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Music Copyright Management on Blockchain: Is it legally viable?

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ABSTRACT

The thesis begins by describing the current problems in the fragmented world of music copyrights indicating musicians are not being paid accurately due to lack of transparency in the calculation of royalties and this lead to legal battle. Later we investigate how blockchain technology can alleviate much of the difficulties associated with this complexity. We further explore the legislative and institutional support for the technology necessary for a successful implementation, in form of legislations and governmental projects. We find out that numerous authorities have started voting favourable legislations and recognizing the technology as a valid public ledger. Eventually, we confirm our findings by analysing existing laws.

Keywords: Music copyright, blockchain technology, smart contract, royalty payment.
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<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>CISAC</td>
<td>International Confederation of Societies of Composers and Authors</td>
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<td>CRM</td>
<td>Collective Rights Management</td>
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<td>CJEU</td>
<td>Court of Justice of European Union</td>
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<td>DLT's</td>
<td>Distributed ledger technology</td>
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<td>DRM</td>
<td>Digital Rights Management</td>
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<td>DSM</td>
<td>Digital Single Market</td>
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<td>ECJ/CJEU</td>
<td>European Court of Justice/Court of Justice of the European Union</td>
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<td>ECSA</td>
<td>European Composer and Songwriter Alliance</td>
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<td>EU</td>
<td>European Union</td>
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<td>EUIPO</td>
<td>European Union Intellectual Property Office</td>
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<td>GRD</td>
<td>Global Repertoire Database</td>
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<td>GRD WG</td>
<td>Global Repertoire Database Working Group</td>
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<td>ICE</td>
<td>International Copyright Enterprise</td>
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<td>ICMP</td>
<td>International Confederation of Music Publishers</td>
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<td>IMJV</td>
<td>International Music Joint Venture</td>
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<td>IMR</td>
<td>International Music Registry</td>
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<td>IP</td>
<td>Intellectual Property</td>
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<td>IPR</td>
<td>Intellectual Property Rights</td>
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<td>ISP</td>
<td>Internet Service Provider</td>
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<td>ISRCs</td>
<td>International Standard Recording Codes</td>
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<td>ISWCs</td>
<td>International Standard Musical Work Codes</td>
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<tr>
<td>OA</td>
<td>Open Access</td>
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<td>PROs</td>
<td>Performing rights organizations</td>
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<td>SCMS</td>
<td>Serial Copy Management System</td>
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<td>SESAC</td>
<td>Society of European Stage Authors and Composers</td>
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<td>TOS</td>
<td>Terms of Service</td>
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<td>TPM</td>
<td>Technological Protection Measure</td>
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<td>TEU</td>
<td>Treaty on European Union</td>
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<td>TFEU</td>
<td>Treaty on the Functioning of the European Union</td>
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<td>TRIPS</td>
<td>Trade-Related aspects of Intellectual Property rights</td>
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<td>US/USA</td>
<td>United States of America</td>
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<td>Abbr.</td>
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<td>USPTO</td>
<td>United States Patent and Trademark Office</td>
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<td>World Intellectual Property Organization</td>
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<td>WTO</td>
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LIST OF CASES

EU

Case C-245/00 Stichting ter Exploitatie van Naburige Rechten (SENA) v Nederlandse Omroep Stichting (NOS)

Case C-360/13 Public Relations Consultants Association v Newspaper Licensing Agency Ltd,

Case C-70/10 Scarlet Extended SA v Société belge des auteurs, compositeurs et éditeurs SCRL (SABAM).

Millar v. Taylor, (1769) 98 ER 201 at 252.

US

A&M Records v. Napster
Arnstein v. Edward Marks, 82 F. 2d 275 (2d Cir. 1936), 277

Bridgeport Music, Inc. v. UMG Recordings, Inc


Marks v. Leo Feist, Inc 290 F. 959 (2d Cir. 1923)


Wixen music publishing, inc v Spotify USA Inc. 2:17-cv-09288-GW-GJS

Shapiro, Bernstein v. Miracle Record, 91 F. Supp. 473 (N.D. Ill. 1950).

Twentieth Century Music Corp. v. Aiken, 422 U.S. 151, 156 (1975).

LIST OF STATUTES

Berne Convention for the Protection of Literary and Artistic Works (9 September 1886) 1161 UNTS 3 (as revised)


WIPO Copyright Treaty (20 December 1996) WIPO Doc. CRNR/DC/94.

WIPO Performance and Phonograms Treaty (20 December 1996) WIPO Doc. CRNR/DC/95
1. INTRODUCTION

1.1 Background

The music industry constantly implements new technological solutions nonetheless the tracking and distribution of songs continue to have significant challenges, with a lack of transparency and accuracy that can result in copyright owners are losing royalty payments from various mediums.¹ In every song, there are songwriters, musicians, managers, recording artist, record companies, publishing companies and the list goes on and on who can claim rights.² Thus there are a lot of right holders in a single song which model is extremely difficult to determine how much to pay to whom, payments not only get help up however they sometimes never even reach to the right recipients thus, it’s a broken system.³ Therefore, it would appear that a multinational music rights database would reduce transactional costs and create more business for the music industry.⁴

However, the challenge still remains and delays bringing the music trade fully into the modern digital age.⁵ Several music rights databases exist on a national level, such as the databases maintained by the U.S. Copyright Office and the PROs.⁶ However, at the very best, they provide information about a small fragment of the works that exist in the music industry, and can suffer from a number of other issues, including inaccuracy and inaccessibility.⁷ Creating an alternative and more comprehensive database was the goal of a group of music


⁴ ibid.


⁶ Performing Rights Organizations

industry entities, including a number of PROs, which merged around the Global Repertoire Database effort.\(^8\)

In that context, EU Commissioner Neelie Kroes initiated the Global Database Repertoire Working Group in September 2008. The GRDWG\(^9\) was mainly included distinct set of organizations comprising Universal and EMI Music Publishing, tech companies like Apple, Amazon, Nokia and collections societies such as PRS for Music, STIM (Sweden) and SACEM (France).\(^10\) Likewise, Kroes presented several roundtable discussions in which he assembled a group of cross-sector entities to discuss legal, administrative, and technological barriers for the more efficient licensing and distribution of music online.\(^11\) Creating a singular, inclusive, and trustworthy ledger of the ownership and control of musical works around the world was the central objective of the group that developed from these roundtables.\(^12\)

Subsequently, the group issued a set of suggestions and recommended that the GRD should stipulate access to authoritative, comprehensive, multi-territory information concerning the ownership and control of the global repertoire of musical works, and that it should be openly available to songwriters, publishers, Collective Rights Management (CRM) organizations, and other potential users.\(^1\) However, according to an official white flag issued by PRS for Music, the Global Repertoire Database will not be moving onward, despite significant investments worth of $13.7 million in USD.\(^13\) The investment did not work out and contributions from publishers and collection societies never materialized.\(^14\) Which means that searching, finding, and paying for the use of a song worldwide will remain a hopelessly complicated, nearly-impossible matter.

\(^8\) ibid.

\(^9\) Global Database Repertoire Working Group

\(^10\) Milosic (n 3).

\(^11\) ibid.

\(^12\) ibid.

\(^13\) ibid.

Therefore, the goal of this master thesis is to analyse whether the blockchain technology can successfully create the world-wide decentralised music rights database to eliminate or reduce these complicated issues of music industry and examine the possibilities and challenges of managing music copyrights by blockchain technology based applications.

1.2 Defining Blockchain Technology

A blockchain is fundamentally a distributed database that is not stored centrally, it has duplicate copies on thousands of computers across the world who are using the blockchain based application. It can record information regarding payment transactions in a secure and efficient way. Information is added to this database in so-called blocks, each of which holds a unique code and that is generated cryptographically on the basis of previous blocks and a timestamp. After data recorded, the new block is linked to the chain of all previous blocks in that chain. All forthcoming blocks will comprise references to this block as well as previous ones.

As the most intriguing technology since the Internet, blockchain changes fundamental aspects in the way businesses are run. This applies correspondingly to businesses which focus on creative content. The highest influence will be seen in the manner deals and payments are made. It will significantly adjust the way value is transferred, deposited and accounted for. It stipulates a clear and accessible data and is set to solve a ‘global root of trust problem’. In all creative industries, tangible expressions of the human intellect which are unique and have

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17 ibid.


19 ibid 28.


21 ibid


a certain value are protected by law. Since they are managed as property, one can buy, sell or license them. They are considered to be property of the creator of that product thus, we can comprise in this category all the original creative works which are protected under copyright law such as music, books etc. The most important issue regarding intellectual property is being able to identify the real creator and the current owner.

One of the recent ideas for blockchain implementation is to create a global, shared database which would include all kinds of intellectual property. Given the properties of the blockchain, as soon as the data is stored on the software, it will become immutable. This will happen without the control of a central authority and will eliminate the need for centralized registries. The idea makes sense, particularly in the case of digital intellectual property which could be added to the blockchain immediately after creation or even before, as a draft. That will assure that the creator is known with assurance from the beginning.

1.3 Research Questions

1. What is the legal framework of music copyright and how blockchain technology is relevant to this field?

2. What are the problems of today’s copyright system in the music industry and can blockchain help to alleviate the problems?

24 ibid.


26 ibid 6.


28 ibid.

29 ibid 9-10.

30 ibid.

31 ibid 7.
3. How Could blockchain-based technologies be used in the music copyright management?

4. What legal aspects need to be considered?

5. What are the risks and challenges of using blockchain technology based applications in the music copyright management?

1.4 Motivation of the Thesis

Collecting societies are under mounting pressure to reduce payments, become more competitive and more transparent. This pressure is coming from all sides, rights owners, members as well as from licensees. In Europe, the EU Copyright Directive\(^\text{32}\) is specifically targeting Collecting Societies to encourage them to do what many of them see as slightly contradictory things. On the one hand become more transparent and efficient which probably involves working more efficiently together across numerous territories, while also becoming more competitive with one another.\(^\text{33}\) While every member of the music chain suffers from the complex, inefficient and outdated system, no one seems to have the incentive to improve it. Data is siloed in the databases of record companies, publisher, and collecting societies and they do not want to share it.

Because they do not have authority over one another and are only required to share information with their artist, no one can force anyone else to share their data. The most important reason is that they do not want to pay up when they do not have to. They do not want to expose how poor their reporting and money collecting is. Nonetheless, to be fair, they also do not have the resources to easily offer transparency of their data. This is where technology comes in. With the appropriate technology, data can become transparent, accessible and easier to understand. Thus, it is anticipated that blockchain technology has the potential to fundamentally change the manner in which the links between International Standard Recording Codes (ISRCs) of music recordings and International Standard Musical Work Codes (ISWCs)


of music works are tracked by improving royalty matching processes, which could eventually reduce errors and increase the speed of payments to copyright owners.34

The world’s most popular music streaming company Spotify settled a licensing dispute with the National Music Publishers Association (NMPA) in the U.S. over unpaid royalties.35 According to NMPA, Spotify had not get the needed mechanical licenses that refer to a copyright holder’s control over the ability to reproduce a musical work.36 Consequently, Spotify agreed to pay over $20 million to music publishers for this settlement, in addition to a $5 million penalty. As the company likely avoided several class action lawsuits as a result of the settlement, it indicates to a larger problem in the music industry.37 Billions of songs are played on Spotify every single day, and many songs don’t have the accurate metadata to ensure that the correct songwriters, artists or rights holders are tagged, meaning royalties may go missing or not be registered at all. On top of that, distributing that much money to countless collection agencies is not a simple process for any company, even one of the largest in the world.38

Similarly, Spotify specified that they didn’t pay out the royalties as they simply didn’t have the essential data to find out whose claims were legitimate, or even how to find the lawful right holders.39 Additionally, the company said that music industry lacked a reliable database that covered all existing music rights. Thus, this opens it up to litigation, as the way is obviously not ideal for managing these rights and payments without an authentic, reliable database.40 Therefore, Spotify has purchased the Brooklyn-based blockchain startup Mediachain Labs, to work on developing better technology for connecting artists and other rights holders with the songs hosted on Spotify’s service.41 However, the blockchain technology being in its early

34 Rogers (n2) < http://blog.dataart.com/utilizing-blockchain-technology-to-improve-music-copyright-management/>
36 ibid.
37 ibid.
38 ibid.
39 ibid.
40 ibid.
phase, with only a few understanding its success will depend on many factors, among which governmental and legislative support could play a central role. It is not well-defined yet how, and to what extent, blockchain-based technologies might be adopted by the music industry or regulated by governments.42

To recapitulate, as the technology is not fully mature, it is not clear whether it certainly has the potential to disrupt aspects of the music industry and give artists more control over the commercialization of their music. Accordingly, it is not yet well-defined how governments propose to legislate for blockchain-related technologies and address their compatibility or incapacity thereof with existing regulatory frameworks.

1.5 Thesis Methodology

A qualitative method has been applied to the question of this thesis, since the purpose of a qualitative method is to bring clearness to an unclear problem that is to present a more profound description of the problem at hand, thus aiming to give a better understanding of the issue being studied. Likewise, both the primary and secondary sources have been used such as the provisions of various national and international legislations as well as journal articles, reports, the official website of some international and national organizations. Besides, case laws have been used to a large extent. The court cases have been selected for this report will mainly be from within EU to shed light on the practical application and interpretation of the EU legislation by the ECJ.

Likewise, the reference to the US court case has also been used for presenting the issues with current legislation for IP protection for the individual author/creator that this thesis is trying to resolve. There are two ways in which legislation and governments can support the realization of the blockchain potential in the IP system. The most straightforward approach is the explicit acceptance of the technology in legislation, recognizing it as valid and fitting for specific use cases. This is, of course, the ideal form of a legal framework in favor of blockchains. This also includes regulations making the technology admissible without directly

42 ibid.
mentioning it. The other investigated form of governmental support is of a more implicit nature and is embodied through the specific use of blockchain technology in government functions.
2. THE LEGAL FRAMEWORK OF MUSIC COPYRIGHT AND BLOCKCHAIN TECHNOLOGY

2.1 Music Copyright

There are two copyrights associated with every piece of recorded music, one for the composition ‘musical work’, the other for the recording itself ‘sound recording’. A recording of a song is said in copyright law to embody the composition.\textsuperscript{43} Copyright on the composition is allocated to one or more composers, each of whom is represented by one or more music publishers.\textsuperscript{44} If many composers and publishers are involved, they share royalties according to agreed percentage splits.\textsuperscript{45} The copyright in a sound recording, instead, is owned by a recording artist or record label.\textsuperscript{46} There is a huge demand for the use of music catalogues by many music users in the terrestrial and satellite radio, local, cable and satellite broadcast television, Internet, and cell phone industries.\textsuperscript{47} Other music users include bars, restaurants, hotels, retail shops, colleges, and universities.\textsuperscript{48} There is also a demand for music on music channels on an airplane, music at a convention, or music on hold on a telephone.\textsuperscript{49}

All of these music users have arranged for blanket licenses with performing rights organizations (PROs) to use their music catalogues in a variety of music performance types such as a song or musical composition performed live or recorded, theme music used in the beginning and ending of programs, jingles used in advertising, underscores, ring tones, or promotional announcements.\textsuperscript{50} The purchaser of the blanket license is allowed the non-

\textsuperscript{44} Jason Toynbee ‘The Open University, UK, Copyright, The work and Phonographic Orality in Music’ (2017) 80.
\textsuperscript{45} ibid.
\textsuperscript{46} Bill rosenblatt, ‘watermarking technology and blockchains in the music industry’
\textsuperscript{47} Ivan L. Pitt, Economic Analysis of Music Copyright, American Society of Composers, Authors and Publishers, page-3
\textsuperscript{49} ibid 8.
\textsuperscript{50} ibid 15-17.
exclusive and unlimited use of the PROs library of songs, once the fee for its use has been negotiated and the license had been granted.\textsuperscript{51} The PROs would then make performance royalty payments to the copyright owners registered on record.\textsuperscript{52} These royalty payments become one source of income for the songwriters, composers, and music publishers. Popular music, when conveyed through tone, tempo, harmonization, melody, and lyrics, are thought to reflect the popular culture, nature, and values in a society.\textsuperscript{53}

\subsection*{2.2 Copyright in the era of Internet}

Copyright protected works such as music, films, books etc. are facing the problem that internet technology is developing faster than the laws who govern it.\textsuperscript{54} Fraud and art forgery can be as easy as ‘copy and paste’ nowadays.\textsuperscript{55} Torrents and streaming made piracy commonplace while legislations struggle to adjust. While uploading a copy of copyrighted content on a website is illegal and punished by law, streaming often is not.\textsuperscript{56}

Article 5(1) of the EU Infosoc Directive (2001/29/EC) stipulates that ‘temporary acts of reproduction which are transient or incidental and an integral and essential part of a technological process shall be exempted from the reproduction right.’\textsuperscript{57} In June 2014, in relation to the Case C-360/13 Public Relations Consultants Association v Newspaper Licensing Agency Ltd, the Court of Justice of the EU ruled that any transient copies that are created as a result of browsing a website fulfil the conditions required for the Article 5(1) exception to

\begin{thebibliography}{99}
\bibitem{51} ibid.
\bibitem{52} ibid.
\bibitem{53} Jason Toynbee, ‘Copyright, the Work and Phonographic Orality in Music Social and Legal Studies’ (2006) 77-99
\bibitem{54} ibid.
\bibitem{55} ibid.
\bibitem{56} ibid.
\end{thebibliography}
apply. Any contrary ruling would have made web browsing illegal in the EU, nonetheless that decision also effectively made streaming legal.

Copyrights are supposed to ‘confer on the author non-economic rights that is moral rights for instance, the rights of paternity and also economic rights, for example, the right to get fair remuneration that is copyright fees or royalties for the use of their work.’ Hence it is evident that this status quo can be problematic, with the ruling making it legal to violate both rights conferred by copyrights. While several lawful services remunerating artists, such as Netflix and Spotify, are gaining in popularity, the remuneration remains inadequate. McCandless presented that the revenue of an artist on Spotify is $0.0011 per play. Additionally, unregulated streaming services stay vastly popular, with 57.8 billion visits to streaming sites in 2015, according to MUSO’s 2016 Global Film & TV Piracy Market Insight Report.

Thus, the copyright system is in debts. Although a tremendous technological change occurred, the arguments in the field of popular music theory have not changed much because issues such as digital piracy and user-generated distribution have come to prominence. The contemporary music industry operates in the context of an industrial or cultural 'media cloud'. Inside this cloud, the sites of distribution and reception are progressively online, interactive with user input. In brief, now-a-days people might download a selection of digital audio files from anonymous internet peers from around the world. Besides, copyrights are easy to register

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60 ibid.

61 ibid.


63 ibid 7.

64 ibid 6-8.

65 ibid.

66 ibid.

and in most jurisdictions can be self-assigned however delegation can be confronted by somebody claiming to be the rightful owner.68

In summary, there are two key issues related to copyrights such as assignment and piracy.69 Although the former was relatively untouched with the advent of the internet, the internet created substantial opportunities for rapid replication and piracy of music thus challenging existing institutions.70 Blockchain technology is expected to impact both aspects of the music copyrights.

2.3 Copyright Legislations for the Blockchain

In 2016, both the European Union Intellectual Property Office (EUIPO) and the United States Patent and Trademark Office (USPTO) organized meetings on the topic of blockchains. During the blockchain Technology Workshop in October 2016, ‘over 20 leading blockchain specialists from Europe and the US met in Brussels to discuss the future use of the technology in the field of IPR.’71 They concentrated on areas of protection and enforcement, acknowledging the potential of the technology in ‘tangible and intangible asset management, smart contracting, track and trace of products’.72

Likewise, on 26 October 2017, the European Union Intellectual Property Office discussed the implication of blockchain technology on the world of intellectual property with around eighty people73. Participants include national IP offices, blockchain experts, right holder representatives and representatives from civil society.74 The basic concepts of the technology, various aspects of interaction between the technology and intellectual property was

68 ibid
69 ibid.
70 ibid.
72 ibid.
74 ibid.
covered in the conference including 3 practical use cases and a look into the future.\textsuperscript{75}

Similarly, on December 9, 2017, the Department of Commerce’s Internet Policy Task Force hosted a meeting on Developing the Digital Marketplace for Copyrighted Works at the U.S. Patent and Trademark Office headquarters in Alexandria, Virginia.\textsuperscript{76} The aim was to ‘facilitate constructive, cross-industry dialogue among stakeholders about ways to promote a more robust and collaborative digital marketplace for copyrighted works.’\textsuperscript{77} Remarkably, members of the teams behind Ascribe and the dotblockchain music format were invited to participate and voice their opinion.\textsuperscript{78} According to the website, the background was the identification of several critical issues in the copyright ecosystem, for which the task force plans to ‘conduct further work’ including on the issue of how the government can accelerate the further expansion of a vigorous online licensing environment.\textsuperscript{79} This shows how aware and concerned governments are regarding the copyright situation, and hopefully, this kind of initiatives will allow for a more rapid development of legislations leveraging the benefits of blockchain technology.\textsuperscript{80}

\section*{2.4 Conclusion}

Until now, no concrete legislation has been issued by any country or state which supports the use of blockchain for improved copyrights management.\textsuperscript{81} Nonetheless, governments are starting to consider the possibilities of IP on the blockchain. The Report and Recommendations of the Technical Upgrades Special Project Team of the United States Copyright Office makes ‘specific recommendations’ for a ‘better public record’. ‘One of the ongoing and primary

\textsuperscript{75} ibid 13.


\textsuperscript{77} ibid.

\textsuperscript{78} ibid 5.

\textsuperscript{79} ibid.

\textsuperscript{80} ibid.

\textsuperscript{81} ibid 8-10.
objectives of the Copyright Office is to create and maintain a public database of robust, reliable, and authoritative records of copyright ownership. Even though the blockchain is not explicitly mentioned, some central aspects of the blockchain can be recognized in those requirements. Regarding metadata, the Office might also wish to seek ‘solutions to harvest this data and make it available,’ which is also encouraging for new blockchain based formats.

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82 ibid.
83 ibid.
3. PROBLEMS OF TODAY’S COPYRIGHT SYSTEM IN THE MUSIC INDUSTRY

Effective management of music copyrights involves more than simply securing their protection in order to attain their full value. Substantial effort is required to implement an effective Intellectual Property strategy, that is even greater in respect of non-registrable copyrights since their lack of registration against which to reconcile transactions often results in issues concerning even the basic legal considerations of ownership, creation, jurisdiction and use. The flexibility of the Internet and relative ease of infringement complicates matters even further. Blockchain technology, with its immutable characteristics and peer-to-peer review system, might well be the solution to these issues. Accordingly, a public decentralized ledger such as the blockchain might be perfect for cataloguing and storing original music away from any intermediary.

3.1 Lack of Enforcement

Intellectual property laws are territorial, meaning musicians or their proxies can register their IP with a national office. The Berne convention, Universal Copyright Convention, World Trade Organization, and other international treaties and trade agreements offer international protection, but there is no such thing as an international copyright. In some logics, the more globalized nature of the music industry made possible by the internet is certainly made it impossible to enforce copyright infringement cases. Most of the time, the infringement notice does not work. This global nature of the music industry has enhanced the importance of

85 ibid.
86 ibid 18.
87 ibid 18.
88 Copyrights and related rights do not necessarily need to be registered (unlike patents, which must be registered). They can be, but it is not a requirement in national/regional/international IP laws and treaties.
89 Berne Convention Berne Convention for the Protection of Literary and Artistic Works (9 September 1886) 1161 UNTS 3.
90 Universal Copyright Convention 1952.
labels and other intermediaries that have a vested interest in policing IP infringement and can use their clout with governments to discourage. However, it is something individual musicians or less organized entities simply cannot do.92

3.2 Lack of Transparency

Lack of Transparency is one of the most common problems in the current copyrighting system in the music industry. The lack of authoritative, accessible sources of data about music copyright information, for example, the information regarding ownership and license terms has been the most significant problem that proves the lack of transparency.93 Moreover, legitimate data regarding the ownership is fundamental for music service providers and rights administrators to manage royalty transactions for the billions of music uses that occur each year.94 The lack of complete, easily accessible and accurate information causes inefficiencies, ambiguities, inaccuracies, and legal risks.95 The consequences have included collections of unclaimed royalties, inaccurate transactions, and lawsuits.96

In the last few years, there have been a number of attempts to resolve these problems by creating single large comprehensive databases, such as the World Intellectual Property Organization’s International Music Registry (IMR), the Global Repertory Database (GRD), and the International Music Joint Venture (IMJV) amongst royalty collecting societies from the UK, US Canada, and the Netherlands.97

92 ibid.
94 ibid.
96 ibid.
Conversely, none of these efforts have succeeded, due to issues of funding, control, and the complete difficulty of gathering and maintaining all that data in one place, so the problems remain. In the contemporary system, copyrighting typically precedes monetization, especially for bigger or experienced artists who go through labels that conduct due diligence. Only in cases of negligent artists are there attempts to monetize without copyrighting.

3.3 Value Gap in Royalty Distribution

The concept of the ‘value gap’ regarding digital use of copyrighted works has been around for some time. The big question is whether authors and rights holders are adequately involved in the revenues generated by the use and the display of their works on online platforms. The European Commission has recently addressed this issue within the framework of its strategy for a Digital Single Market, more specifically in the context of its draft for the Directive on copyright in the digital single market, and it called for more rigorous monitoring for certain platform operators. Whether rigorous obligations will come into effect is still not clear.

Likewise, adversaries claim neither the film industry nor the music industry have suffered great economic losses due to the activities on the Internet. In fact, a study conducted by Felix Oberholzer-Gee showed that the consumers continuously spend the same amount of money on amusement in spite of the possibilities to get access to the work illegally. The conclusion to be made from this is that the revenue streams now go to other recipients.

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98 ibid 4.


3.4 The Blockchain Can Help to Solve the Problems

The current solutions to the above-mentioned problems such as digital rights management, paywalls, micro-payments, subscription-models for streaming offerings do not consider the author.\textsuperscript{104} However, a blockchain-based network, which reflects the chain of the rights transparently and invariably, could contribute to a fair distribution of revenue.\textsuperscript{105} Besides, traceable ownership is a problem area that blockchains are especially well suited for. A company called Blockai applies the blockchain technology for the right holders to timestamp their content to verify whether anyone violating their copyright and create a permanent record of his/her work.\textsuperscript{106} They also issue a time-stamped copyright certificate to their clients.\textsuperscript{107} All user has a personal profile on the Blockai website that permits them to file and arrange all their certificates. From the time the content uploaded, the service can track online usage of a client’s work and notify them if there is any unauthorized usage.\textsuperscript{108}

Moreover, significant investment and technical talent have entered the music industry through blockchain technology as blockchain technology has arisen as a way to bring secure, reliable, and scalable distributed transaction processing to music licensing.\textsuperscript{109} Blockchain technology substitutes uniform central systems with a method based on interoperability among current databases as well as distributed transactions. Furthermore, collecting societies, such as, SACEM, ASCAP and PRS for music have entered into a partnership to ‘prototype a new shared system of managing original music copyright information using blockchain technology.’\textsuperscript{110}

\textsuperscript{103} Rosenblatt ( n 33).


\textsuperscript{105} ibid.

\textsuperscript{106} ibid.


\textsuperscript{108} ibid.

\textsuperscript{109} ibid 5-8.

\textsuperscript{110} ibid.
The huge growth of music streaming has augmented the complexities of the already difficult task of tracking and distributing royalties to copyright owners. These collection societies are working with IBM to influence open source blockchain technology from the Linux Foundation named Hyperledger Fabric, to more effectively regulate the correct ownership information of music by implementing a decentralized and shared database with the facility for real-time tracking and update capabilities of musical work metadata. Thus, these problems can be solved by blockchain. Nevertheless, digital music files themselves will remain to exist outside of blockchains and it is one of the important practical limitations of the blockchain.

3.5 Benefits Expected from Blockchain

In the new digital creative economy, blockchain can recreate the way artists are remunerated. Artist often complains that new intermediaries such as Spotify, YouTube and performance rights organizations increasingly add themselves into the value chain between artists and their audiences and that is why artists receive smaller cuts of revenue and have less power over how their creative works are priced, shared, or advertised. For example, on Spotify it would take between 120 to 170 streams for rights holders to collect their first penny.

‘Today, when anyone wants to pay for the right to play a song at a concert or the right to play a song in a movie, this causes quite a lot of transaction friction and takes time and ‘It’s likely the case that creative work is in reality worth much more, but the problem is creative work is undervalued due to all of the transaction frictions we see today.’

112 ibid.
114 ibid.
116 ibid.
Consequently, creators of the music necessitate distinctive contracts in each jurisdiction often through many intermediaries to defend their copyright and to have the ability to distribute their content.\textsuperscript{117} Nevertheless, placing content on a blockchain, acknowledges comprehensive transparency and automation of execution, as well as direct payments to copyright holders as it has the connectivity for peer-to-peer transactions through a virtual currency such as Bitcoin or Ethereum.\textsuperscript{118} Therefore, one of the early innovators in this area is Grammy-winning British singer and songwriter Imogen Heap is working on her own blockchain-based offering named Mycelia which promised to provide a fair-trade music business that provides artists more power over how their songs and related data travel amongst other musicians and fans.\textsuperscript{119}

### 3.6 Conclusion

Blockchain technology has the ability to drastically change the way in which the connections between International Standard Recording Codes (ISRCs) of music recordings and International Standard Work Codes (ISWCs) of music works are tracked by improving royalty matching processes, which could eventually reduce errors and increase the speed of payments to copyright owners.\textsuperscript{120} In blockchain, the registration proxy for copyrighting is synced with monetization. In other words, it is not possible to monetize without some level of registering of the artist’s work on the registry.\textsuperscript{121} This could be appreciated for the careless genius who is eager to monetize, however, has not made the effort to complete the routine registration needed in the present system.\textsuperscript{122}

\textsuperscript{117} ibid.

\textsuperscript{118} Sinclair Davidson, Primavera De Filippi and Jason Potts, ‘Economics of Blockchain’(2016) 7.

\textsuperscript{119} ibid.

\textsuperscript{120} Paolo Guarda, ‘Barriers that citizens face regarding their intellectual property rights’ (2018) Research paper on case study 4.

\textsuperscript{121} ibid.

\textsuperscript{122} However, there is the consideration that this may create a formality that Berne forbids in exercising exclusive rights under copyright.
4. POSSIBLE WAYS OF USING BLOCKCHAIN TECHNOLOGY IN THE MUSIC COPYRIGHT MANAGEMENT

The music copyright management on blockchain is established on storing of music as well as their metadata in a comprehensive blockchain. This would make it likely to verify authorizations, track the distribution of digital content in real time, allow certain uses and to calculate these accurately. The genuineness of a work could also be confirmed in this way. Traceability of the license chain to the author is also proposed by blockchain technology and therefore its participation in the revenue generated on the Internet is indisputable. Thus, the question is, where does it make sense to use this technology? Following are some ways of using blockchain technology in music copyright management.

4.1 Checking Authenticity of Original Music

An innovative concept was brought along by the start-up Verisart which is planning to employ blockchain technology for checking the authenticity of artistic works. This implies creating a worldwide record including all pieces of art and collectibles along with museum standard metadata. The technology would guarantee the anonymity of the parties as well as offer enhanced security. The result would represent a valuable asset for artists, collectors and even insurers. Furthermore, Deloitte has a new approach to ensure the authenticity of artistic creations and tracing their journey. The Art Tracktive proof-of-concept faces the issue of

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124 Takahashi (n 108).

125 ibid.

126 ibid.


128 ibid.

129 ibid

130 ibid.
poor documentation on the provenance of an artwork. With the blockchain system, all the
details about the history and movements of a piece of art will be recorded and easy to follow.

Likewise, blockchain could be used to verify the real owner of the content, whether it
is the original version or a legitimate copy of it, and the set of rights that are bundled with this
content.\textsuperscript{131} It could be used to protect the rights of the original creators of works, who may
retain some rights after the sale of their content.\textsuperscript{132} The original right holders may include a
multipart network of actors claiming partial ownership including entitlement to royalty
payments when the digital content is used for commercial purposes. For music tracks, for
instance, this might include songwriters, musicians and other artists as well as managers,
recording engineers, and a variety of specialist intermediaries.\textsuperscript{133} The claims of each of these
actors and the terms and means of their distribution can be digitally encoded and it will enable
more reliable and efficient payment. Royalty payments could even be performed automatically
through smart contracts.

4.2 Digital Rights Database

Ascertaining the owners of copyright in a song is not always straightforward, as ownership
might have passed through many different people, or there might be different versions of a
song, each with a different owner.\textsuperscript{134} A numerous number of rights may subsist in the songs,
including rights in the composition, the sound recording, as well as performers’ rights and
these, do not always have the same owner.\textsuperscript{135} The fact that companies sometimes have to hire
experts who specialize in tracking down copyright owners of a particular piece of music shows

\textsuperscript{131} Philip Boucher, ‘How blockchain technology could change our lives’(2017) STOA<
accessed 2 February, 2018

\textsuperscript{132} ibid 6-12.

\textsuperscript{133} ibid.

\textsuperscript{134} Tse, C. ‘Dotbc Architecture Preview’ (2017)<http://dotblockchainmusic.com/technology/ > accessed 1
March 2018).

\textsuperscript{135} Sellin, D. & Seppala, T. ‘Digital Music Industry Background Synthesis, Helsinki: Research Institute of the

Besides, blockchain technology is now being used to make safe databases of digital rights in music that permit for a song file to comprise all the applicable information, such as the identities of the performers, songwriters, producers, and publishers, as well as the song lyrics and musical composition, and particulars of the album cover art.\footnote{137}{Carsten Winter, ‘Blockchain: A new opportunity for record labels Opal Gough’ (2018) 7 International Journal of Music Business Research, 24.} Those information might be added by being programmed into a music file in a permanent and immutable way.\footnote{138}{ibid.} Thus, rightsholder could dynamically update this information immediately if anything changes. Platforms such as Ujo, Mycelia, and MUSE now are implementing this idea.\footnote{139}{ibid.}

### 4.3 Automating Payments of Royalties

Once a radio station or TV producer has identified the copyright owner of a piece of music they would like to use, they must pay the royalties required by the relevant license in order to use the music. In fact, it may take months before an artist or publisher is paid any royalties they are due.\footnote{140}{Laura N. Bradrick, ‘Copyright—Don’t Forget About the Orphans: A Look at a (Better) Legislative Solution to the Orphan Works Problem’(2012) 34 W. NEW ENG. L. REV. 537.} Although these time periods have tended to decrease in recent years, they remain an issue, partly because of the number of intermediaries involved in each transaction.\footnote{141}{L. Koonce, A Blockchain Primer, <https://creativeblockchain.com/a-primer-on-blockchain-the-arts/> accessed 4 March, 2018.} Every intermediary organisation has their own, differently-structured database and payments system and the transaction has to make its way through each of these databases before it reaches its ultimate destination.\footnote{142}{Gary Rowe, ‘Smart Contracts and Blockchain’ (2017) techvision Research, 23.}

The information from a blockchain-based digital rights database potentially could be
used to automate the payment of royalties. Some blockchain-based technologies for example Ethereum also can run smart contracts, meaning contracts that have their terms written in code and embedded into the blockchain, that can be set to automatically make payments to parties in blockchain-based currencies such as Bitcoin or Ether if certain conditions are met. The right holders could specify the licensing terms in each music file so that when a specific song is played, the smart contract facilitate the automatic and direct payments in accordance with the terms of the digital license for that music.

As no middle man are involved in such automatic payments, the transaction costs are very low and so-called micropayments, that is, payments consisting of fractions of pennies, are supported. Such transactions could be completed in minutes. Additionally, rights holders could have access to piles of valuable real-time data concerning the numbers, age groups, and locations of the listeners. Most importantly, the digital license could also create further terms by specifying the split of royalties amongst the different parties such as the artist, the record label or the producer and automatically direct the appropriate payment to each right holders.

4.4 Establishing Transparent Transaction

Blockchain-based music copyright management tool could be a viable method for the right holders to exert more control over their creations as it creates an immutable but traceable chain of entry logs. A clear example of the beneficial use of these registries is the streaming of music and micropayments. An artist could release a song onto a blockchain based platform


145 Primavera De Filippi and Samer Hassan, ‘blockchain technology as a regulatory technology: From code is law to law is code’ (2017)10.


149 Camilleri Prezoesi, ‘Unravelling blockchain’ (2017)
where the artist will be enabled to get the instant information that how many times the song was streamed. Moreover, the artist’s e-wallet could be linked to the song for payments to be executed in exchange for streaming of the song. Once a song is played by a user, royalties are automatically transferred to the right holder’s account through the self-execution of the smart contract.

Besides, the songwriter would be instantly notified of the use of the material and any royalties owed would be instantly debited from the user’s digital wallet. Blockchain would allow the artist to be in direct contact with the audience enabling them to possibly gain bigger rewards for their original songs and have a more precise indication of the number of times that a song has been played. One of the biggest attractions of blockchain is its public kind that every transactions for a song could be seen and validated, including who accessed the work and how much revenue the work is generating at any point in time. This will permit right holders to have a improved sense of the overall value of the creative work that is being produced, all in the form of a digital ledger provided in the blockchain. The service runs by stipulating each song with a unique cryptographic ID, recognized with the blockchain. This means ownership can be traced, payments will be transparent and the songs will be securely shared.

4.5 Facilitating Smart Contracts

Blockchain can facilitate smart contracts to assist music copyright holders manage digital rights and distribute revenue shares to contributors to the song in an accurate way. Smart contracts have the

150 ibid 41.


152 ibid.


156 ibid.
capability to replace usual contracts.\textsuperscript{157} Conventional Contract does not provide some artists the power over the terms for the content they generate.\textsuperscript{158} With smart contract royalties could be designed to be more inclusive, offering fairer terms for composers, lyricists, and musicians.\textsuperscript{159} There is a service for the artist called PeerTracks to seek immediate royalty payments and ownership of their content.\textsuperscript{160} The service runs by attaching a smart contract to every single song. However, lawyers, regulators, and other market participants will need to understand how smart contracts work as the technology becomes more and more popular.\textsuperscript{161}

4.6 Fostering Efficient, Dynamic pricing

Creative content is often mispriced. Since the blockchain technology has the ability to provide records of who has been approved access rights to creative works, this could then be harnessed to price creative works dynamically.\textsuperscript{162} By following the demand for creative content, pricing could be more dynamic. Prices for creative content could fluctuate according to supply and demand. Moreover, artists could regulate prices and have the capability to fix prices themselves without getting assistance from complex web of intermediaries.\textsuperscript{163} Most importantly, artists will be nearer to their creative work than ever before, they might have a stronger voice in the pricing system and could, therefore, provide discounts on their works at certain times to attract more buyers.\textsuperscript{164} Pieces of creative works could be made available for a price, for instances, a few seconds of a song for use in a movie trailer by operating blockchain,\textsuperscript{165} ‘This sort of micrometering works by having the

\textsuperscript{157} ibid.

\textsuperscript{158} Ryo Takahashi, mckinsey, the world economic forum.

\textsuperscript{159} ibid 45.

\textsuperscript{160} ibid.

\textsuperscript{161} Statescraig a. De ridder, mercedes k.tunstall, and nathalie prescott, ‘recognition of smart contracts in the united states’(2017)17 intellectual property & technology law journal 29.


\textsuperscript{165} ibid.
blockchain record the precise components of the creative work that were used, defining the smallest consumable unit of creative content.\textsuperscript{166}

Likewise, Streamium and other services like this already disrupting the traditional method of artists being remunerated through intermediaries by offering micrometering payment services.\textsuperscript{167} Although blockchain may permit for more transparent and dynamic pricing but that pricing mechanisms, based solely on market demand and may fail the delicacies of how creative works are also valued based upon their societal, cultural, or political value.\textsuperscript{168} Therefore, this could indicate to further development of the technology to manage creative works. Hence, how exactly the blockchain can digitally ascribe these delicacies to creative works remains to be seen.\textsuperscript{169}

\textbf{4.7 Conclusion}

The potential of blockchain technology to keep track of music and related data has led some to suggest it could be used to create a single, universal database of music copyright.\textsuperscript{170} Pledge Music CEO Benji Rogers has proposed using the blockchain to create a giant database of recorded music, a Fair Trade Global Database of rights that would help solve issues of ownership, payments and transparency.\textsuperscript{171} However, the fate of the most obvious precursor, the Global Rights Database, reflects the scale of the task: the database collapsed in 2014.\textsuperscript{172}

Anyone can access details on royalty payments and figure out how royalties are split unless the payments are anonymized because the blockchain is a public ledger accessible by everyone. Perhaps not all artists, producers, or record labels would be comfortable with that

\begin{thebibliography}{9}
\bibitem{166}ibid.
\bibitem{167}ibid.
\bibitem{168}ibid.
\bibitem{169}ibid.
\bibitem{171}ibid.
\bibitem{172}ibid.
\end{thebibliography}
level of transparency.\textsuperscript{173} All transactions are endorsed and agreed upon by all users.\textsuperscript{174} Exactly the way transactions in a bank account or land registry, artefacts cannot be transferred unless they are legitimately owned. Besides, buyers can authenticate that they are purchasing the legitimate copies of MP3s and video files of music. Certainly, the transaction history permits anyone to verify that the different transfers of ownership lead all the way back to the original owner who is the creator of the work.

The blockchain technology-based application has massive potential for breaking down the barriers that could surely lead to better accountability, more efficiency, lesser costs and increased compensation for artists. To get these benefits, nonetheless, the technology will need to be developed responsibly within the appropriate regulatory frameworks.


\textsuperscript{174} ibid.
5. THE LEGAL ASPECTS NEED TO BE CONSIDERED

Intellectual property registries and Governmental agencies such as the European Union Intellectual Property Office (EUIPO) are vigorously considering the potentials of the blockchain technology.\textsuperscript{175} For instance, the EU Commission has plans for a blockchain observatory and the US Congress recently created a Congressional Blockchain Committee where global standards for self-executing contracts are being discussed by various Organizations.\textsuperscript{176} Therefore, it is evident that the law will address the potential obstacles in the large-scale legal application of the technology.\textsuperscript{177} The question of jurisdiction, governing laws, data security, privacy concerns, the definition of smart contract and enforceability of smart rights will need to be considered and whether it permeates Intellectual Property Law and practice.\textsuperscript{178}

5.1. Legislative Support of Blockchain Technology

One of the debates regarding IP rights is whether it is possible to legally copyright something using the blockchain.\textsuperscript{179} Benefits would consist of low-cost maybe even free copyright protection for artworks.\textsuperscript{180} With reference to legal protection, we must take into account the fact that international law protects your IP rights mindless of whether the work is registered or not. Official registration is required in order to be entitled to take legal action against infringement but it is not mandatory to register to the relevant authority beforehand.\textsuperscript{181} However, in the circumstance of a lawsuit, being capable to demonstrate your right as the original owner of the work will be essential. Thus, registering your work is the safest option


\textsuperscript{176} ibid.

\textsuperscript{177} ibid.

\textsuperscript{178} ibid.


\textsuperscript{180} ibid

and guarantees the success in case of a trial.\textsuperscript{182}

Unfortunately, the traditional registration process takes time to complete even months and comes with legal costs.\textsuperscript{183} Blockchain’s permanent record is impossible to compromise and in addition, registering a copyright claim would take place almost instantly. This would offer an irrefutable evidence in court.\textsuperscript{184} This technology has potentially classic implications and could provide solutions to issues that have long troubled the music industry thus it has been predicted by a panel of lawyers at the International Legal Technology Association’s annual conference that blockchain technology might be the most significant addition to the legal infrastructure.\textsuperscript{185} This digital certificate may confront a multitude of issues including ownership, evidence, publication, and first and genuine use.\textsuperscript{186}

However, issues do arise under current laws in terms of actual proof of ownership and origin in law and in fact.\textsuperscript{187}Copyright is based on statute. The reforms to copyright law have to come through government action. Authors/ creators can track their creations using blockchain technology take the value they generate proficiently, which is now an important step forward compared to current situation, but it does not solve the problem of unlawful use to remove infringing content, they requisite to fall back on legal means.

\begin{footnotes}
\item[182] ibid.
\item[183] Silver, J. ‘Blockchain or the Chaingang? Challenges, opportunities and hype: the music industry and blockchain technologies’ (2016) Glasgow, Centre for Copyright and New Business Models in the Creative Economy (create).
\item[184] ibid.
\item[187] ibid.
\end{footnotes}
5.2 Admissibility of Blockchain Signatures and Data

Existing legislation would require to be amended in order to address whether the digital certificate means actual legal ownership, and if this is also the case, blockchain based registries would need to be recognized as a form of evidence in a court of law.\textsuperscript{188} ‘The regulatory framework (910/2014/EU) of the European Parliament and of the Council of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market became effective On July 1st, 2016.’\textsuperscript{189} ‘Section 4 Article 25 on the legal effects of electronic signatures states that an electronic signature shall not be denied legal effect and admissibility as evidence in legal proceedings merely on the grounds that it is in an electronic form or that it does not meet the requirements for qualified electronic signatures’.\textsuperscript{190} Besides, a qualified electronic signature shall have the equivalent legal effect of a handwritten signature and based on a qualified certificate issued in one Member State shall be recognised as a qualified electronic signature in all other Member States.\textsuperscript{191}

The regulation legally makes all electronic signatures admissible as evidence in court but not referencing the use of blockchain technology straight, therefore, including blockchain signatures, potentially giving them the same legal bearing as handwritten signatures.\textsuperscript{192} However, all digital signatures are not equally valid because there have been cases of digital signature systems with design and security flaws, which is why governments have set complex standards.\textsuperscript{193} Usually a valid signature is required to make contracts legally valid, a necessary precondition in case of legal disputes.\textsuperscript{194}

\begin{footnotesize}
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\item \textsuperscript{188} ibid.
\item \textsuperscript{189} http://eurlex.europa.eu/legalcontent/en/txt/?Uri=uriserv:oj.l._2014.257.01.0073.01.eng, retrieved 22.03.2017
\item \textsuperscript{190} ibid.
\item \textsuperscript{191} Regulatory framework (910/2014/EU) of the European Parliament and of the Council of 23 July 2014 on ‘electronic identification and trust services for electronic transactions in the internal market’
\item \textsuperscript{192} ibid.
\item \textsuperscript{194} ibid.
\end{itemize}
\end{footnotesize}
Furthermore, article 41 of Section 6 makes it impossible to deny the legal effect and admissibility of a timestamp because it is of an electronic form.\textsuperscript{195} It is to be noted that none of the stipulations explicitly grant the blockchain data the title of qualified evidence, which might still make the appeal to experts necessary in court. Moreover, the most important effect might be that it automatically invalidates any inconsistent EU member’s law, guaranteeing uniform application across the EU.\textsuperscript{196} This law is not a guarantee that blockchain data will be accepted as valid, but it makes impossible for any European court to reject the data based on the fact that it is electronic.\textsuperscript{197}

It is essential to note that the model blockchain must offer sufficient legal certainty.\textsuperscript{198} Because only doing so it can be used in comprehensive rights management systems such as those for collective rights management and administration through collecting societies.\textsuperscript{199} Another matter is that the need for legislations to support the implementation of blockchain technology for copyright protection is very important.\textsuperscript{200} Because, copyright is based on statute. Real reforms to copyright law have to come over government action.\textsuperscript{201} Computer Code is not law thus, the blockchain is not law. law is law.\textsuperscript{202} Companies like ascribe are not passing around coins that are somehow magically transformed into tokens of value. The ascribe terms of service handles the legal matter of the ownership transfer. If the blockchain is going to be used, it must provide extra value and this value is in the time-stamping.\textsuperscript{203}

\textsuperscript{195} ibid.
\textsuperscript{196} ibid.
\textsuperscript{197} ibid.
\textsuperscript{198} ibid.
\textsuperscript{199} ibid.
\textsuperscript{200} ibid 67-70.
\textsuperscript{201} ibid.
5.3 The Potential of Blockchain in Governments

While few governments have started implementing the technology through various pilot projects, several others are showing interest. Governments recognize the potential for the technology and publish reports, resolutions, bills and papers acknowledging it, a potential first step for a later adoption.\textsuperscript{204} The European Parliament Resolution of 26 May 2016 on virtual currencies stated ‘notes that DLT’s (distributed ledger technology) potential to accelerate, decentralise, automate and standardise data-driven processes at lower cost has the potential to alter fundamentally the way in which assets are transferred and records are kept’\textsuperscript{205} and ‘further notes that DLT could be used to increase data sharing, transparency and trust not only between government and citizens’.\textsuperscript{206}

Finally, the UK Digital Strategy, a policy paper published on March 1, 2017, by the UK Secretary of State for Culture, Media and Sport Bradley, introduces the Digital Catapult, a centre with the goal of finding ‘new ways to work with personal data with more control and trust, applications of blockchain and smart contract.’\textsuperscript{207} The European Commission, the EU’s executive arm, is set to disclose plans for a joint regulatory effort on the blockchain.\textsuperscript{208} The Commission exposed its dedicated EU blockchain observatory and forum and billed as ‘one of the world's most comprehensive repositories of blockchain experience and expertise’ the entity should function as a melting pot for different bodies to ‘discuss and develop new ideas and directions’ involving blockchain technology.\textsuperscript{209}

5.4 Admissibility of Blockchain-based Evidence

It may sound counterintuitive to discuss institutional and legislative support for a technology that has been created precisely out of distrust in institutions and which by nature is

\textsuperscript{204} ibid.


\textsuperscript{206} ibid.

\textsuperscript{207} https://www.gov.uk/government/publications/uk-digital-strategy/uk-digital-strategy, retrieved 25.03.2018


\textsuperscript{209} ibid.
decentralized and ruled only by the laws of code and mathematics nonetheless, for the moment being, and at least for most of the intellectual property field such as music copyright, it is a necessary step.\textsuperscript{210} Most countries have started implementing basic legal principles for bitcoin and other altcoins as currencies: latest was Japan, planning a bill recognizing Bitcoin as a legal payment method in April 2017.\textsuperscript{211} However, legislators struggle to keep up with the wave of innovative blockchain use cases, in particular for IP.\textsuperscript{212}

In this sector, several concerns are central to the efficient application of the technology. The use of blockchain based evidence in court is one of them. The law stipulates very precise specifications for what is referred to as “admissible evidence”.\textsuperscript{213} Many factors come into play in determining admissibility, such as relevance and reliability. Blockchain evidence can theoretically be admissible in most legal systems, it necessitates the involvement of an expert explaining the fundamentals of the technology and asserting its trustworthiness.\textsuperscript{214} It is always possible to prove the dependability of the information since it is mathematically given by the blockchain, however, it costs money and time, which drastically decreases efficiency and counterbalances the many advantages the technology could offer.\textsuperscript{215}

5.5 Legal Issues of Smart Contracts in Blockchain

One of the key obstacles for the development of blockchain projects in the IP sphere is the lack of relevant legal provisions regulating the status and transactions with crypto currencies.\textsuperscript{216} Besides, another inhibitor is current lack of understanding of what Smart contracts are from a

\textsuperscript{211} ibid.
\textsuperscript{212} ibid.
\textsuperscript{213} ibid.
\textsuperscript{214} ibid.
\textsuperscript{215} ibid.
\textsuperscript{216} Alexander Savelyev, ‘Contract law 2.0: ‘Smart’ contracts as the beginning of the end of classic contract law’ (2017) Information and Communications Technology Law Journal. 20.
legal perspective.\textsuperscript{217} Whether such a contract is simply a piece of code that automates performance of some obligations by the parties, or is also an independent binding agreement prevailing in the form of computer code, which has specific features in the contract law jurisdiction, remains to be seen.\textsuperscript{218} The issue is how to apply traditional rules of contract law concerning termination, amendment, remedies for the breach to such Smart contracts.\textsuperscript{219}

Further, there is another issue is that in case the Smart contract does not work due to faulty code or hacker attack then how the liability of the parties will be defined.\textsuperscript{220} There are no findings to these questions yet, but The International Organization for Standardization (ISO) is currently working on the study of the current understanding of smart contracts from both technical and appropriate legal perspective, particularly, on their ‘interoperability with the law, enforcement, and life cycle of smart contracts’, however, it is unlikely that the outcomes will be available in the immediate.\textsuperscript{221} Besides, ISO documents are non-binding and thus amendments are needed in the copyright law itself as that cannot determine the solutions of all the above issues.\textsuperscript{222} Therefore, some legislatures, such as that of Arizona, have clarified that smart contracts are as legally effective as other contracts, by enacting legislation giving legal status to smart contracts and blockchain based signatures, treating them as an ordinary contract or signature.\textsuperscript{223}

\textbf{5.6 Conclusion}

There are two ways in which legislation and governments can support the realization of the blockchain potential in the IP system specially in the copyright management. The most straightforward approach is the explicit acceptance of the technology in legislation, recognizing it as valid and fitting for specific use cases. This is, of course, the ideal form of legal framework

\begin{itemize}
  \item \textsuperscript{217} ibid.
  \item \textsuperscript{218} ibid.
  \item \textsuperscript{219} ibid.
  \item \textsuperscript{220} Dirk A. Zetzsche, ‘The Distributed Liability of Distributed Ledgers: Legal Risks of Blockchain’ (2017) 52 UNSWLRS 27.
  \item \textsuperscript{221} ibid.
  \item \textsuperscript{222} ibid 29.
  \item \textsuperscript{223} ibid.
\end{itemize}
in favour of blockchains. This also includes regulations making the technology admissible without directly mentioning it. The other investigated form of governmental support is of a more implicit nature and is embodied through the specific use of blockchain technology in government functions.

These instances of implementation provide proofs of concept showing the government’s recognition of the blockchain as a valid public record.\textsuperscript{224} If proven successful, this could have a highly beneficial impact on the technology’s image and credibility, therefore potentially accelerating its implementation in IP. The wider adoption of blockchain technology by the government has the potential to legalise this software for the rest of the economy and potentially influence how process communications will flow in and out of government entities, and by extension, among non-government entities.

6. RISKS, CHALLENGES AND THE FUTURE OF BLOCKCHAIN TECHNOLOGY IN MUSIC COPYRIGHT

The increasing use of digital technology has created both challenges and opportunities for the music industry. The challenges about piracy have been vastly recognised, however, working with lawful digital services has also been challenging for music copyrights holders, particularly because we have seen a shift from downloads to streams, since licensing these platforms requires a new method to doing business.\textsuperscript{225} The music copyrights sector has been busy evolving new licensing models from last decade.\textsuperscript{226} Thus, new industry standards are now starting to emerge.\textsuperscript{227}

However, confusion still remains although the standards are emerging, there remains plentiful misperception in the music community as to how precisely streaming services are being licensed, how it is calculated, what digital service providers must pay, and how that money is then processed and shared by the music rights industry.\textsuperscript{228} It has been said that blockchain can serve as a means to trace the license chain and to pay for usage.\textsuperscript{229} As always in the context of blockchain, there is the problem of harmonizing the technical solution, for example, the smart contract with the actual legal situation.\textsuperscript{230}

This can be achieved if the programming foresees the distinctive performance problems and propose alternatives, which also allow the reverse processing of transactions which were impermissible or invalid under the applicable law.\textsuperscript{231} It would be a suitable idea to focus on a


\textsuperscript{226} ibid.

\textsuperscript{227} ibid.

\textsuperscript{228} ibid.


\textsuperscript{230} ibid.

\textsuperscript{231} ibid.
solution mechanism for non-automated conflicts, which have been agreed upon by all parties. This could be a system-immanent arbitration or other arbitration.\textsuperscript{232}

Despite the assistance proposed by blockchain, numerous challenges remain for the technology. Blockchain technology will need solutions to off-chain problems, especially about legal, business, and technology challenges to enable more universal use.

6.1 Limited Users and Marketing of Artists’ work

Although several artists embrace blockchain as a way to release tracks with greater control over the terms of their creative work, however, blockchain-ready artists remain minority.\textsuperscript{233} It is not nevertheless clear that how many artists will be large enough to interrupt the status quo, where record labels, distributors, and other intermediaries have founded terms, comprising conditions for payments and use.\textsuperscript{234} Although blockchain may provide right holders with larger revenue rewards from their creative content but questions remain regarding the marketing that to what extent they can promote their creative content without the help of old-fashioned agents, be it record-label companies or publishers.\textsuperscript{235} Self-publishing or self-promoting content may actually lead to less revenue for some artists who would otherwise benefit from agents’ support.\textsuperscript{236}

6.2 Creative Content Storage and Intellectual Property Framework

The big challenge is that where the creative content will be stored on the blockchain. Is it going to store as metadata, or in the form of access keys? Despite restraining to put creative content directly on the blockchain, it will store just the metadata of the creative content. Nonetheless, this creates

\textsuperscript{232} ibid.
\textsuperscript{233} How can creative industries benefit from blockchain? Https://www.weforum.org/agenda/2017/07/how-can-creative-industries-benefit-from-blockchain/
\textsuperscript{235} ibid.
\textsuperscript{236} ibid.
issues of where the creative data will actually be stored and how it will be distributed.  

Furthermore, Governments and IP-rights organisation will need to explain legal frameworks recognizing transactions conducted using blockchain. We still need to depend on the traditional system to enforce owners’ rights, particularly when contracts are not upheld although blockchain technology provides the means for keeping a record of the right owners however,  

At the same time, there are also challenges concerning the nature of the blockchain whether it should be public or private. The data stored in the blockchain will be accessible to all participants in the network if the public-blockchain method is taken and this could certainly present IP concerns if creative content is stored directly on the blockchain. Instead, if a private blockchain is chosen, issues around governance particularly, permission rights will persist. In the private-blockchain situation, an important question will appear regarding funding that who will fund the new system. There may be little change in how artists are remunerated if traditional managers such as record labels develop the infrastructure.

6.3 Disputes on Copyright and Blockchain Immutability

The core of the problem regarding blockchain immutability can be understood by asking the question that how is it possible to harmonize the existing method to originating of copyright amid the immutable nature of records in blockchain. According to traditional copyright law, the creator of the work enjoys statutorily enumerated exclusive rights from the moment a

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238 ibid.

239 ibid.


241 ibid.

242 Milosic (n 232).

creative work is fixed in a tangible medium of expression including the right to make and
distribute copies of the work, to perform the work publicly, to prepare derivative works and
some others. Rights to a copyrighted work appear in a very casual manner and the settings
associated with their appearance are not visible to the public.

Additionally, although the copyright law of a certain country establishes some kind of
registration process for copyrighted works, it does not change the essence of the problem
because the registration only provides a rebuttable presumption of ownership, and it is still
possible to challenge that in the court. In most countries, who have ratified the Berne
Convention, it the the law solidified by the provisions of the Berne Convention, therefore, it
cannot be changed smoothly. As a result that no one can be fully sure that the person
indicated as a copyright owner is a true owner indeed. The situation is further complicated
by the fact that most copyrighted works are not created from scratch meaning that they are
based on some preceding works, which have their own authors and rights owners, and the
sequence of such works can be quite long and an important example is computer programs.

Consequently, the copyright ownership records may modify from time to time. It is not
conceivable to input such data into blockchain with full guarantee of accuracy that it will not
alter later. Furthermore, a court decision may sanction alteration of the records consequential
from the copyright dispute. Court judgments are enforced for everyone on the territory of
the jurisdiction of such a court, a feature that has its core in the matters of state sovereignty,
which no state is ready to give up easily.

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244 Alexander Savelyev, ‘Copyright in the blockchain era: promises and challenges basic research
program’(2017) working papers series 7.
245 ibid.
246 ibid 3.
247 According to Article 5 (2) of the Berne convention, the enjoyment and the exercise of copyright shall not be
subject to any formality.
248 Alexander (n 205).
249 ibid.
250 ibid.
251 ibid.
6.4 Conclusion

The kind of software systems needs to be developed which will allow artists to straightforwardly record the digital characteristics of their art onto the blockchain system. Otherwise, the traditional association of Intellectual property-rights holders will be challenging to evade.\(^{253}\) One of the risks of using the blockchain for such applications is that there is currently no established standard database. For instance, Ujo uses Ethereum, MUSE uses its own proprietary blockchain, bittunes uses Bitcoin.\(^{254}\) Repositories comprising data on music rights are not a novel idea and have been attempted before but without success. Additionally, it would likely necessitate substantial collaboration across the industry for blockchain-related technologies to accomplish its promises where others have failed intensely.

Therefore, if blockchain-based methods of copyright management desire to be compliant with fundamental principles of copyright law and in line with considerations of national sovereignty, they need to be adaptable to such changes.\(^{255}\) However, it is not an easy deal.\(^{256}\) For instance, blockchain in effect facilitates the existence of two vital issues the first one is the legal order according to the official judgment that the copyright owner for the same object is and secondly, it is obvious, that blockchain as such can lead to the appearance of the duality of copyright ownership regimes.\(^{257}\) Hence, the challenge arises then how to align these issues in a way that would be suitable for all the stakeholders and will not reduce the advantages.\(^{258}\)


\(^{253}\) ibid.


\(^{255}\) ibid.

\(^{256}\) ibid.

\(^{257}\) Savelyev (n 241).

\(^{258}\) ibid.
7. CONCLUDING OBSERVATION

Artists and content creators face increasingly daunting challenges in their quest to keep track of where, when, and how their works are used. Technology and the dramatic daily influx of new material make it possible for anyone to produce work in their own right, and the understanding of how to protect that work can be easily blurred by companies offering services they cannot actually provide. The current digital landscape creates the impression that protection of media is not only impossible but increasingly irrelevant as works are constantly shuffled, remixed, and otherwise altered. Therefore, until a system is established that is more attuned to how individuals consume media and interact with technology, it is critical to realize that valuable and valid protections are still available through the traditional system.

Above all, we need greater education about rights” in order to understand how to go about protecting them. Progressive strategies and innovation continue to highlight promising avenues of improving existing copyright protections through blockchain. Blockchain technology has the potential to change the way, in which music is distributed in a digital world. Particularly, it may allow exceptional levels of accessibility to information about copyright ownership, transparency and traceability of its subsequent changes. Receiving royalty payments instantly and having technically-enabled sovereign ownership over digital content produced should be attractive for all copyright owners. Self-enforcing Smart contracts will substantially reduce transaction costs for both right owners and users and protect the latter from concerns over copyright infringement. However, it is clear that the potential of blockchain technology is only just starting to be explored.

As it develops, it is likely to go beyond simply solving existing problems to create entirely new opportunities. There will be no doubt of new challenges too because, such a brave new world does not come without a price. There are lots of problems which need to be resolved first. One of them is the architectural one, however, having legal implications as well where the digital content itself will be stored on blockchain along with metadata about

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261 Quintais (n 256).
ownership and transactions or distinctly. Both options have their benefits and challenges. Additional problem is to associate blockchain-created reality with jurisdictional privileges of the state authorities. Blockchain records require to be changed in accordance with the decisions of courts and state authorities, otherwise blockchain will become an opponent of the state, not its supporter.

To recapitulate, it is indispensable to address many legal issues associated with the implementation of the promises of blockchain systems in the copyright sphere. Naturally, the number of issues needed to be resolved is substantial. However, if it is done and blockchain-based systems manage to prove their possibility in the copyright sphere, they have the potential to revolutionize copyright law. Conclusively, if the issues are not resolved, then the created system of copyright management based on blockchain will hardly be substantially different than the conventional ones. It will denote nothing more than the exploitation of the hype associated with the blockchain technology used as the source of attraction of new investment but without any tangible improvements or advances.
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