

## INTELLECTUAL PROPERTY (IP) AND TECHNOLOGY: BLOCKCHAIN TECHNOLOGY - A DIGITAL PRODUCT OF CHANGE IN THE CURRENT CULTURAL PARADIGM OF INTELLECTUAL PROPERTY MANAGEMENT & ENFORCEMENT

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### ABSTRACT

*This article examines Intellectual Property (IP) and Technology, with an avid analysis of the impacts of Blockchain Technology on Intellectual Property Management and Enforcement, The Importance of IP cannot be overemphasized with the current pace of Technological Innovations rapidly springing up daily so also the emerging new breeds of digital IP, albeit the registration, maintenance, and enforcement IPR come with a significant burden of evidence, especially in those countries where “the maintenance, renewal or incontestability” of a right requires additional evidence of use. This article examines the magnificent impact Blockchain Technology has on Intellectual Property and how it could simplify the burden of registration, maintenance, administration, and enforcement on both the IP Right holder and the IP registry. It argues that the hectic process of registrations, the burden of evidence in management, and enforcement of IPR to a large extent, harm so many businesses most especially start-ups. The article also puts forward a few recommendations that are aimed at addressing the impediments.*

**Keywords:** Intellectual Property, Rights, Technology, Blockchain.

### INTRODUCTION

Intellectual property is without a doubt one of the trending topics, especially with the advancement of technology, industrialization, and creativity which has placed it in the center of intangible assets protection. Due to the level of exploitation and utilization of intellectual property and its economic benefits, it becomes expedient to uphold its values as well its relevance in today’s global economy. Simply put, IP can be defined as the creation of the human mind. It can also be referred to as an intangible asset.

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“The World Intellectual Property Organization (WIPO)” gave the wider definition of IP as the *“creation of the mind, such as inventions; literary and artistic works; designs; and symbols, names, and images used in commerce.”*

IP significance to the world cannot be over-emphasized. Its protection has a weighty impact on the growth of the world economy. Since intellectual property rights prevent the replications of designs and registered trademarks, which would prevent the said designs be it patent or software copyright being replicated and used to the exclusion of others. In other words, IP protection ensures that “investors” and “creators” can solely benefit from their inventions and creations of their creativity and talent, an exception where otherwise is expressly provided. E.g. in licensing situations. The creative industries in turn make a significant contribution to the World trade and the economy. “The value of the global market for creative goods doubled from USD 208 billion in 2002 to USD 509 billion in 2015.”<sup>1</sup>

Recently, the rapid spring up of technological advancement and innovation globally has had a tremendous effect on the increase of IP applications. As succinctly put by the WIPO Director General, while addressing the audience in the 2018 WIPO Assemblies, *“3.1 million patent applications, 7 million trademark applications, and 963,000 design applications were filed in IP offices around the world in 2016. These are prodigious numbers and represent increases over the last 20 years of 189 percent, 253 percent, and 388 percent, respectively.”*<sup>2</sup>

It cannot be left unnoticed that the tremendous increase in IP applications, thanks to the advancement of technology and innovative creations is always not compatible with the sticky process of IP applications, prosecution, and enforcement. Furthermore, there tends to be a highly a “highly competitive global market”, with increasing employee mobility, i.e. the movement of employees from one company to another or rather from one position to another, this also gives rise to the need to maintain ownership and control of assets, most especially trade secrets by putting in place both technical and legal measures to avert such incidents. Hence, one of the many factors that are driving change in IP management.<sup>3</sup> The one-time activity of IP rights registrations tends to expose companies to significant threats, because activities like hiring new employees from competitors, contracting with universities,

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<sup>1</sup>Wipo Magazine, harnessing the benefit of IP for development’ (June 2019), available at [https://www.wipo.int/wipo\\_magazine/en/2019/03/article\\_0002.html](https://www.wipo.int/wipo_magazine/en/2019/03/article_0002.html) accessed 10<sup>th</sup> April, 2022.

<sup>2</sup> Ibid.

<sup>3</sup> Marco Barulli, Founder and Managing Director, Bernsteini.io, Munich, IP is a journey: Blockchain and encrypted storage are your best friends, Wipo Magazine (Feb 2021), available at [https://www.wipo.int/wipo\\_magazine\\_digital/en/2021/article\\_0002.html](https://www.wipo.int/wipo_magazine_digital/en/2021/article_0002.html) accessed 8<sup>th</sup> April, 2022.

fundraising, external laboratory tests and so much more, are all activities involving major assets and such activities might expose the company in question to high-value IP assets threat.<sup>4</sup>

Another challenge is the rapid emergence of groundbreaking technologies that come with digital rights for the creators, these technologies present an enormous impact on the current cultural IP management. This is so because the enforcement of such right comes with a unique challenge owing to the large lack of regulation of the “internet space”. Another issue is the fundamental difference in the technological capabilities between countries. This has always met our difficulty “in terms of crafting effective development policies and building effective IP administration and governance systems”.<sup>5</sup>

The ambiguous and opaque IP protection systems are a hindrance to growth, particularly concerning software patents. Another notable challenge is low access to and use of IP rights by women inventors, designers, and artists, despite the magnificent impact women have on the field of IP, they tend to have lower access to and use of IP rights.<sup>6</sup> Another serious challenge faced by IP rights holders is the system, bad governance/corruption. This challenge is very enormous in Africa. The aforementioned common challenges, coupled with the hardship of IP applications, management, and enforcement can be addressed by Blockchain Technology as the reach of this digital technology are very vast. It is worth taking a closer look at blockchain, to have a grasp of what it entails.

## **BLOCKCHAIN TECHNOLOGY**

Blockchain Technology bestows a change in how companies are currently protecting their information, with the awareness of high tech company’s likewise creative businesses that intellectual property management is a daily practice not a single time exercise, this requires the need for IP specialists, and such companies to develop a new mindset. “*Digital platforms built around public blockchains and encrypted data storage can provide an effective answer to the daily needs of modern innovators and creative.*”<sup>7</sup>

Blockchain technology is currently reaching the climax of its evolution, there are reports that various governmental organizations are currently looking into its capabilities with the “United

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<sup>4</sup> Ibid.

<sup>5</sup>Wipo Magazine (n 1).

<sup>6</sup> Ibid.

<sup>7</sup> Marco Barulli (n 2).

States spending approximately 6.6 billion dollars annually”;<sup>8</sup> it presents a series of advantages that can be harnessed into the field of IP, and it can be beneficial. It made a provision for safe and stable records which happens to be very difficult to terminate, it enables users to store updated information leaving them in control of the information entered into the system, likewise having control over the operation. It can also prevent 3<sup>rd</sup> party attacks.<sup>9</sup> It’s worthy to understand what blockchain is and its intersection or connection with intellectual Property Protection.

Blockchain is simply referred to by experts as “Distributed Ledger Technology (DLT)”. One of its widely accepted use is the creation and maintenance of a database or ledger without having a centralized version of the ledger or database (meaning it can’t be controlled by a single user). Rather, it would be accessible to a group of persons or the general public, depending on the granted permissions. “The chain is updated with each transaction so that users can see the chronological activity for that particular blockchain. Once something is on the database, it cannot be removed”.<sup>10</sup> Blockchain is “immutable” (it can’t be changed, whatever is stored on it cannot be removed) “distributed digital ledger” (having records stored in multiple places). It also has many use cases beyond cryptocurrencies.<sup>11</sup> The words “immutable” and “distributed” are of significant importance to blockchain properties, they are fundamental to the blockchain. “The immutability of the ledger means you can always trust it to be accurate, and being distributed protects the blockchain from network attacks”.<sup>12</sup>

There are also 4 general benefits of blockchain technology as put by Energi. world and they are as follows;<sup>13</sup>

1. Greater Trust
2. Stronger Security

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<sup>8</sup>MorogluArseven, The role of blockchain technology in intellectual property protection, (Dec 2021) available at <https://www.lexology.com/library/detail.aspx?g=512ab4b1-d234-4962-a4ff-0f4836618db9> accessed on 8<sup>th</sup> January, 2022.

<sup>9</sup>Evelyn Duenas Morales, blockchain and its role in intellectual property, (Jan 2022) available at <https://www.lexology.com/commentary/intellectual-property/international/omc-abogados-consultores/blockchain-and-its-role-in-intellectual-property> accessed on 5<sup>th</sup> January, 2022.

<sup>10</sup>Miriam Stankovich, is intellectual property ready for blockchain? (Sep 2021), available at <http://myceliaformusic.org/https://dai-global-digital.com/is-intellectual-property-ready-for-blockchain.html#:~:text=Blockchain%20as%20an%20IP%20registry,and%20inventions%20using%20smart%20contracts.>> accessed on 15<sup>th</sup> January, 2022.

<sup>11</sup> Nick Darlington, Blockchain for beginners: what is blockchain technology? (25<sup>th</sup> Nov, 2021), available at <http://blockgeeks.com/guides/what-is-blockchain-technology/> accessed on 20<sup>th</sup> March, 2022.

<sup>12</sup> Ibid.

<sup>13</sup> Energi, what are the strongest benefits of blockchain technology? (18<sup>th</sup> April, 2022), available at <https://twitter.com/energi/status/1516145465808633865> accessed 20<sup>th</sup> April, 2022.

3. Higher Efficiency
4. Transparency

**Greater Trust:** “a member of a members-only network” nature of blockchain, depending on the granted permissions makes the data shared “accurate and confidential” because the records will be shared only with network members to whom you have specifically granted access.<sup>14</sup>

**Stronger Security:** Blockchain, having immutability as one of its fundamentals,<sup>15</sup> makes all the validated transactions made in the network recorded permanently since no one can delete the said transaction including the administrator. There is also a requirement for “consensus on data accuracy from all network members”.<sup>16</sup>

**Higher Efficiency:** Having a distributed digital ledger shared among members of a network, eliminates the “time-wasting record reconciliations”. Also for the speedy transaction, a smart contract could be used on the blockchain and executed automatically.<sup>17</sup>

**Transparency:** The decentralized nature of blockchain, could attest to its transparency. This is because “all transactions can be transparently viewed by either having a personal node or using blockchain explorers that allow anyone to see transactions occurring live”.<sup>18</sup>

With the aforementioned fundamentals and benefits, blockchain technology if embraced could have a significant impact on IP and it also has an important role to play in curbing the hardship or rather the challenges posed by the cultural IP regime. It indeed has a relatively low maintenance cost, it also has increased transparency, it reduces the administrative burden with its higher efficiency, and it also has stronger security than the strongly resilient to fraud. It is worth noting its intersection with IP.

## IP REGISTRY

“Blockchain Technology” can be used for Intellectual Property Rights management. This can be achieved by enrolling the Intellectual Property Rights protection framework in a “distributed ledger” (blockchain) as against the cultural database currently in use in the

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<sup>14</sup> Ibid.

<sup>15</sup> Nick Darlington (n 11).

<sup>16</sup> Energi (n 13).

<sup>17</sup> Ibid.

<sup>18</sup> Ibid.

registries. The IP registry can use “distributed digital ledger” technology to make “smart IP registries” in the form of a centralized solution managed by the Intellectual Property Rights offices, serving as an accountable authority. This would create an “immutable” record of the process of registration of an Intellectual Property Right. Using this process, information about when IP is first applied for, registered, and first used in trade could all be recorded; it could also record when an IP was licensed, or assigned.<sup>19</sup> Using this method, IP registries or rather regulatory authorities will achieve a lot with little resources. It will make registration and update filing easier. This would also provide a viable solution to women's low access to and use of Intellectual Property Protection frameworks, it could also provide equality to small organizations.

### **DETERMINATION OF CREATORSHIP & UNREGISTERED IP RIGHTS**

There are usually no adequate means for creators, most especially unregistered IP rights such as copyright and other unregistered design rights to invent their works, and ownerships of such IP rights are hard to prove. The immutability part of a blockchain which is widely known for the permanent recording of information or transaction can play a significant of providing a viable solution to this challenge. Since it can provide evidence of their conception, use, qualification requirements, and whether the right is still in the period of protection. The mere uploading of a first design or a document with the details of the designer or creator respectively to a blockchain would allow the creation of a “time-stamped” record and solid evidence to prove these matters.<sup>20</sup> There are several online platforms has already employed blockchain technology to allow the recordings of their copyright or IP right ownership by creators and also to license and track the use and potential infringements of their works on the internet. “This is done by providing each creative work with a unique cryptographic identity that is verified with blockchain”.<sup>21</sup>

### **TRADE SECRETS**

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<sup>19</sup>Dr Birgit Clark, and Ruth Burstall, *Crypto-pie in the sky? How Blockchain Technology is impacting Intellectual Property Law*, Stanford Journal of Blockchain Law & Policy, (June, 2019), available at <https://stanford-jblp.pubpub.org/pub/blockchain-and-ip-law/release/1> accessed 11<sup>th</sup> March, 2022.

<sup>20</sup>Jill Richmond, *Verifying Intellectual Property on the Blockchain*, NASDAQ (Mar. 30, 2017), available at <https://www.nasdaq.com/article/verifying-intellectual-property-on-the-blockchain-cm796302>;

Dagirmanjian, *Blockchain and Intellectual Property: How Bitcoin Technology Might Change IP Protection and Registry*, Nasdaq (Oct. 4, 2017), available at <http://www.fordhamiplj.org/2017/10/04/blockchain-intellectual-property-bitcoin-technology-might-change-ip-protection-registry> accessed 11<sup>th</sup> March, 2022.

<sup>21</sup> Ibid.

One of the widely recognized uses of blockchain technology is the encryption of data and the secure storing and sharing of information. This makes it suitable for the protection and enforcement of trade secrets. With the recent revival faced by trade secret in the US and EU as a result of the *US Defend Trade Secrets Act of 2016* enactment, and the *European Union Trade Secrets Directive*,<sup>22</sup>Blockchain also presents another window of opportunity in the protection of trade secret. Its secure storage capability can assist at “various stages of the life cycle of a trade secret”, also when it comes to the issue of taking a reasonable step as a measure for protection and enforcement of trade secret as provided under the European Union Trade Secrets Directive and equivalent laws.<sup>23</sup>Blockchain technology as an enabler for the use of timestamps also presents the opportunity to “prove the existence and ownership of a trade secret at a certain time”.<sup>24</sup>

## TRADEMARK REGISTRATION

Blockchain technology, if embraced in the Intellectual Property Protection framework would simplify trademark registration, it could also free the significant burden of evidence and administration for both the IP rights holder and IP registries, offices, and regulatory authorities.<sup>25</sup> It would equally simplify the maintenance of IP rights once registered, especially in the countries that embrace the presentation of additional evidence of use for “the maintenance, renewal or incontestability of a right”,<sup>26</sup>and it would further simplify the process of application in the countries where applicants are required to show the use of the mark.<sup>27</sup>

Collection of information with the use of a blockchain ledger would present the relevant IP office or registries with the opportunity to receive a virtual notification on the occurrence of a verified event of use.<sup>28</sup> This will also provide the relevant trademark office or registry with the opportunity to document the “use and frequency of the trademark”, likewise “the date of

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<sup>22</sup> Ibid.

<sup>23</sup> Birgit Clark & Sylvia Polydor, *How blockchain can protect trade secrets*, Intellectual Property Magazine (May 1, 2018), available at <https://www.intellectualpropertymagazine.com/patent/how-blockchain-can-protect-trade-secrets-129763.htm>. Accessed 12<sup>th</sup> March, 2022.

<sup>24</sup> Dr Clark and Burstall (n 19).

<sup>25</sup> Joseph Racynski, *How Might Blockchain Technology Revolutionize the Legal Industry*, Thomson Reuters (June 9, 2016), available at <https://blogs.thomsonreuters.com/answeron/might-blockchain-technology-revolutionize-legal-industry> ; Alessandra Dagirmanjian (n 12), accessed 11<sup>th</sup> March, 2022.

<sup>26</sup> Dr Clark and Burstall (n 19).

<sup>27</sup> MorogluArseven (n 8).

<sup>28</sup> Birgit Clark & Ruth Burstall, *Blockchain, IP and the fashion industry*, Managing IP 9 (Mar. 23, 2017), available at <https://www.managingip.com/Article/3667444/Blockchain-IP-and-the-fashion-industry.html?ArticleId=3667444> accessed on 22<sup>nd</sup> March, 2022.

use”. It will make reliable evidence and information, available on the relevant trademark office or registry inventory. It could make such information readily shareable and accessible by interested individuals and could potentially create an easy way to check on a registered mark.

## **IP & SMART CONTRACTS**

The general idea of digital rights management and other IP transactions such as licensing trademark right through smart contracts is very captivating because it negates the need for a “third party involvement”. The notion of the smart contract is frequently mentioned in the context of blockchain<sup>29</sup> because some blockchain solutions have smart contract features, i.e. the execution and monitoring of contractual transactions without a third party’s intervention. This particular feature could be used in the management of digital rights and other Intellectual Property contractual transactions.<sup>30</sup>

A smart contract is a coded instruction that can facilitate, execute, and enforce a contract by itself. It implements a contract without human involvement once the underlying binding contract has been coded. This is likely to reduce the administrative burden and cost. It usually works through the use of blockchain technology, by recording and executing transactions. Intellectual Property licenses can be executed upon the use of work using a smart contract, the transaction would be self-executory.<sup>31</sup>

## **TAKING THE EDGE OFF COUNTERFEITING**

Blockchain technology would help curb the level of counterfeiting products by adding a unique identifier such as a “scannable blockchain” – “connected tags or engravings” to products. This would enhance the effectiveness of policing the products be it through enforcement by customs officials or by any relevant authority designed for that purpose. This process could also simplify the validation of product genuinity.<sup>32</sup> Blockchain technology also presents the opportunity for the addition of “blocks of data” to its chain, this will enable easy

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<sup>29</sup> Dr Clark and Burtsall (n 19).

<sup>30</sup> Ibid.

<sup>31</sup> Ibid.

<sup>32</sup> Clark & Burstall, *Blockchain, IP and the fashion industry*, Managing IP (n 28).



recording of details on a product's progress by IP rights owners through stages in manufacturing and supply chain.<sup>33</sup>

## GOVERNANCE

Nature of governance has a tremendous impact on IP. One of the cardinal challenges faced by African countries is the governance, there are currently insufficient laws to cover emerging technologies despite the rapid spring up of technological advancements. Corruption also has a significant hindrance to the growth of intellectual property, it hinders the proper implementation of the law despite having insufficient laws. Blockchain technology offers a solution to this challenge as it is a unified platform where the unanimous framework can be designed and everyone can agree to it, depending on the permission granted. This can also proffer a solution to the regionally based IP system, and IP rights granted in one jurisdiction might also be in a different jurisdiction. It will bring more coherence to this area.

## CONCLUSION

Blockchain technology as burgeoning as it sounds is not without drawbacks or challenges, there are several challenges faced by blockchain ranging from technical challenges and legal challenges such as governing laws and issues of jurisdictions. There are reports associating blockchain and cryptocurrencies with unlawful activities, like the famous example of Silk Road; where people were alleged to have “laundered money and bought drugs on the platform using bitcoin”.<sup>34</sup> Nevertheless, these narratives will only idle their ineludible adoption, which would be hugely beneficial to everyone,<sup>35</sup> including Intellectual Property rights. Blockchain technology is constantly evolving, with various governmental and IP regulatory agencies actively contemplating its capabilities, it is reported that the “United States is spending approximately 6.6 billion dollars annually”,<sup>36</sup> and the “EU currently launched the blockchain observatory”.<sup>37</sup> The Ministry of Justice (UK) is also working on a “blockchain-based project to secure digital evidence”.<sup>38</sup> The Chinese on the other hand recognized blockchain's potential for recording evidence. This is clear from the recent

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<sup>33</sup> Ibid.

<sup>34</sup> Nick Darlington (n 11).

<sup>35</sup> Ibid.

<sup>36</sup> MorogluArseven (n 8).

<sup>37</sup> Dr Clark and Burstall (n 19).

<sup>38</sup> *How long we're investigating Digital Ledger Technologies to secure digital evidence* (Aug. 23, 2018), available at <https://insidehmcts.blog.gov.uk/2018/08/23/how-were-investigating-digital-ledger-technologies-to-secure-digital-evidence>, accessed 14<sup>th</sup> Dec, 2019.

Supreme Court of China's judicial decision,<sup>39</sup> where it issued a decision on the hearing of cases by the newly established internet courts in the country, allowing for evidence that is stored and “verified on blockchain platforms” to be used in legal disputes.<sup>40</sup> Blockchain technology, if embraced would have a transformative effect on both innovators/creators and IP regulatory bodies.



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<sup>39</sup>Laney Zhang, *China: Supreme Court Issues Rules on Internet Courts, Allowing for Blockchain Evidence*, Global Legal Monitor (Sept. 21, 2018), available at <http://www.loc.gov/law/foreign-news/article/china-supreme-court-issues-rules-on-internet-courts-allowing-for-blockchain-evidence> , accessed 14<sup>th</sup> Dec, 2019.

<sup>40</sup> Ibid.