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Applicability of Artificial Intelligence in the Development of Intellectual Property Rights in Nigeria.

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Abstract

The advent of digital technologies has indeed changed the world and affected many areas of today's reality, and among them is Intellectual Property. The protection and promotion of Intellectual Property Rights (IPRs) are crucial for fostering innovation and creativity, particularly in developing nations like Nigeria. Despite the recognized importance of IPRs in driving socioeconomic development, Nigeria faces significant challenges in effectively protecting these rights. Traditional barriers such as inadequate legislation, weak enforcement mechanisms, and a lack of awareness hinder the full utilization of IPRs. The findings of this study underscore the importance of a holistic approach to IPR development, emphasizing the need to embrace the technological innovation of Artificial Intelligence. This paper explores the applicability of Artificial Intelligence (AI) as a transformative tool in addressing these challenges and enhancing the development of IPRs in Nigeria. We shall begin with a contextualization and underscoring a succinct explanation of the keywords in view of their relevance to the subject matter under review.

Key words: Artificial Intelligence, Intellectual Property, Development, Nigeria.

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1.0 Introduction

AI has become a global phenomenon, reforming economies all across the world by proffering novel products and services, and this creates an avenue for the generation of greater productivity gains, improved efficiency and lower costs.

The term, 'artificial intelligence' hereinafter referred to as 'AI' was first coined in 1956 at a Dartmouth Conference by John McCarthy, where it was defined as "science and engineering of making intelligent machines."

World Intellectual Property Organisation (WIPO) on its part defined AI as "a discipline of computer science that is aimed at developing machines and systems that can carry out tasks considered to require human intelligence."

Preferably, AI encompasses intelligent machines that can process and interpret language, mine and analyze data, and create artistic and original works.

The evolution of AI in recent years has taken different dimensions of development, from autonomous cars to precision medicine, machine translation, and smart personal assistants. AI has continued to penetrate and influence every spectrum of our society. Things once considered quite impracticable have become a part of our present realities: AI now makes new design fashion wears, recipes, and music from self-generating soundtracks to unique albums created on demand. Nonetheless, there is a looming crossroad perpetrated by this advancement in technology.

Until now, Intellectual Property ('IP') has fared well. The prevalent legal framework of Intellectual property particularly in Nigeria has become obsolete compared to the emerging digital age and technologies. AI-related inventions constitute the change for the existing IP regime.

There is a desperate need to harness the capabilities of AI in developing IP than causing a fuss especially in a developing country like Nigeria.

This article provides a comprehensive study of existing intellectual property rights, the extant position in Nigeria and how artificial intelligence is paving the way for improving the rights of creators, inventors and right owners.

2.0 Overview of Intellectual Property

According to the Article II of World Intellectual property organization (WIPO), Intellectual Property shall include the rights relating to literary, artistic and scientific works, inventions in all fields of human endeavour, scientific discoveries, industrial designs, trademarks, service marks and commercial names and designations, protection against unfair competition, and all the other rights resulting from intellectual activity in the industrial, scientific, literary or scientific fields.

Intellectual Property (IP) can be defined as inventions of the mind, innovations, work of arts, symbols, names and images used in commerce.

The objective of intellectual property protection is to encourage the creativity of the human mind for the benefit of all and to ensure that the benefits, importantly economic benefits arising from exploiting a creation benefit the creator. IP empowers individuals, enterprises, or other entities to exclude others from the use of their creations without their consent.

2.1 Meaning of Intellectual Property Right.

Intellectual property right (IPR), deemed a moveable property, can be classified as legal right that protects a person's literary works, artistic works, inventions or discoveries or a symbol or design for a specified period of time. Intellectual property owners are given certain rights, intangible, by which they can enjoy their property peacefully without any disturbances, and prevent others from using them without permission, although these rights are also called monopoly rights of exploitation, they are limited in geographical range, time and scope as the case may be.

As a result, intellectual property rights can have a direct and substantial impact on industry and business, as the owners of IPRs can enforce such rights and can stop the production, use, or sale of a product to the public. IP protection encourages publication, distribution, and disclosure of the creation to the public, rather than keeping it as a secret and to encourage commercial enterprises of creative works.

In Nigeria, Intellectual Property Rights is governed by the Trademarks Act Cap T 13 laws of the Federation of Nigeria 2004, the Patents and Designs Act

CAP P2 LFN, 2004 and the Nigerian Copyright Act of 2022. The referred Trademarks, Patents and Designs laws are administered and enforced by the Trademarks, Patents and Designs Registry under the Federal Ministry of Trade and Commerce.

2.2 Nature of Intellectual Property Right

2.2.1 Intangible Rights over Tangible Property: The main factor that distinguishes IP from other forms of Property is its intangibility. The major difference between different forms of IP is her establishment of property protection over intangible things such as inventions, ideas, signs and information into a tangible object where they are embedded. It allows owners or creators to benefit from their work when they are used not for private but commercial purposes.

2.2.2 Right to Sue: In the language of the law, IP is an intangible asset that can be owned and dealt with via commercial exploitation. Most forms of IP are contested via vested interest in rights of action that are enforced by legal actions and only by those who have rights to institute such action.

IP is a property right and can, therefore, be inherited by testamentary disposition or operation of law, bought, gifted, sold, licensed, entrusted or pledged. The holder or owner of an IPR has a type of property that he can exploit the way he likes subject to certain limitations and conditions, and can take legal actions against any person or authority who without permission or consent uses the invention. The owner can receive compensation or royalty for its use as done against real property.

2.2.3 Rights and Duties: IP gives rise not only to property rights but also attendant duties. The owner of the IP has the duty to perform certain functions in relation to his work/product. He has the exclusive right to produce and reproduce the work, make copies of the work, market and sell the work, etc. There is also a negative right to prevent third parties from exercising their statutory or commonly called moral rights.

2.2.4 Coexistence of different rights: It is never in doubt that different types of IPRs can co-exist in relation to a particular function or functions. An invention may be patented, and the invention photograph may be copyrighted artistically. A design can be protected under the Patent and Designs Act, and the design can also be incorporated into a trademark in relation to a product. There are many differences and similarities between various rights that can exist together in IP. For example, there are common grounds between patent, inventions and industrial design, trade secrets; Copyright and related rights, trademarks and geographical indications, among others.

2.2.5 Exhaustion of rights: Intellectual property rights on principle are ordinarily subjected to the doctrine of exhaustion. The term 'exhaustion' means that after the first sale by the owner/right holder or by its exhaustion authority, his right over the work ceases and will is not entitled to stop further movement of the goods or product. Thus, once an IP rights holder has sold a physical product to which IPRs is attached, under the principle, he cannot prevent subsequent resale of that product. The right terminates with the first consent and no more. This principle is based on the concept of free movement of goods/product which is in force by consent or right of the rights holder. The exclusive right to sell goods cannot be exercised twice in relation to the same goods or product. The right to restrict further movement elapses or has expired as the right holder has already earned his share by the act of placing goods for the first sale in the market.

2.2.6 Dynamism: IPR no doubt remains in the process of continuous development. As technology is rapidly evolving in all areas of human activities, the field of IP continuously is also growing. With regard to the requirement of scientific and technological progress, new items are continuously being added to the scope of IPR, and the scope of its preservation is as well expanding. Bio Patents, Plant Diversity Protection, Software Copyrights, these and more are few names which reflect contemporary developments in the field of IPR. The importance of intellectual property and its mobility is well established and reflected at all levels, including administrative, statutory, and judicial.

2.3 Scope of Intellectual Property Rights

Intellectual property rights and its scope are quite encompassing and broad. It consists of many aspects, yet it is an area of law that has not been fully explored by third world nations including Nigeria. As highlighted earlier, intellectual property is broadly classified into Industrial Property and Copyright. While copyright is technically standing on its own, Industrial property includes patent, property interest on minor invention (utility model certificate), trademarks (products, goods and services) geographical indications, trade secrets and industrial design, plant breeder rights, biodiversity, etc.

3.0 Aland Copyright

Copyright is a property right that subsists in certain but eligible works. It is a statutory right giving the copyright owner certain exclusive right in relation to his/her work such as the right to make copies of the work, to sell those copies to the public or the right to give a public performance of the work. The extant copyright law in Nigeria though a new Act still faces some challenges in the real sense of protecting the interest of copyright owners. In this present digital age, the challenges have become overburdened. As a suggestion, Nigeria should deploy Artificial intelligence through legislation in the enforcement, development and maintenance of copyrights.

Copyright violations, which range from unauthorized distribution, reproduction, performances, to even plagiarism, pose significant and serious threats, including sabotage, to the integrity of creative works. With the proliferation of online digital content platforms and the ease of digital distribution of these contents, detecting and preventing copyright infringement has become increasingly complex. These violations not only undermine the rights of creators and owners, but also have financial repercussions, which deprive owners of their rightful compensation/royalty for their work. From music and audio-visuals, to written content and images, virtually every form of creative content and expression is amenable and susceptible to infringement in the digital age.

Ability to detect copyright violations across the board poses different and

several challenges, primarily due to the sheer volume and diversity of digital content and its availability online. Manual detection methods are often timeconsuming and to a large extent inefficient, especially when dealing with large-scale platforms which host millions of works of copyright. More so, the variability in infringement types, which ranges from direct duplication to copying, subtle alterations and derivative works, these complicate the detection process further. The traditional and conventional method of copyright enforcement usually relies heavily on human interventions. This involves manual searches, review processes, and legal actions against infringers. Unfortunately, these approaches are often inadequate for addressing the scale and complexity of online copyright infringement. As a result, there is a growing need for automated solutions capable of efficiently identifying and addressing copyright violations in real-time.

The applicability of artificial intelligence (AI) in copyright protection is composed of transformative growth. Advanced AI algorithms and software are being developed to automatically detect and flag copyright infringements across various media, from text to music and videos, with unprecedented precision. For example, 'Copyright Catcher' an AI tool helps detect the use of copyrighted material in the output of generative AI models and web crawlers scour the internet, indexing content and identifying situations where protected works may have been unlawfully used.

Artificial Intelligence (AI) holds immense potential to enhance the identification and management of copyrighted content on recognition and licensing platforms. AI algorithms can generate unique "fingerprints" or "signatures" for copyrighted audio, video, or textual content. Platforms like YouTube use such technologies (e.g., Content ID) to automatically detect and manage copyrighted material.

Also, AI has the capacity of streamlining licensing process. When copyrighted content is detected, AI systems can facilitate automatic licensing, ensuring creators are compensated for their work. Subsuming AI into copyright recognition and licensing platforms may enhance the efficiency and accuracy of rights and related management, as well ensure that creators are duly

acknowledged and rewarded for their contributions.

4.0 AI and Patent

A patent or invention is a set of relative exclusive rights granted by a state to an inventor, their assignee or compulsory licensee, for a limited period of time in exchange for a public disclosure of the said invention. Patents provide a monopoly right, temporarily though, to the patent holder to exploit the invention for necessary commercial gain, by preventing others except with their permission, from commercially exploiting the patented invention in return for the public disclosure to stimulate further innovation.

The system is designed to encourage technological progression by granting an inventor a form of public recognition and monetary incentive in return, for the time and efforts put into researching and development of the invention. The recognition of patents exists in many forms of technology and processes, from pharmaceuticals, chemical compounds, to computer software, and is considered essential to the competitive advantage of industries in a technological driven economy. In essence, patents/inventions are a driving force for the innovation of technology in serving diverse purposes, whether it is purely to gain economic benefits or to help the greater good of the society. However, in enabling holders of patentable inventions to prevent others from exploiting such inventions, the monopoly has the potential of hindering competition and follow-on innovations that may have negative impact in so many ways and areas of the emerging technology.

Therefore, there is the need to revise the Nigerian Patents and Designs Act of 1971 to reflect the rapid advancements in technology and align with international standards. The existing Act is considered overtaken by events, outdated and inadequate to address the complexities of the emerging technologies. This outdated legal framework in the least creates uncertainties and would hinder the effective protection and enforcement of patent and related rights.

The patent registry system in Nigeria appears non effective in compiling, evaluating and accessing data related to patent activities. The current system is

wholesome ineffective in monitoring trends and evaluating data.

4.1 The Impact of Artificial Intelligence on Patent System

What is the way forward for a developing country like Nigeria? It is not surprising that developed countries such as the United States Patent office employs technological tool in the process of examining and issuing patent. The innovation of Artificial Intelligence system creates reformation in patent filling, patent drafting, patent searches and much more. An automated intelligent system can be used not only to search, but to analyze the existing body of patent art in determining the patentability of an invention.

They are being developed to assist examiners in searching, analyzing, and ultimately understanding the state of the art in question. These super intelligent systems are not only powerful tools for assisting human examiners in its operation, but also they are potentially very powerful creators on their own of new patentable inventions.

More recently, scientists at the World Intellectual Property Organization (WIPO) have been exploring the use of new AI language processing techniques to summarize and translate patent documents. Automating the process of patent search and prior art analysis is a definite area where AI is presumed to make a laudable significant impact.

At present, WIPO has created some AI tools for patent:

I. WIPO Translate

WIPO Translate can be described as an advanced machine translation service provided by WIPO. It tends to utilize neural network technologies to offer a form of automated translation of patent documents, scientific articles, related inventions, processes, and other intellectual property-related content. It supports multiple language pairs and helps users overcome language barriers, facilitating global knowledge sharing and understanding.

II. Automatic Patent Classification

WIPO also have developed AI-based system for automatic patent sorting and classification. This system uses advanced machine learning algorithms to sort and classify patent documents into specific technology areas; an example is

the use of the International Patent Classification (IPC) schema. Automatic patent classification majorly helps in streamlining patent examination processes, as well improves search accuracy, and facilitates the retrieval of relevant patent information.

4.2 AI-assisted Patent Drafting

The drafting of a patent application is a complex task and the patent specification, a comprehensive description of the patent is a critical part of this process. Patent applications are generally drafted by patent attorneys or patent agents, often with the participation of the inventor.

Preparing a quality patent specification can be restraining, time-consuming and also an expensive process; a visible reduction in the cost would make it more attractive for persons, individuals or small businesses to seek patent protection over their inventions.

The Nigerian Government can develop AI programmes to analyze the content of a technical document, and to sort and classify the content as belonging to one of a number of predetermined categories. The IBM-patented technique is one of the examples of such programmes. Machine learning AI has the capacity and potential to assist in no small way in reducing cost of patent drafting generally. Using the statistical technique model to enable a computer to learn from a large set of example documents, machine learning AI without qualms automatically will generate predictions or decisions.

This might be achieved by training the machine on a set of existing patent specifications and teaching the machine to predict the classification of sentences or paragraphs of text in the specification. If successful, such predictions would allow automation of the process of categorizing an abstract or specific section of the specification to be covered by intelligent searching on later. Alternatively, the machine or device could also be trained to produce descriptive text classified in a certain programmed way; an example is a detailed description of an apparatus and a set of instructions for making and using the said apparatus. Although still in its infancy, AI generated text holds great promise for the future.

5.0 AI and Trademark

A trademark is a legally registered sign used to represent a product, goods, service, or organization using words, combination of words, signature, number, letters, numerals, letter head, drawings, symbols, 3-D shapes, motions, and non-visible signs such as sounds, fragrances, and colours that are uniquely distinguishable, or capable of distinguishing what is being represented. Registered Trademarks are intangible assets that have ownership rights and may be sold, licensed, and used to develop brand equity.

In the marketplace, Trademarks protect a company's products and services from brand infringement, counterfeits, and the emergence of grey markets where products and services are sold without augments such as access to genuine repair parts, defect recalls, warranties, and guarantees to ensure consistent quality and ongoing customer services over the usage lifecycle. Without the protective mechanisms statutorily offered by a registered trademark, customer loyalty and trust will be difficult to sustain, and brand equity can easily be devalued.

The value that can be accrued by a registered trademark is significant and is not limited by time as long as the mark is continuously renewed, monitored, and protected. Trademark infringing goods or services confuse consumers and are difficult to detect. Failure to detect unlawful infringement can seriously undermine the true owner's profits and reputation. As a common business practice, companies register their brands or slogans as Trademarks to protect their commercial rights and interests to prevent potential damage linked to TM infringement.

5.1 Challenges of the Trademark Office in Nigeria

In Nigeria, the sole body responsible for handling the filing processes and the registration of trademarks is the Trademarks, Patent and Designs Registry directly under the Commercial Law Department of the Ministry of Trade and Investments or as the President may proclaim. The Federal Civil Service Commission appoints the Registrar of Trademarks and he is the person in charge of carrying out the functions relating and pertaining to trademark filing

and registration.

In 2023, the Trademarks, Patent and Designs Registry made an online registration platform available to ease the trademark registration process. However, it is the procedure that prior to commencing any registration process, an availability search is usually conducted at the Trademark registry to ascertain the availability of the trademark in question.

This preliminary search process is not that straightforward and convenient as is obtainable in other jurisdictions. Using the United States of America as an example, applicants who wish to register a trademark can readily conduct a search on the Trademark Electronic Search system database which contains trademarks and prior pending applications. The remarkable difference is that results of a preliminary search done using such electronic search system are available immediately after submitting the search query.

In Nigeria, the online search still has to be conducted manually at the Trademarks, Patent and Designs Registry in Abuja due to the fact that the online platforms appear not to have captured, and indeed not to support online searches for existing registered trademarks registered before the advent of the online platform. The search report from the manually operated search can still take estimated three (3) days to be ready for the use of applicants. An application for registration of a trademark in Nigerian territory can seamlessly be done via the online platform. The Industrial Property Administration system, on the other hand, notwithstanding, requires physical presence in Abuja. However, this can be done using various appointed agents of the registry including an Attorney. It therefore suffices to conclude that the online trademark registration platform in Nigeria appears not efficient as that presupposed and created by the Nigeria Corporate Affairs Commission where searches for existing business names can seamlessly be conducted online.

5.2 The Intersection of Trademark and Artificial Intelligence (AI)

In the field of trademarks, AI algorithm has been applied in four main areas:

5.2.1 Trademark Search Identification and Suggestion:

Firstly, the use of algorithms to assist applicants in registering trademarks suggests methods for simplifying application to increase the chances of successful trademark registration. The algorithm analyses a wide range of variables which relate to the search such as sight, sound, visual cues, classification of goods and services. The technology is also able to identify geographic areas of possible growth, impediment to the reputation or goodwill of a trademark or other similar marks.

By using AI techniques, search and registration can be improved where machine learning is relied on for the identification of semantically similar marks.Of note is that the identification of similar marks using AI has advanced and still advancing.

Algorithm performance for trademark searches using the World International Property Organization (WIPO) Global Brand Database, the launched image search AI solution enables users to upload an image to search for similar trademarks and/or other brand-information accessible from the each of the databases. According to WIPO, the Global brand database which it developed is able to determine similarity by identifying shapes and colours. It also uses deep machine learning to identify combinations of concepts. This tool allows web users to upload images, symbols or logos and find confusingly similar and/or identical trademarks in the database. This service assists trademark owners and professionals, including brand owners in identifying potential trademark infringements through persistent conduct of comprehensive trademark clearance searches.

AI is also important in real-time classification of products, goods and services, and this is achieved by simply deploying the algorithm to automatically recommend the different classes for goods and services contained in each of the trademark applications. This is evidently so in the institutionalize Nice Classification system, maintained by the world body, WIPO. This classification consists of the list of headings of both 34 classes of goods and the 11 classes of services as well as an alphabetic representation of those goods or services in each class as listed out. Recently, WIPO designed an AI tool known

as 'Global Goods and Services Terms Explorer', with the responsibility of providing automated assistance to trademark applicants in the process of selecting appropriate Goods and Services terms and their associated Nice classification in any languages at that, during the filing process. This tool further provides technical support to trademark examiners in IP offices in their evaluation and validation of trademark applications.

5.2.2 Trademark Registration:

The importance of trademark registration for businesses to protect their brands and intellectual property rights cannot be over-emphasized. Nonetheless, the manual process involved in carrying out the registration can be timeconsuming and prone to error. Hence, integrating AI into trademark registration by automating the processes of registration could make the process more efficient. The revolution would also help to identify potential conflicting registrations, and even draft initial applications or filings and general portfolio management.

5.2.3 Trademark Examination:

With regard to assessing the similarity of goods and services, AI assessment tool has proven efficient with its use. The efficiency is such that examiners can comfortably identify the closest match between an application and a previously registered term in the description of the class of goods and or services. The tool enhances speed in checking that the correct product classes have been indicated in the application as well as the field of prior marks with which to compare the new application.

AI solution can be deployed to ascertain the distinctiveness of any potential trademark. A good instance is the Japan Patent Office (JPO) trial using machine learning to access and assign "tentative similar-group codes for unclear designated goods and services in trademark applications"

5.2.4 Real-Time Brands Monitoring:

With the development of AI brand monitoring technologies, proactive brands security has advanced to a higher level. For notification of trademark infringements in real-time, these systems continuously scan a variety of online venues, such as social media networks, e-commerce websites, and digital marketplaces. Trademark owners are able to, in real-time, detect unauthorized usage, unlicensed exploitation, counterfeit goods, including brand dilution by utilizing AI which duty is to enable prompt interventions and enforcement actions. It is no doubt that maintaining brand integrity and stopping illegal activity on digital platforms require real-time brand monitoring.

6.0 IP Right: Protection of AI Software in Nigeria

The inventor or his agent of Artificial intelligence (AI) software can as well protect this technology in Nigeria statutorily using the Patents and Designs Act. The right to this protection on the inventor is not automatic but only granted upon the fulfillment of certain conditions stated in Section 1(a) and (b) of the Act, that the invention must be new, a result of inventive activity and can be applied industrially.

An application for patent is filed at the Patents and Designs Registry which entails the applicant's name, address, a description of the invention with any suitable plans and drawings, and claim(s) to the invention accompanied with the payment of the prescribed fees.

Under the Copyright Act, Computer software, specifically the programme code, can be protected as a literary work. Section 108 of Copyright Act 2022, provides that a computer program is classified as a literary work.

This is possible being that Artificial Intelligence software, just like any other computer programme, remains a source code which is simply a set of instructions usually stored in any form that can be interpreted by a computer. Since it can be in written form (document), same can therefore be registered under the Copyrights Act as a literary work. Practicably, a trademark can be accorded to artificial intelligence software.

The classification system of trademark prevalent in Nigeria originated from the Nice Agreement of 1957 which is an International Classification of Goods and Services for countries globally to ensure uniformity in the application and registration of trademarks. Under this classification, Artificial intelligence software may be registered say under Class 42 which covers marks that relate to scientific and technological services and designs.

Most software or programmes usually have a unique mark or logo that can be used to reference it. An example is the IBM WATSON, Artificial intelligence (AI) software that has a registered trademark owned by the International Business Machines Corporation (IBM).

The protection under trademark will prevent third parties from imitating the inventor's business by offering similar services under a mark which is the same as, or similar to, the inventor's chosen mark.

However, the legislative arm needs to provide extensive protection for the rapid discoveries emanating from artificial intelligence.

7.0 Future Outlook and Recommendations

To enhance the development of intellectual property rights (IPR) in Nigeria through artificial intelligence (AI), it is crucial to establish a regulatory framework that effectively incorporates AI technologies for IP management as the extant laws are not exhaustive and fulfilling in this regard. Also, the government should invest in AI-driven tools to streamline the registration and enforcement processes, ensuring that IP applications are handled more swiftly and efficiently.

Additionally, creating awareness and training programmes for stakeholders including entrepreneurs, creators, and legal professionals on the use of AI in IP protection will foster innovation and compliance.

Moreover, collaborating with technology companies to develop localized AI solutions tailored to Nigeria's unique IP challenges can further strengthen the system. Finally, promoting public-private partnerships with other countries and intellectual property organization and institution will facilitate research and development in AI, ultimately leading to a more robust and adaptive intellectual property landscape in Nigeria.

8.0 Conclusion

Artificial intelligence (AI) offers a powerful tool for Nigeria to enhance its

intellectual property rights (IPR) landscape. By automating tasks like copyright infringement monitoring, patent searching, and trademark conflict identification, AI streamlines processes and empowers creators and businesses. This not only reduces costs and time but also encourages innovation by providing more efficient and accessible IPR protection. As Nigeria embraces AI, it can foster a dynamic environment where creators can confidently pursue their ideas, knowing their work is safeguarded and valued.

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