

Centering Intellectual Property in Artificial Intelligence Strategies in Africa Through a Techno-legal Analysis

DO Oriakhogba*

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Author

Desmond Oriakhogba

Affiliation

University of Western Cape,
South Africa

Email

doriakhogba@uwc.ac.za

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Prof Chijioke Okorie
Prof Vukosi Marivate

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Prof Wian Erlank

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Abstract

Policy-makers at the regional and national levels in Africa are formulating strategies to develop and take charge of the regional and national artificial intelligence (AI) ecosystems towards achieving the sustainable development objectives set out in their respective development plans. The African Union has a continental AI strategy, while eleven African countries have developed national AI strategies. Given its significance to AI development in Africa, it is important to reflect on how best intellectual property (IP) should be approached in AI strategies in Africa: should policy-makers develop new IP rules for AI, or revise or simply implement existing IP rules within the AI context? Resolving these questions requires a firm understanding of the key AI- and IP-related issues in the African context examined through a techno-legal lens. Adopting a qualitative methodology by way of policy review, this article unpacks the issues by reviewing existing African regional and national AI strategies. It refers to relevant judicial and policy developments in the United States of America, China, Australia and Europe to draw comparative insights on the research question. The article contends that the resolution of the question of whether new IP rules should be developed for AI, and whether existing IP rules should be revised or simply implemented within the AI context depends on the AI-IP issue in focus. Whatever the case, an approach to IP in AI strategies which is human-centered, development-focused, and equitably balances the promotion of AI innovation by enabling access to quality data with the protection of IP rights while also securing just reward for creators, innovators and indigenous communities will position Africa to more effectively leverage AI towards national and regional development.

Keywords

Artificial intelligence; techno-legal analysis; AI strategy; intellectual property; traditional knowledge; Africa.

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1 Introduction

Okorie's lead article in this special issue offers in-depth discussion of a techno-legal approach to the governance and regulation of artificial intelligence (AI) in Africa. In the context of this article, however, techno-legal analysis offers a useful basis for X-raying the intersection of the development of AI technology and intellectual property (IP) regimes and centering IP within the emerging AI strategy landscape in Africa as discussed below.

Specifically, techno-legal analysis is increasingly gaining significance given the continuous and rapid advancement of technology and the corresponding legal concerns thrown up in its wake. Combining legal and technical expertise, techno-legal analysis involves the examination of the implications and consequences of innovation and technological development on law, and vice-versa. In this regard the analysis seeks to determine how existing laws should apply to new, emerging and disruptive innovation and technology, such as AI, and/or whether such laws need to be revised, updated or reinterpreted to resolve the emerging legal issues. Techno-legal analysis finds relevance in different areas, including IP, e-commerce and digital trade, cybersecurity, e-health and data privacy.¹

Given the significance of IP to the development of AI innovation and technology, especially when viewed through a techno-legal lens, it is important to reflect on how IP should be approached in African AI strategies. In this regard it is important to examine the IP issues arising within the AI context from an African perspective. This will ultimately lead to determining whether policy-makers in Africa should develop new IP rules for AI, revise the existing IP rules or simply implement them to guide their strategic plans within the AI context. In this regard it should be noted that AI has been defined from different perspectives, including as a field of research or as a disruptive technology with human-mimicry capabilities, based on the stage of its development.² To be clear, this article views AI as a set of generative AI systems that rely on digital data for their training through techniques such as machine learning and neural networks to develop the capacity to perform

* Desmond Osaretin Oriakhogba. PhD (UCT), LLM, LLB (UNIBEN). Associate Professor, Department of Private Law, Faculty of Law, University of the Western Cape, South Africa. E-mail: doriakhogba@uwc.ac.za. ORCID: <https://orcid.org/0000-0003-3078-4320>. I acknowledge the research assistance of Obinna Victor Chukwuma, doctoral candidate, University of the Western Cape, South Africa.

¹ See generally Cordella and Gualdi 2025 *Government Information Quarterly*; Hung 2024 *SJTEIL*; Kurtz *et al* 2022 *Journal of Responsible Technology*; Gualdi and Cordella "Techno-legal Entanglements"; Casanovas 2010 *EJLS*.

² Ncube *et al* "Setting out the Challenges" 1-2; Mtuze and Morige 2024 *Obiter*.

tasks that simulate human intelligence, including learning through experience, and producing innovative and creative outputs.

AI innovation and development rely on the availability of and access to quality data. Thus, AI systems are as good as the quality of the data upon which they are trained. Data quality in turn depends on access to and the availability of data,³ which can largely be impacted by existing IP regime(s). By design the data relied upon for the training of AI systems emanate from three sources: (a) data not eligible for IP protection; (b) data eligible for IP protection, but subject to limitations and exceptions (L&Es); and (c) data falling squarely outside IP protection.⁴ Learning through available data sources, AI systems are increasingly producing creative and innovative outputs resulting in continuous contestations around the possibility of embracing AI innovation within IP governance mechanisms, as discussed in part 3 below. This underscores the importance of IP – as an innovation governance regime – within the AI ecosystem, with the implication that for any AI strategy to be effective, it should include objectives that speak to AI- and IP-related issues.

The benefits and challenges of AI in Africa continue to come under focus in the literature,⁵ and are fueling the emergence of the African AI strategy landscape. Regional and national governments in Africa are already formulating strategies towards developing and taking charge of their AI ecosystems in order to harness the benefits of AI, while addressing its associated risks. At the time of this research, a regional continental AI strategy has been adopted.⁶ National AI strategies have been developed and adopted in some countries.⁷ Others are in the planning and public consultation phase.⁸ Some countries include AI plans within their information and communication technology (ICT), digital or fourth industrial

³ Hlomani "Deregulate and Regulate" 89-109.

⁴ Dermawan and Mezei "Emotional AI".

⁵ For instance, Azaroual 2024 https://www.policycenter.ma/sites/default/files/2024-09/PB_23_24%20%28Azeroual%29%20%28EN%29.pdf; Eke, Wakunuma and Akintoye *Responsible AI in Africa*.

⁶ See AU 2024 <https://au.int/en/documents/20240809/continental-artificial-intelligence-strategy>.

⁷ Mauritius, Rwanda, Tanzania, Nigeria, Ethiopia, Ghana, Senegal, Republic of Benin, Egypt, Zambia, Kenya, and Tunisia. See AI Policy Lab date unknown <https://www.aipolicy.africa/national-strategies>.

⁸ For instance, Morocco and South Africa. South Africa's initiatives towards a national AI strategy are guided by the following: DCDT 2023 <https://www.gov.za/af/node/802064>; DCDT 2024 https://www.dcdt.gov.za/images/phocadownload/AI_Government_Summit/National_AI_Government_Summit_Discussion_Document.pdf; DCDT 2024 <https://fwblaw.co.za/wp-content/uploads/2024/10/South-Africa-National-AI-Policy-Framework-1.pdf>.

revolution (4IR), and/or big data strategies.⁹ There are also regional and sub-regional resolutions and statements on AI.¹⁰

This article deploys a qualitative methodology by way of policy review to comparatively analyse AI strategies in Africa and other relevant sources and unpack the above issues. The article focuses specifically on AI strategies adopted by the African Union (AU) at the regional level, and those of Nigeria, Ghana, Kenya, Tanzania, Mauritius, Zambia and Egypt at the national level. The national AI strategies of Benin, Senegal, Rwanda, Tunisia and Ethiopia are excluded from the discussion. The Beninese strategy merely acknowledged AI as a tool for analysing databases for patent searches,¹¹ while Rwanda and Ethiopia do not mention IP. Senegal's and Tunisia's are not publicly available at the time of the research.

The article has five parts, including the introduction. The second part overviews the selected strategies with particular focus on the IP objectives. Based on the techno-legal approach discussed above, the third part considers the impact of AI on IP by examining the AI- and IP-related issues from an African perspective. In this regard it draws from emerging judicial and policy developments from jurisdictions such as USA, China, Australia and Europe (United Kingdom, Germany and the European Patent Office [EPO]) to shed light on the IP issues emerging in the AI space. The policy-makers and courts in these countries are busy addressing some key AI-IP issues and they have common (UK, USA, Australia) and civil (China and Germany) law traditions similar to those of the African countries in focus. The fourth part resolves the research questions set out above. The fifth part concludes with a summary of the recommended approaches to the AI-IP issues.

⁹ For instance, Uganda. See Ministry of ICT and National Guidance date unknown <https://ict.go.ug/wp-https://ict.go.ug/site/documents/Executive-Summary-Ugandas-National-4IR-Strategy.pdf>; Ministry of ICT and National Guidance 2023 <https://dig.watch/resource/digital-transformation-roadmap-for-2023-2024-2027-2028>.

¹⁰ ACHPR *Resolution on the Need to Undertake a Study on Human and Peoples' Rights and Artificial Intelligence (AI), Robotics and Other New and Emerging Technologies in Africa* AU Doc ACHPR/Res 473 (EXT.OS/ XXXI) 2021 (2021); UNESCO 2022 <https://unesdoc.unesco.org/ark:/48223/pf0000383197>; UNESCO 2024 <https://unesdoc.unesco.org/ark:/48223/pf0000390381>; ECOWAS 2024 <https://article36.org/wp-content/uploads/2024/04/Freetown-Communique-18-April-2024-English.pdf>.

¹¹ Ministry of Digital Affairs and Digitalization 2023 <https://numerique.gouv.bj/assets/documents/national-artificial-intelligence-and-big-data-strategy-1682673348.pdf>.

2 Overview of AI policies in Africa

2.1 Regional AI policy

The AU White Paper on AI (White Paper),¹² and the Continental AI Strategy (CAIS)¹³ are the two documents that exist at the regional level. The CAIS was adopted at the 45th Ordinary Session of the AU Executive Council in July 2024, while nothing seems to have been done about the White Paper since its publication earlier in 2024. The CAIS does not refer to the White Paper. This article relies mainly on the CAIS and makes reference to the White Paper only where necessary.

AI systems are viewed as digital tools that offer both benefits and risks to the continent,¹⁴ and the CAIS was adopted to harness the benefits of AI while addressing its associated risks, and to move towards achieving the strategic objectives articulated in the AU Agenda 2063 and the United Nations Sustainable Development Goals (SDGs).¹⁵ The CAIS is designed to ensure a people-centric, development-oriented and inclusive approach towards (a) harnessing AI's benefits for African people, institutions, the private sector and countries in line with Agenda 2063; (b) addressing the risks associated with the increasing use of AI, with attention to inclusion and diversity, information integrity, and sustainable environment and ecosystem, among other matters, while considering African contexts, cultures, and values; (c) accelerating African countries' capabilities in digital and energy infrastructure, AI talent and skills, datasets, innovation and research that underpin AI development; (d) fostering regional and international cooperation and partnerships to develop national and regional AI capabilities and advance Africa's position on a global stage; and (e) stimulating public and private investment in AI at the national and regional levels.¹⁶ To these ends the CAIS sets out fifteen action items including the establishment of an appropriate AI governance system and regulations at regional and national levels; the acceleration of the adoption of AI in the core sectors of agriculture, education, health, culture, climate change and adaptation; the creation of an enabling environment for a vibrant and inclusive AI startup ecosystem; ensuring the availability of high-quality and diverse datasets for AI; the promotion of research and innovation in AI through partnerships between academia and the private and public sectors;

¹² AU 2024 <https://dig.watch/resource/auda-nepad-white-paper-regulation-and-responsible-adoption-of-ai-in-africa-towards-achievement-of-au-agenda-2063> (the White Paper).

¹³ AU 2024 <https://au.int/en/documents/20240809/continental-artificial-intelligence-strategy> (the Continental AI Strategy / CAIS).

¹⁴ AUDA-NEPAD 2021 <https://www.nepad.org/publication/ai-africa-artificial-intelligence-africas-socio-economic-development>.

¹⁵ The CAIS 3-4.

¹⁶ The CAIS 3-4.

and the adoption and implementation of ethical principles for AI that ensure, among other things, respect for IP rights.¹⁷

The CAIS conceives IP as both an enabling and a risk factor within the AI ecosystem. As a risk factor it acknowledges the appropriation and use of digital data by generative AI as a structural risk to IP rights. It also recognises the risks of appropriation and misrepresentation, as well as marginalisation, that AI systems portend for traditional knowledge (TK) and the indigenous communities owning such knowledge respectively.¹⁸ As an enabler, the CAIS recognises the importance of a conducive IP regime for access to quality data and for the development of a vibrant, inclusive and diverse AI start-up and enterprise ecosystem in Africa.¹⁹ Thus, it proposes the development of a toolkit on IP for African AI start-ups and the harmonisation of IP laws in order to attract and retain enterprise and talents, while promoting market access to "development-oriented AI solutions" on the continent.²⁰

Overall the CAIS acknowledges the adoption of a balanced approach to IP law making as the more effective way to address AI risks to IP and TK, to promote AI innovation, and to incentivise private investment in AI research and development (R&D) on the continent. In this regard it calls for the enactment and complete implementation of IP laws as a key step towards governing and laying a strong foundation for the just and responsible development and deployment of AI in Africa; and urges African policy makers to reflect on whether IP laws can be amended to safeguard AI-associated risks.²¹ Similarly, the White Paper recognises the need for "a well-coordinated [IP] regulatory system in Africa's AI-enabling environment" to serve as a catalyst for innovation, protect valuable assets, support the establishment of start-ups, foster healthy competition, and facilitate knowledge sharing.²² These objectives accord with the goal of the AU Digital Transformation Strategy, which centres on the development of a comprehensive, up-to-date, flexible, and incentive-based legal framework as a means of building inclusive digital skills and human capacity in emerging digital technologies, including AI.²³

The balanced approach envisaged by the CAIS aligns with the regional "legislation" of a harmonised IP system under the *Agreement Establishing the African Continental Free Trade Area* of 2018 (*AfCFTA Agreement*).²⁴

¹⁷ The CAIS 4-5.

¹⁸ The CAIS 26.

¹⁹ The CAIS 43.

²⁰ The CAIS 44.

²¹ The CAIS 32.

²² The White Paper 127.

²³ AU 2020 <https://au.int/sites/default/files/documents/38507-doc-dts-english.pdf>.

²⁴ *Agreement Establishing the African Continental Free Trade Area* (2018).

Articles 4 and 7 of the *AfCFTA Agreement* commit member states to cooperate on IP rights and to develop a protocol for that purpose. Consequently, the *Protocol on IP Rights to the AfCFTA Agreement* was adopted in February 2023²⁵ to enable the promotion of African innovation and creativity and the deepening of IP culture on the continent; the establishment of a harmonised IP protection system in Africa; the promotion of science, industrialisation, investment, digital trade, technology, technology transfer and regional value chains; and support for and the promotion of creative and cultural industries by setting up a legal framework while securing and giving incentives that would help in their development; and contributing to access to knowledge.²⁶ The Protocol makes broad provisions relating to the protection of specific IP rights including patent, copyright, and TK (*lato sensu*). The protocol also makes broad provisions relating to emerging technologies such as AI. It obliges member states to adopt measures that will protect and promote access to and the use of new and emerging technologies through existing categories of IP rights or sui generis systems to facilitate trade under the *AfCFTA Agreement*. Member states are then enjoined to develop annexes to cover the specifics with regard to the protection of IP rights and emerging technologies.²⁷ At the time of this research, annexes were being developed and negotiated.

The balanced approach to IP regulation for AI adopted by the CAIS could serve as a good model for thinking about IP in national AI strategies in Africa. However, to be effective the approach must be guided by a well-thought-out policy which must itself be grounded on an understanding of the key IP issues arising within the AI space. This would assist policy makers at the regional level to decide whether or not there is a need to revise existing IP rules or develop new ones to govern AI. Part 3 below examines the IP issues.

2.2 National AI policies

Pillar 7 of the Nigerian National Digital Economy Policy and Strategy 2020-2030²⁸ recognises AI as an emerging technology that can help build Nigeria's digital economy towards achieving the SDGs in the areas of poverty eradication, health, education, reduction of inequality, industry, and innovation and infrastructure, among others. To ensure this, the Nigerian

²⁵ *Protocol to the Agreement Establishing the African Continental Free Trade Area on Intellectual Property Rights* (2023) (the *IPR Protocol*).

²⁶ Article 3 of the *IPR Protocol*.

²⁷ Articles 8-20 of the *IPR Protocol*.

²⁸ Ministry of Communications and Digital Economy 2019 <https://dig.watch/resource/nigerias-national-digital-economy-policy-and-strategy-2020-2030>.

National AI Strategy (NAIS),²⁹ which was released in August 2024, was developed to provide a comprehensive roadmap and guiding framework that would enable Nigeria to harness the "rapidly evolving technological landscape and socio-economic trends, chart its distinctive course and develop a tailored approach to optimise the benefits of AI for the betterment of society".³⁰ Adopting a proactive approach, the framers of the NAIS formulated it in such a manner as to allow Nigeria to deploy AI for the attainment of the SDGs and the enhancement of citizens' welfare "through an intentional application of AI to drive meaningful improvements in critical sectors such as healthcare, education, and agriculture, ultimately leading to better outcomes, increased efficiency, and improved citizen experience".³¹

Thus, like the CAIS the NAIS is people-centred and development-focussed. Although the NAIS focuses on sectors that are largely impacted by IP, it merely recognises the application of IP laws to "inventions and creative works like algorithms and AI models" as "critical to promoting innovation and protecting the [IP] rights of developers".³² The NAIS appears to focus on the IP issues stemming from the AI-output side (discussed in part 3). However, there is no indication of whether the revision of existing IP laws or the enactment of new rules is necessary to govern AI innovation, especially where the inventions and creative works are AI-generated. Nevertheless, by referring to the promotion of innovation and IP protection, the NAIS seems to follow the balanced approach of the CAIS. This reasoning is based on a combined reading of the reference in the NAIS to existing IP, such as copyright and patent legislation in Nigeria.³³ For instance, the *Copyright Act, 2022* (which repealed the *Copyright Act, Cap C28, Laws of the Federation of Nigeria, 2004* referred to in the NAIS) was enacted to equitably balance the protection of the rights of authors and ensure that they receive just reward and recognition for their intellectual efforts with the provision of appropriate L&Es to guarantee access to creative works.³⁴ The Act provides a bouquet of exclusive rights and openness-and-flexibility-promoting L&Es,³⁵ which can promote AI innovation while ensuring the protection of creators' rights.

Ghana's national AI strategy (GNAIS) focuses on health, agriculture, the environment and the promotion of a circular economy, land and natural

²⁹ NCAIR and NITDA 2024 https://ncair.nitda.gov.ng/wp-content/uploads/2024/08/National-AI-Strategy_01082024-copy.pdf (NAIS).

³⁰ NAIS 9.

³¹ NAIS 9.

³² NAIS 16.

³³ NAIS 16.

³⁴ Section 1 of the *Nigerian Copyright Act, 2022*.

³⁵ See Oriakhogba and Olubiyi *Intellectual Property Law in Nigeria* 164-274.

resources, transportation, financial services and public administration.³⁶ It was developed in 2022 with the goal of leveraging AI to accelerate the attainment of Ghana's economic and sustainable development objectives. With 2033 as the cut-off date, the GNAIS envisions AI as playing a pivotal role in improving the potential of government, businesses and people to contribute to the attainment of inclusive social and economic transformation, and an enhanced quality of life in Ghana; ensuring capacity building and enabling an environment that will position Ghana as an AI hub in Africa and enhance its competitiveness in the global digital economy.³⁷ The strategy stands on eight pillars, namely: (1) the expansion of AI education and training; (2) the empowerment of the young to enable them to obtain AI jobs in the future; (3) the deepening of digital infrastructure and inclusion; (4) the facilitation of data access and governance; (5) the coordination of a robust AI ecosystem and community; (6) the acceleration of AI adoption across key sectors; (7) investment in applied AI research; and (8) the promotion of the adoption of AI in the public sector.³⁸ Adopting a one-sided-protectionist approach, the GNAIS conceptualises IP protection as an enabler in the AI ecosystem. It proposes a review and clarification of IP laws as a means of building pillar 6. This requires the IP community in Ghana, including the Registrar of Companies, to support IP and protect innovators' rights in order to encourage investment in R&D by tech start-ups and companies.³⁹

Adopted in November 2018, the Mauritius AI Strategy (MAIS) hinges on the belief that AI can partly address the economic, social and financial challenges facing the country in the key sectors of health, agriculture, the blue economy, green energy, fintech and road traffic management systems.⁴⁰ It then proposes a two-phased approach: short term, which includes the identification of priority projects that are AI-enabled in the various sectors of the economy, the attraction and building of skills for efficient and effective adoption, and the provision of incentives to speed the implementation and adoption of AI for improved public services; and middle-to-long term, which focusses on scaling up AI to become a new pillar to sustain national growth and economic development.⁴¹ To this end the MAIS recognises the existence of an eight-year tax exemption for companies established on 1 July 2017 that are "involved in innovation-driving activities for [IP] assets" developed in Mauritius, and the IP Promotion Scheme

³⁶ Ministry of Communications and Digitalisation 2020 <https://www.aipolicy.africa/national-strategies/32da1df4-973e-49c8-95fa-ab41c132515c> (GNAIS).

³⁷ GNAIS 5.

³⁸ GNAIS 6.

³⁹ GNAIS 22, 36.

⁴⁰ Working Group on Artificial Intelligence 2018 <https://ncb.govmu.org/ncb/strategicplans/MauritiusAIStrategy2018.pdf> (MAIS) 3, 4.

⁴¹ MAIS 3, 4.

(IPPS) operated by the Mauritius Research Council and Industrial Property Office. The IPPS helps individuals, enterprises, industry and R&D institutions to make use of Mauritian IP system for the protection of innovation.⁴² Thus, while recognising IP protection as a means of guaranteeing long-term revenues from the R&D projects undertaken by knowledge-based industries in Mauritius,⁴³ the MAIS advocates the speedy adoption of the then Industrial Property Bill (now the *Industrial Property Act*, 2019) and relevant international IP instruments such as the *Patent Cooperation Treaty*, 1970 (PCT). By implication, the MAIS conceives IP as an incentivisation and enabling tool to attract foreign investment in Mauritius by tech companies and the development of local entrepreneurship in emerging technologies. Thus, it adopts a one-sided approach by placing emphasis on the protection of IP rights and assets, and does not indicate plans around how IP can be leveraged to access data and promote AI innovation.

Adopted in March 2025, the Kenya AI Strategy 2025-2030 (KAIS)⁴⁴ is framed on the vision of positioning the country as a leader in AI innovation, research and application in Africa and harnessing AI to drive economic growth, sustainable development and social inclusion in the country. The AI strategy aims, among other things, to drive the development of cutting-edge localised AI models and solutions through thriving local AI research and innovation. The number of AI patents, trademarks and copyrights registered in Kenya is recognised as a key performance indicator for the AI research and innovation objective of KAIS.⁴⁵ The KAIS further aims to establish a robust governance framework for AI that will enhance the adoption and use of AI in key sectors such as agriculture, security, healthcare, education and public service delivery, and foster the growth of local AI ecosystems.⁴⁶ The strategy is based on three pillars, which include AI research and innovation, and four enablers, including the development of a governance structure that "focuses on harnessing and deepening the legal and regulatory framework to guide AI deployment" in Kenya.⁴⁷ In this regard the KAIS acknowledges that the existing IP regimes in Kenya can offer some guidance for the regulation of AI, but notes that the IP regimes, along with other legal mechanisms such as the data protection and cybercrime laws, offer a fragmented framework that is not sufficient to address the AI complexities

⁴² MAIS 19-20.

⁴³ MAIS 21, 22, 46, 67.

⁴⁴ Ministry of Information, Communications and the Digital Economy 2025 <https://www.ict.go.ke/sites/default/files/2025-03/Kenya%20AI%20Strategy%202025%20-%202030> (KAIS).

⁴⁵ KAIS 59.

⁴⁶ KAIS 4.

⁴⁷ KAIS 4.

in Kenya.⁴⁸ The KAIS, therefore, envisages the development of a specific governance and regulatory framework suitable for the AI context.

The Zambian National AI Strategy 2024-2026 (ZNAIS) was launched in November 2024.⁴⁹ Recognising AI as a transformative tool, the ZNAIS aims to provide a progressive framework that will deploy AI to accelerate economic growth, enhance public services and improve the quality of life and wellbeing of Zambian citizens; and to position Zambia as a regional leader in AI for development with a focus on the key areas of agriculture, healthcare, mining, education, finance and public services.⁵⁰ The ZNAIS was developed to align with Zambia's 8th National Development Plan.⁵¹ The National Development Plan has been reviewed through an IP lens elsewhere.⁵² The ZNAIS views IP from an enablement perspective, while adopting a protectionist approach to IP, like the MAIS. Thus the ZNAIS recognises the gradual development of IP laws and policy as an opportunity to develop a governance and regulatory framework for AI in Zambia. The development of mechanisms that will uphold IP rights, protect AI innovation and encourage investment in AI development is regarded by the ZNAIS as a policy and regulatory objective that the government should pursue.⁵³

Tanzania released its Draft Strategy for the Responsible Use of AI in April 2024 (TNAIS).⁵⁴ The TNAIS recognises IP, especially the issues around ownership of copyright in AI-created content, as one of the legal issues that needs to be addressed in order to ensure the responsible use of AI in the country.⁵⁵ It also acknowledges the use of AI to promote IP insights.⁵⁶ Furthermore, the TNAIS acknowledges the need for AI systems to be deployed for the automated detection and prevention of copyright infringement in the Tanzanian media and entertainment industry. The government believes that this will contribute to the effective protection of IP, the promotion of "fair compensation and fostering a conducive environment for creativity and innovation within the industry".⁵⁷ In this regard it

⁴⁸ KAIS 38.

⁴⁹ See Ministry of Technology and Science 2024 <https://www.mots.gov.zm/?p=4492> (ZNAIS).

⁵⁰ ZNAIS xvii.

⁵¹ Ministry of Finance and National Planning 2022 <https://www.sh.gov.zm/wp-content/uploads/2022/09/EIGHTH-NATIONAL-DEVELOPMENT-PLAN-2022-2026-05-07-2022.pdf>.

⁵² Oriakhogba and Ndlovu "Copyright, Access to Knowledge and SDG 4" 142-174.

⁵³ ZNAIS 18, 27.

⁵⁴ Ministry of Information, Communications and Information Technology 2024 <https://www.scribd.com/document/870487808/Draft-Tanzania-AI-Strategy-1747414062> (TNAIS).

⁵⁵ TNAIS 10.

⁵⁶ TNAIS 83.

⁵⁷ TNAIS 73-74.

acknowledges inadequate public awareness about IP and its protection as a weakness that the government should address.⁵⁸

Built on four pillars, namely: AI for government, AI for development, capacity building and international activities, the first edition of Egypt's National AI Strategy (ENAIIS) released in 2021 was developed (a) to enable the country to exploit AI technologies for the attainment of the SDGs for the benefit of all Egyptians in the key sectors of health, manufacturing and smart infrastructure, agriculture, water management and the environment, among other matters; (b) to establish Egypt as an active international player and position the country to lead the facilitation of cooperation within African and Arab regions on AI; and (c) to create an AI Industry in Egypt, including the development of skills, technology, an ecosystem, infrastructure, and governance mechanisms to ensure the sustainability and competitiveness of AI in Egypt.⁵⁹ Despite recognising poor awareness of IP as a weakness in Egypt,⁶⁰ the ENAIIS positions IP law and policy as a key governance tool that will enable the development of AI in the country. In this regard it tasks the National Council on AI, established in 2019, to communicate and coordinate with appropriate government bodies to issue legislation and regulations on IP rights and patent law.⁶¹

Building upon the foregoing, the second edition of ENAIIS,⁶² released in 2025, acknowledges an increase in the knowledge of IP protection and its impact on the advancement of AI technology in the country.⁶³ It also recognises the existing IP law as a supporting regime for AI governance, pending the completion of a national AI law.⁶⁴ As part of its implementation plan to guarantee the healthy growth of AI and benefit Egyptian civilisation, the Egyptian government is working towards introducing a patent licensing system that will enable AI to promote innovation and safeguard IP rights in the field of AI. The plan is informed by the government's aim to "give AI innovators a simple, clear way to apply for patents and obtain licences so that their creations are legally protected".⁶⁵

Also, the government seeks to collaborate with academia, industry and the public to produce high-quality national Arabic datasets that will improve

⁵⁸ TNAIS 58.

⁵⁹ National Council for Artificial Intelligence 2021 https://mcit.gov.eg/Upcont/Documents/Publications_572021000_Egypt_Nation_%20Artificial_Intelligence_Strategy_05072021.pdf (ENAIIS) 5-6.

⁶⁰ ENAIIS 22.

⁶¹ ENAIIS 47.

⁶² National Council for Artificial Intelligence 2025 <https://ai.gov.eg/SynchedFiles/en/Resources/AIstrategy%20English%2016-1-2025-1.pdf> (ENAIIS 2nd ed).

⁶³ ENAIIS 2nd ed 55.

⁶⁴ ENAIIS 2nd ed 18.

⁶⁵ ENAIIS 2nd ed 55.

machine learning applications and AI performance in the country with the overall goal of strengthening Egypt's position in the global digital economy.⁶⁶ In this regard the government intends to implement IP management and licensing systems that will ensure the legitimate use of data through the disclosure of the source and ownership of such data by the government and relevant entities.⁶⁷ The government believes that this can be made possible through the deployment of open licences, such as Creative Commons⁶⁸ and GNU General Public licences,⁶⁹ that ensure extensive data sharing and reuse, while protecting the rights of data suppliers.⁷⁰ However, it will be interesting to see plans by the government to develop licensing tools that address the specific nuance of data creation in Egypt, especially in relation to the Arabic datasets, or rely on licensing tools developed by Africans for Africa, such as the recently developed NOODL licence.⁷¹ That being said, the government seeks to obtain a competitive advantage in the global science and technology landscape by developing a solid IPRs protection regime, and promoting technology transfer through the creation of a specialised technology transfer body that will "provide technology assessment, trade, advising, and other services".⁷²

Thus, like its Nigerian counterpart, ENAIS adopts a balanced approach. It recognises the need to put plans in place to promote IP protection, while acknowledging the need to deploy IP management and open licensing systems that will promote data sharing, access, reuse and technology transfer for the promotion of local AI technology development.

3 IP issues in the AI context

The development and use of AI systems for innovation and creativity continue to throw up controversies around the coverage and scope of IP protection, and shake the foundational principles of IP: incentivisation of human labour and promotion of societal welfare through access to innovation. Although the AI-IP issues can arise in relation to the different types of IP, patent and copyright appear mostly impacted from the bifocal points of AI training and use: the input and output sides.⁷³ Specific questions are raised on the AI-input side as to whether AI-generated inventions and works are protectable by IP, whether the training of AI systems can be regarded as infringing on IP, and whether there is a need for the

⁶⁶ ENAIS 2nd ed 59.

⁶⁷ ENAIS 2nd ed 59.

⁶⁸ Creative Commons date unknown <https://creativecommons.org/share-your-work/>.

⁶⁹ GNU Operating System 2007 <https://www.gnu.org/licenses/gpl-3.0.en.html>.

⁷⁰ ENAIS 2nd ed 59.

⁷¹ Okorie and Omino 2025 *Law, Technology and Humans*.

⁷² ENAIS 2nd ed 75.

⁷³ See Gervais 2023 <https://copyrightblog.kluweriplaw.com/2023/09/11/checklist-of-issues-on-generative-ip/>.

remuneration and/or attribution of IP creators/owners.⁷⁴ On the AI-output side, questions around the ownership, inventorship and authorship of AI-generated inventions and works continue to emerge.⁷⁵ There are also development-oriented questions around the impact of AI on TK systems in Africa.⁷⁶

3.1 *AI and traditional-knowledge-based data*

AI technology is useful to enhance human efforts in respect of IP management, enforcement and quality assurance, as well as access to and the analysis of IP records and databases, especially for the purpose of biopiracy detection.⁷⁷ While Africa can harness these opportunities through policy initiatives that would enhance skills-building in the area of AI research and digital infrastructure development, the emerging capability of AI systems to enhance the exploitation and appropriation of the rich genetic resources and TK (*lato sensu*) on the continent should be of greater concern to policy makers.

Added to the risk of cultural appropriation that AI portends for expressions of folklore in Africa, as copiously discussed elsewhere,⁷⁸ large biotechnology corporations are beginning to deploy AI systems to access genetic materials and develop products based on digital sequence information (DSI),⁷⁹ "which refers to the process through which the DNA of genetic materials is decoded and digitally stored in databases accessible potentially everywhere".⁸⁰ This development, which appears unstoppable given the potency of AI technology, may be regarded as a way of ensuring the sustainable conservation of genetic resources in line with the UN *Convention on Biological Diversity*, 1992.⁸¹ However, without a mechanism in place that ensures a partnership-and-cooperation-based approach to access genetic resources and related TK-based data and promote benefit

⁷⁴ Ncube 2024 *JIPLP* 718.

⁷⁵ Mukwevho and Oriakhogba 2024 *SA Merc LJ* 41-58; Okorie "Beyond Intellectual Property Protection" 153-174; Oriakhogba 2021 *Bus L Rev* 89-99.

⁷⁶ Dugeri 2024 *JIPIT* 17-67; Wairegi and Omimo "Just Because You Can" 189-203.

⁷⁷ Ndlovu 2021 *PELJ* 1-38; Lu *et al* "Nanomaterials and Artificial Intelligence" 361-398; Vowinckel and Hähnke 2023 *World Patent Information*; Forestal 2023 *World Patent Information*.

⁷⁸ Dugeri 2024 *JIPIT*; Nwafor 2025 *Communicatio* 88-104; Agostinelli *et al* 2023 <https://arxiv.org/pdf/2301.11325>.

⁷⁹ Vince, Gowers and McGibbon 2024 *GEN Biotechnology* 220-227.

⁸⁰ Dal Monico 2024 <http://opiniojuris.org/2024/01/03/a-new-horizon-in-biopiracy-trends-preliminary-considerations-on-digital-sequence-information-on-genetic-resources/>. Also see Scholtz *et al* 2022 *Nature Communications*.

⁸¹ Dal Monico 2024 <http://opiniojuris.org/2024/01/03/a-new-horizon-in-biopiracy-trends-preliminary-considerations-on-digital-sequence-information-on-genetic-resources/>; Silvestro *et al* 2022 *Nature Sustainability* 415-424; GPAI 2022 <https://gpai.ai/projects/responsible-ai/environment/biodiversity-and-AI-opportunities-recommendations-for-action.pdf>.

sharing with the indigenous communities owning the data,⁸² such practices can be regarded as digital biopiracy, or worse still, digital colonialism or technocolonialism – as Madianou puts it –⁸³ given its resemblance to the colonial practice of natural resources extraction (being) experienced in Africa.

Digital biopiracy is the development in biotechnology that involves the use of sequencing technology and gene synthesis to perpetrate biopiracy, which enables biotechnology companies to escape entering into access and benefit sharing agreements with indigenous communities. Digital biopiracy promotes the stealing of both the physical genetic materials and the related TK-based data. Through digital piracy biotechnology companies "can obtain [TK] through publications, interviews, or other means and then undermine indigenous peoples' control over the physical genetic resource by deriving genetic information and recreating key genes from DSI instead of signing an access agreement".⁸⁴ Given its roots in colonialism,⁸⁵ digital biopiracy can be regarded as digital colonialism, which scholars have described as "a modern-day 'Scramble for Africa'".⁸⁶ According to Coleman, digital colonialism refers to the current practice "where largescale tech companies extract, analyse, and own user data for profit and market influence with nominal benefit to the data source".⁸⁷

Relying on their sophisticated AI technology, large biotechnology companies can continue to access and appropriate untapped TK-based data on the continent to the detriment of indigenous communities. To stem this tide, therefore, there is an urgent need for policy makers to reflect on how best to govern the use of AI in order to protect and preserve Africa's rich biodiversity and related TK. Part 4 below discusses this further.

⁸² See Dal Monico 2024 <http://opiniojuris.org/2024/01/03/a-new-horizon-in-biopiracy-trends-preliminary-considerations-on-digital-sequence-information-on-genetic-resources/>; Silvestro *et al* 2022 *Nature Sustainability* 415-424; GPAI 2022 <https://gpai.ai/projects/responsible-ai/environment/biodiversity-and-AI-opportunities-recommendations-for-action.pdf>; Scholtz *et al* 2022 *Nature Communications*.

⁸³ Madianou *Technocolonialism*. Also see Upreti 2025 *IIC* 1059-1063.

⁸⁴ Asociación ANDES 2020 <https://acbio.org.za/wp-content/uploads/2022/04/andeanafarmers-condemn-biopiracy-and-digital-sequence-information-gm-potatoes-and-centres.pdf> 6. Also see Ramakrishnan 2024 <https://cbd-alliance.org/en/2024/africa-calls-penny-biodiversity-micro-investment-end-digital-biopiracy>; Bond and Scott 2020 *Geoforum* 24-32; Wynberg *et al* 2021 *Frontiers in Plant Science*.

⁸⁵ Gulati 2019 *International Journal of Legal Studies* 317-350.

⁸⁶ Coleman 2019 *Michigan Journal of Race and Law* 417.

⁸⁷ Coleman 2019 *Michigan Journal of Race and Law* 417.

3.2 IP issues in the AI-output side

Questions around inventorship, authorship and ownership in respect of AI-generated inventions and works continue to arise in judicial and academic circles. AI systems are tools or objects. As such, they lack subjective rights or personhood and the human creativity or innovativeness required for IP protection.⁸⁸ By implication, in situations where there is no sufficient causal link (proximate cause) between human (the AI developer's or user's) creativity and innovativeness and a work or invention – what Gervais refers to as the "human cause"⁸⁹ – such work or invention must fall to the public domain, since IP law does not recognise AI creativity or innovativeness. However, some scholars believe that given their level of development, AI systems now have creative or innovative capacity that makes it possible for them to create/innovate independently of humans. The argument is that although humans set AI systems to perform tasks through prompts, they do not have control of the creative and innovative choices of the AI systems in the process. Thus, inventorship or authorship should be conferred on AI systems in respect of the inventions or works they develop. It would be unethical to confer authorship or inventorship on the humans behind the prompts in such circumstances.⁹⁰ The scholars further contend that where AI authorship or inventorship is recognised, the ownership of the ensuing IP rights can simply be granted to the human being (the developer or user) who prompts the AI to perform a task at the material time as this is the more effective way of addressing liability for the infringement of IP in the course of AI training and development.⁹¹

The issues have not come up in, or been addressed by, any court in Africa. However, cases from USA, China, Australia, Germany, UK as well as the EPO have put the issue to rest in those jurisdictions by recognising human creativity and innovation as the basis for authorship and inventorship under their respective copyright and patent legislations.⁹² Interestingly, however,

⁸⁸ Oriakhogba 2022 *South African Journal of Intellectual Property Law* 87-108.

⁸⁹ Gervais 2022 https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3857844.

⁹⁰ Abbott 2016 *BC L Rev* 1079-1126.

⁹¹ Abbott 2016 *BC L Rev* 1079-1126.

⁹² *Thaler v Perlmutter* (USCA) (unreported) case number 23-5233 of 18 March 2025; *Li v Liu* (Beijing Internet Court) (2023) Jing 0491 Min Chu No 11279 (27 November 2023); *Chen v Changshu Qin Hong Real Estate Development Co* (Changshu Municipal People's Court) (unreported) case of November 2024; *Tencent v Yingxun* (Nanshan District People's Court) (2019) Yue 0305 Min Chu No 14010 of 24 November 2019; *Feilin v Baidu* (Beijing Internet Court) (unreported) case number 239 of 25 April 2019; *Thaler v Comptroller General* [2023] UKSC 49; *Thaler v Vidal* (USCA) (unreported) case number 22-919 of 24 April 2023; *Thaler v Commissioner of Patent* (High Court of Australia) [2022] HCATrans 199 (11 November 2022); *President, GPTO v Thaler* (German Federal Court of Justice) (unreported) case number X ZB 5/22 of 11 June 2024; EPO Application No 21216024.6 of 25 November 2024; *Board of Appeal of the EPO* (Designation of Inventor/DABUS) J 0008/20 of 21 December 2021.

the South African Companies and Intellectual Property Commission (CIPC) granted patents in respect of two inventions generated by an AI system – DABUS⁹³ – in 2021 under the country's *Patent Act* 57 of 1978.⁹⁴ The controversial point about the patents is that the applications named the AI system as the inventor and a human, Dr Stephen Thaler (the applicant), as the owner. The applicant claimed that the inventions were autonomously generated by DABUS and that his entitlement to the rights in the inventions was based on his ownership of the AI system. Some scholars hail the CIPC grant as progressive and as a model for state intervention in the promotion of AI innovation and technological development.⁹⁵ However, it has been rightly argued elsewhere that the CIPC grant is based on a misunderstanding of the provisions of the South African *Patent Act* relating to formal examination and the handling of patent applications routed through the PCT system; that it runs contrary to the humancentric focus of the South African patent regime, which admits of human inventors only; and that it contradicts the thrust of South Africa's IP policy,⁹⁶ which focusses on incentivising human innovation and promoting human welfare.⁹⁷ Indeed, as pointed out earlier, recent case law from jurisdictions such as the UK, USA, Australia, Germany, and the EPO have put to rest the human-centric nature of inventorship under patent law. The cases considered DABUS patent applications similar to that determined by the CIPC. Overall, the current judicial position demonstrates the existence of a global consensus against AI authorship, inventorship and ownership under copyright and patent laws. The global consensus can offer useful guidance for policy-makers in Africa as they reflect on IP within their AI strategies.

3.3 IP issues on the AI-input side

The capacity of AI systems to generate inventions and works is not contested. What remains controversial, however, is whether AI-generated inventions and works are eligible for IP protection. USA and Chinese courts are reluctant to extend copyright protection to works generated autonomously by AI systems but will accommodate such works insofar as there is evidence of human input in the creation of the works, the works are a product of the intellectual activities of human authors, and the AI system was used as a tool (AI-assisted works).⁹⁸ Section 9(3) of the UK *Copyright*,

⁹³ Device for Autonomous Bootstrapping of Unified Sentience.

⁹⁴ CIPC 2021 *South African Patent Journal* 255.

⁹⁵ Thaldar and Naidoo 2021 *South African Journal of Science* 1-3; Diega, Cifrodelli and Dermawan "Sustainable Patent Governance".

⁹⁶ GN 518 in GG 41870 of 31 August 2018 (*Intellectual Property Policy of the Republic of South Africa Phase I*).

⁹⁷ Oriakhogba 2022 *South African Journal of Intellectual Property Law* 96-99.

⁹⁸ *Thaler v Perlmutter* (USCA) (unreported) case number 23-5233 of 18 March 2025; *Li v Liu* (Beijing Internet Court) (2023) Jing 0491 Min Chu No 11279 (27 November 2023); *Chen v Changshu Qin Hong Real Estate Development Co* (Changshu

Patents and Designs Act, 1988 accommodates AI-generated works as computer-generated works.⁹⁹ That section recognises authors of computer-generated works as the persons who made the necessary arrangements for the creation of the works. Similar provisions can be found in section 1 of the South African *Copyright Act* 98 of 1978. Other countries covered in this article do not have similar provisions.

Interestingly, the UK government is contemplating a removal of the provision as it "appears to have little, if any effect on the production of content or on AI development".¹⁰⁰ According to the UK Government, "maintaining the current provision as drafted may also perpetuate legal uncertainty around its scope".¹⁰¹ The UK Government's position is further informed by the difficulty in striking a balance in copyright law around AI-generated outputs "between the traditional creator, the level of human input AI software might have, and the right holders in such works".¹⁰²

AI-generated invention follows similar dynamics as AI-generated works. However, German courts are not averse to accommodating such inventions insofar as the patent application indicates humans as the inventors.¹⁰³ There is evidence of the grant of patents for AI-generated inventions across the world when human persons are named as the inventors.¹⁰⁴ There is also nothing preventing the protection of AI-generated inventions under the patent regimes of the African countries under review in this article, especially where a human is designated as the inventor in the claim.¹⁰⁵ The CIPC grant of patents over the DABUS' inventions generated controversy because the applications name the AI system as the inventor. This grant has not been judicially challenged. However, the USA, Australian and European courts (the EPO) have taken negative stands against inventions autonomously generated by AI without any human input, as indicated in 3.2 above.

Municipal People's Court) (unreported) case of November 2024; *Tencent v Yingxun* (Nanshan District People's Court) (2019) Yue 0305 Min Chu No 14010 of 24 November 2019; *Feilin v Baidu* (Beijing Internet Court) (unreported) case number 239 of 25 April 2019.

⁹⁹ Atilla 2024 *JIPLP* 43-54.

¹⁰⁰ UK Government 2024 <https://www.gov.uk/government/consultations/copyright-and-artificial-intelligence/copyright-and-artificial-intelligence>.

¹⁰¹ UK Government 2024 <https://www.gov.uk/government/consultations/copyright-and-artificial-intelligence/copyright-and-artificial-intelligence>.

¹⁰² UK Government 2024 <https://www.gov.uk/government/consultations/copyright-and-artificial-intelligence/copyright-and-artificial-intelligence>.

¹⁰³ *President, GPTO v Thaler* (German Federal Court of Justice) (unreported) case number X ZB 5/22 of 11 June 2024.

¹⁰⁴ See *President, GPTO v Thaler* (German Federal Court of Justice) (unreported) case number X ZB 5/22 of 11 June 2024 para 52.

¹⁰⁵ WIPO 2024 <https://www.wipo.int/web-publications/patent-landscape-report-generative-artificial-intelligence-genai/en/index.html>.

The foregoing being said, there is ongoing conversation around whether the training of AI systems infringes IP, especially copyright. The issue is currently being litigated in a growing list of cases in USA.¹⁰⁶ While AI companies maintain that their work is not infringing and is covered by the fair use exception under USA copyright law, rights owners contend that AI training infringes their copyright and ought to be compensated.¹⁰⁷ Recent decisions from USA courts appear to follow this unsettled dividing line.¹⁰⁸ However, USA policy-makers believe that the training of generative AI systems involves the prima facie infringement of copyright – arguing that the creation and deployment of "a generative AI system using copyright-protected material involves multiple acts that, absent a license or other defense [such as fair use], may infringe one or more rights".¹⁰⁹ Indeed, as noted in part 1, the training of AI systems involves access to and the exploitation of copyright-protected works by design. Thus, it may result in some reproduction of the works that requires authorisation from rights owners especially where the AI training and use cannot validly be accommodated within existing L&Es. This raises questions around whether existing L&Es are sufficient to cater for AI training and the development of AI capacity in Africa; and, if at all, whether new L&Es such as the USA-styled fair use¹¹⁰ and EU text and data mining (TDM)¹¹¹ should be developed for that purpose in the African context. These issues are addressed in 4.3.

Fair use and TDM exceptions in the context of AI have been discussed elsewhere.¹¹² For context, it should be noted that section 20 of the Nigerian *Copyright Act* provides a fair dealing exception, which has been described elsewhere as resembling the USA fair use regime and has been regarded as a good model for other African countries, especially in this digital and AI

¹⁰⁶ See ChatGPT is Eating the World 2025 <https://chatgptiseatingtheworld.com/2025/08/13/updated-map-of-us-copyright-lawsuits-v-ai-companies-aug-12-2025/>.

¹⁰⁷ Samuelson 2024 *Communications of the ACM* 27-30; Samuelson 2024 *UCLA L Rev* 1184-1572.

¹⁰⁸ *Thomson Reuters v Ross Intelligence* (District Court of Delaware) (unreported) case number 1:20-cv-00613-SB of 11 February 2025; *Bartz v Anthropic* (WHA) (unreported) case number C 24-05417 of 23 June 2025; *Kadrey v Meta* (District Court, ND California) (unreported) case number 23-cv-03417-VC of 25 June 2025.

¹⁰⁹ United States Copyright Office 2025 <https://www.copyright.gov/ai/Copyright-and-Artificial-Intelligence-Part-3-Generative-AI-Training-Report-Pre-Publication-Version.pdf>; Ginsburg 2025 *JILP* 521-522.

¹¹⁰ Section 107 of the US *Copyright Act*, 1976.

¹¹¹ Articles 3 and 4 of the *Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on Copyright and Related Rights in the Digital Single Market and Amending Directives 96/9/EC and 2001/29/EC* (2019) OJ L 130/92 (*EU Directive on Copyright in the Digital Single Market*).

¹¹² Widla 2025 *GRUR International* 3-18; Guadamuz 2024 *GRUR International* 111-127; Tyagi 2024 *JILP* 557-570; Manteghi 2024 *LIT* 663-686.

era.¹¹³ Also, TDM exception can be found in sections 44b and 60d of the German *Copyright Act*, 1965, in terms of which TDM exception permits the reproduction of lawfully accessible copies for the automated analysis of individual or several digital or digitised works for the purpose of gathering information, in particular regarding patterns, trends and correlations. However, the TDM must be for non-commercial scientific research and the rights owner must not have made digital machine-readable reservation against the use of his/her works. Also, the researcher must delete the reproduced copies when they are no longer needed for TDM. The TDM exception was successfully relied upon in the recent case of *Kneschke v LAION*,¹¹⁴ decided by the Hamburg Regional Court of Germany. The case has been reviewed elsewhere.¹¹⁵

Related to the infringement question, AI systems have the capacity to produce outputs (digital replicas) that mimic the creativity of authors, artists and performers, by whose works the systems are trained, and thereby hinder their ability to be fairly remunerated.¹¹⁶ A recent study of the South African Cultural Observatory (SACO) found the existence of mixed feelings of optimism and pessimism among creators fuelled by the challenge of how best to balance the triad of innovation promotion, IP protection and creators' remuneration which the rise of AI systems in the South African creative and cultural sector heralds.¹¹⁷ Specifically, the study finds that, while acknowledging AI's capacity to amplify local creativity on a global scale, South African creators are apprehensive about their IP rights (copyright ownership and remuneration issues), job displacement through the use of AI assistants, and the preservation of authentic human creativity, especially given the potential to flood the sector with low-quality AI-generated contents.¹¹⁸

The foregoing fears are concretised by a 2024 CISAC study on the impact of AI in the music and audiovisual sectors.¹¹⁹ The study shows that users

¹¹³ Oriakhogba 2023 <https://ipkitten.blogspot.com/2023/04/guest-post-nigerians-new-copyright-act.html>.

¹¹⁴ *Kneschke v LAION* (Hamburg Regional Court) case number 310 O 227/23 of 27 September 2024.

¹¹⁵ Brûß 2024 <https://ipkitten.blogspot.com/2024/09/guest-post-german-court-finds-laions.html>.

¹¹⁶ Rens, Msipa and Hlomani 2023 <https://researchictafrica.net/research/ai-and-intellectual-property-brief-2/>.

¹¹⁷ SACO 2024 https://www.southafricanculturalobservatory.org.za/assets/SACO_AI_Rushed_Revolution_Report_FNL_Oct2024.pdf.

¹¹⁸ SACO 2024 https://www.southafricanculturalobservatory.org.za/assets/SACO_AI_Rushed_Revolution_Report_FNL_Oct2024.pdf 7.

¹¹⁹ CISAC 2024 <https://www.cisac.org/Newsroom/news-releases/global-economic-study-shows-human-creators-future-risk-generative-ai>.

now rely on AI systems to actively curate, generate and share AI-generated music. The AI-generated music is increasingly being used in user-generated contents on social media, fast replacing traditional music for background sounds in public places, flooding music platforms, and constituting the core music content in low-budget audiovisual works.¹²⁰ In the audiovisual sector the study found the use of AI tools for dubbing and subtitling automation, the generation of audiovisual output, automated screenwriting and the use of AI assistants in the directing process.¹²¹ The overall effect is the prediction of a remarkable increase in the revenue of AI companies and a reduction in the remuneration and loss of income for performers and artists in the music and audiovisual industries over the next five years.¹²² Also, a 2023 survey of the Authors Guild of the USA reveals that 70 per cent of authors think that publishers will start using AI systems to generate books in whole or in part, and 69 per cent of the authors believe that the use of AI systems is a threat to their careers.¹²³ Also, it has been predicted that by 2025, 90 per cent of audiovisual content may be at least partially AI-driven.¹²⁴ In the music sector a survey done in 2023 evinces apprehension among 73 per cent of music producers about their impending replacement by AI systems in the creative process.¹²⁵

4 How IP should be approached in AI strategies in Africa

A balanced approach to IP should be adopted in AI strategies in Africa. Viewed through a techno-legal lens, such an approach must be human-centered and development-focussed, and must equitably balance the urgency to promote AI innovation by enabling access to quality data with the need to protect IP rights and TK as well as to secure just reward for creators, inventors, performers, and indigenous communities. The review of the AI strategies in part 2 reveals that policy-makers are aware of the importance of a human-centered and development-focussed approach to AI governance in Africa. However, while the AU CAIS, the Nigerian and Egyptian NAIS envisage a balanced approach that will promote AI innovation and protect IP, the Zambian, Mauritian, Kenyan, Tanzanian and Ghanaian NAIS take a one-sided-protectionist approach to the issue. The

¹²⁰ CISAC 2024 <https://www.cisac.org/Newsroom/news-releases/global-economic-study-shows-human-creators-future-risk-generative-ai> 7.

¹²¹ CISAC 2024 <https://www.cisac.org/Newsroom/news-releases/global-economic-study-shows-human-creators-future-risk-generative-ai> 10.

¹²² CISAC 2024 <https://www.cisac.org/Newsroom/news-releases/global-economic-study-shows-human-creators-future-risk-generative-ai> 11.

¹²³ Authors Guild 2023 <https://authorsguild.org/news/ai-survey-90-percent-of-writers-believe-authors-should-be-compensated-for-ai-training-use/>.

¹²⁴ Giardina 2023 <https://www.hollywoodreporter.com/movies/movie-news/ces-ai-sag-aftra-1235290431/>.

¹²⁵ Sunkel 2023 <https://edm.com/gear-tech/survey-music-producers-believe-ai-will-replace-them>.

AU CAIS must also be hailed as a model for an African-centered AI policy for expressly identifying the risks that AI systems pose to IP- and TK-based data in Africa, as well as the need for a conducive IP regime that effectively addresses the risks while promoting AI innovation. Although some strategies, such as those of Zambia, Mauritius and Ghana, propose the review of IP laws, the key question of whether new IP rules should be developed for AI, and whether existing IP rules should be revised or simply implemented within the AI context, are left unanswered. The answers to these questions depend on the IP issue in focus, as shown below.

4.1 AI and TK-based data

To effectively manage and preserve Africa's rich genetic resources and TK-based data, and to protect the interest of indigenous communities within the AI ecosystem, there is an urgent need for policy makers in Africa to begin to rethink strategies for the implementation of existing IP, biodiversity, TK and customary laws on the continent. This may require the formulation of new regulations under these laws to address the peculiarity of AI. In this regard, insights can be drawn from the draft Cradle Principles of Knowledge Governance developed by a group of African and American scholars in February 2024.¹²⁶ The principles were developed with a view "to guide inquiry and policy making into how knowledge governance systems can promote the goals of sustainable development, social justice, and human rights", especially within the AI ecosystem.¹²⁷ Principle 4 thereof stipulates that knowledge governance systems "must promote the rights and interests of indigenous peoples and local communities in the knowledge economy, including their right to self-determination, inclusion, cultural integrity, data sovereignty and sustainable development".¹²⁸ Such systems must enable indigenous peoples and local communities "to actively participate in innovation, wealth creation, and research, and receive equitable access to the benefits arising therefrom",¹²⁹ as well as oblige researchers "to respect and promote the custodian function of traditional communities over their knowledge and innovation systems".¹³⁰ In terms of principle 1, knowledge governance systems include IP, TK, and biodiversity laws as well as "traditional systems governing the use of community-held knowledge".¹³¹

4.2 AI authorship and inventorship

As noted in 3.2 above, there is a global judicial consensus against AI authorship and inventorship because IP law and policy are designed to

¹²⁶ Flynn 2024 <https://infojustice.org/archives/45627>.

¹²⁷ Flynn 2024 <https://infojustice.org/archives/45627>.

¹²⁸ Flynn 2024 <https://infojustice.org/archives/45627>.

¹²⁹ Flynn 2024 <https://infojustice.org/archives/45627>.

¹³⁰ Flynn 2024 <https://infojustice.org/archives/45627>.

¹³¹ Flynn 2024 <https://infojustice.org/archives/45627>.

promote human creativity and innovation. AI systems can at best be regarded as tools and objects that can enhance and ease human creativity and innovation. Foreign courts do not recognise AI-authorship and would exclude works claimed/found to be autonomously generated by AI systems. Copyright protection would be extended only to works created with the use of AI as assistive devices insofar as such works are creations of a legal person behind the AI system. Concerning patents, the prevailing judicial approach is to the effect that although AI systems can generate technical advances, patent law is developed to protect human devises and inventions. Thus, a patent application that does not clearly designate a natural person as the inventor will not be accepted. Overall, existing IP laws, especially in Africa, have answers to the key questions around AI-authorship and inventorship.

Even so, resolving the foregoing questions raises a broader issue from a policy perspective as to whether there is an urgent need to formulate new rules to address the AI inventorship and authorship issues. While some scholars have called for the review of existing IP law and policy to accommodate the peculiarities of AI,¹³² others see the possibility of a middle ground: the retention of some key IP principles in some cases and shifting paradigms in others through legal reforms.¹³³ However, some strong views suggest that existing IP law and policy have what it takes to address the AI inventorship and authorship question.¹³⁴ Indeed, there is always a human (the developer or user of AI systems) behind AI training and use in the innovative and creative process. Also, IP law and policy are human-centric. Thus, policy conversations around AI inventorship and authorship should focus on the humans behind the systems, not on the systems, with the effect that there may not be an urgency for policy-makers in Africa to begin to reflect on whether to formulate new IP rules to keep pace with the evolution of AI technologies in this regard. Indeed, policy-makers should avoid the IP – copyright – trap set by "a small group of powerful stakeholders" within the AI ecosystem whose goal is to promote their proprietary interest to the disadvantage of vulnerable creators and innovators.¹³⁵ Policy-makers should also resist "the lure of [AI's] proprietary logic in [favour] of more appropriate routes towards addressing the risks and harms" of AI.¹³⁶

¹³² Itanyi 2024 *Bus L Rev* 180-184; Adaka and Olubiyi 2022 *JIPIT* 15-48; Nyaboke 2024 *Journal of Modern Law and Policy* 57-72.

¹³³ Lauber-Ronsberg and Hetmank 2019 *JIPLP* 570-579.

¹³⁴ Samuelson, Sprigman and Sag 2024 https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4976391; Gervais 2020 *GRUR International* 117-118; Mukwevho and Oriakhogba 2024 *SA Merc LJ* 41-58.

¹³⁵ Craig 2025 *Chi-Kent L Rev* 107.

¹³⁶ Craig 2025 *Chi-Kent L Rev* 107.

4.3 Protection of AI-generated content, IP infringement and remuneration

The increasing number of instances of litigation around infringement in the context of AI training, the related questions of the permitted uses of protected works for AI training, and the conversations around fair remuneration for copyright owners in national and international normative and policy fora call for some reflection on the need to review aspects of existing IP rules to the extent that review will enhance the wellbeing of the humans human authors and innovators, while promoting societal welfare.

First, reviewing existing IP rules to accommodate AI-generated content (inventions and works), especially in cases where there is no evidence of human input, will unjustifiably shrink the creative and innovative space and further exacerbate the access to knowledge quagmire that African researchers currently face. In this regard policy-makers in Africa may find useful guidance in the approach taken by the USA, UK, and Chinese courts to the effect that AI-generated content should be protected only where there is evidence of human input, and that the AI systems were used as tools in the creation of the works. Moreover, allowing AI-generated inventions within the African context would "incentivise large corporations to build 'patent thicket generators' that could only serve to stifle, rather than encourage, innovation overall".¹³⁷

Secondly, scholars have canvassed for the adoption of TDM and USA-styled fair use exceptions backed by a harmonised regional framework that supports cross-border access to data for computational (or AI) research in Africa as an effective way of enabling the development of AI technology on the continent.¹³⁸ There are, however, scholars who have argued that the training of AI systems is copyright infringement because it goes beyond and is not covered by the TDM exception.¹³⁹ From an African perspective, there are concerns that TDM will benefit large tech companies from developed countries who have already established the capacity to utilise AI technology to mine text and data from Africa to the detriment of indigenous innovators; and that such exceptions will further entrench digital colonialism and undermine Africa's digital sovereignty.¹⁴⁰ In essence the value of TDM exception in the African context appears shrouded in uncertainty. This may be the reason behind the dropping of the earlier proposed TDM exception from the ongoing copyright reform process by the Ugandan parliament.

¹³⁷ Taylor 2021 <https://www.theguardian.com/technology/2021/jul/30/im-sorry-dave-im-afraid-i-invented-that-australian-court-finds-ai-systems-can-be-recognised-under-patent-law>.

¹³⁸ Rens, Hlomani and Msipa 2023 <https://researchictafrica.net/research/ai-and-intellectual-property-brief-1>; Odeh 2025 *Journal of World Intellectual Property*.

¹³⁹ Dornis 2025 *EIPR*.

¹⁴⁰ Roberts and Montoya 2023 <https://arxiv.org/abs/2309.10215>.

However, while no African country currently has a TDM exception, countries such as Nigeria have created frameworks that effectively balance the need to promote access to data with the protection of copyright by providing for flexible L&Es, such as the USA-styled fair use (christened fair dealing), that match the exclusive rights and the mechanisms for fair remuneration for authors and performers. Such a framework can support a balanced approach to IP in AI strategies in the meantime while policy-makers continue to reflect on whether introducing new rules such as TDM exceptions would serve the national and regional developmental objectives in Africa.

4.4 Remuneration for creators/innovators

As demonstrated in part 3.3, AI is bound to lead to losses of income, reduce the remuneration of creators/innovators and performers, and affect the jobs of other players within the IP space. However, while questions around job displacement are labour concerns to be addressed by labour law and policy, the protection of IP rights and the guarantee of fair and equitable remuneration for creators and innovators are questions of IP which policy-makers should consider within the context of AI strategies. In this regard SACO's study advocates for a "critical balance between protecting creative workers and their [IP], promoting innovation, and ensuring fair compensation"¹⁴¹ as a strategy to address the challenge that AI systems pose to the remuneration of South African creators, while also empowering them to take advantage of the system to enhance their creativity. The CISAC study advocates a review of the existing regulatory framework in order to prevent the loss of revenues due to the unauthorised use copyright material without remuneration by AI systems and the "'cannibalisation' or replacement" of the "traditional revenue streams due to the substitution effect of AI-generated outputs, competing against human-made works".¹⁴² In this regard, policy-makers can draw guidance from existing licensing and remuneration mechanisms under copyright regimes to develop tailor-made user licenses to govern the exploitation of creative content by AI systems. Mechanisms such as voluntary licensing, copying levies, statutory license/equitable remuneration, and extended collective management systems have been advanced by scholars as viable means of addressing the remuneration quagmire in the AI context.¹⁴³

¹⁴¹ SACO 2024 https://www.southafricanculturalobservatory.org.za/assets/SACO_AI_Rushed_Revolution_Report_FNL_Oct2024.pdf 8.

¹⁴² CISAC 2024 <https://www.cisac.org/Newsroom/news-releases/global-economic-study-shows-human-creators-future-risk-generative-ai> 11.

¹⁴³ Pasquale and Sun 2024 https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4826695; Dermawan and Mezei "Emotional AI"; Jacques and Flynn 2024 *GRUR International* 1137-1149;

5 Conclusion

As IP continues to be a key component of the emerging AI strategy landscape in Africa, policy-makers should reflect on frameworks that would promote a balanced approach to IP in the AI context. To be effective such an approach should be human-centered and development-focused, and should equitably balance the promotion of AI innovation and development by enabling access to quality data with the protection of IP and TK. It should also secure just reward for creators, inventors, performers and indigenous communities. This would position Africa to more effectively leverage AI towards national and regional development. To this end, issues of AI authorship, inventorship and ownership are already addressed by existing IP laws, and there is no need to develop new rules or revise the existing IP laws to address the issues. However, as AI systems continue to gain significance in the creative and innovative space in Africa, policy-makers are encouraged to reflect, and widely consult, on the appropriate framework to promote access to quality data for AI innovation and development, while ensuring fair remuneration for creators and innovators and protecting the interests of indigenous communities in Africa. Questions around whether new IP rules should be developed, or whether existing IP rules should be revised to provide for AI-enabling L&Es, and a special remuneration regime for the use of creative works for AI training, and a special mechanism for the protection of TK in the AI context, should shape the reflection and consultation.

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List of Abbreviations

4IR	fourth industrial revolution
ACHPR	African Commission on Human and Peoples Rights
AfCFTA	African Continental Free Trade Area
AI	artificial intelligence
AU	African Union
AUDA-NEPAD	African Union Development Agency NEPAD
BC L Rev	Boston College Law Review
Bus L Rev	Business Law Review
CAIS	African Union Continental Artificial Intelligence Strategy
Chi-Kent L Rev	Chicago-Kent Law Review
CIPC	Companies and Intellectual Property Commission
CISAC	International Confederation of Societies of Authors and Composers
DABUS	Device for Autonomous Bootstrapping of Unified Sentience
DCDT	Department of Communications and Digital Technologies
DSI	digital sequence information
ECOWAS	Economic Community of West African States
EJLS	European Journal of Legal Studies
EIPR	European Intellectual Property Review
ENAI	Egypt's National AI Strategy
EPO	European Patent Office
EU	European Union

GNAIS	Ghana's National AI Strategy
GPAI	Global Partnership on Artificial Intelligence
ICT	information and communication technology
IP	intellectual property
JIPIT	Journal of Intellectual Property and Information Technology Law
JIPLP	Journal of Intellectual Property Law and Practice
KAIS	Kenya AI Strategy
L&Es	limitations and exceptions
LIT	Law, Innovation and Technology
MAIS	Mauritius AI Strategy
NIAS	Nigerian National AI Strategy
NCAIR	National Centre for Artificial Intelligence and Robotics
NITDA	National Information Technology Development Agency
PCT	Patent Cooperation Treaty, 1970
PELJ	Potchefstroom Electronic Law Journal
R&D	research and development
SA Merc LJ	South African Mercantile Law Journal
SACO	South African Cultural Observatory
SDGs	Sustainable Development Goals
SJTEIL	Seattle Journal of Technology, Environmental and Innovation Law
TDM	text and data mining
TK	traditional knowledge
TNAIS	Tanzania Draft Strategy for the Responsible Use of AI
UCLA L Rev	UCLA Law Review
UK	United Kingdom
UN	United Nations
UNESCO	United Nations Economic, Scientific and Cultural Organisation
USA	United States of America
WIPO	World Intellectual Property Organisation
ZNAIS	Zambian National AI Strategy