

Culturally Anchored Artificial intelligence (AI): Ethical Governance and Inclusive Innovation in African Universities

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Abstract

African nations pursuing Agenda 2063 and Sustainable Development Goals (SDGs) face challenges with AI adoption that often sidelines local ethical frameworks and cultural values, particularly Ubuntu principles of "communal welfare, restorative justice, and respect for indigenous knowledge." This study explores how African Higher Education Institutions (HEIs) can cultivate responsible AI ecosystems by examining: how African cultural values can inform ethical AI frameworks; what systemic barriers impede inclusive governance; and how policy environments can enable equitable innovation. The research analyzes AI strategies from Nigeria, Rwanda and Uganda alongside university governance documents. Findings reveal inconsistency in balancing technological progress with cultural relevance, though Rwanda's strategy incorporating Ubuntu principles and Makerere University's integration of indigenous knowledge demonstrate successful approaches. The study recommends institutionalizing culturally grounded AI governance, embedding Ubuntu ethics into technical frameworks, formalizing community review boards, and advocating for data sovereignty laws. By anchoring governance in local values, African HEIs can transform AI from a tool of external imposition into a catalyst for inclusive, self-determined progress.

Keywords: AI ethics, Ubuntu, indigenous knowledge, policy analysis, African universities, inclusion, sustainable development.

1. Introduction

AI holds tremendous promise for advancing critical sectors such as education, healthcare, agriculture, and governance across Africa.² For African nations, AI offers a unique opportunity to accelerate development and realize the ambitions of Agenda 2063 and the SDGs. As Asagba and Oshebor³ highlight, these frameworks envision Africa leading a skills revolution, cultivating a well-educated populace, and driving inclusive, equitable growth powered by technology and innovation. Yet, alongside

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²OA Gbadegesin, 'Leveraging artificial intelligence (AI) in strengthening the legal framework for regulation of wildlife and forest crimes in Nigeria' *Environmental Policy and Law* [2023] 53(4) 259–274. <https://doi.org/10.3233/EPL-230011> accessed 30 January 2025.

³ D Asagba and P Oshebor, 'Role of management strategies towards preparing future leaders in education for sustainable economic development in Nigeria' *Int. Acad. J. Adv. Educ. Res* [2024] 10 126–136.

these opportunities, AI adoption raises profound ethical risks—particularly when governed by external models that disregard or suppress African cultural values.⁴

At the heart of this discourse lies Ubuntu, the African philosophy emphasizing communal welfare, restorative justice, and the preservation of indigenous knowledge.⁵ Absent integration with locally rooted ethical frameworks, AI risks perpetuating “algorithmic colonization”⁶—reproducing historical inequities and enabling external control rather than authentic empowerment. This paper contends that Ubuntu offers a vital corrective to dominant Western-centric AI governance models and should underpin how African HEIs develop AI policies and practices.

Embedding Ubuntu into AI governance provides a transformative lens that challenges prevailing individualistic paradigms and fosters inclusive, culturally responsive innovation. African HEIs, as centers of knowledge and ethical norm-setting, are uniquely positioned to lead this transformation.⁷ By aligning AI strategies with Ubuntu, universities can harmonize technological progress with Africa’s development priorities while safeguarding cultural identity, promoting equity, and ensuring data sovereignty.

This study therefore addresses three key questions: How can African cultural values inform ethical AI frameworks? What barriers hinder inclusive AI governance in African universities? And how can national and institutional policies advance equitable AI innovation that reflects Africa’s aspirations?

The research aims to fill a critical gap in AI ethics literature, which remains largely universalist and abstract—often overlooking the socio-cultural realities of the Global South.⁸ Existing frameworks emphasize fairness, transparency, and accountability,⁹

⁴C Roche, PJ Wall and D Lewis, ‘Ethics and diversity in artificial intelligence policies, strategies and initiatives’ *AI and Ethics* [2023] 3(4) 1095–1115; A Omotubora and S Basu, ‘Decoding and reimagining AI governance beyond colonial shadows’ in *Handbook on Public Policy and Artificial Intelligence* (Edward Elgar Publishing 2024) 220–234.

⁵D E Van Norren, ‘The ethics of artificial intelligence, UNESCO and the African Ubuntu perspective’ *Journal of Information, Communication and Ethics in Society* [2023] 21(1) 112–128.

⁶A Arora, M Barrett, E Lee, E Oborn and K Prince, ‘Risk and the future of AI: Algorithmic bias, data colonialism, and marginalization’ *Information and Organization* [2023] 33(3) 100478

⁷C Daniels and C Gebhardt, ‘Higher education, science and research systems for transformative change in Africa — What role for innovation policy?’ *Industry and Higher Education* [2021] 35(5) 553–558

⁸O Anuyah, R Wan, C Adejoro, T Yeh, R Metoyer and K Badillo-Urquiola, ‘Cultural Considerations in AI Systems for the Global South: A Systematic Review’ *Proceedings of the 4th African Human-Computer Interaction Conference* [2023] 125–134; M Adamu and M Nkwo, ‘AI in Africa: Preliminary notes on design and adoption’ *diid Disegno Industriale — Industrial Design* [2023] (80) 44–57; M

but rarely engage indigenous worldviews or communal justice models. African national AI strategies and university policies frequently mirror these external influences rather than local priorities, undermining AI's potential to support self-determined development and public trust.

Applying Ubuntu as both a theoretical and practical governance framework, this study reframes AI as a tool for collective flourishing rather than individual efficiency. Ubuntu's ethos foregrounds social harmony, intergenerational knowledge stewardship, and communal decision-making—dimensions often missing in global AI debates. Drawing on case studies from Rwanda, Nigeria, and Uganda, and analyzing university governance documents, the paper explores AI implementation in African HEIs and its alignment with Ubuntu ethics. The findings highlight promising initiatives—such as Rwanda's community-oriented AI policy and Makerere University's integration of indigenous ecological knowledge in AI-driven agriculture—alongside significant challenges like infrastructure deficits, policy incoherence, and limited community engagement.

By focusing on concrete policies and governance practices, this paper contributes to academic and policy discussions on culturally grounded AI ethics in Africa. It demonstrates how Ubuntu can guide a justice-centered AI governance model that advances the SDGs while protecting African intellectual sovereignty. The paper concludes with practical recommendations for institutional reform, curriculum development, and legal frameworks that nurture inclusive AI ecosystems.

The paper is organized as follows: Section 2 reviews the theoretical foundations of Ubuntu and indigenous knowledge systems in AI governance. Section 3 details the methodology for analyzing national and institutional AI policies in Rwanda, Nigeria, and Uganda. Section 4 examines current AI governance trends, cultural tensions, and systemic barriers in African HEIs. Section 5 proposes culturally grounded pathways

Zembylas, 'A decolonial approach to AI in higher education teaching and learning: Strategies for undoing the ethics of digital neocolonialism' *Learning, Media and Technology* [2023] 48 (1) 25–37.

⁹ O Akinrinola, C C Okoye, O C Ofodile and C E Ugochukwu, 'Navigating and reviewing ethical dilemmas in AI development: Strategies for transparency, fairness, and accountability' *GSC Advanced Research and Reviews* [2024] 18 (3) 50–58; A Singhal, N Neveditsin, H Tanveer and V Mago, 'Toward fairness, accountability, transparency, and ethics in AI for social media and health care: scoping review' *JMIR Medical Informatics* [2024] 12 (1) e50048; G Agrawal, 'Accountability, Trust, and Transparency in AI Systems from the Perspective of Public Policy: Elevating Ethical Standards' in *AI Healthcare Applications and Security, Ethical, and Legal Considerations* (IGI Global 2024) 148–162.

for AI governance, drawing on best practices and identified gaps. The final section presents the conclusions.

2. Theoretical Foundations: Ubuntu Philosophy and Indigenous Knowledge in AI Ethics

Ubuntu begins with the fundamental understanding that individuals do not exist in isolation but as interconnected nodes within a web of relationships. This idea is captured by Mbiti's axiom: "I am because we are, and since we are therefore I am".¹⁰ This perspective calls for a redefinition of AI's purpose: instead of prioritizing autonomy or efficiency as ultimate goals, AI systems should aim to promote collective dignity, mutual care, and shared responsibility. Consequently, standard metrics such as accuracy, speed, and profitability must be reframed to focus on communal well-being, solidarity, and restorative outcomes.¹¹ By centering the common good, AI can embody an ethic of care that resonates with Ubuntu's relational core.

A deeper understanding of Ubuntu ethics emerges from recent systematic reviews identifying its foundational dimensions.¹² Ajitoni¹³ emphasizes that Ubuntu is rooted in interdependence, viewing each person as a "link in a chain of vital forces," bound to others through networks of mutual obligation. This ethic demands thinking, feeling, and acting as a "we" rather than an "I," ensuring that the welfare of the group guides individual behavior.¹⁴ Reconciliation takes precedence over simple conflict resolution, making the restoration of harmonious relationships the primary aim when harm occurs.¹⁵ Furthermore, Ubuntu's moral scope extends vertically, encompassing duties to ancestors and the spiritual realm, and horizontally, including responsibility toward

¹⁰ R Sartorius, 'The notion of "development" in Ubuntu' *Religion and Development* [2022] 1 (1) 96–117.

¹¹ M Yadav, A Chandel and J Singh, 'Measuring Workplace Wellbeing: Metrics and Tools for Organizations' in *Insights on Wellbeing and Happiness in the Workplace* (IGI Global Scientific Publishing 2025) 189–210.

¹² O A Gbadegesin and S A N Gbadamosi, 'Indigenous ecological knowledge: A transformative approach to biodiversity legislation in Nigeria' *Environmental Management* [2024] 74 317–331 <https://doi.org/10.1007/s00267-024-01994-2> accessed 15 February 2025; P Andanda and M Düwell, 'Individualistic Versus Relational Ethics – A Contestable Concept for (African) Philosophy' *Ethical Theory and Moral Practice* [2024] 1–17.

¹³ B D Ajitoni, 'Ubuntu And The Philosophy Of Community In African Thought: An Exploration Of Collective Identity And Social Harmony' *Journal of African Studies and Sustainable Development* [2024] 7 (3) 1–15.

¹⁴ R Chigangaidze and P Chinyenze, 'What it means to say, "a person is a person through other persons": Ubuntu through humanistic-existential lenses of transactional analysis' *Journal of Religion & Spirituality in Social Work: Social Thought* [2022] 41 1–16 <https://doi.org/10.1080/15426432.2022.2039341> accessed 15 January 2025.

¹⁵ M Molefe, *Ubuntu Ethics: Human Dignity, Moral Perfectionism, and Needs* (Taylor & Francis 2024).

the natural environment.¹⁶ Moral action, therefore, is measured by its capacity to nurture communal harmony.¹⁷ By aligning AI's purpose with these interwoven values, AI ethics moves beyond abstract principles of autonomy to demand tangible benefits for the social and ecological networks in which technologies operate.

When AI systems cause harm—whether through biased outputs or misuse of data—Ubuntu prescribes a restorative approach rather than a solely punitive one. Coppola¹⁸ argues that bias should prompt processes of healing and reintegration, emphasizing that justice involves repairing relationships, not merely assigning blame. This communal orientation also transforms the conception of data. Rather than viewing data as proprietary property, Ubuntu regards it as a shared epistemic resource enriched by collective wisdom.¹⁹ Community-governed data commons and the active participation of indigenous knowledge holders in model-building processes ensure that algorithmic reasoning remains rooted in local contexts and respects data sovereignty.²⁰

To translate these ideals into practice, Khomba's "Ubale" framework proposes a nested governance model encompassing corporate, industry, community, and ecological spheres.²¹ Corporations would implement Ubuntu impact assessments replacing profit-centered metrics, evaluating projects based on aggregate well-being. Industry alliances could establish standards for community consent, benefit sharing, and restorative justice. At the community level, local councils and traditional authorities would co-own model training and data annotation, overseeing the flow of insights and resources to strengthen rather than deplete communal assets. Finally, the ecological dimension calls for care of the digital environment itself—reducing e-waste, minimizing carbon footprints, and protecting socio-technical ecosystems that

¹⁶ D Narvaez, 'Returning to evolved nestedness, wellbeing, and mature human nature, an ecological imperative' *Review of General Psychology* [2024] 28 (2) 83–105.

¹⁷ Y Ndasauka, 'Harmonising Technology and Humanity Through Ubuntu' in *African Mind, Culture, and Technology: Philosophical Perspectives* (Springer Nature Switzerland 2024) 129–150.

¹⁸ F Coppola, 'Valuing emotions in punishment: An argument for social rehabilitation with the aid of social and affective neuroscience' *Neuroethics* [2021] 14 (Suppl 3) 251–268.

¹⁹ S Calzati, 'Federated data as a commons: a third way to subject-centric and collective-centric approaches to data epistemology and politics' *Journal of Information, Communication and Ethics in Society* [2023] 21 (1) 16–29.

²⁰ O A Gbadegesin and S Akintola, 'Bridging the Governance Gap: A Case for an Indigenous Jurisprudential Framework for Genomic and Biobanking Research in Nigeria' *Bioethical Inquiry* [2025] <https://doi.org/10.1007/s11673-025-10463-2> accessed 30 September 2025.

²¹ J K K Khomba, 'Towards Environmental Restoration and Sustainability: Embracing the African Ubuntu Philosophy' *Strathmore Law Journal* [2024] 109–127

sustain life. These interconnected layers create a holistic vision of solidarity and sustainability.²²

This Ubuntu-inspired approach sharply contrasts with dominant Western AI ethics frameworks that prioritize individual rights, abstract fairness metrics, and efficiency as ends in themselves.²³ Birhane’s concept of “algorithmic colonization” highlights how externally imposed AI solutions often perpetuate colonial dependencies, stifling local innovation and fostering reliance on foreign infrastructures.²⁴ Reorienting AI governance around Ubuntu’s communal ethos enables African societies to reclaim agency over their technological futures—defining their own problems, curating data on their terms, and sharing benefits equitably.

Concrete examples demonstrate the promise of this approach. In Kenya, elders and data scientists collaborated to create a malaria diagnostic tool that integrates local symptom taxonomies with community-controlled health data, preserving trust and ensuring insights remain within the village commons.²⁵ In Zambia and Malawi, farmer cooperatives steward agricultural AI systems that align predictive analytics with indigenous planting calendars and soil-care rituals.²⁶ These participatory designs not only improve technical outcomes but also embed AI within the social fabric it aims to serve.²⁷

However, implementing Ubuntu in AI governance presents challenges. Aligning communal data stewardship with international privacy regulations such as the General Data Protection Regulation (GDPR) requires careful, context-sensitive policy

²²Ibid pg 115

²³ L Luo, Y Nakao, M Chollet, H Inakoshi and S Stumpf, ‘Earn fairness: Explaining, asking, reviewing, and negotiating artificial intelligence fairness metrics among stakeholders’ *Proceedings of the ACM on Human-Computer Interaction* [2025] 9 (2) 1–37.

²⁴ A Birhane, ‘Automating ambiguity: Challenges and pitfalls of artificial intelligence’ arXiv preprint arXiv:2206.04179 [2022] <https://arxiv.org/abs/2206.04179> accessed 15 May 2025.

²⁵ P M Gichuki, L Kibe, C Mwatele, J Mwangangi and C M Mbogo, ‘Towards an integrated vector management approach for sustainable control of schistosomiasis and malaria in Mwea, Kirinyaga County, Kenya: Baseline epidemiological and vector results’ *Heliyon* [2023] 9 (10) e20966 <https://doi.org/10.1016/j.heliyon.2023.e20966> accessed 20 March 2025.

²⁶ Inria, ‘Machine learning and AI technology to help small farmers in Africa’ [2020] <https://inria.fr/en/machine-learning-ai-technology-help-small-farmers-africa> accessed 20 March 2025; International Fund for Animal Welfare (IFAW), ‘Advancing climate-smart agriculture in Malawi and Zambia with the TFCA’ [2024] <https://www.ifaw.org/international/journal/advancing-climate-smart-agriculture-malawi-zambia-tfca> accessed 20 March 2025.

²⁷ A Gbadegesin and B Olajire-Ajayi, ‘Beyond COVID-19: Turning Crisis to Opportunity in Nigeria through Urban Agriculture’ *Journal of Agriculture, Food Systems, and Community Development* [2020] 9 (4) 171–174 <https://doi.org/10.5304/jafscd.2020.094.033> accessed 25 June 2025.

development.²⁸ Scaling community-based models across Africa’s linguistic and cultural diversity resists uniform solutions. Infrastructure limitations and skills gaps constrain the creation of participatory AI labs. Additionally, developing metrics that capture relational well-being instead of atomized indicators demands conceptual innovation.²⁹ Addressing these challenges is critical not to delay progress but to develop a clear, practical roadmap for embedding Ubuntu values into AI governance.

To facilitate this transformation, four practical steps are essential. First, AI education programs should integrate communal data literacy and restorative ethics, preparing practitioners to think beyond narrow technical metrics. Second, establishing community-run AI labs or “model clinics” can provide local stakeholders with spaces to co-create, test, and refine algorithms collaboratively. Third, policy frameworks must mandate community co-ownership of AI data and models, ensuring sustainable benefit sharing. Fourth, cross-sector partnerships among governments, traditional authorities, and technology firms should institutionalize restorative justice and ecological stewardship as core standards. By embedding Ubuntu’s principles of communal welfare, restorative justice, and respect for indigenous knowledge within AI ethics and governance, Africa can chart a decolonial path forward—one where technology amplifies human relationships, sustains cultural heritage, and fosters inclusive collective flourishing.³⁰

The next section outlines the document analysis approach employed to examine AI strategies of selected African countries and universities. It details the selection criteria, analytical frameworks, and procedures for source evaluation and comparative analysis. This methodology ensures transparency and replicability, grounding the subsequent findings in a systematic, context-sensitive research design.

3. Methodology

This qualitative study explores how Ubuntu principles influence ethical AI governance in African HEIs. It focuses on Nigeria, Rwanda, and Uganda, chosen for their different stages of AI policy development and involvement in the African

²⁸ A Joyce and V Javidroozi, ‘Smart city development: Data sharing vs. data protection legislations’ *Cities* [2024] 148 104859 <https://doi.org/10.1016/j.cities.2024.104859> accessed 19 March 2025.

²⁹ S Sinha, ‘Harmonizing Data Privacy Laws: A Comparative Study of Approaches in the EU, US and India’ *Legal Spectrum Journal* [2024] 4 (1) 1.

³⁰ O A Gbadegesin, ‘Lost in Transplantation: Revisiting Indigenous Principles as a Panacea to Natural Resource Sustainability in Nigeria’ *Journal of African Law* [2024] 68 (1) 41–57 <https://doi.org/10.1017/S0021855323000256> accessed 10 March 2025.

Research Universities Alliance (ARUA). Data sources include national AI policies (e.g., Rwanda's 2023 policy), university strategic plans from ARUA partners (University of Ibadan, Makerere University, University of Rwanda), parliamentary reports, and institutional assessments from 2022–2024.

The analysis proceeds in three phases:

1. Document Analysis: Using NVivo,³¹ key policies and governance documents are systematically coded based on an Ubuntu-informed framework, focusing on communal data sovereignty, restorative algorithmic justice, and intergenerational knowledge stewardship. Coding was conducted by a single researcher with careful attention to consistently identifying Ubuntu values such as communal welfare, respect for indigenous knowledge, and data sovereignty.³²

2. Critical Discourse Analysis: Fairclough's framework³³ guided examination of power relations in national AI strategies, assessing the alignment between policy goals and implementation. This reveals whether policies genuinely reflect Ubuntu or primarily reflect Western-centric influences, highlighting rhetorical shifts toward or away from Ubuntu governance.

³¹ NVivo is qualitative data-analysis software used methodologically to manage, code and interrogate textual, audio, visual and survey data. It facilitates inductive and deductive coding via nodes and hierarchical codebooks, supports queries, matrix coding, memoing and visualizations, and enables transparent audit trails, team coding (inter-coder comparison) and mixed-methods integration (linking qualitative codes with quantitative attributes), thereby strengthening rigor, traceability and reflexivity in qualitative research. See Further: M Phillips and J Lu, 'A quick look at NVivo' *Journal of Electronic Resources Librarianship* [2018] 30 (2) 104–106; K Dhakal, 'NVivo' *Journal of the Medical Library Association (JMLA)* [2022] 110 (2) 270 <https://doi.org/10.5195/jmla.2022.1468> accessed 17 January 2025.

³²The document coding and analysis were conducted by a single researcher, which may introduce subjectivity and limit intercoder reliability. To mitigate this, a detailed audit trail was maintained to document all coding decisions and thematic developments. Additionally, the researcher engaged in reflexive practices to identify and manage personal biases throughout the analysis. Where possible, findings were discussed with experts familiar with Ubuntu ethics and AI governance to validate interpretations. This transparent approach aims to uphold the credibility and trustworthiness of the study despite the single-coder limitation.

³³ Fairclough's Critical Discourse Analysis (CDA) frames methodology across three analytic levels—text (linguistic features), discursive practice (production, circulation, reception), and social practice (socio-historical context)—to show how language both reflects and reproduces power. Methodologically it combines micro-linguistic analysis with intertextual and institutional examination to trace how texts legitimize actors, shape meanings, and produce social effects; especially useful for analysing policy, media, or legal texts where discourse shapes governance and rights. See Further: N L Fairclough, 'Critical and descriptive goals in discourse analysis' *Journal of Pragmatics* [1985] 9 (6) 739–763; R R Y Briones, 'A demonstrative analysis of news articles using Fairclough's critical discourse analysis framework' *Beyond Words* [2017] 5 (1) 83–97.

3. Triangulation: Findings from document and discourse analyses are cross-checked with academic literature, media reports, and secondary policy reviews to enhance validity and reduce bias.

The Ubuntu ethics framework guided all analyses, focusing on communal values and collective well-being. Documents are assessed in their original English to preserve cultural nuances, adopting an emic perspective that respects local contexts. Confidentiality and ethical data management will be upheld. This approach enables comparative analysis of AI governance across the three countries, balancing replicability with cultural sensitivity. The next section presents findings on AI governance in African HEIs, systemic challenges, and case studies

4. Discussion of Findings: Landscape of AI Governance in African HEIs: Current Status and Challenges

4.1 Trends in AI Adoption Across African Universities

HEIs across Africa are increasingly adopting artificial intelligence, with notable acceleration in recent years.³⁴ Many universities have established AI and data science laboratories, often in partnership with international entities. Examples include the University of Pretoria in South Africa, Makerere University in Uganda, and pan-African centers such as The African Institute for Mathematical Sciences (AIMS). Support from global technology firms like Microsoft, Google, and IBM through their research labs in Nairobi, Accra, and Johannesburg has bolstered this growth. Surveys indicate widespread daily use of AI tools, including chatbots and generative models, by thousands of African students continent-wide.³⁵ Despite this, formal curricular

³⁴R E Nwobodo, 'A New Dawn In Africa: Towards An Integration Of Artificial Intelligence Into African Education System' *Nnamdi Azikiwe Journal of Philosophy* [2025] 15 (1); O A G Opesemowo and V Adekomaya, 'Harnessing artificial intelligence for advancing sustainable development goals in South Africa's higher education system: A qualitative study' *International Journal of Learning, Teaching and Educational Research* [2024] 23 (3) 67–86; D Chasokela, 'Harnessing artificial intelligence: Transformative technologies in contemporary higher education' *Journal of Computers for Science and Mathematics Learning* [2025] 2 (1) 26–37.

³⁵U O Matthew, D O Oyekunle, E E Akpan, M A Oladipupo, E S Chukwuebuka, T S Adekunle and others, 'Generative Artificial Intelligence (AI) on Sustainable Development Goal 4 for Tertiary Education: Conversational AI With User-Centric ChatGPT-4' in *Impacts of Generative AI on Creativity in Higher Education* (IGI Global 2024) 259–288; I J Akpan, Y M Kobara, J Owolabi, A A Akpan and O F Offodile, 'Conversational and generative artificial intelligence and human–chatbot interaction in education and research' *International Transactions in Operational Research* [2025] 32 (3) 1251–1281; J Rudolph, M F bin Mohamed Ismail and S Popenici, 'Higher education's generative artificial intelligence paradox: The meaning of chatbot mania' *Journal of University Teaching and Learning Practice* [2024] 21 (6) 14–48; A Owoseni, O Kolade and A Egbetokun, *Generative AI in Higher Education* (Springer Books 2024).

integration and comprehensive governance policies remain uneven. While research and learning applications advance, many universities lack clear institutional AI policies or sufficient access to advanced computing infrastructure.³⁶ In sum, African HEIs are embedded in a rapidly expanding AI ecosystem—characterized by growing labs, startups, and training programs—though detailed data on institutional adoption is limited and often focuses on flagship projects.

4.2 Tensions Between Technological Progress and Cultural Relevance

A central challenge is balancing swift technological development with preservation of local culture and values. African universities strive to produce globally competitive graduates³⁷ but often rely heavily on Western AI models that insufficiently reflect indigenous languages, traditions, or communal knowledge systems. National policies emphasize “21st-century skills” and AI literacy, yet rarely consider adaptation of AI tools for indigenous contexts. Educational efforts frequently prioritize universal coding and data science skills, sidelining African epistemologies and languages. Consequently, AI-driven content is often delivered in colonial languages, even in regions where local languages predominate. Moreover, externally developed algorithms used in grading, translation, or decision-making may overlook African social norms or collective problem-solving approaches.³⁸ This technological-cultural mismatch risks alienating communities and undermining inclusivity. A truly Afrocentric approach would embed Ubuntu principles—community solidarity, mutual care, respect for elders’ knowledge—into curricula and research, but such adaptations are nascent.

4.3 Systemic Barriers to Ethical and Inclusive AI Governance

4.3.1. Infrastructure and resource gaps: Across Africa, universities face uneven infrastructure—intermittent electricity, slow internet and scarce high-performance computing.³⁹ Under-resourced campuses lack servers or cloud capacity for modern AI,

³⁶ N Alqahtani and Z Wafula, ‘Artificial intelligence Integration: Pedagogical strategies and policies at leading universities’ *Innovative Higher Education* [2025] 50 (2) 665–684.

³⁷ N Kana and P Letaba, ‘The reshaping of curriculum transformation to address the 21st-century skill sets and employment prospects during the Fourth Industrial Revolution era: A case of the South Africa TVET colleges’ *South African Journal of Higher Education* [2024] 38 (2) 157–175.

³⁸ R Jaganathan, S Rajagopal and K Rajendran, ‘Cultural Intelligence in the AI Era-Enhancing Transitional Higher Education’ in *Bridging Global Divides for Transnational Higher Education in the AI Era* (IGI Global Scientific Publishing 2025) 273–292.

³⁹ J O Effoduh, ‘Africa’s Energy Poverty in An Artificial Intelligence (AI) World: Struggle for Sustainable Development Goal 7’ *Journal of Sustainable Development Law and Policy* [2024] 15 (3)

excluding them from research while well-funded urban institutions advance.⁴⁰ Reliance on foreign platforms raises data sovereignty and control concerns. Budget limits also hinder faculty recruitment, AI training and hardware acquisition, depriving students of hands-on experience and widening the digital divide within higher education.

4.3.2. Policy alignment and coordination : National AI and education policies in Rwanda, Nigeria and South Africa, alongside educational initiatives promoting tech skills, exist but remain siloed across ministries (ICT, education, agriculture) with weak cross-ministerial coordination. Strategies often target industry and innovation without mandates for universities, and few institutions have AI ethics guidelines. This misalignment leaves universities uncertain about updating curricula or protecting data. Development plans, intellectual property and data protection laws seldom integrate with AI, resulting in fragmented, reactive governance.

4.3.3. Community engagement: A critical barrier is the limited involvement of local stakeholders in AI projects and policies. Typically, technocrats or external donors design initiatives with minimal input from farmers, village elders, or end users, which contradicts Ubuntu's emphasis on consensus and communal participation. For example, farmers often provide crop-yield data without understanding how it is used, and indigenous knowledge remains largely excluded from AI applications in health and education. This exclusion risks overlooking actual community needs, undermining trust and shared benefits. Furthermore, limited university outreach reinforces the perception of AI as an "expert-only" field rather than a community resource. Addressing this gap requires deliberate mechanisms for meaningful stakeholder engagement and co-creation.

4.4 Case Study Analysis

4.4.1 Rwanda

Rwanda demonstrates a highly proactive approach, having adopted a formal National AI Policy in April 2023. This policy lays out six priority areas-from building AI literacy and skills, to infrastructure, data strategy, ethical guidelines, and AI adoption

32–63.

⁴⁰ F Baskara, 'Revolutionising higher education: A theoretical discourse on the CLEAR approach for AI integration' *The Proceedings of English Language Teaching, Literature, and Translation (ELTLT)* [2023] 12 125–135.

in public and private sectors. It explicitly emphasizes responsible, inclusive, and ethical AI, signaling that the country recognizes both opportunity and risk. Universities in Rwanda have responded accordingly. The University of Rwanda, for example, has launched AI research programs (supported by international partners like International Development Research Centre (IDRC) aimed at applying AI to agriculture, health, and environmental sustainability.⁴¹ One IDRC-backed project focuses on training PhD/MSc students in AI, fostering collaboration across labs, and advising policymakers on integrating AI into national development (including SDGs).⁴² These initiatives attempt to bridge Rwanda's agrarian heritage with its knowledge economy goals.

In practice, however, the assimilation of communal values rooted in Ubuntu is still unfolding. While the national data strategy promotes open data and public-private data sharing task forces, it does not explicitly enshrine community ownership of data collected in villages or on farms.⁴³ The university projects tend to focus on technical solutions for pressing challenges, yet the extent to which they incorporate local languages or traditional agricultural wisdom varies. Rwanda's strength lies in its clear infrastructure commitment and coordination-robust fiber connectivity and strong ICT institutions-which eases AI deployment. The challenge remains to ensure that rapid technological adoption does not outpace the inclusion of Rwanda's communal values and intergenerational knowledge. Deepening communal ownership and ethical inclusion in AI governance will be essential to ensure that technology serves collective well-being alongside innovation.

In summary, Rwanda's case shows a high level of alignment between government policy and university action on AI but underscores the need to embed cultural context and community values more explicitly into these plans.

4.4.2 Uganda

⁴¹ International Development Research Centre (IDRC), 'AI4D-FCDO Labs Rwanda at the University of Rwanda' [n.d.] <https://idrc-crdr.ca/en/what-we-do/projects-we-support/project/ai4d-fcdo-labs-rwanda-university-rwanda> accessed 20 March 2025.

⁴² Ibid

⁴³ A Nishimwe, C Ruranga, C Musanabaganwa and Others, 'Leveraging artificial intelligence and data science techniques in harmonizing, sharing, accessing and analyzing SARS-COV-2/COVID-19 data in Rwanda (LAISDAR Project): Study design and rationale' BMC Medical Informatics and Decision Making [2022] 22 214 <https://doi.org/10.1186/s12911-022-01965-9> accessed 11 June 2025.

Uganda's AI governance is more tentative. As of mid-2025, no national AI policy has been finalized; discussions continue about adopting a formal policy or a flexible sectoral framework.⁴⁴ Debates focus on AI's role across sectors and data standardization balanced with privacy protections. Leaders emphasize adaptability and tailoring AI to local conditions rather than replicating foreign models, reflecting awareness of infrastructure and skills gaps.

Makerere University has taken initiative in this uncertain environment. In March 2025, Makerere launched the Centre for Artificial Intelligence and Data Science (Mak-CAD), with funding from IDRC and United Kingdom Foreign, Commonwealth and Development Office (UK FCDO).⁴⁵ Mak-CAD's mission is explicitly to harness AI for Africa's development, with focus areas including healthcare, agriculture, natural language processing, and climate action. It is guided by "responsible AI" principles: customizing AI solutions to local needs, improving data quality, and integrating research into policy. Complementing this, Makerere's new Artificial Intelligence for Development (AI4D) Lab is building AI capacity for agriculture and climate, acknowledging that sustainable development must combine modern analytics with indigenous practices.⁴⁶

These university initiatives signal a pragmatic approach: building domestic AI expertise now, even as national policy is drafted. However, without a unified national strategy, efforts can be piecemeal. For example, Makerere's center trains MSc and PhD students and works with international partners,⁴⁷ but it remains unclear how rural communities in Uganda will have a say in these projects. Accessibility remains a challenge: even as curricula expand, many Ugandan students lack exposure to AI tools due to limited labs.⁴⁸

This approach reflects the Ubuntu principles of fairness, inclusivity, and dialogue by emphasizing stakeholder engagement and consultation. Embedding Ubuntu fully

⁴⁴ K Diallo, J Smith, C T Okolo, D Nyamwaya, J Kgomo and R Ngamita, 'Case studies of AI policy development in Africa' *Data & Policy* [2025] 7 e15 <https://doi.org/10.1017/dap.2025.15> accessed 30 October 2025.

⁴⁵ Makerere University, 'Makerere launches AI and data science centre to drive Africa's technological development' Makerere University News [2025] <https://news.mak.ac.ug/2025/03/makerere-launches-ai-and-data-science-centre-to-drive-africas-technological-development/> accessed 1 April 2025.

⁴⁶ Ibid

⁴⁷ International Development Research Centre (IDRC), 'Makerere University artificial intelligence development' [n.d.] <https://idrc-crdd.ca/en/what-we-do/projects-we-support/project/makerere-university-artificial-intelligence-development> accessed 1 April 2025.

⁴⁸ Ibid

requires sustained efforts to bridge accessibility gaps and ensure that AI development genuinely incorporates and benefits the diverse voices of local communities. Uganda's ongoing stakeholder engagements-bringing together government, academia, and industry-lay a promising foundation for formally embedding Ubuntu values into AI governance in the future.

4.4.3 Nigeria

Nigeria's landscape is dynamic and often decentralized. In August 2024, the federal government released a draft National AI Strategy, stressing ethical AI development and principles of fairness, transparency, accountability, and privacy.⁴⁹ This strategy was developed in tandem with the broader National Digital Economy Policy, showing policy alignment at the national level. It explicitly responds to concerns raised by educators: earlier reporting showed that academic integrity was a growing issue with widespread student use of AI tools. Recognizing this, the strategy calls for investment in computing infrastructure and for universities to create their own AI usage policies to prevent abuse.

At the institutional level, universities have made significant strides in AI education and innovation. For example, the University of Ibadan (UI) partnered with United Nations Educational, Scientific and Cultural Organization (UNESCO) and private sector sponsor - Infinix to launch a pioneering program that trained 30 students as AI peer-educators, equipping them with AI and robotics skills to become trainers within their communities.⁵⁰ In addition, four UI lecturers developed AI-powered devices addressing local challenges, including the notable "Digital Gesture Assistant," which translates spoken language into Nigerian sign language to support the deaf

⁴⁹ On 3 December 2024, the House of Representatives passed to its second reading a Bill to establish the National Institute for Artificial Intelligence and Robotics Studies Regulation Commission, aiming to ensure proper oversight and regulate AI development, deployment, and use. This Bill integrates proposals from earlier legislation, including the National Artificial Intelligence and Robotic Sciences (Establishment) Bill (HB 601, October 2023) and the Control of Usage of Artificial Intelligence Technology Bill (HB 942, November 2023). Concurrently, the National Artificial Intelligence Commission Act (Established) Bill (SB 731) has passed its first reading before the Senate, also seeking to establish a regulatory body for AI in Nigeria.

⁵⁰ L Ajadi, 'Infinix partners with UNESCO to empower UI students with AI, robotics training' *The Guardian Nigeria* [2024, 22 November] https://guardian.ng/technology/https-guardian-ng-wp-admin-post-phppost2480406actionedit/#google_vignette accessed 1 April 2025.

community.⁵¹ This device stands out for its ability to interpret multiple local languages—an important feature in Nigeria’s linguistically diverse environment where communication is often hindered by dialect differences. This capability ensures the device’s relevance and usefulness across various communities, promoting inclusion and reflecting cultural sensitivity. These initiatives highlight how Nigerian universities are effectively combining global AI advancements with local needs.

Despite these innovations, Nigeria faces persistent gaps: many academics still report inadequate internet and hardware, and call for clearer national guidelines on ethical AI use in education.⁵² Unlike Rwanda’s centralized push, Nigeria’s model is a patchwork of top-down strategy and bottom-up university initiatives. Federal agencies are finally catching up by laying out principles, but much of the governance—such as ensuring communal consent for data or systematic fairness audits—is still emergent.

Nigeria exemplifies the Ubuntu ethos through vibrant grassroots innovation and community engagement. However, to fully realize Ubuntu’s communal ethics, there is a pressing need to harmonize national policies with bottom-up initiatives, fostering shared responsibility, transparency, and accountability in AI governance. This dynamic but uneven AI governance environment highlights both the promise of grassroots innovation and the critical need for more coherent policy alignment that embraces communal value.

Country	Communal Data Sovereignty	Restorative Algorithmic Justice	Intergenerational Knowledge Stewardship
Rwanda	Policy aims for an open, trusted data ecosystem, but data management remains centralized.	Ethical AI guidelines exist, but explicit reparative programs are not defined.	Heavy investment in AI training and skills; traditional knowledge not formally included.
Uganda	No national data governance policy; university labs use local data without community control.	Makerere lab projects target societal needs (health, agriculture), but no national justice framework exists.	Emphasis on training new AI experts; outreach to rural communities is limited.
Nigeria	Data initiatives are	No formal justice	Extensive youth training

⁵¹ A Christian, ‘University of Ibadan lecturers develop AI-powered device to revolutionize communication for the deaf community’ *Qualitative Magazine* [2024, 17 December] <https://qualitativemagazine.com/university-of-ibadan-lecturers-develop-ai-powered-device-to-revolutionize-communication-for-the-deaf-community/> accessed 1 April 2025.

⁵² Y Yakubu, ‘Application of Artificial Intelligence in Technology Enhanced Learning for Sustainable Growth and Inclusive Development in Nigeria’ *Zaria Journal of Educational Studies (ZAJES)* [2024] 24 (1) 64–75.

Country	Communal Data Sovereignty	Restorative Algorithmic Justice	Intergenerational Knowledge Stewardship
	mostly private or foreign-led; open-data efforts are weak.	agenda; broad training programs indirectly seek inclusion.	and scholarships; brain drain and funding gaps hinder retention.

Table 1: Cross-Case Comparative Synthesis

4.4.4 Comparative Perspectives: Kenya and South Africa

Kenya and South Africa offer useful contrasts. Kenya has long been a tech leader in Africa, and it established an AI Taskforce as part of its Digital Economy blueprint.⁵³ The Taskforce is charged with drafting a national AI strategy that aligns with Kenya’s Vision 2030. Kenyan universities (e.g. University of Nairobi, Strathmore University’s iLab Africa, JKUAT) are active in AI education and start-ups.⁵⁴ Nairobi’s thriving tech scene, including companies like Safaricom, has fostered innovation. High-profile events (e.g. the annual Digital Economy conference) and tech incubators help keep AI in the spotlight⁵⁵. Kenyan citizens have shown high uptake of AI tools.⁵⁶ However, despite this entrepreneurial energy, Kenya’s formal policy framework is still evolving. There is not yet a comprehensive law or regulation specifically for AI. Instead, Kenya relies on existing laws (data protection, ICT Acts) and plans to integrate AI gradually. In practice, this means Kenyan AI governance is relatively decentralized and market-driven. For African HEIs, this suggests flexibility but also uncertainty: educators can innovate with fewer bureaucratic restraints, but guidance on ethics or cultural integration is weaker.

South Africa represents a mature AI regulatory environment.⁵⁷ Its National AI Policy Framework covers talent development, infrastructure, innovation, and fairness/bias

⁵³ E O Ogur, ‘The Fourth Industrial Revolution: Opportunities and Challenges for Kenya’ in *Proceedings of the Sustainable Research and Innovation Conference* [2024] 76–87.
⁵⁴ A Matere, ‘Effectiveness of Artificial Intelligence Tools in Teaching and Learning in Higher Education Institutions in Kenya’ *Journal of the Kenya National Commission for UNESCO* [2024] 5 (1).
⁵⁵ P K Guma, ‘Nairobi’s rise as a digital platform hub’ *Current History* [2022] 121 (835) 184–189 <https://doi.org/10.1525/curh.2022.121.835.184> accessed 11 June 2025.
⁵⁶ N Ngaruiya, J Baru, B Chege and J Donner, ‘The domestication of AI by Kenyan digital creators: This note documents the use of AI by digital creators in Kenya, using the lens of domestication theory’ in *Proceedings of the 4th African Human Computer Interaction Conference (AfriCHI 2023)* [2023] 1–5 <https://doi.org/10.1145/3628096.3628753> accessed 11 June 2025.
⁵⁷ D Brand, ‘Responsible artificial intelligence in government: development of a legal framework for South Africa’ *JeDEM-eJournal of eDemocracy and Open Government* [2022] 14 (1) 130–150 <https://doi.org/10.29379/jedem.v14i1.714> accessed 15 October 2025; T Naidoo, ‘Overview of AI regulation in healthcare: A comparative study of the EU and South Africa’ *South African Journal of Bioethics and Law* [2024] 17 (3) 121–126 ; Y Walter, ‘Managing the race to the moon: Global policy and governance in Artificial Intelligence regulation—A contemporary overview and an analysis of socioeconomic consequences’ *Discover Artificial Intelligence* [2024] 4 (1) 14.

mitigation.⁵⁸ It explicitly centers human empowerment through AI.⁵⁹ Many universities have detailed generative AI guidelines emphasizing transparency and integrity (see University of Cape Town guidelines, University of the Witwatersrand guidelines).⁶⁰ South Africa also enforces strong data protection (Protection of Personal Information Act, No. 4 of 2013) and affirmative governance, aiding coordinated efforts. While evidence-based and public value-oriented, implementation plans require further clarity. For HEIs, South Africa illustrates how top-down policy and institutional rules can foster robust AI governance aligned with Ubuntu justice values, though broader community involvement remains a future goal.

4.5 Embedding Ubuntu in AI Governance: Cross-Cutting Insights

Viewing these findings through an Ubuntu lens highlights both progress and gaps across three core principles:

Communal Data Sovereignty: Ubuntu emphasizes that data generated by and about communities should be collectively owned and governed. However, most national AI policies and university strategies treat data as a resource for innovation, with limited mechanisms for community control. For example, Rwanda’s AI policy promotes open data for research but lacks provisions for villagers or farmers to consent to or benefit from data collected from their lands. Similarly, Uganda and Nigeria have no frameworks ensuring rural communities have a voice in how their data is used.

Some university initiatives implicitly respect data sovereignty by engaging directly with local communities, such as Makerere University’s climate projects involving farmers or the University of Ibadan’s health device for deaf Nigerians. However, these practices remain ad hoc and are not codified. Without explicit communal data rights, AI governance risks marginalizing the very groups it aims to serve. Embedding Ubuntu principles could involve creating data cooperatives or local ethics boards to ensure community ownership and benefit-sharing.

⁵⁸ National Artificial Intelligence Policy Framework. The framework was released in August 2024 by the Department of Communications and Digital Technologies (DCDT). <https://tinyurl.com/jremw2vb> accessed 16 June 2025

⁵⁹ M Nkwo, and others, ‘Exploring Usability of AI Systems in the Global South—Toward Responsible Human-Centered AI for Sustainable Cities and Communities’ in *Usability for the World: Building Better Cities and Communities* (Springer Nature Switzerland 2025) 125–165.

⁶⁰See further <https://cilt.uct.ac.za/teaching-resources/artificial-intelligence-teaching-learning>, <https://www.wits.ac.za/media/wits-university/learning-and-teaching/cltd/documents/Wits-CLTD-Guidelines-for-GAI-use-in-Learning-Teaching-Research-Dec2024.pdf>, <http://www.news.uct.ac.za/article/-2023-09-18-uct-launches-ai-guides-for-staff-and-students>

Restorative Algorithmic Justice. Ubuntu calls for AI systems to actively repair historical injustices and promote equity. Encouragingly, many national strategies and university initiatives echo this principle. For instance, Nigeria's draft AI strategy emphasizes fairness and accountability, while Rwanda's ethics guidelines highlight anti-bias measures. Universities also promote integrity in AI use, such as Makerere's focus on climate resilience for smallholder farmers and the University of Ibadan's gesture-translation tool for deaf Nigerians.

However, implementation often lags behind rhetoric. AI systems designed without local input risk perpetuating biases, such as language models underrepresenting African dialects. To achieve restorative justice, AI must be audited and adapted to uplift marginalized communities. Mechanisms like algorithmic impact assessments and participatory design are needed to ensure AI delivers tangible, fair benefits. While some progress has been made, many university projects remain technology-centric rather than justice-centric, prioritizing efficiency over equity.

Intergenerational Knowledge Stewardship. Ubuntu values the wisdom of elders and the transmission of knowledge across generations. Yet, AI strategies rarely integrate indigenous knowledge or languages. Curricula often leap from basic data science to modern applications, bypassing traditional expertise. This disconnect risks eroding centuries of African agricultural, medicinal, and ecological knowledge. For instance, precision agriculture systems trained on Western data may overlook local crop varieties or communal farming practices.

National policies and university programs largely focus on technological innovation, with little formal attention to preserving cultural heritage. However, grassroots movements like Masakhane (focused on African languages in NLP) show growing interest in bridging this gap. Ubuntu suggests that HEIs should actively record and encode tribal knowledge, oral histories, and local concepts into AI education and datasets. Without deliberate efforts, AI risks displacing cultural heritage rather than preserving it.

African HEIs stand at a critical juncture: they can harness AI's transformative power while honoring communal values, justice, and stewardship. Our cross-case analysis reveals inspiring innovation and persistent barriers in infrastructure, policy coherence, and community participation. Moving forward requires frameworks centered on

collective data sovereignty, algorithmic impact assessments, and indigenous knowledge valorization. The next section proposes culturally grounded pathways—community-led data cooperatives, Ubuntu-inspired curricula, participatory AI audits—that reconceptualize AI as a tool for self-determined progress rooted in African values.

5. Recommendations for Ethical AI Governance in African Higher Education: Embedding Ubuntu, Policy Reform, and Pan-African Collaboration

Culturally grounded governance is essential for ethical AI in African universities, as demonstrated by our case studies in Rwanda, Uganda, and Nigeria. AI systems and policies imported from abroad often fail to account for local social structures and values. The African philosophy of Ubuntu—centered on community welfare, shared humanity, and relational accountability—offers a vital corrective to these one-size-fits-all models. Ubuntu’s ethos of “I am because we are” challenges the individualism embedded in global AI ethics and promotes justice by prioritizing collective well-being. Building on Ubuntu and justice principles, the following recommendations aim to reshape institutional and policy frameworks. By integrating African values and protecting community data rights, universities and governments can ensure AI innovation is ethical, inclusive, and responsive to local needs.

5.1. Institutionalizing Ubuntu in AI Governance

Universities should explicitly embed Ubuntu’s values—community, dignity, and shared responsibility—into their charters and policies. For example, Institutional Review Boards (IRBs) and tech ethics committees can be reimaged as inclusive community review boards. These boards would include rotating members such as local elders, student representatives, and scholars, tasked with vetting AI projects for cultural alignment and communal benefit.

To honor data sovereignty, universities must treat campus-generated data as communal resources, governed through campus data policies or data trusts. This approach ensures epistemic and economic justice by granting local control over student and research data. Faculty hiring practices, research grant criteria, and codes of conduct should mandate adherence to Ubuntu ethics—respect for personhood, reciprocity, and informed consent.

Practically, institutions can integrate Ubuntu principles into mission statements, student honor codes, and AI initiative charters, affirming commitments to the common good. Over time, national higher education laws could codify these procedures, mandating community oversight and communal data governance in campus AI research. Embedding Ubuntu within institutional policy and statute will democratize AI innovation and protect communities from extractive or biased practices.

Curricula and training programs should incorporate Ubuntu ethics, ensuring that AI developers and researchers are versed in cultural values. Service-learning and community internship opportunities can further root technical skills in local realities. Together, these reforms, supported by legal and policy frameworks, will embed Ubuntu as a living practice in AI development.

5.2. Policy Reforms for Inclusive AI Innovation

At the national level, African governments must ensure AI standards reflect local cultural ethics. Policies should require cultural impact assessments for new technologies and explicitly reference Ubuntu values such as human dignity and reciprocity. AI regulations must prioritize applications addressing local needs and establish oversight by culturally diverse councils.

Addressing the digital divide is critical. For instance, a World Bank report highlighted that approximately 7 million sub-Saharan university students lost access to education during pandemic closures due to poor connectivity.⁶¹ Governments should expand broadband access to all campuses, align with the Digital Economy for Africa (#DE4A) roadmap, and fund research-and-education networks alongside targeted technology grants for underserved institutions. Dedicated funding streams, such as national AI innovation funds and scholarships, should support Afrocentric AI research, incentivize projects in local languages, and promote cross-regional university collaboration.

Human rights and data ethics must be embedded into AI use. Policies should mandate student data privacy, explicit consent, and routine algorithmic fairness audits for

⁶¹ J P Azevedo, A Hasan, D Goldemberg, S A Iqbal and K Geven, 'Simulating the potential impacts of COVID-19 school closures on schooling and learning outcomes: A set of global estimates' World Bank Policy Research Working Paper No. 9284 [2020] <https://doi.org/10.1596/1813-9450-9284> accessed 16 April 2025.

educational and administrative AI systems. States could require independent audits of AI deployments in schools and hospitals to uphold equity, consistent with Ubuntu's concern for social justice.

Governments should also fund professional development initiatives, including AI literacy training for teachers and administrators, digital competence curriculum updates, and industry–university partnerships to drive human-centered innovation. By combining ethical standards, infrastructure investment, and education reforms, these policies will help ensure AI innovation in Africa remains just, inclusive, and community-centered. Aligning AI strategies with SDGs such as inclusive education (SDG 4) and reduced inequalities (SDG 10) underscores that technological progress must advance social justice and equitable learning opportunities.

5.3. Pan-African Collaboration and Continental Development Goals

African universities and governments must collaborate across borders to build shared AI governance frameworks. The African Union (AU) can facilitate consortia linking faculties of computer science, law, and ethics to harmonize AI education, research, and policy development.

Regional economic communities—such as Economic Community of West African States (ECOWAS) and the East African Community (EAC)—should promote unified AI curricula and co-fund data infrastructures governed by Ubuntu ethics. Collective continental action strengthens Africa's voice globally. The AU's Continental AI Strategy calls for unified national approaches and cooperation to position Africa as a leader in inclusive, responsible AI.

This strategy aligns with Africa's development agendas. The AU recognizes AI as “pivotal to achieving the aspirations of Agenda 2063 and the SDGs,” promising innovation alongside cultural preservation. A united continental approach also builds digital sovereignty by establishing African data commons and ethical frameworks that resist foreign dominance. In contrast to the “algorithmic colonization” Birhane (2022) describes—where Western AI imposes one-size-fits-all solutions that stifle local innovation—Pan-African collaboration empowers African institutions to define their technological futures. This cooperation advances inclusive education and inequality reduction through context-sensitive, Ubuntu-informed AI development.

Conclusion.

The necessity of culturally grounded AI governance is undeniable in an era where AI is rapidly transforming societies worldwide. For Africa, ensuring that AI frameworks are rooted in indigenous knowledge systems, communal values, and inclusive practices is essential. Such an approach guarantees that AI serves as a tool for empowerment rather than perpetuating existing inequalities or creating new harms. Aligning AI governance with African cultural contexts allows the continent to confront unique challenges such as digital inequality, data sovereignty, and the ethical complexities of AI deployment across diverse socio-economic settings.

This study's findings highlight the transformative potential of AI when combined with African values and inclusive policies. AI can drive sustainable development, expand access to education, healthcare, and financial services, and foster innovation tailored to local needs. However, these benefits will only materialize if AI systems are designed around principles of equity, transparency, and accountability. African values—emphasizing community, shared responsibility, and ethical stewardship—provide a strong foundation for such systems. By prioritizing inclusivity and fairness, Africa can not only harness AI for its development but also contribute a unique and necessary voice to the global discourse on AI ethics.

African HEIs and policymakers stand at a pivotal moment. HEIs must invest in AI ethics research and capacity-building programs to prepare the next generation of African technologists and policymakers for the complex governance landscape ahead. Policymakers should enact regulatory frameworks that promote ethical AI use while encouraging innovation and responsiveness to local contexts. Collaborative efforts between HEIs and governments can position Africa as a leader in shaping an AI landscape that is both equitable and culturally sensitive.

Nevertheless, realizing this vision requires overcoming significant challenges. These include addressing infrastructural deficits, fostering cross-sector collaboration, and ensuring meaningful community engagement. Future research should focus on developing scalable models to embed Ubuntu and other African value systems into AI governance, and on evaluating existing initiatives to identify effective practices.

By embracing governance frameworks grounded in Africa's rich traditions and values, the continent can demonstrate that AI need not be a tool of exclusion or harm. Instead, AI can serve as a catalyst for justice, equity, and innovation. This leadership extends

beyond regional interests; it is a global imperative that challenges prevailing narratives and expands the possibilities of ethical AI. The world must heed Africa's voice, which holds the promise to reshape AI governance into a truly inclusive and human-centered endeavor.

Disclosure

A version of this paper was presented at the African Research Universities Alliance(ARUA) 2025 Biennial International Conference with the theme Research, Innovation and Artificial Intelligence for Africa's Transformation held at Makerere University Uganda on October 29, 2025.

Acknowledgements

The author thanks the participants of the session at which this paper was presented for their helpful discussion and insightful comments on the earlier draft.