

Artificial Intelligence, Human Rights and Sustainable Development: An African Perspective

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Abstract

This article explores the opportunities and challenges posed by AI technologies in Africa. It examines the potential risks of AI exacerbating existing inequalities, infringing on privacy rights, and perpetuating digital colonialism. The article investigates the unique challenges that Africa faces in harnessing AI for human rights and sustainable development by examining the intersection of AI, human rights, and sustainable development from an African perspective. It highlights the importance of context-specific approaches that take Africa's cultural and ethical considerations into account. Through case studies of a few African countries, this article provides insights into the existing policy and regulatory landscape. It emphasises the need for inclusive policymaking processes that involve diverse stakeholders, including civil society organisations, marginalised communities, and indigenous groups. The article concludes with recommendations on how AI can be ethically deployed to advance human rights and sustainable development goals on the African continent. A case is also made for a human rights-based approach to artificial intelligence and sustainable development.

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1. Introduction

Artificial intelligence (AI) has become a global force that is transforming many facets of human life. As AI technologies are being incorporated into a wider range of societal domains, including healthcare, finance, education, and transportation, etc., their implications for human rights and sustainable development have attracted increasing attention worldwide. However, the discourse often reflects predominantly Western perspectives, neglecting the diverse socio-economic and cultural contexts of regions such as Africa. This article endeavours to fill this gap by examining the intersection of AI, human rights, and sustainable development from an African perspective.

Africa, with its diverse cultures, economies, and political systems, provides a distinct vantage point for understanding the impact of AI on human rights and sustainable development. The continent's rapid adoption of technology generally, and mobile technology in particular, coupled with ongoing issues such as inequality, governance challenges, and socio-economic development, create a complex landscape for the deployment and regulation of AI technologies. This complexity necessitates a thorough analysis of how AI can be harnessed to promote sustainable development while safeguarding human rights.

This article aims to contribute to the global discourse on AI by focusing on the African context, highlighting both the potential benefits and the risks associated with AI adoption. Indeed, according to Gwagwa et al., although 'in contemporary African settings, both the benefits and risks of AI are readily apparent ... AI's challenges and risks in African contexts are also potentially of great magnitude'.² The article discusses how AI can support sustainable development goals (SDGs) in areas such as healthcare, education, and economic growth, while also addressing concerns related to

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² Gwagwa, A., Kraemer-Mbula, E., Rizk, N., Rutenberg, I. & De Beer, J. 'Artificial intelligence (AI) deployments in Africa: Benefits, challenges and policy dimensions' *The African Journal of Information and Communication* 2020, 26, 1–28 p. 4.

privacy, bias, and accountability. By examining case studies of the current policy and legislative landscape, this article will provide insights into best practices and recommend strategies for ensuring that AI contributes positively to human rights and sustainable development in Africa. In that regard, the article begins with an overview of AI development in Africa and the attendant opportunities and challenges. This is followed by a discussion on human rights implications of AI and the relationship between AI and sustainable development. For that relationship to be beneficial to Africa, there is a need for policy and legislative responses at the national and continental levels. That is why a discussion on the existing policy and legislative framework in selected African countries is undertaken before looking at the cultural and ethical considerations arising from the intersection of AI, sustainable development and human rights in the specific African context. The article concludes with recommendations on future directions and innovations and how AI can be ethically deployed to advance human rights and sustainable development goals on the African continent. A case is also made for AI-driven sustainable development and a human rights-based approach to artificial intelligence and sustainable development.

2. Artificial intelligence in Africa

2.1. Overview of AI development in Africa

AI began to gain attention in Africa in the early 2000s as the global technology landscape evolved. Early adoption was primarily in academic institutions and research centres, focusing on understanding the potential of AI. In the early 2010s, universities and research institutions across Africa started introducing AI and machine learning courses. Notable institutions like the University of Cape Town and Stellenbosch University in South Africa began focusing on AI research. In 2011, for example, the South Africa's Centre for Artificial Intelligence Research (CAIR), was established, 'linking nine research groups from six universities – the University of Cape Town, the University of KwaZulu-Natal, North-West University, the University of Pretoria, Stellenbosch University and the University of the Western Cape.'³ This period also marked the rise of tech hubs and innovation centres, such as Nairobi's iHub, which played a significant role in fostering AI development.⁴ These hubs provided platforms for collaboration, innovation, and entrepreneurship. Some African governments also started recognising the importance of AI.

During the late 2010s and early 2020s, the number of AI startups in Africa began to grow, focusing on various areas such as agriculture, healthcare, finance, and education. Companies like DataProphet in South Africa and Zindi, a pan-African data science competition platform, emerged.⁵ More recently, there has been a growing emphasis on developing AI policies and regulatory frameworks to ensure ethical and responsible use of AI. As will be seen further below, countries like Kenya, South Africa, Egypt and Nigeria have either developed or are working on national AI strategies.

Despite these developments, 'The state of artificial intelligence (AI) in Africa has revealed the uneven pace of its development and shown the need for African innovators, policy-makers, social movements, and academic institutions to ramp up their engagement in the field of AI.'⁶ Compared to other continents such as Europe and the Americas, artificial intelligence in Africa is still in its early stages and is not yet widely used in business. Despite the continent's poor ranking on international indices and indicators for AI activities and official regulations, however, an increasing number of AI communities and activities are springing up throughout Africa. Despite being in its nascent stages and not yet widely adopted in business contexts, artificial intelligence (AI) is witnessing a burgeoning

³ Ibid. p. 13.

⁴ See Idoko, N. 'Tech Hubs in Africa Leading Innovative Change' (2024) at <https://nicholasidoko.com/blog/category/africa/> (accessed 15 July 2024).

⁵ See Temidayo, O. 'The AI Industry in Africa: The booming startups and indigenous AI promotion organisations' *DigiLaw* 4 March 2020 at <https://medium.com/@DigiLawNG/the-ai-industry-in-africa-the-booming-startups-and-indigenous-ai-promotion-organisatio-ns-25d605f51d9b> (accessed 15 July 2024).

⁶ See Gwagwa et al. (note 1 above) at 3.

of communities and activities across Africa.⁷ This growth is occurring even as the continent remains lower on international indices and indicators for AI activities and regulatory frameworks. New interdisciplinary machine learning communities are emerging around academic institutions, often in collaboration with industry and development partners. These communities provide opportunities for skill demonstration, expanded project participation, and access to the latest advancements in the field.⁸

According to a 2023 State of AI in Africa Report prepared by the Centre for Intellectual Property and Information Technology Law (CIPIT), ‘... with a few exceptions, such as South Africa, Nigeria, Ethiopia, Kenya, Zimbabwe, Togo, Libya and Ghana, AI applications have not yet been widely adopted throughout Africa, with most African nations lacking the necessary elements required for technology adoption in the form of infrastructure, data ecosystems, STEM education and governance systems.’⁹ That said however, ‘AI tech is growing across Africa, with over 2,400 companies specializing in AI, 41% of which are startups.’ According to Abdessalam Jaldi, ‘Over the next few years, Africa is set to see an acceleration in the deployment of artificial intelligence in a number of sectors.’¹⁰ This projection is supported by the increasing number of companies that specialise in AI. In 2023, South Africa had the highest number of such companies (726), followed by Nigeria (456), Egypt (246) and Kenya (204).¹¹ Other countries with more than 100 such companies included Morocco (126), Ghana (115) and Tunisia (103).¹²

2.2. Opportunities and challenges

There is no doubt that AI offers limitless opportunities for Africa. First and foremost, AI has the potential to play a significant role in addressing a number of Africa’s most pressing issues, including poverty reduction, education reform, healthcare delivery, disease eradication, sustainability issues, the rapidly expanding population’s growing food demand, and social inclusion. As such AI has a lot of potential for application in the fields of education, agriculture, transportation, finance and health, to mention but a few. Secondly, AI has the potential to contribute significantly to economic growth in Africa. According to a recent study, AI has the potential to double several African countries’ annual economic growth rates by 2035.¹³ This is mainly because ‘... economies are entering a new era in which artificial intelligence (AI) has the potential to overcome the physical limitations of capital and labour and open up new sources of value and growth.’¹⁴ In other words, AI is becoming a new factor of production that advances growth in several ways.

AI can and does play an important role in facilitating the delivery of governmental services to citizens by ‘unlocking the value of data to simplify and accelerate predictive and prescriptive processes, allowing governments and agencies in the region to drive better services and decision making.’ This is quite significant in several African countries where service delivery is often poor due to lack of necessary infrastructure and technology.

Apart from increasing economic growth and improving public service delivery, AI has the potential of contributing significantly to the achievement of Africa’s Agenda 2063 vision and several United Nations Sustainable Development Goals (SDGs) as will be seen later. A recent study found that ‘AI may act as an enabler on 134 targets (79%) across all SDGs, generally through a

⁷ See Chinganya, O. ‘The Future of AI in Statistics in Africa: Is the Continent Ready?’ at <https://www.isi-web.org/article/future-ai-statistics-africa-continent-ready> (accessed 16 July 2024).

⁸ Ibid. at 6.

⁹ CIPIT ‘State of AI in Africa Report 2023’ at <https://cipit.strathmore.edu/wp-content/uploads/2023/05/The-State-of-AI-in-Africa-Report-2023-min.pdf> (accessed 15 July 2024).

¹⁰ Jaldi, A. ‘Artificial Intelligence Revolution in Africa: Economic Opportunities and Legal Challenges’ Policy Center for the New South (PCNS) 2023, at https://www.policycenter.ma/sites/default/files/2023-07/PP_13-23%20%28Jaldi%20%29.pdf (accessed 16 July 2024).

¹¹ Ibid.

¹² Ibid.

¹³ Purdy, M. and Daugherty, P. ‘Why artificial intelligence is the future of growth’ *Accenture* 2020, at <https://dl.icdst.org/pdfs/files2/2aea5d87070f0116f8aaa9f545530e47.pdf> (accessed 16 July 2024).

¹⁴ Ibid.

technological improvement, which may allow them to overcome certain present limitations.¹⁵ These are just a few of the numerous opportunities for AI in Africa.

Despite the opportunities presented by AI, it is not without its own challenges. One of the main challenges to the adoption and implementation of AI in Africa is a lack of the necessary digital literacy and skills. According to Okolo et al., ‘The lack of investment by African governments into infrastructure necessary for supporting digital economies has hampered the growth of digital literacy.’¹⁶ AI development requires significant financial resources, and there is a lack of substantial investment from both public and private sectors. The lack of investment leads to the lack of the necessary infrastructure. Many African countries, for example, have poor internet penetration mainly ‘due to infrastructure issues associated with the lack of access to electricity and low investment into internet infrastructure such as fibre-optic cables, cell towers and base stations.’¹⁷ All these, in turn, lead to the lack of the digital literacy and skills necessary for the adoption and development of AI.

Another critical challenge facing the development of AI in Africa is the lack of relevant legislation and government policies. As will be seen further below, many African countries lack dedicated legislative or policy frameworks specifically aimed at the regulation of artificial intelligence (AI). As a result, there is often a lack of clear, supportive policies and regulations to guide AI development and usage. The same applies to the development of ethical guidelines which is still in its infancy. Many African countries are yet to develop well-structured ethical guidelines and policies to ensure proper AI systems development, implementation, and adoption.

Other challenges include a general lack of awareness and understanding of AI and its potential benefits among the public and policymakers. This is compounded by the issues of ethics and culture. Indeed, ethics and culture are important because ‘ethics form the basis of human activities which can promote African cultures and help to build confidence in the development and applications of technologies in Africa.’¹⁸ Ethics and culture also tend to have a negative impact on user attitudes. It is no secret that ‘Africans are very sceptical in adopting and using new technology due to culture and social influences.’¹⁹ Finally, the general lack of awareness and understanding of AI is compounded by language barriers. Many AI technologies are developed in dominant global languages, which may not be accessible to non-English speaking populations in Africa.

3. Human rights implications of AI

There is no doubt that ‘[a]rtificial intelligence can significantly impact human rights – both positively and negatively.’²⁰ AI technologies have the ability to enhance the enjoyment of human rights in numerous ways. For instance, AI can improve access to healthcare, education, and information, thereby promoting the right to health, education, and freedom of expression. Conversely, AI can negatively affect all categories of human rights – whether civil and political or socio-economic. Civil and political rights include the rights to privacy, equality, a fair trial, and freedom of expression, life, liberty and security, and dignity. They also include freedom from torture and inhuman treatment, slavery and forced labour, freedom of religion, belief, and opinion, freedom of expression, the right to associate, and freedom of movement. Additionally, political rights, which guarantee individuals the ability to participate in their government directly or through elected representatives, fall into this category.

It should be mentioned that human rights are interrelated and interdependent, meaning AI

¹⁵ Vinuesa, R., Azizpour, H., Leite, I. et al. ‘The role of artificial intelligence in achieving the Sustainable Development Goals’. *Nature Communications* 2020 (11) 233 at <https://doi.org/10.1038/s41467-019-14108-y>.

¹⁶ Eke D.O., Wakunuma K. & Akintoye S. (Eds) *Responsible AI in Africa: Challenges and Opportunities*, Palgrave MacMillan (2023) p. 40.

¹⁷ *Ibid.* p. 41.

¹⁸ Ade-Ibijola A. and Okonkwo C. ‘Artificial Intelligence in Africa: Emerging Challenges’ in Eke D.O., Wakunuma K. & Akintoye S. (Eds) *Responsible AI in Africa: Challenges and Opportunities* (Palgrave MacMillan 2023) 108.

¹⁹ *Ibid.*

²⁰ Gaumond, E. & Régis, C. ‘Assessing Impacts of AI on Human Rights: It’s Not Solely About Privacy and Non-discrimination’ *Lawfare* 27 January 2023, at <https://www.lawfaremedia.org/article/assessing-impacts-of-ai-on-human-rights-it-s-not-solely-about-privacy-and-nondiscrimination> (accessed 28 July 2023).

may have similar impacts across a range of civil and political rights. For example, the rights to dignity, privacy, and security are closely related because privacy is a fundamental human right essential for living in dignity and security. In today's digital environment, applications and social media platforms collect vast amounts of personal data, often without permission, which can be used to profile individuals and predict their behaviour. Such practices violate their rights to privacy and dignity and compromise their security.

AI poses significant privacy and data protection challenges, including issues related to informed consent, surveillance, and the infringement of data protection rights such as access to personal data, 'the right to prevent processing likely to cause damage or distress, and the right not to be subjected to decisions based solely on automated processing'.²¹ According to Wachter & Mittelstadt, 'Individuals are granted little control and oversight over how their personal data is used to draw inferences about them.'²² This constitutes a violation of their right to privacy.

The importance of the right to equality and non-discrimination cannot be overemphasised. This right ensures equal treatment before the law and prevents discrimination on various grounds, treating everyone equally in public and private matters. However, AI significantly impacts this right, particularly through its use in automated decision-making processes in fields such as justice administration, higher education selection, recruitment, creditworthiness evaluations, and welfare benefit eligibility determinations. The Council of Europe's Committee on Equality and Non-Discrimination notes that 'there is broad evidence that such processes often produce unfair results, discriminating on grounds (for example) of gender, ethnic origins, social status or mental health.'²³

Automatic algorithmic decision-making is another way AI contributes to discrimination, as algorithmic data may contain errors and inadequacies. Furthermore, the variables and criteria used for algorithmic forecasts and sorting may not be well selected. For instance, facial recognition algorithms have been reported to better identify white people because the AI system was trained to use predominantly white faces, resulting in dark-skinned individuals being more frequently subjected to false suspicions and discriminatory measures.²⁴ In the African context, such discrimination can adversely affect health, economic opportunities, and wealth accumulation. In education, it may limit African students' admission to predominantly white academic institutions, and in the labour market, it can hinder wage growth and promotion for Africans due to biased hiring and performance appraisal systems.²⁵

Freedom of expression is another civil right impacted by AI. AI systems can limit freedom of expression by profiling, identifying, and tracking individuals, influencing their conduct. For example, participants in protests, who typically benefit from collective anonymity, may be identified through facial recognition in public settings, thus losing group anonymity and feeling discouraged from expressing themselves against governments, employers, or organisations.²⁶ Additionally, AI's ability to produce media content that closely resembles real people can impact individuals' ability to form and express opinions, receive information, and transmit ideas, thus affecting their right to free expression.²⁷

Regarding the rights related to detention and fair trial, AI has been argued to affect the right to liberty and security, as well as the right to a fair trial, 'in situations where physical freedom or

²¹ Gardner, S. 'AI poses big privacy and data protection challenges' *Bloomberg Law News*, 26 October 2016.

²² Wachter, S. & Mittelstadt, B. (2019) A Right to Reasonable Inferences: Re-Thinking Data Protection Law in the Age of Big Data and AI. *Columbia Business Law Review* 2019 (2), 499.

²³ Council of Europe 'Preventing discrimination caused by the use of artificial intelligence' *Report of the Committee on Equality and Non-Discrimination*, September 2020 at https://www.eerstekamer.nl/bijlage/20201105/preventing_discrimination_caused/document3/f=/vldiex1467t0.pdf (accessed 28 July 2024).

²⁴ Non-Discrimination Ombudsman 'Artificial intelligence and equality' at <https://yhdenvertaisuusvaltuutettu.fi/en/artificial-intelligence-and-equality> (accessed 28 July 2024).

²⁵ Oyeniyi, A. & Eurallyah, A. J. 'Regulating Artificial Intelligence through a Human Rights-Based Approach in Africa' *African Journal of Legal Studies* 2021 14(4) (Online). Available at https://pure.hud.ac.uk/ws/portalfiles/portal/40536399/AJLS_1495_R1.pdf.

²⁶ Müller, C. 'The Impact of Artificial Intelligence on Human Rights, Democracy and the Rule of Law' Report of the Ad Hoc Committee on Artificial Intelligence (CAHAI), Council of Europe (Strasbourg, 24 June 2020). Available at <https://rm.coe.int/cahai-20-06-fin-c-muller-the-impact-of-ai-on-human-rights-democracy-/16809ed6da> (accessed 28 July 2024).

²⁷ Ibid.

personal security is at stake, such as predictive policing, recidivism risk determination, and sentencing.²⁸ AI applications used for predictive policing seek correlations based on common characteristics with other cases, which may impact the right to reasonable suspicion and the prohibition of arbitrary arrest. In such instances, suspicion is based on shared traits rather than the actual commission of a crime by the suspect.²⁹

Political rights, including the right to participate in political activities and the right to vote, are also susceptible to AI's influence. AI has the potential to disrupt fair electoral processes, with political campaigns using customized advertisements to target different voter groups without accountability. AI can also generate and disseminate false information and fake news through various media, making it difficult for voters to identify deception and manipulation, thereby undermining the credibility of the electoral process.

AI also has implications for socio-economic rights, which include labour rights, property rights, access to housing, healthcare services, sufficient food and water, social security, education, and a healthy environment. Among these, workers' rights are perhaps most significantly affected by AI. This is because AI systems' ability to predict employee performance can undermine equal opportunities and treatment in the workplace. Moreover, as AI systems take over more jobs, they limit people's employability, reducing livelihood opportunities and resulting in a less skilled workforce unable to perform jobs in the event of AI system failures. Additionally, implications of IA on workers' rights may include changes in future employee requirements, a decline in worker demand, new job structures, employee dismissal, inequality, changes in working hours, changes in remuneration and social security.

The right to social security is also impacted by AI. While AI systems enhance administrative efficiency through process automation, they also create risks and trade-offs between automation and human control.³⁰ Effective AI operation requires data availability and quality; otherwise, many deserving individuals may be excluded from accessing their social security guarantees.³¹

In healthcare, AI is useful in disease diagnosis, patient treatment recommendations, and improved access to services. However, AI can discriminate or prioritise cost over patient needs. Some AI systems make treatment recommendations based on insurance coverage or ability to pay, denying necessary medical care to financially incapable patients. Other risks include AI inaccuracies leading to health complications, problematic health data, and privacy concerns, as AI can predict private patient information without receiving it, violating privacy and healthcare rights.

The right to access water can also be negatively impacted by AI. While algorithmic water allocation can optimise supply and demand matching, it may deprive smallholders of water use rights and harm local livelihoods. Profiling water users with demand data can help plan supply systems optimally but may also restrict water accessibility, violating the right to access water.

4. AI and sustainable development

Artificial intelligence (AI) has the potential to significantly impact sustainable development in various ways.³² Such impact can be seen and assessed in two different ways. Firstly, it can be seen in terms of its influence on the three pillars or principles of sustainability, namely, economic, social and environmental sustainability.³³ Secondly, it can be seen and assessed in terms of its influence on specific Sustainable Development Goals (SDGs). In so far as the economic impact is concerned, there is no doubt that AI can and does enhance economic growth. It does this not only by boosting productivity in various industries through automation and optimisation, but also through its ability to

²⁸ Ibid.

²⁹ Ibid.

³⁰ ISSA. « Artificial Intelligence in Social Security: Background and Experiences » at <https://ww1.issa.int/analysis/artificial-intelligence-social-security-background-and-experiences> (accessed 28 July 2024).

³¹ Ibid.

³² See Marjan, R. K. and H. Zubaidi and A. Mohammed (2023) 'Artificial Intelligence and Sustainable Development' *Al-Mustaqbal Journal of Sustainability in Engineering Sciences* 2023 1(1) at <https://doi.org/10.62723/2959-5932.1005> (accessed 31 July 2024).

³³ See Purvis, Ben, et al. 'Three Pillars of Sustainability: In Search of Conceptual Origins' *Sustainability Science*, 2019 (14) 681–695.

drive innovation, leading to the development of new products, services, and business models.³⁴ Moreover, AI is important for job creation and transformation. This is because it creates new job opportunities in AI development, maintenance, and ethical oversight. As mentioned earlier, AI has a lot of potential for applications in the fields of agriculture, transportation and finance – among others – all of which are important components of economic growth.

Mention was also made earlier of AI's potential for application in the fields of health and education. In so doing, AI has a significant social impact through its enhancement of health and well-being. This may be through its role in disease prediction and management and also through AI-powered telemedicine platforms which provide access to healthcare for remote and marginalised communities. IA's social impact through education, on the other hand, is possible through its application in personalized learning whereby AI tools offer personalized learning experiences, improving educational outcomes and accessibility.³⁵ It is also possible through its application in resource allocation whereby AI assists in optimizing resource allocation for educational infrastructure, particularly in low-income regions.³⁶

As for its environmental impact, there is no doubt that AI has the potential of playing a critical role in climate change mitigation, biodiversity conservation and pollution control, among other things. In so far as climate change mitigation is concerned, AI can optimise energy consumption in buildings, industries, and transportation, leading to reduced carbon footprints.³⁷ AI can also enhance the efficiency and integration of renewable energy sources by predicting energy demands and managing power grids more effectively. Moreover, advanced AI algorithms can and do improve climate models, enabling better predictions and more effective policymaking.³⁸ AI's application in biodiversity conservation is possible through wildlife monitoring and habitat restoration, among other things. Its application in pollution control takes place in aspects such as air quality monitoring and waste management.

As mentioned earlier, the impact of AI on sustainable development can also be assessed in terms of its influence on specific Sustainable Development Goals (SDGs). The Sustainable Development Goals (SDGs), adopted by the United Nations in 2015, provide a global framework for achieving a better and more sustainable future for all. These 17 goals address worldwide challenges such as poverty, inequality, climate change, environmental degradation, peace, and justice. As African nations work towards meeting these ambitious targets by 2030, the integration of artificial intelligence is becoming an increasingly essential element. In that regard, a 2020 study found that 'AI can enable the accomplishment of 134 targets across all the goals, but it may also inhibit 59 targets.'³⁹

In so far as achieving specific SDGs is concerned, there are a number of ways through which artificial intelligence can play an important role. SDG One calls for an end to poverty in all its manifestations and sets several targets through which this will be achieved, while SDG 2 is about ending hunger and achieving food security. AI can optimise agricultural processes, predict crop yields, and improve resource allocation, helping to reduce poverty and hunger.⁴⁰ SDG Three seeks to ensure healthy lives and promote well-being for all. AI can enhance healthcare systems by enabling early disease diagnosis, personalized treatment plans, and remote monitoring, thereby improving access to and outcomes of healthcare.⁴¹

³⁴ Qin, Y., Xu, Z., Wang, X. et al. 'Artificial Intelligence and Economic Development: An Evolutionary Investigation and Systematic Review', *Journal of the Knowledge Economy* 2024 (15) 1755.

³⁵ See Maher J. K. O. J. 'Personalised learning through AI' 2023 5(1) *Advances in Engineering Innovation* 16.

³⁶ See Kamalov, F.; Santandreu Calonge, D.; Gurrib, I. 'New Era of Artificial Intelligence in Education: Towards a Sustainable Multifaceted Revolution' 2023, 15(16) *Sustainability* 12, 451.

³⁷ See Ding, C., Ke, J., Levine, M. et al. 'Potential of artificial intelligence in reducing energy and carbon emissions of commercial buildings at scale' 2024 (15) *Nature Communications* 5916 at <https://doi.org/10.1038/s41467-024-50088-4> (accessed 31 July 2024).

³⁸ Jain, H., Dhupper, R., Shrivastava, A. et al. 'AI-enabled strategies for climate change adaptation: protecting communities, infrastructure, and businesses from the impacts of climate change' 2023 3(25) *Computer Urban Science* at <https://doi.org/10.1007/s43762-023-00100-2> (accessed 31 July 2024).

³⁹ Vinuesa, R., Azizpour, H., Leite, I. et al. «The role of artificial intelligence in achieving the Sustainable Development Goals» 2020 (11) 233 *Nature Communications* <https://doi.org/10.1038/s41467-019-14108-y> (accessed 31 July 2024).

⁴⁰ See Shahvaroughi F.M., Ghasemi G. 'How artificial intelligence plays a role in achieving sustainable development goals' *Sustainable Economies*. 2024; 2(1): 66. <https://doi.org/10.62617/se.v2i1.66>.

⁴¹ *Ibid.*

As for SDG 4 which deals with education and lifelong learning, AI can personalise learning experiences, provide access to quality education in remote areas, and facilitate continuous learning opportunities for everyone. SDG Five advocates for the achievement of gender equality and empowerment of all women and girls. Moreover, AI can identify and address biases in hiring practices, promote workplace diversity, and ensure equal opportunities for all genders.⁴² In so far as SDG 6 is concerned, AI can play an important role in delivering clean water and sanitation through predictive control and in wastewater treatment process. SDG Seven is about access to clean energy. In that regard, AI can optimise energy consumption, improve grid management, and integrate renewable energy sources, contributing to sustainable energy practices.⁴³

Other specific sustainable development goals include SDG 13 dealing with climate change whereby AI can analyse climate data, predict natural disasters, and offer insights for mitigating environmental impacts, aiding climate change adaptation and mitigation. They also include SDG 11 dealing with sustainable cities whereby AI can optimise urban planning, transportation systems, and resource management, creating more sustainable and liveable cities. According to Jean Barroca, 'By leveraging data-driven insights, AI can revolutionize urban planning and resource management, from predicting trends and managing traffic to planning infrastructure, making cities more resilient and sustainable.'⁴⁴ As for strengthening global partnerships (SDG 17), AI can foster collaboration and partnerships among stakeholders by facilitating data sharing, decision-making processes, and resource allocation to achieve the SDGs.

In the African context, the achievement of the United Nations SDGs must be seen alongside Africa's own Agenda 2063 whose '20 goals are Africa's blueprint and master plan for African transformation into a global powerhouse in the future.'⁴⁵ This is because 'the achievement of the AU Agenda 2063 is closely linked to the achievement of the 17 SDGs.'⁴⁶ Hence the arguments made above for the role of AI in the achievement of the United Nations SDGs apply *mutatis mutandis* to the achievement of the AU Agenda 2063 goals.

5. Policy and regulatory landscape

In view of the foregoing discussion on the human rights implications of AI and the influence of AI on sustainable development, the development and implementation of a robust policy and regulatory landscape for artificial intelligence (AI) in Africa is crucial. Other reasons for a policy and regulatory framework include ethical and responsible use of AI, mitigation of risks, data privacy and security, inclusivity and accessibility, and international collaboration and competitiveness, to mention but a few. In the specific context of sustainable development, it was mentioned earlier that AI has the potential to address many of Africa's development challenges, such as healthcare, agriculture, and education. A policy framework can guide the deployment of AI technologies in a manner that aligns with the UN SDGs, the AU Agenda 2063 goals and national priorities.

Unlike Europe which has already passed continental legislation governing artificial intelligence,⁴⁷ the African continental AI policy and regulatory framework is still in its formative stages. A process driven by the African Union has so far resulted in publishing of the Continental Artificial Intelligence Strategy, which was endorsed by African ICT and Communications Ministers

⁴² See Vivek, R. (2023). Enhancing diversity and reducing bias in recruitment through AI: a review of strategies and challenges. 2023 2(4) *Informatics. Economics. Management*, 103.

⁴³ Ukoba, K. et al. 'Optimizing renewable energy systems through artificial intelligence: Review and future prospects' 2024 *Energy & Environment* 31.

⁴⁴ See ThoughtLab, 'AI: A game-changer for cities' June 24, 2024, at <https://thoughtlabgroup.com/ai-game-changer-for-cities/#:~:text=AI%20has%20the%20power%20to,cities%20more%20resilient%20and%20sustainable> (accessed 7 August 2024).

⁴⁵ Makurumidze, S. et al. 'Leveraging on the fourth industrial revolution by African accountants in the sustenance of SDGs and AU Agenda 2063' 2024 *Sustainable Development* 1.

⁴⁶ *Ibid.* at 3.

⁴⁷ Regulation (EU) 2024/1689 of the European Parliament and of the Council adopted on 13 June 2024, coming into force on 1 August 2024, and becoming effective from 2 August 2026.

in June 2024.⁴⁸ This strategy aims to accelerate digital transformation across Africa by leveraging AI for development and inclusive growth.⁴⁹

At the national level, different countries are at different stages of developing policy and regulatory frameworks, although it must be pointed out that there is still a general dearth of specific and dedicated policy and legislative regulation of AI in almost all African countries. Whereas some countries have led the way in developing some policies, others are ‘In the process of consulting with stakeholders about introducing AI policies [and] ... others ... are yet to propose any guidance on AI regulation.’⁵⁰ As mentioned earlier, the countries chosen for this discussion are Kenya, South Africa, Egypt and Nigeria. The choice of these countries for discussion is based on the different stages they are at in the uptake of AI technology and the development of policy and regulatory frameworks.

5.1. Egypt

Like many, if not all, African countries, Egypt does not have any specific legislation addressing artificial intelligence. Instead, several existing laws have a direct or indirect bearing and play an important role in the regulation of AI. These include the Telecommunication Regulation Law⁵¹ and the Personal Data Protection Law,⁵² both of which indirectly regulate certain aspects of AI. In so far as the specific policy regulation of AI is concerned, Egypt has, through its National Council for Artificial Intelligence (NCAI), developed a National Artificial Intelligence Strategy. The Strategy was developed in recognition of ‘the importance of AI to advance human knowledge and technical capabilities and to encourage the digital transformation in Egypt, both of which are crucial for the country’s development.’⁵³ This strategy focuses on developing skills, technology, ecosystems, infrastructure, and governance mechanisms to ensure the sustainability and competitiveness of the AI sector. Recognizing the pivotal role of AI in advancing human knowledge and technical capabilities, as well as promoting digital transformation, Egypt’s strategy emphasises two main components: the establishment of a specialized AI academy and the utilization of AI for governance and business enterprises driven by data science.⁵⁴

5.2. Kenya

Like Egypt and other African countries, Kenya does not have any legislation specifically regulating artificial intelligence. However, some existing laws have a bearing on the regulation of AI. These include the Data Protection Act⁵⁵ which ‘can be relied on in terms of protection of data processed by AI systems’⁵⁶ Section 35 of the Act defines automated decision making as the ‘ability to make decisions by technological means without human involvement.’ Also relevant is section 35 which explains consumers’ rights to refuse to be subjected to harm caused by automated decisions, and section 30(1) which stipulates that personal data should not be processed without the individual’s consent. Section 31 provides for data protection impact assessment if the processing operations are likely to result in a risk to the rights of the subject.

Kenya is one of those African countries that do not have a National Artificial Intelligence

⁴⁸ See African Union, ‘African Ministers Adopt Landmark Continental Artificial Intelligence Strategy, African Digital Compact to drive Africa’s Development and Inclusive Growth’ 17 June 2024, at <https://au.int/en/pressreleases/20240617/african-ministers-adopt-landmark-continental-artificial-intelligence-strategy> (accessed 8 August 2024).

⁴⁹ Ibid.

⁵⁰ Sulaiman S, Olën D and Bezuidenhout M ‘AI regulation and policy in Africa’, *Data Guidance* May 2024 at <https://www.data-guidance.com/opinion/international-ai-regulation-and-policy-africa> (accessed 8 August 2024).

⁵¹ Law No. 10 of 2003.

⁵² Law No. 151 of 2020.

⁵³ Government of Egypt, ‘Egypt National Artificial Intelligence Strategy’ (2020) at https://mcit.gov.eg/Upcont/Documents/Publications_672021000_Egypt-National-AI-Strategy-English.pdf (accessed 8 August 2024).

⁵⁴ Ibid.

⁵⁵ Number 4 of 2019.

⁵⁶ Akello, J. et al. ‘Policy Brief on Artificial Intelligence in Kenya’ Paradigm Initiative, January 2022, at <https://paradigmhq.org/wp-content/uploads/2022/02/Artificial-Intelligence-in-Kenya-1.pdf> (accessed 9 August 2024).

Strategy. The process of developing one is still under way. For example, this year (2024), Kenya has taken 'steps towards a national AI strategy through the collaboration of the Kenyan Government and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).'⁵⁷ This collaboration is also supported by the German Federal Ministry for Economic Cooperation and Development and the EU.⁵⁸ In all likelihood, Kenya will soon join those few African countries that have a national AI strategy.

5.3. South Africa

South Africa is not different from other African countries in the lack of a dedicated legislative or policy framework specifically aimed at the regulation of artificial intelligence. However, similar to Egypt and Kenya, some existing statutes in South Africa deal with certain aspects of artificial intelligence. These include the Protection of Personal Information Act (POPIA)⁵⁹ which 'does regulate some activities conducted by organisations using AI, by preventing the unlawful processing of personal information.'⁶⁰ They also include the Regulation of Interception of Communications and Provision of Communication-Related Information Act (RICA)⁶¹ and the Electronic Communications and Transactions Act (ECTA).⁶² The former (RICA) prohibits unauthorised interception of communications and the illicit provision of real-time or archived communication-related data and also regulates the application and authorization of directives concerning communication interception and related data.⁶³ It also empowers regulatory and enforcement bodies to identify unlawful mobile phone users and pursue cybercriminals leveraging mobile numbers for illicit activities.⁶⁴ The latter (ECTA) provides for, among other things, 'the facilitation and regulation of electronic communications and transactions ... to prevent abuse of information systems.'⁶⁵ Under the Act, an automated transaction is defined as 'an electronic transaction conducted or performed, in whole or in part, by means of data messages in which the conduct or data messages of one or both parties are not reviewed by a natural person in the ordinary course of such a natural person's business or employment.'⁶⁶

Although, like Kenya, South Africa has not fully developed a national AI Strategy, it has a Digital and Future Skills Strategy which 'addresses the need for mechanisms to foster digital skills development across South Africa ... recognising that digital skills are necessary for economic growth, social development and cultural enrichment across all sectors of our society and economy...'⁶⁷ According to some commentators, 'The drafting of more specific AI regulations and the transformation of existing legislation to accommodate the changing and growing AI environment is becoming an ever more pressing concern for South Africa.'⁶⁸

5.4. Nigeria

Nigeria is not very different from the other countries mentioned above in so far as specific artificial legislation is concerned. There is currently no specific law that directly regulates AI in

⁵⁷ Sulaiman and Bezuidenhout (note 49 above).

⁵⁸ Ibid.

⁵⁹ Act 4 of 2013.

⁶⁰ Boda R., Gunning E, and Ntuli L. 'The EU AI Act Passes: Should South Africa follow suit and regulate Artificial Intelligence?' *ENSight* 19 March 2024, at <https://www.ensafrica.com/news/detail/8261/the-eu-ai-act-passes-should-south-africa-foll> (accessed 9 August 2024).

⁶¹ Act 70 of 2002.

⁶² Act 25 of 2002.

⁶³ Chitumira, H., Ncube, P. 'The Regulation and Use of Artificial Intelligence and 5G Technology to Combat Cybercrime and Financial Crime in South African Banks' 2021 (24) *PER/PELJ*, 15.

⁶⁴ Ibid.

⁶⁵ Long title of the Act.

⁶⁶ Section 1.

⁶⁷ SA Government. (2020). 'National Digital and Future Skills Strategy' at https://www.gov.za/sites/default/files/gcis_document/202009/43730gen513.pdf (accessed 9 August 2024).

⁶⁸ Sulaiman and Bezuidenhout (note 49 above).

Nigeria. However, as with the other countries discussed, there are various laws that do not directly regulate AI but have a direct bearing on its development and use in Nigeria. These include the Cybercrimes (Prohibition, Prevention, etc.) Act (2015), the Nigeria Data Protection Act (2023), the Security and Exchange Commission (SEC) Rules on Robo-Advisory Services, the Federal Competition and Consumer Protection Act (2018), the Copyright Act (2022) and the Nigerian Communication Commission Act (2003).

In so far as a specific policy and regulatory framework are concerned processes are under way to develop AI-specific policies and legislation. In 2022, Nigeria's National Information Technology Development Agency (NITDA) published a draft white paper for the National Artificial Intelligence Policy (NAIP).⁶⁹ This was followed by two updated and expanded versions in 2023. The NITDA has also been running expert workshops on the NAIP to further coordinate a Nigerian strategy for AI.⁷⁰

The foregoing discussion shows that the artificial intelligence policy and regulatory framework in African countries are not quite well developed. Yet such a framework is crucial for the realisation of human rights and sustainable development as it ensures that AI technologies are designed and deployed in ways that uphold human dignity, equity, and justice. Without clear guidelines, AI can exacerbate existing inequalities, infringe on privacy, and lead to discrimination.⁷¹ A well-defined regulatory framework can prevent such risks by promoting transparency, accountability, and ethical standards in AI development and use. Additionally, it can guide the responsible integration of AI into various sectors, driving innovation that aligns with global goals for sustainable development, such as reducing poverty, improving education, and addressing climate change.

6. Cultural and ethical considerations

Cultural and ethical considerations are crucial due to the human rights implications of artificial intelligence, the relationship between AI and sustainable development and the profound impact AI technologies can have on both. This is particularly so in Africa where the countries are beginning to get to grips not only with the challenges of AI but also with the opportunities it can offer. Cultural and ethical considerations are also important because '[t]here is a general belief that socio-cultural and political contexts shape expectations of AI and the challenges and risks it poses'.⁷²

Although none of the 17 UN SDGs focuses exclusively on culture, there are several explicit references to cultural aspects in many of the SDGs and their targets. Culture plays a crucial role in this context. According to Hofstede, 'Culture is the collective programming of the mind that distinguishes the members of one group or category of people from others.'⁷³ Cultures act as vehicles for the dissemination of shared ideas and perspectives, serving as models for communities and providing the cohesion necessary to build societies.⁷⁴ They offer a sense of belonging and a framework within which individuals can develop their identities and roles.

Language is an important aspect of culture. Hence, the marginalisation of African languages in the digital sphere exacerbates this issue, as the data that exists may not adequately capture the richness of African cultures and languages. The scarcity of online examples in these languages makes it difficult to train natural language processing (NLP) programs, a challenge compounded by the dominance of technology developed in the Global North, which tends to marginalise these languages further. According to Marivate, 17% of the world's languages – many of which are spoken in Africa – are considered 'low resource languages' in the digital context, 'i.e. there are insufficient examples of

⁶⁹ Ibid.

⁷⁰ Ibid.

⁷¹ Rodrigues R 'Legal and human rights issues of AI: Gaps, challenges and vulnerabilities' 2020 (4) 100,005.

⁷² Eke, D.O., Wakunuma, K. and Akintoye, S. (eds). (2023). *Responsible AI in Africa: Challenges and Opportunities* (2023) 2.

⁷³ Hofstede, G. Dimensionalizing Cultures: The Hofstede Model in Context. *Online Readings in Psychology and Culture*, 2011 2(1). <https://doi.org/10.9707/2307-0919.1014> (accessed 10 August 2024).

⁷⁴ Jati RP. 'Cultural Identity and Community Media: Empowering the Cultural Community' Guest Lecturer in 'Media and Identity' Seminar (October 2023) at https://www.researchgate.net/publication/374975765_Cultural_Identity_and_Community_Media_Empowering_the_Cultural_Community (accessed 9 August 2024).

use of the languages available online for the purposes of training NLP applications ... [making] these languages ... marginalised by technology deployments, including AI deployments, developed in the Global North.⁷⁵

Besides numerous languages, Africa is home to a wide range of cultures and traditions. AI systems must be culturally sensitive and inclusive, avoiding a one-size-fits-all approach that might marginalise certain communities. The design and implementation of AI technologies should respect and reflect the continent's diverse cultural heritage. In addition, many African communities rely on indigenous knowledge systems that have been developed over centuries. AI should not undermine these systems but instead integrate and respect them. There is a need for AI that supports and enhances local knowledge rather than replacing it with foreign paradigms.

The ethical considerations surrounding artificial intelligence (AI) are inherently dynamic, evolving across different spatial and temporal contexts. This underscores the importance and benefit of incorporating diverse perspectives from across the globe to establish universally applicable ethical standards for AI. Currently, there exists an imbalance that disproportionately favours the viewpoints of the Global North. However, the broad acceptance of AI ethics is contingent upon the active involvement of policymakers, companies, and practitioners who are responsible for creating, utilizing, and acquiring AI technologies.

Furthermore, AI ethics are in a constant state of evolution. It is commendable that inclusive initiatives, such as the Smart Africa AI Blueprint and the UNESCO AI Recommendation consultation processes, are being implemented. These 'have already shown the way that AI ethics only become influential in action, i.e. when they are implemented. The question then is how to translate AI ethics into practice so that values and rights such as privacy, fairness and security are already part of the development process.'⁷⁶ Nevertheless, these initiatives should not be seen as final solutions, given the ever-changing nature of technological capabilities and societal norms. To adapt to these changes, AI ethics must be regularly revisited and refined within a multi-stakeholder framework that draws on real-world experiences. The Global Partnership on AI (GPAI) is one such framework with the potential to evolve into an inclusive platform for this purpose.⁷⁷

The deployment of AI in Africa should align with the protection and promotion of human rights. This includes safeguarding privacy, preventing discrimination, and ensuring that AI does not perpetuate or exacerbate existing inequalities. For example, AI-driven surveillance must be carefully regulated to avoid infringing on civil liberties. Bias and fairness are also important considerations.⁷⁸ Ensuring fairness in AI requires careful consideration of the socio-economic and cultural contexts of Africa, with active efforts to minimise biases in AI algorithms.⁷⁹ Moreover, ethical AI deployment must consider the equitable distribution of AI benefits, ensuring that all communities, including those in remote or underserved areas, have access to AI technologies. This includes addressing gender disparities in AI access and use.⁸⁰

In the specific context of sustainable development, as mentioned earlier, there is no doubt that AI technologies can support Africa's sustainable development goals (SDGs) by optimizing resource use, improving agriculture, and managing natural resources. However, the environmental footprint of AI itself must be considered, especially in regions already vulnerable to climate change.

As mentioned earlier, AI has the potential to drive economic growth by creating new industries

⁷⁵ Gwagwa, A., Kraemer-Mbula, E., Rizk, N., Rutenberg, I., & De Beer, J. « Artificial intelligence (AI) deployments in Africa: Benefits, challenges and policy dimensions » (2020) 26. *The African Journal of Information and Communication (AJIC)* at <https://doi.org/10.23962/10539/30361> (accessed 10 August 2024).

⁷⁶ See Sam AK and Olbrich P. 'The Need for AI Ethics in Higher Education' in Corrigan CC, Jerry J.K. and Asakipaam S. *AI Ethics in Higher Education: Insights from Africa and Beyond* (2023) 6.

⁷⁷ *Ibid.* at 8.

⁷⁸ See Cain D. 'AI in Public Security and Surveillance' (2023) at <https://www.linkedin.com/pulse/ai-security-surveillance-double-edged-sword-david-cain> (accessed 9 August 2024).

⁷⁹ Ferrara, E. 'Fairness and Bias in Artificial Intelligence: A Brief Survey of Sources, Impacts, and Mitigation Strategies' *Sci* 2024, 6(3) at <https://doi.org/10.3390/sci6010003> (accessed 9 August 2024).

⁸⁰ See Stephen M and Patter K. 'The Ethical Implications of Artificial Intelligence in Healthcare' *Artificial Intelligence* January 2024, at https://www.researchgate.net/publication/377661463_The_Ethical_Implications_of_Artificial_Intelligence_in_Healthcare, accessed 9 August 2024.

and job opportunities in Africa. However, it is essential to ensure that this growth is inclusive and does not widen existing inequalities. Education and training in AI-related fields are crucial for building local capacity and ensuring that African populations can actively participate in and benefit from AI-driven economies.⁸¹

7. Recommendations and conclusion

This article has highlighted the profound impact of AI technologies on Africa, underscoring both the opportunities and challenges they present in the context of human rights and sustainable development. It has been seen that while AI holds significant promise for advancing social and economic development in Africa, it also poses considerable risks, particularly in terms of exacerbating existing inequalities, infringing on privacy rights, and perpetuating digital colonialism. The unique challenges faced by African countries in harnessing AI necessitate a careful, context-specific approach that takes into account the continent's diverse cultural and ethical landscape.

Given these considerations, a number of recommendations can be made with a view to guiding African countries in leveraging AI for sustainable development and human rights. Firstly, African countries should prioritise the development and enforcement of robust policy and regulatory frameworks that address the ethical implications of AI.⁸² These frameworks should ensure that AI technologies are used in a manner that respects human rights, protects privacy, and promotes social equity. Collaboration at regional and continental levels, such as through the African Union, can facilitate the harmonization of policies and standards across the continent.

Secondly, it is crucial that a diverse range of stakeholders, including marginalised communities, are involved in the development and deployment of AI technologies. By ensuring that AI systems are designed with the input of those most affected by them, Africa can mitigate the risk of reinforcing existing social inequalities and ensure that the benefits of AI are broadly shared. Thirdly, African countries must invest in education and capacity building to develop a skilled workforce capable of understanding, creating, and managing AI technologies. As stated by Ngiwa and Ngepah, '... investing in training programs and educational opportunities is paramount to empower the workforce with the requisite skills for an AI-driven economy.'⁸³ This includes not only technical skills but also ethical and legal training to ensure that AI is used responsibly and in alignment with local values and human rights.

Fourthly, governments, academic institutions, and private sector entities should foster research and innovation in AI that is tailored to Africa's unique needs and challenges. This includes supporting indigenous knowledge systems and encouraging the development of AI applications that address local issues, such as agriculture, healthcare, and education.

Most importantly, and in the specific context of human rights, African countries can benefit from embedding human rights principles into the regulation of AI. This includes adopting frameworks that explicitly protect these rights within the context of AI development and deployment. In other words, policies and legislation governing AI should incorporate human rights norms and standards. Accordingly, a human rights-based approach (HRBA) is recommended. According to the European Network of National Human Rights Institutions (ENNHRI), 'a human rights-based approach is underpinned by five key human rights principles, namely, participation; accountability and transparency; non-discrimination and equality; empowerment of rights holders; and legality.'⁸⁴ What this means is that human rights principles and institutions should be integrated into AI strategies, policies and legislation. It also means that regulating AI should be done from a human rights

⁸¹ Adams R. 'AI in Africa: Key Concerns and Policy Considerations for the Future of the Continent' *APRI Policy Brief* May 2022, at <https://afripoli.org/ai-in-africa-key-concerns-and-policy-considerations-for-the-future-of-the-continent> (accessed 9 August 2024).

⁸² See Musoni M. 'Looking into the crystal ball: Artificial intelligence policy and regulation in Africa' *ECDPM* 18 September 2023, at <https://ecdpm.org/work/looking-crystal-ball-artificial-intelligence-policy-regulation-africa> (accessed 15 August 2024).

⁸³ Giwa F., Ngepah N. 'Artificial intelligence and skilled employment in South Africa: Exploring key variables' 2024 (8) *Research in Globalisation* 100,231 at <https://doi.org/10.1016/j.resglo.2024.100231> (accessed 15 August 2024).

⁸⁴ ENNHRI 'Human Rights-Based Approach' at <https://ennhri.org/about-nhris/human-rights-based-approach/#:~:text=The%20HRBA%20is%20a%20conceptual,on%20international%20human%20rights%20standards> (accessed 15 August 2024).

perspective.

In the context of sustainable development, a human rights-based approach would fundamentally shift the primary objective of development from an act of charity to a binding obligation to respect, protect, and fulfil human rights. It would achieve this by integrating human rights rules and values into each and every aspect of development, thereby fostering sustainability by empowering individuals, particularly the most marginalised, to actively participate in policymaking and hold those in power accountable. By prioritising the needs of those who are most marginalised, excluded, or discriminated against,⁸⁵ this approach aligns with the objectives of sustainable development.

By implementing these recommendations, African countries can harness the transformative potential of AI while safeguarding human rights and promoting sustainable development. The future of AI and sustainable development in Africa requires a balanced approach that combines technological innovation with ethical considerations, ensuring that AI contributes positively to the continent's development.

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⁸⁵ United Nations Population Fund, 'The Human Rights-Based Approach' <https://www.unfpa.org/human-rights-based-approach>, accessed 15 August 2024.

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