
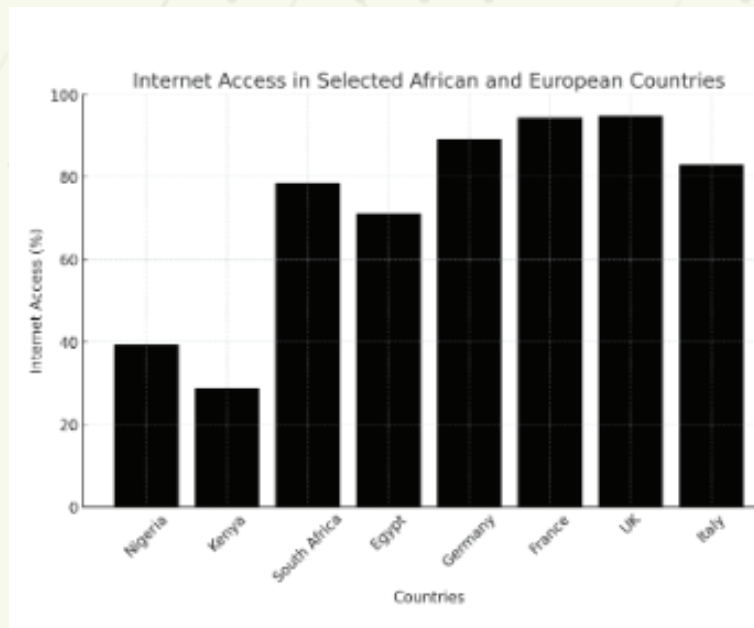
Recommendations For AI Integration And Adoption For Education Transformation In Nigeria

The integration of artificial intelligence (AI) into Nigeria's education system presents transformative opportunities to address systemic inequities, improve learning outcomes, and prepare students for a digital future. However, Harnessing AI for inclusive, quality learning requires not just technological innovation, but a deliberate policy architecture that reflects ethical, cultural, and educational priorities.

This analysis proposes 7 evidence-based recommendations across six critical domains, informed by Nigeria's unique infrastructural realities, cultural diversity, and educational priorities.

1. Ethical Governance and Responsible AI Use

Nigeria must prioritize the creation of a robust ethical architecture to ensure the transparent, responsible and accountable use of AI in education. A **National AI in Education Oversight Committee (NAIEOC)** should be established with the authority to:

- Vet and approve AI-powered educational tools before deployment;
- Conduct regular audits to detect bias and mitigate unintended consequences;
- Require **mandatory algorithmic impact assessments**;
- Maintain a **public AI tools registry,** with transparency reports.

All AI-driven learning platforms must incorporate **human oversight** mechanisms to prevent over-reliance on automated decision-making. The Committee should be guided by a **National AI Ethics Framework for Education**, emphasizing transparency, fairness, and accountability. This framework, can be designed as a three-tier validation tool that will ensure that all AI for Education tools are;

- **Technically sound** (via ISO/IEC 24029-1 certification);
- **Pedagogically relevant** (aligned with NERDC standards);
- **Culturally appropriate** (through regional review panels).

● 2. Equity, Inclusion, and Cultural Relevance

Equity and inclusion must be central to AI integration in Nigerian education. AI tools should actively reduce—rather than reinforce—existing inequalities, particularly in underserved and remote communities. This requires:

- **Inclusive design** that accommodates diverse learning needs, including for children with disabilities;
- Development of **AI systems tailored to Nigerian languages**, cultural narratives, and learning environments;
- Allocation of at least **30% of AI training data to Nigerian cultural contexts**, integrating proverbs, folklore, and local case studies;
- Prioritization of the development of **child-friendly AI models that minimize personal data collection** and prevent exposure to harmful content.
- Use of **AI diagnostics** to generate personalized learning paths based on each student's digital literacy and future workforce needs.

It is also important for the Ministry of Education to work with the Universal Basic Education Commission (UBEC) to embed a **Competency-Based AI Skill** Pathway into the national ICT in Education policy which will enable the assessment of students' digital literacy baseline and AI awareness using adaptive testing and Generates personalized learning trajectories aligned with NERDC benchmarks.

● 3. Teacher Capacity Building and Professional Development

Teachers must remain at the heart of the education system, even in an AI-enhanced future. AI should augment—not replace—their roles. A **tiered AI Competency Ladder** should be established to support teachers across different stages of AI integration:

Level 1: Basic AI literacy and hands-on tools for low-bandwidth settings;
Level 2: Specializations in adaptive assessments, multimodal content, and analytics;
Level 3: Ethical oversight, bias detection, and data governance.

Therefore, Institutions such as Universal Basic Education (UBEC), National Teachers Institute (NTI), Teachers Registration Council of Nigeria (TRCN) and National Centre for Computing Education amongst others must integrate AI literacy training into teacher education programs and provide continuous professional development programs to equip teachers with the skills to use AI tools effectively in their teaching practices. This training should emphasize how AI can augment their role rather than replace it.

4. Data Protection, Privacy, and Child Safety

Safeguarding data and protecting children must be non-negotiable in any AI for Education policy. Nigeria must implement **strict data privacy laws that:**

- Prohibit unauthorized trading of student data;
- Mandate **legal penalties for violations;**
- Require that AI tools **minimize personal data collection,** particularly for children.

The newly launched Nigerian Education Data Initiative (NEDI) by the Federal Ministry of Education must pay close attention to data protection standards including:

- **Differential privacy safeguards;**
- **Federated learning** to enable training without exporting raw data;
- **Smart contracts** to regulate third-party access.

All developers, companies and institutions with a mandate to design, deploy and scale the use of AI tools and devices must be encouraged and mandated to obtain a **Nigerian Educational AI Safety Mark (NEASM)** certification which will help enforce standards for:

- Age-appropriate content filtering;
- Psychological safety in algorithms;
- Explainability features for children aged 6–18.

5. Curriculum Innovation and AI Integration

Schools and other educational institutions across all levels need to **develop a structured approach to integrating AI into the curriculum,** aligning it with global workforce demands and incorporating AI ethics and digital responsibility education for students. With support from government agencies, schools must also invest in **improving technology infrastructure and internet access,** especially in rural and marginalized communities, to ensure equitable access to AI tools. As schools are at the forefront of AI adoption for teaching and learning, there is a crucial need for improved school leadership that enables ethical AI use and therefore, this is key area that will be further explored.

Conclusion

This policy brief provide Nigeria with a strategic pathway to harness AI's potential while addressing its unique educational challenges. By anchoring the strategy in ethical governance, cultural relevance, and infrastructure realism, Nigeria can position itself as a global leader in developing human-centric AI for education. The proposed technical enhancements to the policy brief emphasize actionable implementation plans, measurable outcomes, and sustainable institutional frameworks – critical components often missing in AI policy formulations.

Immediate or future plans to craft AI in education policy, masterplan or framework must incorporate:

1. Robust cost-benefit analysis using World Bank's EdTech Readiness Toolkit

To ensure informed decision-making and strategic alignment, any proposed AI integration in education should begin with a comprehensive cost-benefit analysis utilizing the World Bank's EdTech Readiness Toolkit. This tool provides a structured approach to evaluating a country's preparedness across key dimensions such as infrastructure, policy environment, human capacity, and digital content. Applying this framework enables policymakers to identify gaps in readiness, estimate the true costs of implementing AI—including long-term maintenance and training—and compare those against projected educational benefits such as improved learning outcomes, equity, and system efficiency. In contexts with limited public funding and competing priorities, this analytical process is essential for prioritizing high-impact, scalable solutions that are both contextually appropriate and economically sustainable.

2. Detailed risk mitigation plans for power infrastructure challenges

Power infrastructure remains a fundamental barrier to the effective use of AI technologies in many parts of sub-Saharan Africa and other low-resource environments. Without consistent electricity, AI tools—many of which rely on high-computation hardware, internet access, or real-time data processing—cannot function reliably. Therefore, every AI deployment strategy must include a detailed risk mitigation plan that addresses local power constraints. This could involve investing in solar-powered systems, battery backups, and hardware optimized for low energy consumption, as well as building partnerships with energy providers to support off-grid communities. Incorporating such resilience measures ensures not only the operational continuity of AI systems but also prevents the exacerbation of digital inequality between urban and rural learners.

3. Inter-ministerial coordination protocols between Ministries of Education, Power and Communications

Successful implementation of AI in education requires a whole-of-government approach, particularly due to its dependence on reliable electricity and broadband connectivity. Establishing formal coordination mechanisms between the Ministry of Education and its counterparts in Power and Communications is critical to streamline infrastructure planning and deployment. Such protocols can facilitate shared budget allocations, joint implementation timelines, and synchronized national strategies that link education reform with digital infrastructure rollouts. Moreover, inter-ministerial task forces or steering committees can help resolve bureaucratic bottlenecks, ensure coherent policy development, and foster a unified vision for inclusive digital transformation in education. This collaborative governance model is essential for scaling AI tools beyond pilot programs into nationwide systems.

4. Contingency planning for AI system failures in low-resource settings

Given the novelty and complexity of many AI systems, failures—whether due to software bugs, internet disruptions, hardware malfunctions, or algorithmic errors— are inevitable, particularly in environments with limited technical support. To avoid educational disruption, every AI-enabled program should be underpinned by a clear contingency plan. This plan should outline manual teaching alternatives, offline-compatible content, teacher-led fallback methods, and mechanisms for rapid system troubleshooting or replacement. Capacity-building for educators to manage such transitions effectively is also essential. By embedding fail-safes and redundancy into AI implementation strategies, education systems can safeguard learning continuity and reinforce stakeholder trust in technology-enhanced instruction.

Through this comprehensive approach, Nigeria can transform its educational landscape while setting a global benchmark for responsible AI adoption in emerging economies particularly in Sub Saharan Africa.

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NOTICE

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