

Is Blockchain technology the future of the music industry, and can blockchain create a more transparent dealing between rightsholders and authors? A book regarding music law has discussed the benefits and the problems of applying blockchain to the music industry (*O'Mara and Harrison, 2021*). This research will investigate the uses and benefits of blockchain technology, specifically looking to see the beneficial services for authors and stakeholders when applying their music to a blockchain. The discussion will include the platforms currently using blockchain technology, commercial use, challenges, and legal implications.

Blockchain and Bitcoin are, along with similar cryptocurrencies, linked. Blockchain provides the underlying code that runs the digital currency (*Morris, 2019*). When used in the music industry, blockchain can record the rightsholder's intellectual property rights, licensing, and information. The record-keeping technology is described as a digital and decentralised ledger, meaning it can make and maintain records of transactions made through blockchain without any intermediaries. The intermediaries that can regularly interfere with such dealings are major record and publishing labels and collection management organisations, also known as the centralised system. This centralised system can make some rightsholders lose royalties, with fees introduced in contracts with such companies or by the challenge of correctly identifying every play of a rightsholder's work. The drawback is that those rightsholders can find receiving their royalties promptly and transparently problematic.

A *smart contract* is a transaction in blockchain; it “can be used to automate royalty payments, to manage ownership rights, to enforce copyrights and to license musical works and sound recordings” (*O'Mara and Harrison, 2021*). Smart contracts can help the rightsholder by giving them the reins in deciding the price and terms—releasing the decision-making back into the hands of the rightsholders and cutting out the intermediaries (*O'Mara and Harrison, 2021*). Smart contracts not only hand back authority to the rightsholder but are written codes that can be self-executed (*What are smart contracts on blockchain? | IBM, no date*). The rights holder can set the terms for the purchase, and once the consumer has executed the agreement, will send the royalties to the correct place whilst also arranging for the consumer to access the product. The rightsholder can also use smart contracts to split royalties, for example, between the songwriter and producer.

One way that could protect the rightsholder's work would be a global music rights database (*Music Database, 2021*). It is an idea that has been toyed with to encourage the recognition of rightsholders. Worldwide, countless collection companies are working to benefit artists that still need royalties. Due to the extensive options of different platforms when releasing music, said collection companies will only sometimes catch every stream or play. One cause of missed plays is the metadata that the collection societies use to recognise the works; not all streaming platforms have the same information carried across. So, improving missed plays is vital, and one way to do that is with content identification, which YouTube uses extensively.

YouTube is a company that uses the content ID to ensure the correct rights can apply to a video on the streaming service. It is an automated system created by Google for YouTube that scans videos and checks for any matching copyright content in its database (*Google, 2023*). One example is when uploading a cover of a song, YouTube will alert the user to

copyright infringement and inform them that they cannot monetise the video upload. Content ID is like blockchain, with a 'digital fingerprint' that helps identify the correct information. Even though they are alike, Content ID does have its downfalls. For example, if the user uploads something that sounds like another artist or the user makes covers, the Content ID will react (*Audiosocket, 2018*). With covers, the covering artist would not receive any royalties from the song itself but only performing royalties. Royalties would only be given to the covering artist if they had a mechanical license before uploading.

A global music rights database is a worldwide solution, but more is needed. Paired with the immutable blockchain, it could be a step forward in acknowledging rightsholders and collecting royalties. Suppose blockchain was the underlying software to a global music rights database; it could use a 'digital fingerprint' to protect rightsholders. Blockchain could safeguard the rightsholders in the same way as an ISRC or ISWC (mentioned below). There is also no harm in still using the codes in blockchain to apply the same singularity and then gather the royalties that way. In saying that, blockchain could store the information digitally using the words and music of the works and the sound recording (O'Dair *et al.*, 2016). Upon doing that, the rightsholder could time-stamp their work to create a proof of ownership and authenticity for potential rights claims. The question does arise of who will create, run, update, and verify what could be a massive step in solidifying the collections of artist rights. It is not in the interests of major record labels or collection companies to agree to such software for fear of losing their business.

In saying that, PRS has collaborated with ASCAP and SACEM to create a prototype for a "shared system of managing music copyright information using blockchain technology" (*ASCAP, SACEM and PRS for Music join forces on blockchain project, 2017*). It is great to see the use of blockchain technology to benefit artists but also for the collection companies to be aware of the errors and want to fix the problems. The shared system would use blockchain "to match, aggregate and qualify existing links" (*ASCAP, SACEM and PRS for Music join forces on blockchain project, 2017*). Another advantage of the project is that the companies working together could allow for a compilation of artists' work, i.e., the beginning of an entire database. The links would be between the international standard recording codes (ISRC) and the international standard word codes (ISWC).

The ISRC is a unique 12-digit code designated for each sound recording (*What is an ISRC?, 2023*). An ISRC helps identify the rights for recorded music and music videos. PPL are an example that uses ISRC to correctly identify the performers on a track (or in a video) and the record company (*PPL, 2022*). Like ISRC, ISWC is a unique code, but it is related to the composition instead of being applied to the sound recording. An ISWC is helpful to songwriters and publishers; it is proof of ownership and tracks the shares for each of the works (*Songtradr, 2016*). Having an ISRC for a product means that collection societies can identify the royalties more efficiently across all the platforms. By linking the two, blockchains could amend all owner information. Returning to the PRS prototype and concatenated codes can remedy conflicts with rights. The project hopes to "speed up licensing, reduce errors and reduce cost" (*ASCAP, SACEM and PRS for Music join forces on blockchain project, 2017*).

Upon research, there has been little movement on the above project since 2017. However, SACEM has released Musicstart, an intellectual property protector that uses blockchain technology (*Insights, 2022*). It does not provide royalties for the artist but can help an artist establish priority by time-stamping the uploaded product. Musicstart is for publishers, authors, and composers; the software certifies an artist's work and can be used to prove authorship. Another benefit is that it "guarantees the certificate's validity over time... with no time limit" (*Musicstart, 2023*).

Another example of more prominent companies getting involved is Warner Brothers. They are a company more extensive than just a music label, which invested in the blockchain company Flow (*Stassen, 2021*). Flow, created by Dapper Labs, is the "foundation for... games, apps and...digital assets" (*Flow, 2023*). With the funding backed by Warner, Dapper Labs is already looking to expand its Flow blockchain; they are also approaching a way to interact with artists and bands by using tokens to access digital (*Stassen, 2019*). Dapper Labs wants to "scale and support major additional brand driven sports, entertainment and music based product" (*Stassen, 2021*). With this funding, the Warner Music group intend to "create new avenues where fans of our artists can explore their" (*Stassen, 2019*). The technology would be something new to the label giant that does not regard the rightsholders but instead focuses on a new way for the consumer to get involved.

One example of a project that is using Blockchain is Mycelia, created by Imogen Heap. Imogen Heap has already released a track on a separate blockchain company called Ethereum, which is like the company Flow (mentioned above). Using her profits from releasing 'Tiny Human' and the profits she made from the Harry Potter musical to start the project. Heap intends to "develop a fairer method of distributing artist rights and ensuring fair payment for sales of copyright content" (Suberg, 2016). The program is not yet released for public. However, Mycelia are offering to "join the mailing list to help shape Mycelia" ('Mycelia for music – Connecting dots for music makers', no date). The advantage of Mycelia is that it looks to cut out the middleman by using blockchain "To ensure all involved are paid and acknowledged fully" ('Mycelia for music – Connecting dots for music makers', no date). More specifically, when Heap explained the specifications for the programs, it seemed she looked to help budding musicians make their mark in the industry whilst still being recognised.

As mentioned above, a global music rights database using blockchain technology could be the solution. There are plenty of obstacles to creating something significant worldwide, and there would need to be some collaboration. Collaborating with countless companies internationally to collate all the information would create a unified front for artists. Such could solidify artist rights and improve missed rights, royalties, and incorrect information. Regardless, putting together something so significant would take years or many people. Also, which company would take the lead? If blockchain is used by these companies separately, it will benefit them and the artist more, so they do not have to move the information they already own (Suberg, 2016).

Additionally, referring to the interests of collection societies and major labels, or the cons, would require more work. Again, collectively coming together would not benefit the different labels, to collate all the artists into one shared space could debatably reduce the

need for collection societies and labels, especially with the use of smart contracts (mentioned below). Millions of artists worldwide and plenty of back catalogues would need to be uploaded and correctly verified with the permission of labels, publishers, and Collection Management companies. They are leading us to wonder whether these companies would rescind the rights they own to benefit the artist.

To further discuss the benefits of major record and publishing labels, some artists make it in the industry with the help of such labels. So, artists will rely on the option of being picked up by a label. Cutting out the middleman could be arguable, as it does not always benefit the artist. Labels can provide funding for recording, distributing, producing and even a living budget while the artist creates their product and the corresponding assets. So, for an artist to receive royalties for their music and gain authority over the work, in some cases, they need to share a percentage for the labels that would make it happen. In retrospect, a clause must be added to artist and label contracts to utilise blockchain. A clause that would discuss the possibility of a smart contract (mentioned below) that could split the royalties between the respective parties.

Being immutable has its assurances; blockchain cannot change once encrypted. Immutability makes the blockchain easily traced, so it is excellent as a receipt tool when used for transactions. Since when uploaded, a user can only add to the blockchain; transparency is also an advantage. The record of transactions means the rightsholder can see precisely where royalties are going and vice versa for the consumer. The rightsholder can set the terms for their music via the blockchain that then must be followed by the consumer to receive the product.

The transparency of the blockchain system is one of the more significant advantages. As mentioned above, when labels and collection societies collect royalties, the artist is not always clear on where they come from or whether these companies relay the correct royalties. Nevertheless, there is a question as to whether such collections societies convey accurate information to the rightsholder. The rightsholders should sign up for a collection society and provide correct information regarding the songwriter, performers, producers, composers, or the respective ownership shares (*Rocchi, 2021*).

Providing that the rightsholder has given the exact information needed, there is still an error from collection societies due to digital streaming platforms (DSP). More specifically, in DSPs, the metadata is found within each song on the DSPs. "In the music world, metadata most commonly refers to the song credits....also includes all the underlying information tied to a released song or album" (*Deahl, 2019*). The difficulty in these streaming platforms is that metadata is not always accurate, and with no mutual standard when metadata is collected and displayed, there is no way or need to verify the accuracy (*Deahl, 2019*). The data is not all stored in one place but across multiple databases, leading to misconstrued information. In turn, collection societies are amassing royalties that cannot be redeemed as they cannot identify the rightful owner.

The amassed and unredeemed royalties will split into unclaimed and unallocated. Unclaimed have not been matched to the correct rightsholders but are still accessible using a two-to-three-year time frame. If the rightsholder wanted to release these royalties, they

must register their work to match it correctly. Next is the unallocated royalties; these are not accessible and will be reallocated to the top earners (*Schoonmaker, 2018*).

The task of attaining total royalties is something the rightsholder can improve. Rightsholders must take control by ensuring all tracks have their ISRC and ISWC, and rightsholders must have a cohesive online profile across different platforms. By creating uniform information collection, societies can identify royalties correctly.

In summary, blockchain could be a valuable addition to the music industry. For rightsholders, blockchain measures up when comparing security, recognition, and transparency. Using chain technology and self-executing smart contracts can make copyrights and royalties a more convenient transaction for rightsholders. Be that as it may, it will still be the rightsholder's responsibility to verify the correct information regarding ownership shares due to the blockchain's immutability. Incorrect information that cannot be changed could lead to further missed royalties, a problem blockchain is trying to help deplete. Companies like Flow and Mycelia are integral to rightsholders as they can transform how royalties are collected and alter how artists interact with consumers. Not only will the interaction be changed for consumers, but as is transparent for the rightsholders, a consumer can see that the funds spent will go to the artist, creating trust between a fanbase and the artist. This research needs to discuss streaming services in depth. Streaming services and their already poor royalties pay-outs could benefit from blockchain. These services do not have a way to correctly verify the artist, resulting in an 'unknown artist' in the song credits (O'Mara and Harrison, 2021). This research has touched on some ways this could be fixed; in the future, further research could see how these services are looking to fix the problem for artists.

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