

# Unblocking the Chain

## Blockchain Implementations in the Digital Music Industry

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# Abbreviations

OCSSP= Online content-sharing service provider

Infosoc Directive = Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society

DSM directive= Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC

CMO directive= Directive 2014/26/EU of the European Parliament and of the Council of 26 February 2014 on collective management of copyright and related rights and multi-territorial licensing of rights in musical works for online use in the internal market

DRM= Digital rights management

IPR= Intellectual property rights

Berne convention= Berne Convention for the Protection of Literary and Artistic Works (as amended on September 28, 1979)

WCT= WIPO Copyright Treaty (WCT)

WPPT= WIPO Performances and Phonograms Treaty

GRD= Global Repertoire database

WIPO= World Intellectual Property Organisation





## **Abstract**

The music industry has been affected by the digital revolution. This paper identifies key issues relating to copyright within the digital music industry which have the possibility to be partially or wholly solved with the help of blockchain technology. Identified issues are: the lack of reliable rights management information, issues with intermediaries and long value chains, fragmentation of rights and prevalence of orphan works. The analysis concludes that blockchain in combination with smart contracts have the potential for creating a global copyright registry while the no mandatory registration requirement however raises question regarding incentive for actors to fund such a venture. Article 17(4) of the DSM directive might provide a way around the no formalities requirement, incentivising both rightsholders and OCSSPs to create a database for information connected to works



# 1. Introduction

## 1.1 Background

Buying a CD containing music is for many a thing of the past, although nostalgic trends such as that of rising vinyl sales have emerged<sup>1</sup>, the majority of music consumption is carried out via streaming sites.<sup>2</sup> In this present situation, where streaming is dominant there has been increased talk of a “value gap”, this gap is explained as the disparity between the value that creators receive compared to what the platforms who make it available receive. This disparity can have fargoing ramifications as it might dissuade musicians from creating new pieces since they will not receive fair remuneration.<sup>3</sup> Aside from this value gap which focuses on platforms that make user generated content available, there are other structural and legal issues relating to copyright in the music industry.

Historically artists and performers managed their own rights relating to their music. As the industry developed, managing yourself became ineffective and demanding, which led to the birth of collective management organisations (CMO).<sup>4</sup> These originated in France and came to be during the 1700s, spreading and during the 1900s they could be located in most European countries.<sup>5</sup> The CMOs fill a gap as an intermediary between right holders of copyright and the users of the protected works, where they represent the right holders and intend to foster and further their interests. In the digital age this management of rights has increased in complexity.<sup>6</sup> One of these key issues is the number of parties involved in one work, producers, writers, and performers all contribute and their individual rights have to be tracked. In order to track these

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<sup>1</sup> Felix Richter, ‘The Vinyl Comeback Continues’ <<https://www.statista.com/chart/7699/lp-sales-in-the-united-states/>> Accessed 20 May 2022.

<sup>2</sup> Marie C Götting, ‘Music Streaming - Statistics & Facts’ <<https://www.statista.com/topics/6408/music-streaming/#dossierKeyfigures>> Accessed 22 May 2022.

<sup>3</sup> Daniel L. Lawrence, ‘Addressing the Value Gap in the Age of Digital Music Streaming’ (2021) 52 Vanderbilt Law Review 511, 514.

<sup>4</sup> Tran Ngoc Linh Tam, ‘Music Copyright Management on Blockchain: Advantages and Challenges’ (2019) 29 Alb LJ Sci & Tech 201, 205.

<sup>5</sup> Alina Trapova, ‘Reviving Collective Management: Will CMOs Become the True Mediators They Ought to Be in the Digital Single Market’ (2020) 42(5) European Intellectual Property Review 272, 275.

<sup>6</sup> Alina Trapova, ‘Reviving Collective Management: Will CMOs Become the True Mediators They Ought to Be in the Digital Single Market’ (2020) 42(5) European Intellectual Property Review 272, 274-276.

different rights, attempts have been made to consolidate the information in different databases. The previously created databases however lack interoperability, resulting in blind spots which lead to right holders sometimes not receiving their due remuneration. Past attempts to create a global database for musical works have failed as a result of conflicting interests and issues of control.<sup>7</sup>

To combat this situation, musicians, others in the industry and researchers have put forward suggestions that could help rebalance the scales. One who has been vocal and forward looking is Imogen Heap, she has co-created a platform called mycelia which with the help of blockchain aims to contain all music related information ever recorded.<sup>8</sup>

Aside from interest from private actors and musicians, recognition of the potential of blockchain within copyright has also been provided at the EU level. Finland held the presidency of the council of the EU between July to the end of December 2019. The slogan they ran with was “Sustainable Europe – Sustainable Future”.<sup>9</sup> Within the realm of copyright this was expressed as identifying the key issues, and structure them in order to facilitate a functioning design of copyright. The Finnish presidency included in this aim the importance of metadata and blockchain.<sup>10</sup>

In 2008 the first paper on Bitcoin was presented. The technology that it contained would make it possible for two untrusting parties to complete a transaction without the meddling of a middleman. To facilitate this, Bitcoin was built on a technology called Blockchain. Blockchain is a technology that has many different areas of potential use, one of these being within the management of intellectual property rights (IPRs).<sup>11</sup> One of the foremost underlying motivations why Distributed ledger technology came to be was the implications the old “trust based model” had. With the possibility of reverting on a payment, a trusted middleman, often in the form of a financial institution, was needed to ensure that none of the parties involved in

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<sup>7</sup> Klementina Milosic, ‘GRDs Failure’(2015) Music Business Journal <<http://www.thembj.org/2015/08/grds-failure/>> Accessed 19 May 2022.

<sup>8</sup> Marcus O’Dair and Zuleika Beaven, ‘The Networked Record Industry: How Blockchain Technology Could Trans-form the Record Industry’ (2017) 26 Strategic Change 471, 473.

<sup>9</sup> Presidency Of the Council of the EU, ‘Finland’s Presidency Drove Forward an Ambitious Climate Policy and Strengthened the Rule of Law’ <<https://eu2019.fi/en/-/suomi-edisti-kunnianhimoista-ilmastopolitiikkaa-ja-oikeusvaltiokeskustelua>> Accessed 23 May 2022.

<sup>10</sup> Presidency of the Council of the EU, ‘Stocktaking of work and progress under the Finnish Presidency’ (2019) 15016/19, 3.

<sup>11</sup> Sebastian Pech, ‘Copyright Unchained: How Blockchain Technology Can Change the Administration and Distribution of Copyright Protected Works’ (2020) 18 NW J TECH & INTELL PROP 1, 1-2.

the transaction were deceived. The necessity of a meddling third party decreases the possibility of making small payments as a result of increased transaction costs.<sup>12</sup>

Blockchain can in the realm of IPRs be useful in managing owners' rights and also brings with it the possibility of smart contracts that are self-regulating.<sup>13</sup> This thesis will take a closer look at the use of blockchain in managing IPRs and investigate how it intersects with copyright in the digital music industry.

## 1.2 Purpose and research question

The purpose of this thesis is to describe and analyse how applications of blockchain technology intersect with copyright in the digital music industry at the EU-level.

To answer the purpose the following research questions have been formulated:

- Which are the key issues regarding copyright in the digital music industry where there is potential for application of blockchain?
- What are the possibilities and challenges inherent in the application of blockchain connected to copyright in the digital music industry?

## 1.3 Materials and method

In order to answer the purpose, first the framework for copyright within the EU has to be described and analysed insofar as it relates to blockchain and the digital music industry. This is done by applying the EU legal method, setting out the framework for protection. Copyright is a national right, there are however several legal instruments that harmonise this legal right to a various degree within the EU. The EU copyright framework is constructed in such a way that it is made up of directives and regulations that reflect the obligations stemming from the Berne Convention, TRIPS agreement as well as the two copyright treaties from The World Intellectual Property Organisation (WIPO).<sup>14</sup>

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<sup>12</sup> Satoshi Nakamoto, "Bitcoin: A Peer-to-Peer Electronic Cash System", Bitcoin ( 2008) 1, <<https://bitcoin.org/bitcoin.pdf>> Accessed 20 May 2022.

<sup>13</sup> Alexander Savelyev, 'Copyright in the Blockchain Era: Promises and Challenges' (2018) 34(3) Computer Law & Security Review 550, 551.

<sup>14</sup> European Commission, ' The EU Copyright Legislation' <<https://digital-strategy.ec.europa.eu/en/policies/copyright-legislation>> Accessed 21 May 2022.

However, in order to answer the research questions, elements of economics and informatics are also incorporated in the thesis to show the implications of the issues that are present. This perspective is also taken when analysing the potential implementation of blockchain and how it changes the landscape for parties such as artists and CMOs. The perspective of economics is used to show and analyse the consequences that the current copyright framework produces with regard to aspects such as costs of missing information about works and rightholders, transaction costs and remuneration. The economic perspective is therefore used to substantiate the legal analysis and reasoning, in order to better address the research questions.

Informatics is used to describe aspects of blockchain that are relevant to copyright law in the music industry. As it is the technical characteristics of blockchain that ultimately have economic and legal consequences when implemented. The perspective of informatics is however only used to describe these technical characteristics in order to lay the foundation for the analysis about implementation for copyright protection in the digital music industry. In depth technical issues are not discussed and not attempted to be solved in this thesis.

Regarding the material used in the essay, many of the journal articles and second-hand sources dealing with blockchain technology and specifically its interaction with copyright are to a large extent hypothetical and depend on the possibility to implement the technology. The thesis is written from the current state of the art and new disruptive technologies, or legislation might yet emerge which could potentially nullify some of the points raised.

Journal articles are the main source of information used in order to describe and analyse the situation regarding implementation of blockchain. These articles have mainly been located through the use of Google scholar and Lubsearch using keywords related to the chosen subject. Many of these articles focus on a particular set of issues that blockchain has the potential to address within copyright in general and more specifically within the music industry. There is a risk that the technology's transformative potential is exaggerated as a result of the author's choice to focus on these same issues. By also covering the challenges to implementation the thesis attempts to balance this situation.

A methodological choice has also been made by the author to include blockchain implementation to address the issue of orphan works. This is not an issue that is specific to the music industry but connected to it, by being affected by the no mandatory registration for

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copyright, and also sharing synergy in a blockchain database or registry.

## **1.4 Structure**

The main part of the essay will consist of (4) sections, the first (section 2) will introduce the technology of blockchain and describe aspects of it that are relevant to copyright law in the digital music industry.

Section 3 will describe and analyse the current situation regarding copyright in the music industry, identifying key issues with relevance to blockchain.

Section 4 will continue by discussing attempts at implementing blockchain technology to address these issues.

Section 5 will ultimately conclude the thesis by summarising the discussion and displaying the conclusions.





## **2. Copyright Relevant aspects of Blockchain**

### **2.1 Introduction**

This chapter of the thesis provides a brief introduction to blockchain technology. The chapter focuses on aspects of blockchain that in previous literature have shown importance for application within the realm of copyright such as the potential for immutability, transparency and potential for application of smart contracts. These aspects of blockchain are applied in relation to copyright and the digital music industry in chapter 4.

### **2.2 Distributed Ledger technology**

Distributed Ledger Technology (hereafter called DLT) can be seen as a broad term, with some conflicting explanations. Generally, Blockchain is considered to be based on and be a specific design of DLT, where blockchain brings with it increased security by the process of hashing where it verifies the records of the ledger.<sup>15</sup> DLT is generally described as being a system made up of several different parties where none of these parties sit at the top of the hierarchy, in that regard it is decentralised. The system also operates in an untrusting environment. With untrusting or “adversarial” it is here meant that there are parties that operate with malicious intent to influence the system. In this environment, the system ensures the safety of processing of data.<sup>16</sup>

### **2.3 History of blockchain**

An anonymous individual with the fake name, Satoshi Nakamoto published in 2008 a white paper named *Bitcoin: A Peer-to-Peer Electronic Cash System*. The paper provided the outline for a payment system, entirely electronic, that eliminated the need for trust by instead

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<sup>15</sup> John Quinn and Barry Connolly, ‘Distributed Ledger Technology and Property Registers: Displacement or Status Quo’ (2021) 13(2) *Law, Innovation and Technology* 377, 381.

<sup>16</sup> Michel Rauchs and others, *Distributed Ledger Technology Systems a Conceptual Framework* (2018) Cambridge Centre for Alternative Finance, 21-24 <[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3230013](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3230013)> Accessed 24 May 2022.

employing cryptographic proof.<sup>17</sup> The technology that it brought with it, blockchain, is not new in the sense that all parts of it are new. Instead, it is a novel combination of technologies that have existed for a longer period of time. Blockchain can function as a distributed database. Which as a concept is not novel and has been researched for a significant period of time. What it provides is a solution to problems regarding lost data and inconsistencies that traditional distributed databases previously have encountered.<sup>18</sup>

## **2.4 Integrity and hash functions**

A core feature of any database is the integrity of it, if a user can not trust that the data has not been manipulated it is of little use. In blockchain this trust is ensured by what is referred to as hashing. This is done by running the object of choice through a so-called hash function, the result is the “hash value”. This value, which is of a set length of figures, only corresponds to the original item that was run through the hash function. If the input into the “hash function” is tampered with, the output that is produced will not correspond to what the original item would have produced as a hash value. Following from this, a replica of an item, will produce a different hash value which can then be used to rule out it being an original. The process of hashing is also protected against reverse engineering, where the process only is possible in one direction. A user who knows the wanted hash value can not recreate the wanted original input value from this information.<sup>19</sup>

## **2.5 Hash Pointers**

Hash values can be grouped together, in effect verifying the integrity of the whole group and making it possible to identify if any of the objects have been tampered with. The groupings created in this process are called “hash pointers”. The verification process works by adding the hash value of the previous item to the data of the current item, the sum of these is then run through the hash function producing a new hash value, the process is repeated throughout the chain of data. Any tampering of the chain of items is now easy to spot as one small disparity

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<sup>17</sup> Satoshi Nakamoto, “Bitcoin: A Peer-to-Peer Electronic Cash System”, Bitcoin (2008) 1, <<https://bitcoin.org/bitcoin.pdf>> Accessed 20 May 2022.

<sup>18</sup> Alex Hughes and others, ‘Beyond Bitcoin: What Blockchain and Distributed Ledger Technologies Mean for Firms’ (2019) 62(3) Business Horizons 273, 275.

<sup>19</sup> Jean Bacon and others, 'Blockchain Demystified: a Technical and Legal Introduction to Distributed and Centralized Ledgers' (2018) 25 Rich JL & Tech 1, 5-11.

somewhere in the chain will affect the hash values of the items that follow.<sup>20</sup>

In order to be able to group larger amounts of items, items can be further grouped into “blocks” that utilise the earlier mentioned hash pointers to connect to other blocks. These blocks can be divided into two distinct parts. The “block header” is made up of the hash function of the block that comes before it in the chain, as well as metadata. The second part of the block is the “block body” which details the transactions that relate to the block in question. The “blockchain” is ultimately the result of these blocks being connected and validated by hash pointers.<sup>21</sup>

## 2.6 Centralised Systems

To understand what a decentralised system entails we need to start by looking at what constitutes a centralised system. These systems are constructed in such a way that there exists one chief actor that controls the system as a whole, all the users of the system are in turn completely dependent on this one actor. Traditional examples of this kind of system are the services that are provided by Amazon or google. Differing from the centralised systems there are also distributed systems.<sup>22</sup>

## 2.7 Distributed & decentralised systems

Distributed systems have like the centralised systems one central actor that enjoys control of the system. Where it differs is where the different computations and processes take place. In a centralised system these are carried out by the central governing authority, while in a distributed system these processes are spread out over nodes in the system. Ultimately, a decentralised system has none of the aforementioned central control. Instead of answering to a central authority, the control is shared in the system and lies at different nodes. The system can still function without the need for central authority with the help of a consensus mechanism.<sup>23</sup>

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<sup>20</sup> Jean Bacon and others, 'Blockchain Demystified: a Technical and Legal Introduction to Distributed and Centralized Ledgers' (2018) 25 Rich JL & Tech 1, 11-12.

<sup>21</sup> Jean Bacon and others, 'Blockchain Demystified: a Technical and Legal Introduction to Distributed and Centralized Ledgers' (2018) 25 Rich JL & Tech 1, 12-13.

<sup>22</sup> Imran Bashir, *Mastering blockchain* (Packt Publishing Ltd 2017) 35.

<sup>23</sup> Imran Bashir, *Mastering blockchain* (Packt Publishing Ltd 2017), 35-36.

The decentralisation is generally made effective in two different ways, the first, referred to as disintermediation, is when the intermediary regulating a transaction is removed. In a setting within the music industry, this could be characterised by the removal of intermediaries such as CMOs, music labels and online platforms. Application of the technology has been proposed to enable precisely this. Instead of having the mediating record label, the consumer and musician would handle their transaction themselves, effectively cutting out the middleman<sup>24</sup>. The other route that decentralisation is achieved with, is through competition. This can work by letting providers of a service compete to be selected for the system. In the context of blockchain this can be achieved by the use of smart contracts, where the contracts using a set criterion choose the most apt service provider.<sup>25</sup>

## 2.8 Consensus mechanisms

The nodes that make up the blockchain can be unsynced for a multitude of different reasons. They can operate with malicious intent; they can be broken or be inconsistent. To align these different nodes and make sure that they can operate without oversight in an untrusting environment, blockchain features a consensus mechanism. This consensus mechanism can be constructed with the help of differing models. Proof of work was the consensus mechanism employed in the earliest blockchains including bitcoin.<sup>26</sup> Later blockchains have implemented new variations such as proof of concept and proof of stake.<sup>27</sup>

The consensus mechanism is key for syncing the different nodes on the blockchain making sure that when new information is added it is done so in the same way throughout the blockchain.<sup>28</sup> The consensus mechanism is also of importance in a copyright setting as it is one of the key factors that contribute to the blockchains immutability, when information is stored on the blockchain it can therefore be trusted to not be tampered and be consistent throughout the

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<sup>24</sup>Balázs Bodo, Daniel Gervais and João Pedro Quintais, 'Blockchain and Smart Contracts: the Missing Link in Copyright Licensing?' (2018) 26 *International Journal of Law and Technology* 311, 317.

<sup>25</sup> Imran Bashir, *Mastering blockchain* (Packt Publishing Ltd 2017), 36-37.

<sup>26</sup> Cong T. Nguyen and others, 'Proof of Stake Consensus Mechanisms for Future Blockchain Networks: Fundamentals, Applications and Opportunities' (2019) 7 *IEEE Access* 85727, 85729-85730; Satoshi Nakamoto, "Bitcoin: A Peer-to-Peer Electronic Cash System", *Bitcoin* (2008) 3, <<https://bitcoin.org/bitcoin.pdf>> Accessed 20 May 2022.

<sup>27</sup> Cong T. Nguyen and others, 'Proof of Stake Consensus Mechanisms for Future Blockchain Networks: Fundamentals, Applications and Opportunities' (2019) 7 *IEEE Access* 85727, 85730-85731.

<sup>28</sup> Jean Bacon and others, 'Blockchain Demystified: a Technical and Legal Introduction to Distributed and Centralized Ledgers' (2018) 25 *Rich JL & Tech* 1, 21-22.

chain.<sup>29</sup>

## 2.9 Private and public blockchains

The distributed ledgers we have been discussing in this chapter vary in their openness, where different design choices can be made to address the functionality and purpose of the blockchain. The software that drives the system can be readily available and accessible to anyone or can be private to a certain group or company. A choice can also be made regarding who can use the system, and for example open an account or engage in activity with other users. Bitcoin, the most well-known blockchain application can be characterised as being open. Any individual can open an account without the need of admission from a governing third party. The choice for public blockchains to have their source code publicly available can often be seen as an ideological choice by the creator. In relation to copyright, a public blockchain could be used for its characteristics to create a public database where artists can register their works. The public nature of the blockchain is in this instance important to be able to facilitate both the registration of the work but also to enable access to potential users or governing bodies that require information. If a creator of a blockchain instead opts for a closed structure this will in turn be characterised by source code that is not publicly available. A system of this nature is not made for everyone and is therefore not accessible to everyone, generally demanding some form of verification or admission from the proprietor in order to be able to use the system. The system can however still be viewable to the public, while using it and verifying data is only provided to selected users, which has been proposed in the calculating of cross border royalties for domestic CMOs.<sup>30</sup>

## 2.10 Smart contracts

Smart contracts are not contracts per se, but instead code that is programmed in such a way to execute a specific action when certain criteria are met, in effect functioning as a contract.<sup>31</sup>

The smart contracts exist on the blockchain where they are stored as scripts ready to self-execute if the pre-programmed conditions are met. Following from this the smart contracts can

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<sup>29</sup> Alexander Savelyev, 'Copyright in the Blockchain Era: Promises and Challenges' (2018) 34(3) *Computer Law & Security Review* 550, 551.

<sup>30</sup> Balázs Bodo, Daniel Gervais and João Pedro Quintais, 'Blockchain and Smart Contracts: the Missing Link in Copyright Licensing?' (2018) 26 *International Journal of Law and Technology* 311, 317-319.

<sup>31</sup> Maher Alharby and Aad Van Moorsel, 'Blockchain-Based Smart Contracts: A Systematic Mapping Study' (2017) 7(10) *Computer Science and Information Technology* 1,1.

be assessed as being autonomous actors on their own, where their behaviour can be predicted and trusted to carry out any action as long as it relates to information that can be found on the blockchain and is possible to express as a function. The smart contract can therefore be tailored to be able to handle any potential outcome of a transaction as long as it has been pre-programmed for all the potential outcomes.<sup>32</sup> Why the smart contracts can be trusted to carry out what they intend is because they exist on the blockchain. The immutable nature of blockchain gives additional value to the contracts as they are also characterised by the same immutability. The execution of the contract can not be stopped when the precoded criteria have been fulfilled, if that is not intended and that ability has been put into code. In this way smart contracts enable transactions in a trustless environment without the need of a trusted middleman.<sup>33</sup> This disintermediating effect opens up the door for direct and fast licensing between artist and user in the music industry.<sup>34</sup>

## **2.11 Technical summary**

Blockchain presents itself as a new disruptive technology which is characterised by transparency throughout the chain, immutability, potential for application of smart contracts and disintermediation. A key concept for it is also the possibility of creating structures that are distributed and can be accessed by anyone opening up possibilities for creating public copyright registries.

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<sup>32</sup> Christidis Konstantinos and Michael Devetsikiotis, 'Blockchains and Smart Contracts for the Internet of Things' (2016) 4 IEEE Access 2292, 2296-2297.

<sup>33</sup> Michèle Finck and Valentina Moscon, 'Copyright Law on Blockchain: Between New Forms of Rights Administration and Digital Rights Management 2.0' (2019) 50(1) International Review of Intellectual Property and Competition Law 77, 92-93.

<sup>34</sup> Michèle Finck and Valentina Moscon, 'Copyright Law on Blockchain: Between New Forms of Rights Administration and Digital Rights Management 2.0' (2019) 50(1) International Review of Intellectual Property and Competition Law 77, 95.







## **3. Issues relating to copyright in the music industry**

### **3.1 Introduction**

This chapter is divided into two parts, where the first part sets out to describe the main principles of protection and the main rights for copyright within the EU that are relevant to the digital music industry. The second part focuses on describing and analysing key issues which might have potential for blockchain application within the digital music industry.

### **3.2 Framework for protection**

#### **3.2.1 Introduction**

This section of chapter 3 first describes the relationship between The EU and international treaties, then it briefly present then it briefly presents the Infosoc Directive, and ultimately the CMO directive.

#### **3.2.2 Relationship between the EU and international treaties**

The creation of the Berne convention took place in the pre digitised environment, with the advent and spreading of digitalization, more harmonisation was needed which during the 90s lead to two more significant international treaties regarding copyright, the WIPO copyright treaty (WCT) as well as the WIPO phonograms and performances treaty (WPPT).<sup>35</sup>

The berne convention introduced the principle of national treatment,<sup>36</sup> This is one of the three basic principles for the harmonisation of copyright that the Berne convention introduced where the other two are that protection afforded by the convention is not hinged on some kind of formality and is automatically awarded, and additionally that protection afforded by the convention is independent from what is provided for by a specific country.<sup>37</sup>

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<sup>35</sup> WIPO Copyright Treaty ('WCT'); WIPO Phonograms and Performances Treaty (WPPT); Simon Stokes, *Digital Copyright* (5 th edn, Bloomsbury publishing 2019)

<sup>36</sup> Article 5(3) Berne Convention for the Protection of Literary and Artistic Works (1971 Act) after this called ('Berne Convention').

<sup>37</sup> Articles 3 and 5(2), Berne Convention.

### 3.2.3 Infosoc Directive

The Information society directive (Infosoc Directive) was one of the EU-legislators' ways of adapting Copyright to the digital environment, it implements a number of the new obligations stemming from the WCT and the WPPT.<sup>38</sup> In order for authors to be protected against unlawful transmission of their works online, article 3(1) of the Infosoc Directive adds a right of communication to the public for authors which includes the making available of that work. It is then the right of the author to authorise or prohibit this communication to the public.<sup>39</sup>

For an object to be awarded copyright protection under EU-law there are no formal requirements<sup>40</sup>, but it must meet a level of originality set out by the ECJ. Stemming from the *infopaq* case a work must be original to the effect that it 'is the author's own intellectual creation'.<sup>41</sup> This ruling standardised the criteria for originality under the Infosoc directive.<sup>42</sup> Additionally the work shall reflect the personality and be an expression of free and creative choices by the author. If a work satisfies these criteria set out by the ECJ then the creator of that work is privy to certain economic rights found in the information society directive.<sup>43</sup>

The main economic rights relevant to the digital music industry are the right of reproduction for authors that have written musical works, for performers of the fixed version of their performance and for producers, their phonograms.<sup>44</sup> Furthermore article 3(a-c) provides the exclusive right of authorising and prohibiting the making available and communication to the public for the same rightholders.

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<sup>38</sup> Recital 15 Directive 2001/29 on the harmonisation of certain aspects of copyright and related rights in the information society (2001) OJ L166/10 After this called ('Infosoc Directive').

<sup>39</sup> Simon Stokes, *Digital Copyright* (5 th edn, Bloomsbury publishing 2019).

<sup>40</sup> Article 5(2) Berne Convention.

<sup>41</sup> Sebastian Pech, 'Who Owns the Blockchain? How Copyright Law Allows Rights Holders to Control Blockchains' (2021) 16 *Journal of Business and Technology Law* 59, 65-67; Case C-5/08, *Infopaq Int'l A/S v. Danske Dagblades Forening*, 2009 E.C.R. I-6642, para 37.

<sup>42</sup> Eleonora Rosati, 'Why Originality in Copyright is not and Should not be a Meaningless Requirement' (2018) 13(8) *Journal of Intellectual Property Law and Practice* 597, 597.

<sup>43</sup> Sebastian Pech, 'Who Owns the Blockchain? How Copyright Law Allows Rights Holders to Control Blockchains' (2021) 16 *Journal of Business and Technology Law* 59, 65-67; C-145/10 *Painer v Standard Verlags GmbH* (2011) E.C.D.R 13, para 89.

<sup>44</sup> Articles 3(a)(b)(c) Infosoc Directive.

Moral rights are outside the scope of the Infosoc directive and are instead found in article 6 bis of the Berne Convention where it is stated that even after rights have been transferred ‘The author shall have the right to claim authorship of the work and to object to any distortion, mutilation or other modification of, or other derogatory action in relation to, the said work, which would be prejudicial to his honour or reputation’.<sup>45</sup> But how this is enforced and implemented domestic legislation may decide.

### **3.2.4 CMO Directive**

A CMO is as described by directive 2014/26 (CMO Directive)<sup>46</sup>

any organisation which is authorised by law or by way of assignment, licence or any other contractual arrangement to manage copyright or rights related to copyright on behalf of more than one rightholder, for the collective benefit of those rightholders, as its sole or main purpose.

And if it fulfils one or two criteria, where the two criteria are (i) that the CMO is owned or controlled by the members of it and (ii) that it is not organised on a for profit basis.<sup>47</sup>

Article 5 of the same directive introduces rights for the rightholder: they shall have the right to choose a CMO of their choice, and for that CMO, the ability to choose which of the rights should be managed.<sup>48</sup> The right to grant licences for non-commercial use of their rights and works.<sup>49</sup> Additionally rightholders shall also have the right to withdraw their rights from their CMO of choice not later than 6 months of giving notice.<sup>50</sup> Pursuant to article 5(7) of the CMO directive, right holders shall also give specific consent to the CMO for the rights they want managed. Article 6(5) of the CMO directive also specifies that records shall be kept of the

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<sup>45</sup> Article 6(1) bis Berne Convention.

<sup>46</sup> Directive 2014/26/EU of the European Parliament and of the council of 26 February 2014 on collective management of copyright and related rights and multi-territorial licensing of rights in musical works for online use in the internal market (2014) OJ L84/72, after this called (‘CMO Directive’).

<sup>47</sup> Article 3(a) CMO Directive.

<sup>48</sup> Article 5(2) CMO Directive.

<sup>49</sup> Article 5(3) CMO Directive.

<sup>50</sup> Article 5(4) CMO Directive.

members which shall be updated regularly.

Article 11 sets out how CMOs shall collect and use the revenue generated from the rights. Furthermore article 11(2) says that ‘A collective management organisation shall be diligent in the collection and management of rights revenue’. Furthermore, income generated from rights or investment of revenue stemming from rights shall be kept separate from other income that the CMO generates or assets that it might have.<sup>51</sup> Additionally article 13(1) sets out that rightholders shall receive regularly, diligently, and accurately the revenue they are due from their rights. Where it shall also be put into domestic legislation that rightholders receive their due revenue at the earliest possible moment, always within 9 months calculated from the end of the financial year that the revenue was gathered with the exception of there being objective obstacles that prevent this.

Regarding licensing, article 16(1) poses that CMOs and users shall negotiate licensing in good faith where all needed information shall be provided by both parties. Paragraph two of article 16(2) states that:

Rightholders shall receive appropriate remuneration for the use of their rights. Tariffs for exclusive rights and rights to remuneration shall be reasonable in relation to, inter alia, the economic value of the use of the rights in trade, taking into account the nature and scope of the use of the work and other subject-matter, as well as in relation to the economic value of the service provided by the collective management organisation. Collective management organisations shall inform the user concerned of the criteria used for the setting of those tariffs.

What is evident is that the directive sets out obligations for the CMOs regarding paying right holders on time, having complete information and transparency.

### **3.3 Issues in the digital music industry with potential for application of blockchain**

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<sup>51</sup> Article 11(3) CMO Directive.

### 3.3.1 Introduction

This section focuses on the main issues related to copyright in the music industry with potential for blockchain application. The issues are described and analysed, identifying areas which could aid from implementation of blockchain. The section also includes an introductory paragraph on the interplay between law and technology

### 3.3.2 Law and technology

Central to being able to understand how copyright intersects with blockchain technology, one must first look at how copyright has reacted to previous technological innovations, such as the internet and the digital era. Technology and law interact and influence each other.<sup>52</sup> This relationship has resulted in a debate concerning if stronger copyright protection is needed to be able to respond to technological innovations, or on the other hand if technological innovations present an opportunity to replace the current copyright regime.<sup>53</sup> Ben Depoorter argues that technological innovation impacts law negatively in two significant ways: it produces legal delay and legal uncertainty. Legal delay is a natural effect of the high pace of technological innovation that also is characterised by a degree of uncertainty. This uncertainty comes from the unpredictable applications new technology might have, which are difficult to predict. Lawmaking within copyright on the other hand is a complex process that has to account for the unpredictable and high pace of technological innovation.<sup>54</sup> This delay leads to legal uncertainty, as lawmakers attempt to classify the new technology within the framework for copyright. The legal uncertainty can be described as ‘the difficulty of perfectly predicting ex ante how the courts will apply the law to new circumstances ex post’. Technical innovation also leads to issues in applying the law analogously as the technology might create new areas of uncertainty. An example to illustrate the point was the emergence of peer-to-peer file sharing which was different from lending music out to a friend while simultaneously being different enough from traditional piracy.<sup>55</sup>

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<sup>52</sup> Michéle Finck and Valentina Moscon, ‘Copyright Law on Blockchain: Between New Forms of Rights Administration and Digital Rights Management 2.0’ (2019) 50(1) *International Review of Intellectual Property and Competition Law* 77, 78.

<sup>53</sup> Ben Depoorter, ‘Technology and Uncertainty: The Shaping Effect on Copyright Law’ (2009) 157 *Pennsylvania Law Review* 1831, 1833.

<sup>54</sup> Ben Depoorter, ‘Technology and Uncertainty: The Shaping Effect on Copyright Law’ (2009) 157 *Pennsylvania Law Review* 1831, 1840-1846.

<sup>55</sup> Ben Depoorter, ‘Technology and Uncertainty: The Shaping Effect on Copyright Law’ (2009) 157 *Pennsylvania Law Review* 1831, 1846-1849.

### **3.3.3 Music industry issues with potential of blockchain technology**

The music industry has to a large extent been exposed to the onset of digitalisation and with it its possibilities and adversities. The most notable complaint coming from creators and managers has been regarding fair remuneration. During the late 1990s and beginning of the millennia, a rise in peer-to-peer file sharing sites such as Napster caused many musicians to lose out on revenue as a result of piracy. With the advent of streaming sites such as Spotify, legal consumption soon climbed again.<sup>56</sup> Streaming however brings its own issues for creators as many have spoken out about not receiving fair remuneration for their streams, especially smaller artists that do not have fanbases in the millions.<sup>57</sup>

### **3.3.4 Management of rights and role of CMOs**

Artists generally do not manage their IPRs on their own, for commercial and time costly reasons they are managed by specialised management organisations. These organisations who are often referred to as CMOs manage many different creators collectively. These organisations work with licensing of the works, they work to get the artists paid and also attempt to keep track on circulation of the works to ensure correct attribution. Copyright related to music is made up of two distinct parts, the recording of the song, and then the work on its own. These two different bundles of rights are generally administered by the CMO to different parties. The written music is sent off to a music publisher in order to be able to collect revenue from the writing. The recording on the other hand is sent to a record label, which in turn might licence a platform where music can be made available to individual listeners. In order for the performer who recorded a specific work to receive compensation for use of their work, the money has to travel through several different stages and organisations. This in turn leads to delays before the right holders receive payment as well as additional costs as a result of the long value chain.<sup>58</sup>

CMOs as a central actor of the music industry have had to adapt in the digital environment as sales moved on from purchases of physical copies. Legal downloads provided a revolutionary solution to the market that in the late 1990s and early 2000s was saturated by

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<sup>56</sup> Ahyoung Kim and Mucheel Kim, 'A Study on Blockchain-Based Music Distribution Framework: Focusing on Copyright Protection' (2020) International Conference on Information and Communication Technology Convergence 1921, 1921.

<sup>57</sup> Lee Marshall, 'Let's Keep Music Special. F--Spotify: On-demand Streaming and the Controversy over Artist Royalties' (2015) 8(2) Creative Industries Journal 177, 180-181.

<sup>58</sup> Tran Ngoc Linh Tam, 'Music Copyright Management on Blockchain: Advantages and Challenges' (2019) 29 Alb LJ Sci & Tech 201, 205-207.

peer-to-peer illegal file sharing. As the industry gradually moved on to streaming services, the revenue from legal downloading has steadily declined. Streaming however poses significant issues regarding rights for the CMOs, as it is centred around access to content instead of ownership of it. This model leads the consumer to want access to a large repertoire of music. To facilitate this the CMO has to rapidly licence a large amount of works to the streaming platform. A process which has generally not been accomplished as it on average has taken 2 years for a new streaming platform to receive the necessary licences to be able to operate.<sup>59</sup> A central issue here is the legal uncertainty regarding streaming. There is no specific right for streaming, instead it is fragmented into different rights such as, communication to the public and right of reproduction. Different domestic laws provide for different percentages of these different rights when it comes to streaming, stemming from what is referred to as the umbrella solution created by the two WIPO treaties. When licensing for streaming then occurs, individual licences have to be given for the separate rights even if they can be categorised as a bundle.<sup>60</sup>

The division between recording and work, combined with the legal uncertainty of streaming therefore leads to a value chain filled with different intermediaries and difficulties tracking rights. A platform utilising blockchain and smart contracts could potentially facilitate direct transactions between artists and users removing the need for intermediaries while ensuring correct and fast remuneration.<sup>61</sup>

### **3.3.5 Lack of central database**

Today there is no central all-encompassing music database where a quick search would yield the wanted results regarding metadata connected to a work facilitating the easy localisation of the relevant rightholder. Instead, information regarding music is scattered over many different databases where many of them are incomplete. To settle disputes, many different

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<sup>59</sup> Lucius Klobucnik and Daniel Campello Queiroz, 'The Role of Traditional CMOs in the Digital Era' (2019) 19(5) EIPIN Innovation Society 1, 2-3.

<sup>60</sup> Lucius Klobucnik and Daniel Campello Queiroz, 'The Role of Traditional CMOs in the Digital Era' (2019) 19(5) EIPIN Innovation Society 1, 4-7.

<sup>61</sup> Balázs Bodo, Daniel Gervais and João Pedro Quintais, 'Blockchain and Smart Contracts: the Missing Link in Copyright Licensing?' (2018) 26 International Journal of Law and Technology 311, 317.

databases therefore have to be investigated and some might have conflicting information.<sup>62</sup> One underlying reason behind this is that there is no unified view on registration on copyright. Unlike areas of law such as patents or trademarks, copyright has no formal requirement for registration. Copyright protection is instead awarded at the moment of creation with no need to register. Article 5(2) of the Berne Convention goes as far as forbidding mandatory registration regarding copyright.<sup>63</sup> In accordance with article 5(1) which it refers to and in the spirit of minimum harmonisation, however, it only relates to foreign works. States that are party to the convention therefore are able to pass legislation that makes registration mandatory for domestic works, which however is unlikely as it could give foreign actors an advantage over domestic rightholders by holding domestic actors to higher standards.<sup>64</sup> Article 5(2) of the Berne Convention, however, only prohibits formalities to the extent that not following them would make it impossible for rightholders to carry out their rights.<sup>65</sup> Formalities that in turn offer benefits for registering can therefore still be legal. Which is the case in the US where registration of domestic works is a precondition to be able to file for civil lawsuit for copyright infringement. In order to create a mandatory all-encompassing mandatory database for copyrighted works, either every state which is party to the Berne convention would have to create a database for its domestic works that would then have to be consolidated with the other states.<sup>66</sup> Such a solution would probably encounter the same issue that current databases for copyright face, where different countries would employ different standards and amounts of data, leading to inconsistencies in the consolidated version.

### **3.3.6 The Global Repertoire Database**

One of the biggest past attempts to create a global copyright database was the project known as the global repertoire database (GRD). In 2008 Neelie Kroes who was EU commissioner at that time started a working group for the project. The project outlined one central goal: to

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<sup>62</sup> Marcus O'Dair, 'Music on the blockchain'(2016) Blockchain for creative industries Research Cluster, Middlesex University, Report N° 1, 8.

<sup>63</sup> Annabel Tresise, Jake Goldenfein and Dan Hunter, 'What Blockchain Can and Can't Do for Copyright' (2018) 28 Australian Intellectual property Journal 1, 4.

<sup>64</sup>Jane C. Ginsbúrg, 'Berne-Forbidden Formalities and Mass Digitization' (2016) 96 Boston University Law Review 745, 746.

<sup>65</sup> Senftleben M, and others, 'Ensuring the Visibility and Accessibility of European Creative Content on the World Market: The Need for Copyright Data Improvement in the Light of New Technologies and the Opportunity Arising from Article 17 of the CDSM Directive' (2022) 13 (1) Journal of Intellectual Property, Information Technology and E-Commerce Law 67, 83.

<sup>66</sup> Sebastian Pech, 'Copyright Unchained: How Blockchain Technology Can Change the Administration and Distribution of Copyright Protected Works' (2020) 18 NW J TECH & INTELL PROP 1, 32-34.



create an all-encompassing database for the information relating to ownership and management of music. The aim of the project was that the database should be open to many different actors within the music industry such as the songwriters themselves, publishers and CMOs.<sup>67</sup> The motivations for the project were: increased transparency, faster payments, and the perks of only needing to register a work once. The project ultimately crashed as collection societies started pulling out. When they exited the project, they not only withdrew their funding but also the information they would provide to the database. Different explanations have been proposed as to why the collection societies started pulling out. One explanation might be decreased income for the collection societies as the GRD would enable a more effective system. A second potential explanation might be the question of who would ultimately have control of the database and its data. A third speculated reason would be the disintermediation that the database could provide, with the central source of data, publishers or record labels could interact directly with the creators, effectively eliminating the niche that the collection societies filled. Aside from the reasons blaming collection societies there are also more technical and legal aspects which might have contributed to the demise of the database. The data entering the database would be coming from the spread-out previous databases used by CMOs, these databases use different criteria and standards for data which would have led to inconsistencies in the event of a consolidation.<sup>68</sup>

### **3.3.7 The way forward: adoption of copyright formalities or a technical solution?**

The no formalities requirement has been subject to debate and voices have been raised regarding how a rework of the current system could facilitate easier rights clearance in the digital environment. These voices come as a consequence of what the digital environment has implied for copyright management. Where there are more works created by amateur creators, the borderless characteristics of the environment which facilitates access from around the globe, and the fact that the scope of copyright has been broadened to include more types of works. The internet has also provided a platform for where widespread reuse of protected content is prevalent, which muddies the waters in relation to rights clearance. The argument proposed is then that copyright formalities could lead to a situation where Rights

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<sup>67</sup> Klementina Milosic, 'GRDs Failure'(2015) Music Business Journal <<http://www.thembj.org/2015/08/grds-failure/>> Accessed 19 May 2022.

<sup>68</sup> Klementina Milosic, 'GRDs Failure'(2015) Music Business Journal <<http://www.thembj.org/2015/08/grds-failure/>> Accessed 19 May 2022.

management information (RMI) can be trusted and is available to the public.<sup>69</sup>

Removing the no formalities requirement could be one way of being able to create a global copyright registry. Such a decision would however turn out to be a monumental process as it would have to be accepted by all parties to the Berne Convention. It would also be necessary for the states that are parties to the TRIPS agreement as well as the WIPO copyright treaty to accept the decision, as these two international agreements contain provisions which refer to article 5(2) of the Berne convention. The possibilities of this happening are therefore low, as a result of the costs and time it would take to coordinate such an effort.<sup>70</sup> A potential compromise which could be made in order to establish a global copyright database is as described by Sebastian Pech a “two-tier copyright regime”. In order to still be congruent with article 5(2) of the Berne convention it would afford base level protection for works that have not been registered while works that are registered are offered more substantial protection. This proposed regime has potential to be implemented with blockchain technology which will be expanded upon in the next chapter.<sup>71</sup>

## **3.4 Orphan works**

### **3.4.1 Introduction**

A significant issue not specific to the music industry but present in it, is the presence of orphan works. Orphan works are works for which it is not possible to localise the correct rightholder. When the right holder can not be located this creates issues regarding licensing as it is unclear who shall be contacted for a licence.

### **3.4.2 The issue of orphans**

Orphan works can be encountered in contact with older media, often in analogue form. When a potential attempt to digitise or restore the work is underway, this is made difficult if the creator is unknown or is impossible to reach. The likelihood of being sued for copyright

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<sup>69</sup> Stef Van Gompel, ‘Copyright Formalities in the Internet Age: Filters of Protection or Facilitators of licensing’ (2013) 28 Berkeley Technology Law Journal 1425, 1431-1432.

<sup>70</sup> Sebastian Pech, ‘Copyright Unchained: How Blockchain Technology Can Change the Administration and Distribution of Copyright Protected Works’ (2020) 18 NW J TECH & INTELL PROP 1, 34.

<sup>71</sup> Sebastian Pech, ‘Copyright Unchained: How Blockchain Technology Can Change the Administration and Distribution of Copyright Protected Works’ (2020) 18 NW J TECH & INTELL PROP 1, 34.

infringement might be low in cases such as this but still present, which might prevent works of this nature from being digitised, essentially dooming their potential for living on. Another reason for right holders being hard to identify has to do with the information sometimes lost in reproduction. Even if the original work contains the necessary metadata and information to locate the right holder, this information might be lost during the course of several reproductions leading to the same issue. The outcome is a “lose-lose” situation where either works are unintentionally censored and kept away from consumers or the work is being used without consideration of the creators moral and economic rights.<sup>72</sup>

For a work or phonogram to be classified as an orphan work, first a diligent search has to be performed attempting to localise the rightholders.<sup>73</sup> The outline for how a diligent search is carried out is found in article 3 of the Directive 2012/28/EU on Orphan works (Orphan Works Directive). According to the directive, only certain institutions may gain from having performed a diligent search. These institutions are defined in article 1(1) and have as a commonality that the use of the orphan works in question would be for public-benefit. Other organisations may however carry out diligent searches in good faith and can be paid to do so, they can however not benefit from the permitted uses found in article 6. The directive follows the principle of minimum harmonisation which means that domestic law has significant freedom in defining how this diligent search is performed, which is defined in article 3(2). In a quantitative study which looked at the implementations of the directive in The United Kingdom, Italy and The Netherlands, the researchers identified the key issue relating to carrying out a diligent search as having to search too many databases and registries.<sup>74</sup>

As a result of the definition found in article 1(1) this directive can not be leaned on in order to classify a piece as an orphan work in the case of for profit interested parties in the EU. The directive has received some critique for this<sup>75</sup>. An illustrating example could be a for profit

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<sup>72</sup> Jake Goldenfein and Dan Hunter, ‘Blockchains, Orphan Works, and the Public Domain’ (2017) 41 *Columbia Journal of Law and the Arts* 1, 14-17.

<sup>73</sup> Recital 13 of Directive 2012/28/EU of the European Parliament and of the Council of 25 October 2012 on certain permitted uses of orphan works (2012) OJ L299/5, after this called (‘Orphan Works Directive’).

<sup>74</sup> Simone Schroff, Marcella Favale and Aura Bertoni, ‘The Impossible Quest – Problems with Diligent Search for Orphan Works’ (2017) 48(3) *International Review of Intellectual Property and Competition Law* 286, 288.

<sup>75</sup> Eleonora Rosati, ‘The Orphan Works Directive, or Throwing a Stone and Hiding the Hand’ (2013) 8(4) *Journal of Intellectual Property Law and Practice* 303, 309-310.

business digitising old musical works. With the purpose to make these available directly to consumers or for example in creating a repertoire of pieces available for sampling to producers. This business will instead have to face the possibility of infringing copyright or be restricted to carrying out the search with no possibility of using the works. On the other hand however the notion and function of a diligent search has turned out to be a difficult process with not much uniformity within the EU. To address this situation for business ventures regarding digitization of potential orphan works, new legislation might be necessary or perhaps instead a technical solution which will be looked at in the upcoming section.

Revisiting the no formalities requirement could also be beneficial in the arena of the public domain and orphan works. As the threshold for protection for copyright is low, it leads to works that do not even desire protection being awarded it, leading to confusion and unnecessary complexity when it comes to licensing and reuse. Formalities could in this instance aid as a filtering function, where authors that do not want protection for their works avoid registration. Works that either intentionally or unintentionally have not been registered with the necessary formalities end up in the public domain. If in combination with this design a mechanism was constructed for identifying these works, this would contribute to legal certainty as the distinction between protected vs unprotected works would be clearly defined.

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<sup>76</sup> Stef Van Gompel, 'Copyright Formalities in the Internet Age: Filters of Protection or Facilitators of licensing' (2013) 28 Berkeley Technology Law Journal 1425, 1432-1433.

## **4. Music industry intersection with blockchain and copyright**

### **4.1 Introduction**

This chapter sets out to describe and analyse the application of blockchain to solve the issues raised in chapter 3. The intersection between copyright and blockchain in the digital music industry is analysed and evaluated with regards to feasibility of implementation and if it actually gets to the bottom of any of the raised issues.

### **4.2 Resolution on Blockchain and DLT,**

In an official resolution from October 3, 2018, the European parliament identifies key possibilities and uses that implementation of DLTs can bring to copyright. The parliament identifies that DLT might facilitate tracking and management of IPRs and that there is potential for it to be useful and applicable within the realm of copyright. The parliament also identifies that it can be useful in the tracking and attribution of ownership.<sup>77</sup> It also states that the technology brings with it the possibility for disintermediation by saying:

Notes that DLT might benefit authors by bringing more transparency and traceability to the use of their creative content, as well as cutting down on intermediaries, with regard to them receiving payment for their creative content.<sup>78</sup>

The resolution however is not a legally binding document, instead it aims to further policy discussion, however it can serve as an invitation for the commission to further the work which

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<sup>77</sup> European Parliament resolution of 3 October 2018 on distributed ledger technologies and blockchains: building trust with disintermediation (2017/2772(RSP)) Para 22.

<sup>78</sup> European Parliament resolution of 3 October 2018 on distributed ledger technologies and blockchains: building trust with disintermediation (2017/2772(RSP)) Para 23.

might eventually make its way into legislation.<sup>79</sup> The resolution can therefore not be leaned on as legislation but can signal potential in the technology and is in this thesis interpreted as an invitation to further investigate the subject.

#### **4.2.1 Central database for copyright**

As explained, there is no one global database for copyright where all musical works can be found, leading to costly searches of multiple databases and non functioning interoperability between databases. In order to facilitate licensing and seeing both economic and moral rights for rights holders fulfilled, a global database could be proposed with the help of blockchain technology. Such a solution could be designed as awarding extra protection to works that are added to the registry in order to incentivise registration and still be compliant with the no mandatory registration found in article 5(2) of the Berne Convention.<sup>80</sup>

#### **4.2.2 Possibility of a blockchain implemented database**

Blockchain technology could with the help of its properties assist in providing the necessary infrastructure for a more complete database. If the database is constructed with the help of a blockchain that is characterised by openness and being unpermissioned, it would be available to everyone and be updated automatically when new information flows in. By the means of hashing, the rights connected to the work and the recorded audio could be stored securely on the same blockchain facilitating identification and attribution.<sup>81</sup> One of blockchain's most important features is as previously discussed the potential for decentralisation, it might seem counterintuitive that such a technology would be apt to create a central all encompassing database. The key in this instance is however the decentralised network, where the information is shared between all users instead of being spread out over different locked databases. A structure of this sort would allow individual users to add works to the blockchain, gradually building it up in order to create a comprehensive database.<sup>82</sup>

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<sup>79</sup> Council of the European Union, 'Council conclusions and resolutions' <<https://www.consilium.europa.eu/en/council-eu/conclusions-resolutions/>> Accessed 26 May 2022.

<sup>80</sup> Sebastian Pech, 'Copyright Unchained: How Blockchain Technology Can Change the Administration and Distribution of Copyright Protected Works' (2020) 18 NW J TECH & INTELL PROP 1, 34-35.

<sup>81</sup> Marcus O'Dair and others, 'Music on the Blockchain' (2016) Blockchain for Creative Industries Research Cluster Middlesex University, Report no 1, 8-9.

<sup>82</sup> Marcus O'Dair and others, 'Music on the Blockchain' (2016) Blockchain for Creative Industries Research Cluster Middlesex University, Report no 1, 8-9.

The database could have the possibility to contain metadata connected to the work regarding ownership and other important information. This information would then be readily available in the case of future disputes concerning ownership or infringement. A point of contention that arises is however who would fund and run the blockchain database. A suggestion by Tresise, Goldenfein and Hunter is such a database run by WIPO. A WIPO run database would however only be effective and worthwhile if it was accompanied by a dispute settlement mechanism. If not, court cases would still have to be carried out at the national level, which would diminish the incentive for WIPO to finance such a registry. An alternative is a blockchain based registry run by a government. Article 5(2) of the Berne convention however makes this unlikely as it prevents mandatory registration of foreign works leaving only the possibility that it would be non-compulsory. A non enforceable WIPO registry or an optional government run database would both lack incentive for creating and running of the database as it would be a voluntary activity, not mandated by law. A third option for who could fund and operate such a project would be a private actor which could provide a cross border database where users could register their works. However, once again a problem regarding incentive presents itself, as simply providing a database of information connected to works, does not generate a multitude of revenue. To make the database attractive for a private actor it would need the possibility to give access to the works, or provide a mechanism that would let them licence them.<sup>83</sup>

#### **4.2.3 Additional room for blockchain implementation under the DSM Directive?**

The Directive on copyright and related rights in the Digital Single Market (DSM Directive) which was ratified on the 6th of June 2021 might provide further room for the implementation of blockchain technology within the sphere of copyright.<sup>84</sup> It provides article 17<sup>85</sup> dealing with the new liability regime for online content-sharing service providers (OCSSP) as well

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<sup>83</sup> Annabel Tresise, Jake Goldenfein and Dan Hunter, 'What Blockchain Can and Can't Do for Copyright' (2018) 28 Australian Intellectual property Journal 1, 5-6.

<sup>84</sup> Council Directive (EU) 2019/790 of 17 April 2019 on copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC (2019) OJ L130/92, after this called ('DSM Directive'); Siliva A. Caretta, 'Blockchain Solutions for the Online Music Industry: Revolutionising the Value Chain Through better Protection of artists rights, a Creation of a Fairer Music Ecosystem and Frictionless Royalties Payment' (2020) 3(1) Stockholm Intellectual Property Law Review 40, 49.

<sup>85</sup> Article 17 DSM Directive.

as articles 18-20 dealing with fair remuneration tied to authors and performers.<sup>86</sup>

As mentioned in the background there is frequent discussion of a value gap in the digital copyright environment where platforms such as Youtube supposedly extract more value from works than what the right holders receive in the context of user uploaded content. The directive contains in article 2(6) a definition for OCSSPs. A platform such as Youtube will be classified as an OCSSP and how it handles protected content will therefore be governed by article 17 of the same directive. Under article 17 these platforms are now making a communication to the public when they make user uploaded content containing copyrighted material available on the platform.<sup>87</sup> In line with the platforms now making a communication to the public they shall therefore receive authorisation from the right holders in order to not be liable for infringement.<sup>88</sup> If authorisation can not be granted, the second route of escaping liability for the platforms is through filtering.<sup>89</sup> To escape a general monitoring obligation which the CJEU made clear is not wanted in *Sabam vs Netlog*, Article 17(8) prohibits such an obligation.<sup>90</sup> By correctly identifying right holders and licensing their works, a platform can thus avoid a filtering situation which might end up close to a general monitoring obligation. In order to be able to identify the right holders however, this information has to be readily available, which as previously discussed might be accomplished by a blockchain implemented database.<sup>91</sup>

Article 17(4) of the DSM directive can in this instance act as an invitation for right holders to benefit from sharing their data to OCSSPs to ensure their rights are not infringed. It has been posited that article 17(4) therefore can indirectly lead to standardisation of criteria for

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<sup>86</sup> Article 18-20 DSM Directive.

<sup>87</sup> Article 17(1) DSM Directive.

<sup>88</sup> Article 17(1) DSM Directive.

<sup>89</sup> Article 17(4)(b) DSM Directive; Martin Senftleben, 'Bermuda Triangle – Licensing, Filtering and Privileging User-Generated Content Under the New Directive on Copyright in the Digital Single Market' (2019) 41(8) European Intellectual Property Review 480, 481.

<sup>90</sup> Case C-360/10 *Sabam vs Netlog* EU:C:2012:85, (2012) 2 C.M.L.R 18, para 52; Martin Senftleben, 'Bermuda Triangle – Licensing, Filtering and Privileging User-Generated Content Under the New Directive on Copyright in the Digital Single Market' (2019) 41(8) European Intellectual Property Review 480, 483.

<sup>91</sup> Caretta S, 'Blockchain Solutions for the Online Music Industry: Revolutionising the Value Chain Through better Protection of artists rights, a Creation of a Fairer Music Ecosystem and Frictionless Royalties Payment' (2020) 3(1) Stockholm Intellectual Property Law Review 40, 49-50.



metadata and libraries that can be used to identify works.<sup>92</sup>

Article 18(1) of the DSM Directive sets out that “Member States shall ensure that where authors and performers licence or transfer their exclusive rights for the exploitation of their works or other subject matter, they are entitled to receive appropriate and proportionate remuneration”. With appropriate and proportionate it is here meant in regard to the actual or potential economic value that the licence or transfer of rights will bring. In order for this to be possible it is necessary that information regarding contribution to a work and how it is used is available and visible.<sup>93</sup> In light of this a global blockchain implemented database could facilitate such appropriate and proportionate remuneration by containing metadata related to ownership splits and how the work is used.<sup>94</sup>

Article 19 sets out a transparency obligation as it is often the case that authors and performers suffer from information asymmetry in relation to the other contracting parties, regarding how their works are exploited. To combat this they are to receive regular thorough updates about exploitation of their works. This transparency could once again be accomplished by technological means such as blockchain combined with smart contracts, where splits to different rights holders could be calculated and sent out in real time.<sup>95</sup>

Article 20 of the DSM Directive, provides a mechanism for adjusting contractual agreements when there is no collective bargaining agreement or a contract in place with a CMO. Recital 78 of the same directive clarifies that sometimes contracts have a long duration while economic conditions might change during that time, this article presents an opportunity for

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<sup>92</sup> Senftleben M, and others, 'Ensuring the Visibility and Accessibility of European Creative Content on the World Market: The Need for Copyright Data Improvement in the Light of New Technologies and the Opportunity Arising from Article 17 of the DSM Directive' (2022) 13 (1) *Journal of Intellectual Property, Information Technology and E-Commerce Law* 67, 77.

<sup>93</sup> Article 18(1) DSM Directive; Recital 73 DSM Directive.

<sup>94</sup> Caretta S, 'Blockchain Solutions for the Online Music Industry: Revolutionising the Value Chain Through better Protection of artists rights, a Creation of a Fairer Music Ecosystem and Frictionless Royalties Payment' (2020) 3(1) *Stockholm Intellectual Property Law Review* 40, 49-50.

<sup>95</sup> Article 19 DSM Directive; Recital 75 DSM Directive; Caretta S, 'Blockchain Solutions for the Online Music Industry: Revolutionising the Value Chain Through better Protection of artists rights, a Creation of a Fairer Music Ecosystem and Frictionless Royalties Payment' (2020) 3(1) *Stockholm Intellectual Property Law Review* 40, 49-50.

parties to renegotiate and receive fair remuneration.<sup>96</sup> Blockchain brings with it the possibility of potential disintermediation, as previously discussed, a blockchain register coupled with smart contracts could potentially remove the need for intermediaries such as CMOs, Article 20 could fill a key function in such a situation as it would provide artists with the possibility to renegotiate existing agreements without the need for a CMO to represent them. Article 23 of the DSM Directive further strengthens this position as it prohibits any contractual provision that would prevent compliance with article 19 and 20.

The DSM directive does not provide any sort of direct legal basis for implementation of blockchain technology. What it however does is leave room for it, as blockchain could serve many of the same purposes. Transparency and a potential consolidation of RMI could be beneficial in attempts to implement the raised articles. Additionally in article 17(4) the benefits of sharing data connected to works to OCSSPs could incentivise right holders to “register” their works in a manner that does not violate the no formalities requirement found in article 5(2) of the Berne convention, ‘As rightholders can still enforce their rights against individual uploaders’. Following from this it is also possible for the information to be sent to a central database which could be constructed at the EUIPO. Such a collecting point could be constructed with the benefit of blockchain technology to enable the OCSSPs to share the information and keep it updated in real time. This can be seen as a version of the ‘two tier’ solution that solves the issue of incentive for both users and the OCSSP, effectively creating a database which would significantly benefit from using blockchain. The users are incentivised to provide data to the OCSSP in order to have infringing content removed following article 17(4)(b) DSM Directive. On the other hand OCSSPs are also incentivised to fund and create the repository in order to escape liability for communicating to the public by fulfilling article 17(4). All the while article 5(2) of the Berne convention is not violated as the symbiotic relationship only offers additional protection, copyright protection is not hinged on it.<sup>97</sup>

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<sup>96</sup> Caretta S, ‘Blockchain Solutions for the Online Music Industry: Revolutionising the Value Chain Through better Protection of artists rights, a Creation of a Fairer Music Ecosystem and Frictionless Royalties Payment’ (2020) 3(1) Stockholm Intellectual Property Law Review 40, 49-50.

<sup>97</sup> Senftleben M, and others, ‘Ensuring the Visibility and Accessibility of European Creative Content on the World Market: The Need for Copyright Data Improvement in the Light of New Technologies and the Opportunity Arising from Article 17 of the CDSM Directive’ (2022) 13 (1) Journal of Intellectual Property, Information Technology and E-Commerce Law 67, 81-84.

#### 4.2.4 Private solutions

Revisiting private implementation of blockchain, we arrive at Imogen Heap. She has co-developed a project called mycelia which aims to store all information and metadata in one single database accessible globally. This global database aims to ensure transparency in the relationship between artists and different intermediaries but also fair attribution and remuneration for artists.<sup>98</sup> The plan is to include as much information as possible, including aspects as: the key it is performed in, the lyrics and tempo.<sup>99</sup>

In 2015 Heap was part of another experimental application of Blockchain, when she released her track “Tiny Human” on the platform Ujo Music. The release was characterised by transparency as she displayed the revenue that she herself received from the release as well as the revenue earned for everyone who had worked on the track.<sup>100</sup> Ujo Music is a blockchain based platform where artists and authors can licence their music without any intermediaries such as CMOs, the licensing takes place directly between artist and user. The track managed to rack in sales worth 133.20 Dollars, which would have been evaluated as somewhat of a flop.<sup>101</sup> The blockchain used was that of Ethereum with the associated coin Ether, which was by no means a mainstream system. The act of purchasing the song was not a straightforward process, where users had to create a wallet and navigate a not so well designed buying process that would have been hard to follow even for a seasoned user. Finally the test can be seen as both a proof of concept, as the song was available for purchase but also indicative of the general issues connected to blockchain and the general consumption of products connected to it. Those issues often relate to creating wallets, converting different cryptocurrencies and a generally confusing payment process. If issues of this kind are not sorted out, there is no reason for the average consumer to stay away from the conventional platforms such as

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<sup>98</sup> Arya Taghdiri, ‘How Blockchain Technology Can Revolutionize the Music Industry’ (2019) 10 *Harvard Journal of Sports and Entertainment Law* 173, 185.

<sup>99</sup> Marcus O'Dair and others, ‘Music on the Blockchain’ (2016) *Blockchain for Creative Industries Research Cluster Middlesex University*, Report no 1, 9.

<sup>100</sup> Marcus O'Dair and others, ‘Music on the Blockchain’ (2016) *Blockchain for Creative Industries Research Cluster Middlesex University*, Report no 1, 12-13.

<sup>101</sup> Arya Taghdiri, ‘How Blockchain Technology Can Revolutionize the Music Industry’ (2019) 10 *Harvard Journal of Sports and Entertainment Law* 173, 187.

Spotify and iTunes which have streamlined and easy to use payment processes.<sup>102</sup>

These kinds of implementations of blockchain facilitating both registration and licensing have further potential in combination with smart contracts. One of the key possibilities that smart contracts bring is the total automation of the payment process, payments can be sent and received in real time, with the possibility to precode different splits between different parties who are entitled to payment. This process ensures that the money does not have to travel through any intermediaries. Which compared to the situation as it is today would make a significant difference as right holders spend large amounts of time waiting for payments to pass through the value chain. This disintermediation in turn leads to the possibility for micro payments as transaction costs decline. These small payments lend themselves well for the music industry and streaming in particular where small sums are customary in connection to listening to a song. The possibility of enabling these small payments opens up creative ways of supporting musicians in real time.<sup>103</sup>

#### **4.2.5 Challenges to implementation**

There are however significant issues with a blockchain based registry for copyrighted works. One central issue is the possibility of faulty data being entered onto the blockchain. The immutability of the DLT would make corrections more difficult.<sup>104</sup> This immutability also opens up for fraudulent behaviour. When an individual or entity would hurry to register information as their own, when in fact it is not. In effect this could develop into a situation like the one that is found within patent law where the first party to file and register will be the party that enjoys protection. Which will be further problematised by the immutable nature of the blockchain, meaning that changing such information could be difficult and time consuming.<sup>105</sup>

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<sup>102</sup> Arya Taghdiri, 'How Blockchain Technology Can Revolutionize the Music Industry' (2019) 10 Harvard Journal of Sports and Entertainment Law 173, 189-191.

<sup>103</sup> Marcus O'Dair and Zuleika Beaven, 'The Networked Record Industry: How Blockchain Technology Could Transform the Record Industry' (2017) 26 Strategic Change 471, 474.

<sup>104</sup> Marcus O'Dair and others, 'Music on the Blockchain' (2016) Blockchain for Creative Industries Research Cluster Middlesex University, Report no 1, 18.

<sup>105</sup> Ignacio De Leon and Ravi Gupta, 'The Impact of Digital Innovation and Blockchain on the Music Industry' (2017) Institutions for Development Sector Competitiveness, Technology, and Innovation Division discussion paper 1, 27.

Aside from possible fraudulent or faulty behaviour, there is another significant issue regarding the immutable nature of blockchain. Copyright is characterised by fluidity, official accounts of who the correct right holder is can change as a result of rulings in the court system. Another fluid aspect of copyright is that works awarded copyright can still be influenced by or based on previous works, leading to more right holders having to be considered. What this means is that records need to have a possibility to be changed in order for the technology to be compliant with current legislation. Alexander Savelyev identifies this issue and the potential solution as deciding to what extent blockchain will be implemented in areas that have legal ramifications. Savelyev proposes two potential solutions with ramifications of their own. The first is to assign a government body the role of a superuser which is able to change records on the blockchain. This effectively limits the structure of the blockchain to private ones, as such an action is not possible to perform on public blockchains. This option in turn therefore eliminates some of the key features of the envisioned blockchain, in the form of meddling third parties and the then not immutable blockchain. The second solution Savelyev envisions, is that measures following court action are carried out outside of the blockchain, directed at the specific user in question, making the user update the blockchain themselves. These actions outside the blockchain however risk running into issues of identifying users and problems with jurisdiction.<sup>106</sup>

#### **4.2.6 Disintermediation or need to adapt?**

As mentioned in the subsection of the failure of the GRD, a potential contributing factor to the failure of the attempt to create a global database was the disintermediating effects such a database could bring. If necessary information about musical works can be readily available and licensing easy to carry out this would potentially minimise the need for intermediaries such as CMOs. Which viewed through a pessimistic lens could lead to these organisations not taking part in similar efforts.<sup>107</sup> Another potential reason why CMOs would not take part in a global copyright database has to do with their prior investment, where they will have spent significant sums on their own system. If a harmonised global system was set in place it

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<sup>106</sup> Alexander Savelyev, 'Copyright in the Blockchain Era: Promises and Challenges' (2018) 34(3) *Computer Law & Security Review* 550, 557.

<sup>107</sup> Michèle Finck and Valentina Moscon, 'Copyright Law on Blockchain: Between New Forms of Rights Administration and Digital Rights Management 2.0' (2019) 50(1) *International Review of Intellectual Property and Competition Law* 77, 101-102.

would be costly to switch and fulfil the criteria of the new system.<sup>108</sup> Two Potential future scenarios could be: where the first one is the adoption of a permissionless global blockchain that is used to store metadata and handle licensing with the aid of smart contracts.<sup>109</sup> such a situation is hard to reconcile with a central role being played by CMOs. This scenario is also hard to reconcile with current EU legislation which expands the role of CMOs. Recital 3 of the CMO Directive posits that ‘Collective management organisations play, and should continue to play, an important role as promoters of the diversity of cultural expression’. This is done by giving access to smaller artists and by enabling elements of social, cultural, and educational access.<sup>110</sup> A complete disintermediation would therefore be problematic and unlikely as these are important societal functions that the CMOs fulfil.<sup>111</sup>

The other option that is proposed is the adoption of a permissioned blockchain structure for CMOs and their databases. This structure is a less drastic change sacrificing the decentralised aspect of the permissionless networks. However, this could still present itself as an opportunity for CMOs to improve on their databases without reinventing the wheel. The database could still be distributed, and permission to use it given to key collaboration partners to be able to create a database that is secure, interoperable, and synced with databases belonging to other CMOs.<sup>112</sup>

One of the central positive aspects of smart contracts in the combination with DLT is the potential for contracts to be actionable in real time, they no longer rely on papers or emails being sent between lawyers, instead if a precoded criteria for the contract is fulfilled, then the precoded action for that criterion is acted upon. This is however not entirely reconcilable with

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<sup>108</sup> Martin Senftleben and others, ‘Ensuring the Visibility and Accessibility of European Creative Content on the World Market: The Need for Copyright Data Improvement in the Light of New Technologies and the Opportunity Arising from Article 17 of the CDSM Directive’ (2022) 13 (1) *Journal of Intellectual Property, Information Technology and E-Commerce Law* 67, 78.

<sup>109</sup> Jeremy Silver, ‘Blockchain or the Chaingang? Challenges, Opportunities and Hype: the Music Industry and Blockchain Technologies’ (2016) Create Working Paper 1, 11-12.

<sup>110</sup> Daniel Gervais, ‘The Cultural Role(s) of Collective Management Organisations’ (2018) 40(6) *European Intellectual Property Review* 349, 349.

<sup>111</sup> Michéle Finck and Valentina Moscon, ‘Copyright Law on Blockchain: Between New Forms of Rights Administration and Digital Rights Management 2.0’ (2019) 50(1) *International Review of Intellectual Property and Competition Law* 77, 101-102.

<sup>112</sup> Jeremy Silver, ‘Blockchain or the Chaingang? Challenges, Opportunities and Hype: the Music Industry and Blockchain Technologies’ (2016) Create Working Paper 1, 11-12.

how law works presently. From a general perspective, laws govern what individuals can and can not do. Any individual or entity can however theoretically infringe laws at their own behest, as it is not until after the infringement has occurred that the law is applied and relevant action is performed against the infringer. In the system that is established if a widespread adoption of smart contracts were to take place, it is argued that legal enforceability would not be a significant issue, ‘because the way in which the rules have been defined—the code—is the same mechanism by which they are enforced’. This leads to a discussion about private ordering.<sup>113</sup>

#### **4.2.7 Private Ordering**

Both blockchain and smart contracts have been suggested to be able to create a new form of private ordering where private actors with the help of code create private rules that are not the result of public legislation. Such a phenomenon is not new, *Lex mercatoria* is a term that is often referred to as how international traders have created a set of international rules, without consideration of borders and created separately from public law.<sup>114</sup> An example of how code has been applied for this purpose is through the use of digital rights management (DRM). DRM can be seen as an example of both public and private ordering. In the public sense it can be seen as a ‘code-based enforcement mechanism of legislative provisions’ where it merely acts as a tool to enforce the set rules. On the other side it can also be seen as a form of private ordering where it has been used by private actors to be able to enforce goals of their own. This might however prejudice against exceptions and limitations. An illustrative example would be connected to the doctrine of exhaustion, where a publisher could implement a technical protection measure to make the resale of an electronic media not possible to sell, without also selling the device that it is stored and used on.<sup>115</sup> Regarding blockchain and smart contracts, these could be used to infringe on aspects not deemed important by the creator of the system such as public policy goals. The promise the technology brings connected to disintermediation, transparency and fairer remuneration for artists, could in effect lead to a situation where the designers and owners of the systems

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<sup>113</sup>Aaron Wright, and Primavera De Filippi, ‘Decentralized Blockchain Technology and the Rise of Lex Cryptographia’ (2015) 1, 25-27 <[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2580664](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2580664)> Accessed 25 May 2022.

<sup>114</sup> Ewa Fabian, ‘Blockchain, Digital Music and Lex Mercatoria’ (2017) 14 *Us-China Law Review* 852, 861-863.

<sup>115</sup> Michèle Finck and Valentina Moscon, ‘Copyright Law on Blockchain: Between New Forms of Rights Administration and Digital Rights Management 2.0’ (2019) 50(1) *International Review of Intellectual Property and Competition Law* 77, 83-84.

emerge as new intermediaries where the technology furthers their own goals.<sup>116</sup> In such a situation a CMO that has as one of its objectives to further cultural diversity might be dearly missed.<sup>117</sup> To prevent such a situation it is important to consider legal safety measures that aim to protect such choices.<sup>118</sup>

## **4.3 Revisiting orphan works**

### **4.3.1 The proposed solution**

A global copyright database also has the potential of increasing legal certainty and reducing costs when it comes to carrying out a diligent search in trying to identify orphan works. As described in section 3.4.2, carrying out a diligent search in accordance with EU law<sup>119</sup> can be a costly and difficult procedure. The legislation as well leaves no room for entities that operate with a commercial focus. A technological solution involving blockchain has however been proposed by Goldenfein and Hunter which could offer a more balanced outcome. The proposal is threefold. Firstly, a system is constructed that has the capability of automatically carrying out a diligent search. Secondly, all searches carried out are stored on a blockchain, effectively creating a database of all previous searches for specific works. Thirdly and lastly, a legal mechanism must be constructed that lets the registry be effective in order to clear rights.<sup>120</sup>

### **4.3.2 The diligent search**

The proposed mechanism for improving the diligent search is in line with the EnDOW diligent search project which employs an automated search. The system is constructed in such a manner that it automatically consults previously selected sources in line with guidance from the intellectual property office. In order to encapsulate legal formalities and fulfil the requirement of carrying out a diligent search, the researchers have constructed schemes for the different questions that must be asked and identified to fulfil the legal requirements. Using

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<sup>116</sup> Michéle Finck and Valentina Moscon, 'Copyright Law on Blockchain: Between New Forms of Rights Administration and Digital Rights Management 2.0' (2019) 50(1) *International Review of Intellectual Property and Competition Law* 77, 98-100.

<sup>117</sup> Recital 3 CMO Directive.

<sup>118</sup> Michéle Finck and Valentina Moscon, 'Copyright Law on Blockchain: Between New Forms of Rights Administration and Digital Rights Management 2.0' (2019) 50(1) *International Review of Intellectual Property and Competition Law* 77, 100.

<sup>119</sup> Article 3 Orphan Works Directive.

<sup>120</sup> Jake Goldenfein and Dan Hunter, 'Blockchains, Orphan Works, and The Public Domain' (2017) 41 (1) *The Columbia Journal of Law and the Arts* 1,17.



these schemes, these questions are asked in an automated manner. The system might not be able to produce complete matches from limited data, but receiving a high percentage match could point users of the system in the right direction.<sup>121</sup> A key issue here however pertaining to the orphan works directive is once again that the diligent search exception is only available for institutions that operate for public interest.<sup>122</sup> This is a giant hurdle against effective crowdsourcing, where if commercial users were able to benefit from the diligent search exception this would provide an incentive and lead to more use of the system, leading to more registered searches and more reliable information.<sup>123</sup>

### **4.3.3 Combining the diligent search with a blockchain registry**

To enable the automated search function and provide data that the performed searches can be verified against it is coupled with a blockchain registry. The registry is not a database that is hinged on registration, avoiding the problem stemming from the no formalities rule found in article 5(2) of the berne convention. Instead, the registry is a record of previously performed searches that are stored on a decentralised distributed ledger. As it would be difficult for a central authority to collect the necessary amounts of searches to build up a meaningful registry, this structure instead, characterised by its decentralisation lets users make use of their own searches which add to the registry. Within the EU the same problem regarding the exception of the diligent search only affecting public interest non-commercial ventures once again appears. In order for the registry to be effective in verification it would require a significant number of searches registered, this scalability might be hard to achieve without incentive for private users to conduct searches.<sup>124</sup>

### **4.3.4 Legal reform necessary for implementation**

In order to incentivise and enable effective use of the system, reform of the copyright regime will be necessary. One avenue of conducting this reform is by adapting the exception in the orphan works directive to include commercial uses. This distinction between non-commercial and commercial use might have far going implications, as much work that is

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<sup>121</sup> Jake Goldenfein and Dan Hunter, 'Blockchains, Orphan Works, and The Public Domain' (2017) 41 (1) The Columbia Journal of Law and the Arts 1, 17-22.

<sup>122</sup> Article 1(1) orphan works directive.

<sup>123</sup> Jake Goldenfein and Dan Hunter, 'Blockchains, Orphan Works, and The Public Domain' (2017) 41 (1) The Columbia Journal of Law and the Arts 1, 21.

<sup>124</sup> Article 1(1) orphan works directive EU; Jake Goldenfein and Dan Hunter, 'Blockchains, Orphan Works, and The Public Domain' (2017) 41 (1) The Columbia Journal of Law and the Arts 1, 22-25.

produced today is based on previous works. This fluidity within copyright as previously described means that works can still be original even as they incorporate elements of previous works. With the law as it is today, this limits the potential of using works where an author cannot be located or identified. This stems from the justification that allowing commercial users this exception would lead to mass exploitation of works without attribution or remuneration to right holders<sup>125</sup>.

## 5. Conclusions

In chapter 3 a number of key issues were raised that highlight the problems regarding copyright in the digital music industry. What is evident is that many of these issues are not strictly legal, issues of fair remuneration and long value chains are expressed in economic terms, however the source of the problems often relates to the inability of copyright law to keep up with technological innovation. One of the central issues is the lack of a complete repository of information related to copyrights. This central issue coupled with the fragmentation of rights stemming from the division between work and recording as well as the legal uncertainty regarding streaming creates a situation where rightholders and CMOs need access to quality rights information without being able to track it, which in turn leads to a precarious situation. A blockchain solution is possible but it can however not be mandatory, in order to adhere to article 5(2) of the berne convention. Additionally potential for blockchain application is found within the area of orphan works where cataloguing searches could be beneficial.

A central theme of the thesis has been the potential of creating an all-encompassing copyright database usable for RMI searches as well as carrying out searches for potential orphan works. Such a global, public, and complete database could facilitate easier localisation of right holders as well as ensuring fair remuneration in accordance with article 19-20 of the DSM directive. Standing in the way of such a creation are however several elements, no mandatory registration,

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<sup>125</sup> Article 1(1) orphan works directive EU: Jake Goldenfein and Dan Hunter, 'Blockchains, Orphan Works, and The Public Domain' (2017) 41 (1) The Columbia Journal of Law and the Arts 1, 32.

diligent search under EU law being restricted to public interest parties and limited incentive for WIPO or governments to fund such a venture as it is not a legal requirement. The most promising avenue of creating such a database identified in this thesis is by relying on the mutual incentive in the notification regime of article 17(4) of the DSM Directive. This can be seen as a two-tier solution offering better protection for registered works without violating the Berne Convention. Private parties employing permissioned blockchains to control their own data is also an area of potential for blockchain. Additionally, the application of smart contracts brings the possibility of sharing platforms that can double as databases. Such platforms could bring wide disintermediating effects, affecting CMOs. The question that arises is how this void is filled, and if instead new intermediaries emerge in the form of the platforms.

To conclude this thesis it is important to facilitate the use of blockchain in controlled manners, in order not to end up in a situation as current when the copyright framework in the music industry has had issues keeping up with the digital era. A solid step in the right direction is following the Finnish presidency's ideas and recognising the value of metadata and how it interacts with blockchain. More complete information is a good step in the right direction to solve the underlying issues in the music industry.

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