STATUS OF ETHIOPIAN INTELLECTUAL PROPERTY LAWS ON THE PROTECTION OF AI-GENERATED AGRICULTURAL RESEARCH OUTPUTS

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ABSTRACT

AI is transforming the intellectual property landscape, presenting both challenges and opportunities for research, innovation, and businesses. This study aimed to perform an in-depth examination of the current state of Ethiopian intellectual property legislation concerning the protection of agricultural research outputs generated using artificial intelligence. This study was conducted through qualitative research methodology by reviewing academic literature, policy documents, and IP legislations. The Study focused on analyzing the impact of AI on Ethiopian patent, copyright, and data protection laws to protect agricultural research outputs. When AI-assisted research and innovations grow in agricultural research, the traditional IP regimes should not answer the ownership rights of the research output. The result shows that the current IP laws do not provide full protection for AI-generated research outputs. As a result, Ethiopia should revise the provisions of the existing patent, copyright, and data protection laws in consideration of AI-generated technologies.

Keywords: IP, AI, Agriculture, Ethiopia

1. Introduction

The emergence of Artificial Intelligence (AI) is reshaping the intellectual property (IP) environment, offering a mix of challenges and opportunities. AI can generate, oversee, and utilize IP assets, which introduces intricate legal and ethical dilemmas concerning ownership, patent eligibility, copyright violations, data rights, and other aspects of IP[1]. Conversely, AI can facilitate the automation and optimization of IP asset management, support the exploration and evaluation of the current IP assets, foster the development of innovative business models, and enhance the enforcement of IP rights.[2]

AI is not a new phenomenon, with much of its theoretical and technological underpinning developed over the past 70 years by computer scientists such as Alan Turing *et.al*.[3] The concept of AI lacks a universally accepted definition among professionals in the field. Some practitioners describe it in broad terms as a computer system that demonstrates behaviors typically associated with intelligence, while others view AI as a system that can effectively solve intricate problems or take suitable actions to reach its objectives in real-world situations[4]. AI is often described based on its problem space[5], such as logical reasoning, knowledge representation, planning and navigation, natural language processing (NLP), and perception,

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[1] Alan F Blackwell, Addisu Damena and Tesfa Tegegne, 'Inventing Artificial Intelligence in Ethiopia' (2021) 46(3) Interdisciplinary Science Reviews 363–385.

[2] Mohd Akhter Ali & M. Kamraju, 'Impact of Artificial Intelligence on Intellectual Property Rights: Challenges and Opportunities' (2023) 1(1) OUJIPR, 21 <https://ouipr.in/oujipr/vol1/iss1/2> accessed [date]

3 Wegene Demisie Jima, Tesfaye Adisu Tarekegn and Taye Girma Debelee, 'State of Artificial Intelligence Eco-system in Ethiopia' (2024) AI and Ethics 1–14.

[4] Samuel Samiai Andrews, 'Globalization, Sovereignty and Ethiopia in the Age of IP Creative Jurisprudence' (2019) 4(1) International Journal of Ethiopian Legal Studies 25.

[5] M Jos, 'Designed in Ethiopia and Made in China' (2021) 40 China Economic Review 314–421.

or based on its often-overlapping subfields, including machine learning (ML), deep learning, artificial neural networks, expert systems, and robotics.[6]

AI implementation raises several IP issues. AIs have the potential to engage in acts of content creation for scientific purposes, and artistic and literary works by replicating aspects of human cognition[7]. Several AI systems are also enhanced to refine their decision-making algorithms and rules through practice and feedback, which aids in improving future decisions. Furthermore, AI systems are commonly employed to analyze large datasets in order to identify statistical patterns. However, AI may experience limitations of ownership in some IP issues, especially due to one major reason of facing difficulty to identify the proper owner of the AI creation and that is because most of the IP laws provide protection for human creations.[8] The intersection of AI and IP raises complex questions. AI is challenging conventional definitions of patents and copyrights and necessitates new regulations and frameworks to address the ownership and protection of AI-generated creations.[9]

The increasing impact of AI on IP legislations worldwide necessitates a response to the challenges and opportunities arising from this swiftly evolving technological environment. It means that the technology is trying to offer recommendations or guidance that go beyond just IP rights. It's also trying to tackle issues related to whether individuals could be held criminally responsible for the content generated by these technologies.[10] This review paper explores the current state of Ethiopian intellectual property law, examining the challenges and opportunities AI presents for protecting AI-generated agricultural intellectual property. The study also explored the potential of AI in enhancing the management of IP assets. Furthermore, it addressed the necessary policy and legal frameworks required to adapt IP law to the demands of this swiftly evolving technological environment.

2. Agricultural Research Outputs and the Challenges for IP Protection in Ethiopia

Agricultural research in Ethiopia has more than half a century of history. During this long period, the agriculture research system in the country mostly produces technologies in the fields of crop and animal science, crop and animal health, socio-economics, natural resource management, and agricultural engineering[11]. Most of these research sectors have an appropriate IP protection mechanism. For instance, new crop varieties can be protected through plant breeders' rights, the variety improvement process may be protected through patents. Agricultural engineering machinery prototypes can be protected by a patent, utility model, or industrial design system. Inventions in the fields of agricultural biotechnology, microbial, plant protection, and animal health can be protected through the patent system, and other research results like publications, research databases, technology demonstration videos, and photos can be protected through copyright.

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[6] Atul Jain , 'Intellectual Property Rights in the Age of Artificial Intelligence', (2021) 4(2) IJLMH Page 1501 - 1506,

[7] Gelan Ayana and others, 'Decolonizing Global AI Governance: Assessment of the State of Decolonized AI Governance in Sub-Saharan Africa' (2024) 11(8) Royal Society Open Science 231994.

[8] Ibid

[9] Gentian Zyberi, 'Some Personal Reflections on Enhancing Global North–Global South Academic Cooperation in Legal Higher Education in the Era of Artificial Intelligence' (2024) 52(3) *International Journal of Legal Information* 190–199.

[10] Kinfe Yilma, 'Ethics of AI in Africa: Interrogating the Role of Ubuntu and AI Governance Initiatives' (2025) 27(2) *Ethics and Information Technology* 1–14.

[11] Wasyhun Abdela Ajebo and Dahlak Daniel Solomon, 'Challenges of IoT Adoption in Developing Countries: A Case Study of Ethiopia' (2024) 2024 3rd Edition of IEEE Delhi Section Flagship Conference (DELCON) 1–8.

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However, reports show that agricultural technologies were not protected by IP protection mechanisms for several reasons[12]. Some of the reasons include: the IP system in Ethiopia was not developed; for instance, plant varieties had no protection mechanism until the enactment of the Plant breeder's Rights Proclamation No. 481/2006[13]. In some cases, like copyrights and patents nonetheless the laws were enacted some decades before; due to a lack of a structured implementing institution, there was no established protection for a long period[14].
The second reason was that most of the research conducted in the agriculture sector of Ethiopia is conventional research, especially the plant and animal breeding research conducted through the selection of the varieties or breeds in the field, in which it is difficult to identify the creativity or innovation capacity of the breeder.[15].
The third reason was that the awareness level of the public in general and researchers in particular on IP protection is very low. As a result, most researchers do not have enough understanding of the importance of protecting research outputs through IP regimes[16].
The fourth reason was the lack of an incentive mechanism for researchers who produce or invent new research outputs. The existing laws do not provide any incentive mechanism for researchers working in public research institutions. The owners of the research outputs (new plant varieties, agricultural machineries, prototypes, publications, chemicals, enzymes) are research institutions that hire the researcher. Due to this, researchers are not encouraged to invent new technologies and to register their findings or inventions for IP protection.

The fifth reason would be inadequate dissemination and exploitation of research results. In most research institutions, the lack of an IP management unit or technology transfer offices, coupled with a misguided perception of research outcomes as public goods, has hindered innovation. Additionally, the absence of support services such as technology incubation centers and the establishment of startup and spinout companies, along with insufficient access to financing, have exacerbated the challenges. The high costs associated with the commercialization and dissemination of research findings have further complicated matters, leaving many promising technologies without adequate IP protection.
Different IP protection mechanisms are available for research outputs that meet the necessary criteria. Selecting the appropriate protection mechanism is determined by the research institution or researcher, considering the advantages and disadvantages of the specific IP protection mechanism.

3. Artificial Intelligence in Ethiopia

AI refers to the capability of computer systems to make decisions or perform tasks autonomously, often with the assistance of human intelligence. It signifies the technology's ability to mimic human cognitive functions, such as problem-solving and decision-making, in

[12] Ashley Elizabeth Sperbeck, 'How Intellectual Property Regimes and Innovative Infrastructure Promote Growth of Africa's Technological Market' in Technological Leapfrogging and Innovation in Africa (2023) 245–267.
[13] Plant breeder's right proclamation no. 1068/2017, (preamble)

[14] Mesfin Kebede Kassa and Hana Demma Wube, 'Benefits and Challenges of Industry 4.0 in African Emerging Economies' (2022) *Pan African Conference on Artificial Intelligence* 261–276.

[15] Adelbambo Adewopo, 'The Global Intellectual Property System and Sub-Saharan Africa—A Prognostic Reflection' (2001) 33 University of Toledo Law Review 749.
[16] Ht Yabebal Chekole Mihret, Mulu Marie Takele and Smegnew Moges Mintesinot, 'Advancements in Agriculture 4.0 and the Needs for Introduction and Adoption in Ethiopia: A Review' (2025) 2025(1) Advances in Agriculture 8828400.

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various applications.[17] As a result of technological developments in the twenty-first century, the world is on the verge of a fourth industrial revolution. Advances in AI, robotics, Web3, blockchain, 3D printing, genetic engineering, quantum computing, geo-engineering, and other cutting-edge technologies are all combined to create the revolution.[18]

The development of intelligent agents is the focus of the cutting-edge scientific field of artificial intelligence. Because of their capacity for independent thought, learning, and action, these agents are crucial to the creation of many contemporary goods and services. To put it simply, AI is a technology that makes it possible for robots to carry out tasks that normally require human intelligence, such as comprehending natural language, identifying images, and making data-driven judgments.[19]

Ethiopia is one of the few African nations investing significantly in AI. To encourage the creation of cutting-edge technology and AI applications in a range of industries, including healthcare, education, agriculture, and finance, it has built a $250 million tech park in Addis Ababa.[20] Several private companies in Ethiopia, including iCog Labs, are engaged in the development of software designed to predict brain activity and create a range of beneficial applications for clients worldwide. Among their projects is the creation of humanoid robots for Hanson Robotics, the firm behind the famous Robot Einstein. Notably, the renowned humanoid robot Sophia, whose operating system was largely crafted by iCog Labs, stands as one of the lab's early success stories[21]. This highlights the significant capabilities of Ethiopian AI and its potential to make meaningful contributions to the global AI arena.

The Ethiopian Artificial Intelligence Institute was established in 2020 with the mission of delivering cutting-edge, research-based AI services in critical fields, with a primary focus on the development and incubation of young people, and the introduction of AI by Ethiopia is also uniting Africa. Ethiopia's national agricultural research system is utilizing AI for various purposes, including breeding, research data collection, analysis, and storage. In Ethiopia, AI is generally becoming a tool for research and development.

4. Discussions on the Status of the Ethiopian Intellectual Property Laws for the Protection of AI-Generated Agricultural Research Outputs

IP plays a crucial role in modern business and technology. IP rights allow creators and innovators to protect their creations and inventions. However, as technology continues to advance, IP protection faces different challenges. AI is one such technology that is challenging as well as transforming IP landscapes. AI is already being used in various agricultural fields to generate new works and assist in legal analysis. AI-driven technologies are currently enhancing productivity across various sectors and addressing challenges faced by industries, including

[17] Ogwuche, Perpetua, Artificial Intelligence: The Legal Implications of Intellectual Property Rights for AI-generated Inventions (October 16, 2022). Available at SSRN: https://ssrn.com/abstract=4589323 or http://dx.doi.org/10.2139/ssrn.4589323

[18] Adel Ilsiyarovich Abdullin and Asiia Sharifullovna Gazizova, 'Traditional Knowledge and Intellectual Property Rights' (2019) *Revista Turismo Estudos e Práticas–RTEP/GEPLAT/UERN* 1–7.

[19] Ibid

[20] Esubalew Ginbar, AI in Ethiopia's quest to development, the Ethiopian herald, Friday 17 November 2023https://allafrica.com/stories/202311120034.html

[21] Ifeoluwa A Olubiyi, Rahamat Oyedeji-Oduyale and Damilola M Adeniyi, 'Artificial Intelligence and the Law: An Overview' (2024) 12(1) *ABUAD Law Journal* 1–27.

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agriculture. These challenges encompass crop yield optimization, irrigation management, soil content analysis, crop monitoring, weeding, and crop establishment.[22]
AI algorithms have been documented in various sources as tools for generating new written content. One notable example is GPT-3, a language model created by OpenAI, which is capable of producing coherent and fluent text that often resembles human writing.[23] This technology provided promise for various sectors; however, it also prompts inquiries regarding the ownership of works created by artificial intelligence.

The impact of AI on IP is complex and multifaceted. AI has the potential to significantly alter the creation, protection, and enforcement of intellectual property rights (IPRs). However, this transformation is accompanied by various challenges, as well as ethical and legal considerations. To address these issues and ensure the responsible and ethical application of AI technologies within the realm of IP, it is essential for lawmakers, IP experts, and AI developers to work together.[24] Ultimately, the responsible and ethical use of AI in IP has the potential to benefit society as a whole by promoting innovation, creativity, and economic growth.[25]
AI is transforming the development, maintenance, and protection of intellectual property. Ownership is one of the main problems that arise when AI is used to create IP. Ownership is usually given to human producers or inventors under traditional IP systems. However, the ownership issue gets more complicated as AI is used more and more.[26] AI has the potential to produce new and non-obvious inventions, but when it's not clear who should be given credit for the idea, ownership issues come up. Most jurisdictions lack legal frameworks for AI-generated inventions, making it unclear whether AI can be considered an inventor or if ownership should lie with the individual or entity controlling the AI system.[27]

4.1. Artificial Intelligence and Copyright Protection in Ethiopian Law

The traditional copyright law does not acknowledge works created by AI. It solely safeguards the original creations produced by human authors. The Ethiopian copyright and neighboring rights protection proclamation number 410/2004, article 2 (2) defined the term Author as “the person who has intellectually created a work and in case of a computer program, the person who has created the program”.[28] According to this provision, the owner of a copyright in a computer program is the person who created the program. Article 2(7) of the proclamation defined a computer program as a set of instructions, expressed in words, codes, schemes, or in any other form, which is capable, when incorporated in a machine-readable medium, of causing

[22] Y. Kim, R. G. Evans and W. M. Iversen, "Remote Sensing and Control of an Irrigation System Using a Distributed Wireless Sensor Network," in IEEE Transactions on Instrumentation and Measurement, vol. 57, no. 7, pp. 1379-1387, July 2008, doi: 10.1109/TIM.2008.917198.

[23] Yang, J., Jin, H., Tang, R., Han, X., Feng, Q., Jiang, H., Zhong, S., Yin, B., & Hu, X. . Harnessing the power of LLMs in Practice: A survey on ChatGPT and beyond. ACM Transactions on Knowledge Discovery From Data, (2924), 18(6): 1–32. https://doi.org/10.1145/3649506

[24] Tsegahun Manyazewal and others, ‘The Potential Use of Digital Health Technologies in the African Context: A Systematic Review of Evidence from Ethiopia’ (2021) 4(1) NPJ Digital Medicine 125.

[25] Bukola Faturoti and Subhajit Basu, *Reflecting on the Past, Shaping the Future: Examining Intellectual Property and Technology Law in Africa* (Taylor & Francis 2025).853/aiip/

[26] Mohd Akhter Ali & M. Kamraju, ‘Impact of Artificial Intelligence on Intellectual Property Rights: Challenges and Opportunities’ (2023) 1(1) OUJIPR, 21 <https://ouipr.in/oujipr/vol1/iss1/2> accessed [date]

[27] World Intellectual Property Organization (WIPO) (2024). Getting the Innovation Ecosystem Ready for AI: An IP policy Geneva: WIPO. DOI: 10.34667/tind.48978

[28] Copyright and Neighboring Right Protection Proclamation Number 410/2004 (Art. 2 (2))

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a computer to perform or achieve a particular task or result. These definitions imply that the Ethiopian copyright law provides the copyright ownership right for natural persons.[29]

Therefore, AI-generated works are not considered in the Ethiopian copyright law. According to the proclamation's clause, the author of a computer-generated work is presumed to have been the one who made it possible. Since the Ethiopian copyright law was enacted some decade before it did not consider the issue of AI[30]. But, from close readings of the provisions of the proclamation we can analogize that the person who created the arrangement required for the creation of the work would be the author of AI-generated art.

As AI continues to advance and achieve full autonomy, it may become increasingly challenging to definitively determine the necessary framework for the tasks it undertakes.[31] As per the current scenario, only the human authors of creative works may enjoy copyright protection; this does not mean that non-human authors or juridical persons have no copyright protection under the Ethiopian law.

As AI technology advances and can create original literary content, it raises questions about how copyright applies to these creations. In AI-generated literary works, the application of Locke's economic theory of possessive individualism to copyright becomes complex. While traditional copyright principles align with the idea that creators should benefit from their intellectual labor, the unique nature of AI-generated content challenges the traditional notion of an individual author.[32]

The debate around AI creativity often involves Lovelace's argument that machines lack true creativity due to their rule-bound behavior. True creativity involves unpredictability, something machines and computers, with their adherence to routines, might struggle to achieve. However, some counter this by likening writers to machines, highlighting how they process existing works and derive inspiration from pre-existing ideas, much like AI.[33]

4.2. Artificial Intelligence and Patent Protection System in Ethiopian Law

According to the Invention, minor inventions, and industrial designs proclamation number 123/1995, the term patent refers to legal protections granted for inventions, recognizing the novelty and utility of a created technology.[34] According to this proclamation, article 2(3), invention is defined as an idea of an inventor, which permits, in practice, the solution to a specific problem in the field of technology. This means that an invention is the idea of an inventor. From the cumulative reading of the two definitions, patent and invention, the

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[29] Arthur Gwagwa and others, 'Artificial Intelligence (AI) Deployments in Africa: Benefits, Challenges and Policy Dimensions' (2020) 26 African Journal of Information and Communication 1–28Richie Moalosi and others, 'Creating the Value of Indigenous Knowledge and Technologies in Technology Education Curriculum Through Intellectual Property Rights' in Indigenous Technology Knowledge Systems: Decolonizing the Technology Education Curriculum (2023) 57–71.

[30] Emmanuel Ogiemwonyi Arakpogun and others, 'Artificial Intelligence in Africa: Challenges and Opportunities' in The Fourth Industrial Revolution: Implementation of Artificial Intelligence for Growing Business Success (2021) 375–388

[31] Emmanuel Ogiemwonyi Arakpogun and others, 'Artificial Intelligence in Africa: Challenges and Opportunities' in *The Fourth Industrial Revolution: Implementation of Artificial Intelligence for Growing Business Success* (2021) 375–388.
https://ijlmh.com/paper/intellectual-property-rights-in-the-age-of-artificial-intelligence/

[32] Ibid

[33] Noah Zerbe, 'Biodiversity, Ownership, and Indigenous Knowledge: Exploring Legal Frameworks for Community, Farmers, and Intellectual Property Rights in Africa' (2005) 53(4) Ecological Economics 493–506.

[34] Inventions, Minor Inventions and Industrial Designs, proclamation, No. 123/1995

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invention is the idea of the inventor, and if this invention fulfills the criteria of patentability shall acquire patent protection. Therefore, Ethiopian patent law requires that an invention eligible for protection must originate from the inventor's idea. Since AI-created inventions are not the ideas of the inventor, the law does not provide any protection in the Ethiopian patent law (proclamation no. 123/1995).

However, the shift in technology towards AI introduces complexities as these systems, driven by their learning, may autonomously generate new inventions. This raises unique challenges within the realm of patent law, as it requires a reevaluation of traditional concepts to accommodate the inventive potential of AI systems. The intersection of patents and AI presents a fascinating legal landscape. One key challenge is determining inventorship when AI systems autonomously generate inventions. This departure from human-centric innovation poses questions about who should be credited and granted patent rights. Additionally, issues like disclosure requirements and the role of human oversight in AI-generated inventions further complicate the traditional patent framework. As technology advances, the legal system must adapt to strike a balance between fostering innovation and maintaining fairness in patent protection.[35]

In navigating these complexities, legal scholars, policymakers, and practitioners need to work together to create guidelines that strike a balance between encouraging AI innovation and upholding the principles of fairness and public interest found in patent laws. This evolving relationship necessitates a continuous reevaluation of legal standards to keep up with the fast-changing landscape of AI technology. Additionally, the global nature of AI development presents challenges in achieving uniform patent laws across different jurisdictions. Coordinating patent regulations is vital in building a cohesive international framework that promotes innovation while tackling the ethical issues associated with AI. As AI continues to transform various industries, the legal discussions surrounding patents must remain flexible, creating a supportive atmosphere for inventors while addressing the distinct characteristics of AI-generated inventions.[36]

There are significant obstacles associated with patenting AI systems and platforms. Typically, an AI system replicates a task performed by humans. It achieves this by employing machine-learning techniques to analyze magnetic resonance imaging scans, effectively distinguishing tumors from adjacent healthy tissue and bone. If a patent application is filed for the task executed by the machine, it is likely to be denied, as it fails to satisfy one of the essential criteria for patentability, which requires a clear explanation of how the invention operates. Inventions and innovative concepts play a crucial role in driving societal change. Historically, these inventions have been safeguarded by a framework of IP law, with patents serving as a fundamental component.[37]

The inability to patent AI inventions could lead to a decline in investment in AI technology. Some suggest that AI-generated works should be placed in the public domain to promote open access and collective advantages. Conversely, there are strong arguments advocating for the protection of AI creations through patents, as they encourage investment and foster innovation. However, concerns have been expressed that an overabundance of patents related to AI inventions might negatively impact R&D efforts.[38]

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[35] Shlomit Yanisky-Ravid and Regina Jin. Summoning a new artificial intelligence patent model: In the age of pandemic, Michigan State Law Review, Vol. 2021, No. 3, 2021

[36] Artificial Intelligence and Intellectual Property Law

[37] Jawahitha Sarabdeen and Mohamed Mazahir Mohamed Ishak, 'Intellectual Property Law Protection for Energy-Efficient Innovation in Saudi Arabia' (2024) 10(9) *Heliyon*.

[38] Ifeoluwa A Olubiyi, Rahamat Oyedeji-Oduyale and Damilola M Adeniyi, 'Artificial Intelligence and the Law: An Overview' (2024) 12(1) *ABUAD Law Journal* 1–27.

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6.3 Artificial Intelligence and Data Ownership in Ethiopian Law

The personal data protection proclamation number 1321/2024 of Ethiopia applies to data protection.[39] The Constitution of the Federal Democratic Republic of Ethiopia, as outlined in Article 26, guarantees the right to privacy for all individuals. This includes protection against searches of one's home, person, or property, as well as the unlawful seizure of possessions. Additionally, Article 26(2) affirms that individuals have the right to the sanctity of their notes and correspondence, which encompasses postal letters and communications conducted via telephone, telecommunications, and electronic devices.[40]
The other legislation in Ethiopia that addresses data is the Civil Code of 1960. This code acknowledges rights related to privacy. Specifically, Article 31 states that the recipient of a confidential letter is prohibited from disclosing its contents without the author's consent, unless required to do so in judicial proceedings where a legitimate interest is present.[41]

The Ethiopian digital identification proclamation number 1248/2023[42] Article 2(17) defined it as the biometric and demographic data collected with the 'digital identification system'. According to Article 17(1) of the proclamation, registrants retain ownership of their data. When they provide this data to the registering institution (registrar), any processing, transferring, disclosing, or modifying of the data must occur with the registrants' consent. Article 17(2) mandates that the registrar must uphold the confidentiality of personal data during its collection, registration, authentication, storage, and processing. In line with the principle of data minimization, Article 17(3) stipulates that only the data essential for the operation of the identification system—specifically, data required for the digital identification of an individual—should be collected.

The Criminal Code of Ethiopia, Proclamation number 404/2004, also has provisions that deal with personal data or privacy. The Criminal Code, specifically Articles 604 to 606, addresses the infringement of privacy protections established by the Constitution. Under Articles 604 and 605, individuals found guilty of engaging in any actions that breach the privacy of a residence or designated restricted area may face a penalty of up to five years of imprisonment in more serious instances.[43]
Article 606 of the Criminal Code stipulates that any infringement on the privacy of correspondence or packages, which encompasses the unauthorized access to letters, telegrams, telecommunications, and various forms of electronic communication, is subject to penalties. Such violations may result in a maximum of six months of imprisonment or a monetary fine, contingent upon the filing of a complaint. Additionally, Article 399 of the Criminal Code addresses violations of professional confidentiality. This provision holds accountable professionals such as lawyers, legal consultants, attorneys, arbitrators, experts, jurors, and employees in the private sector, as well as healthcare providers like doctors, dentists, nurses, and auxiliary medical staff, who unlawfully disclose confidential information acquired during their professional activities.

[39] Personal Data Protection Proclamation number 1321 /2024 (preamble)
[40] Constitution of the Federal Democratic Republic of Ethiopia, 1995, Art. 26(2)
[41] The 1960 Civil Code of Ethiopia, Art. 31
[42] Ethiopian Digital Identification Proclamation Number 1248/2023, Arts. 2(17), 17
[43] Samuel Adams, 'Globalization and Income Inequality: Implications for Intellectual Property Rights' (2008) 30(5) Journal of Policy Modeling 725–735.Criminal code of Ethiopia, Proclamation Number 404/2004, Art. 604 to 606

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The Communications service proclamation number 1148/2019 also has provisions for data protection. The proclamation has a provision that requires the 'telecommunications operators' to take all reasonable steps to ensure the confidentiality of their customers' communications, Article 50 (1).[44] There are several other proclamations, regulations, and directives dealing with personal data or privacy.

The proclamations mentioned above affirm the protection of personal data and emphasize that disclosing personal information should not infringe on individual privacy. Institutions collecting personal data for any purpose must ensure its security against unnecessary disclosure. However, the above-stated laws shall not consider AI-generated data. In the scientific environment, AI may serve as a data collection instrument for research. But, unless this AI collected unstructured data structured by the intervention of a human being, AI cannot provide meaningful information. In this case, the data ownership is for the person who adjusted the data collection instrument or for the person who structured AI-collected data. Therefore, AI by itself could not be the owner of data.

In today's digital landscape, data and artificial intelligence are pivotal across numerous sectors. Data is frequently likened to oil due to its significance in scientific inquiry, strategic decision-making, and fostering innovation. For AI to convert raw data into valuable insights, it requires large and comprehensive datasets. The success of a business is heavily dependent on the quality and precision of its data. AI models depend significantly on the reliability of the input data to produce trustworthy results. Well-organized and easily searchable structured data serves as the cornerstone for forecasting upcoming trends.

AI relies heavily on carefully selected data sets, especially in machine learning (ML), large language models (LLM), and deep learning (DL) for accuracy. Due to the analysis of vast amounts of input data, AI systems pose privacy and copyright risks. The significant data requirements of AI systems could potentially lead to legal issues and privacy concerns. Even though the Ministry of Innovation and Technology has the responsibility to establish a national system for data collection, storage, management, and sharing, until this time, the ministry has not established the system. Due to this gap, the data possession and ownership rights in Ethiopia are retained by the institution or individual who collected or stored the data. Ethiopia's laws do not explicitly address AI-generated data, making it difficult to determine ownership.

5. Conclusion/Recommendation

While Ethiopia recognizes the importance of AI-generated works for national development, integrating these advancements into the existing IP system presents a significant challenge. The country should establish a balance between encouraging innovations and protecting creators' rights will be pivotal for fostering a sustainable and ethical AI-driven creative ecosystem. This involves defining clear ownership and attribution standards.

As technology evolves, the intersection of IP and AI-generated works prompts a reevaluation of existing legal frameworks to balance the protection of innovation with ethical considerations and the evolving nature of creativity.

Therefore, Ethiopia should review the provisions of the existing patent (invention, minor invention, and industrial designs) proclamation number 123/1995, copyright and neighboring rights protection proclamation number 410/1996, and data protection laws in consideration of AI-generated technologies and outputs. Hence, agricultural research outputs, including copyrightable works, patentable inventions, and research data that are generated through AI technology, were not considered for IP protection by the existing laws of Ethiopia.

[44] The Communications service proclamation number 1148/2019, Art. 50(1)

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