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## **HOW CAN BLOCKCHAIN BE IMPLEMENTED INTO THE MUSIC INDUSTRY?**

## **1. INTRODUCTION**

At its core, blockchain is a distributed ledger with a “mesh” structure that is different to the standard “star” structure used by centralised currency systems (appendix 1) (Baran, 1964). The system records transactions in blocks. Each block contains a set of transactions and has a link to a previous block, creating a chain of chronologically ordered blocks (Ferretti and D’Angelo, 2019). It is an attractive innovation as a data storage tool for multiple reasons. Firstly, the data written into blockchain is immutable, meaning it provides an audited record that cannot be modified. As it is decentralised, a copy of the ledger is maintained in multiple independent locations. Blockchain enables payments between peers, it is a peer-to-peer service. Peer-to-peer transactions cut out the need for a middle man. Intermediary services would have a less significant place in the peer-to-peer transaction model, meaning that the cash flow between music artists and consumers becomes direct and instantaneous. Blockchains potential for the music industry is transformative in terms of both functioning as a network and a database (Arcos 2018). Crypto assets such as currency and tokens can be used instantly to pay for material, and ownership of the material embedded into code dispenses royalty payments to the rights-holder. Blockchains potential for the music industry can be identified in four key areas. Its network can function as a database for music copyright information. It can ease the payments of royalties to the artist. It can provide payment transparency and will significantly fight copyright infringement issues as it will use tamper-proof technology. It will enable users to search tools allowing them to monitor and flag potential copyright infringement (Muchoki, 2020). Lastly, it can provide access to alternative sources of capital (Ludlow, 2018).

## **2. COMMERCIAL USES**

Early stage funding in the music industry is often a major challenge for artists. When looking at conventional ways to raise capital, the music industry relies primarily upon investment through

record labels to produce the product. Blockchain technology can help artists raise alternative capital in a variety of ways. Artists attempting to operate without a record label remain limited in numbers, largely due to the difficulty in assessing profitability. But blockchain offers transparency to investors, and music produced on the blockchain facilitates easier modelling of financial projections and the likely rates of return. Through the use of smart contracts, which can independently monitor the development of artists throughout their careers, outside investment into the music industry becomes attractive to venture capital which seeks high-risk but high-reward investment. A smart contract, while not specifically a legally binding contract, is a self-executing contract with the terms of the agreement between buyer and seller being directly written into lines of code (Macrinici, Cartoceanu and Gao, 2018). Lastly, blockchain technology can have a significant effect on crowdfunding for artists. By distributing online tokens, artists can effectively distribute their own shares, while smart contracts can protect the investor by guaranteeing a return on investment should the stipulated targets not be met by the artist. The terms of the contract and the definition of the targets set can be settled between the artist and investor, but the overarching technology behind the sourcing and use of investment capital provides a flexible alternative for artists.

Through the narrative of independent investment into the music industry, we can explore what it really means to cut out the middle man. Blockchain technology, the lynchpin behind the cryptocurrency bitcoin, was defined by its creator Satoshi Nakamoto as enabling two parties to transact without depending upon a trusted third party. A report published by PwC in 2014 suggests that blockchain can help remove third parties from the music industry by providing easier platforms through which content creators can distribute their work to fans. While it is likely that third parties will still see a significant role in music industry, this will only be the case where the added value to process is greater than the potential substitute that could be supplied along the blockchain. For

example, labels might still be used when it comes to negotiating payment, but may not be needed in an administration capacity. Assuming that third parties are still involved in the music making process in some capacity, there is still scope for blockchains technology to revolutionise the payment process for royalties. When an artist's song is played, royalties must be paid for the right to play the song. The process is conducted by the Performance Rights Organisation, taking between 9-36 months. This time lag occurs as a series of sub-publishers collect their royalties, filtering up to the primary publisher who takes their cut, before the artist is finally paid. Using blockchain technology, royalty payments could be divided up instantaneously to the relevant right-holders. If third parties are still relevant in the supply chain, artists will still benefit from the speed at which they are paid royalties for their material. The time lag between platforms playing an artist's song, to the artist receiving the royalties, has been a long running issue.

Although blockchains commercial uses are clearly tangible, there is clearly no blanket solution that will modernise the music industry. As Silver opines, differing blockchains used by differing artists presents a compatibility problem. The desire for a single, centralised database relies upon a standardised and compatible format. Technology advancement in this area is still ongoing, but currently the comprehensive, centralised database blockchain needs to challenge the status quo is not quite within reach. While the use of smart contracts make right-holders more easily identifiable and theoretically alleviates copyright disputes, third parties such as the courts would still be needed should a dispute arise.

While blockchain has exciting potential for revolutionising how music is consumed as a product, third parties like the streaming giants iTunes and Spotify have the advantage of a distinguishable, usable and simple interface that has become familiar to billions of people worldwide. Blockchain

may address some of the key issues between artists and the platforms with which their music is distributed, but this does not necessarily filter down to the consumer's level. Most consumers will not care who they are paying to access the product, be that a streaming service or the artist directly; they just want access to the product. Without a popular interface or music library that rivals the functionality of Spotify and iTunes, blockchains success at consumer level may be limited. Platforms such as Bittunes and Ujo use blockchain technology to deliver their product, but arguably the distribution of music on the blockchain has not achieved widespread commercial success as of yet. This isn't a direct criticism of blockchain itself; blockchain is not a tool dedicated to the music industry. It simply acknowledges that there would have to be innovation from within the industry to provide an interface which rivals iTunes and Spotify in order to compete with them. This can be seen as a gap in the market thus far, as there is not a widely recognised platform existing today utilising blockchain technology. This being said, existing providers of digital music services can also take advantage of blockchain technology. Both iTunes and Spotify have exceptionally deep pockets to draw upon, and should they choose to engineer their platforms toward blockchain technology, they can certainly capture upon an emerging new music market given their prevalence over the existing market. This process would require a significant level of re-engineering on both platforms however, and while blockchain provides a host of aforementioned efficiencies to both artists and distributors, there needs to be a significant level of investment into the technology before these efficiencies are realised.

### **3. THE BLOCKCHAIN EFFECT ON COPYRIGHT (LEGAL)**

Blockchain technology has potentially revolutionary legally implications for the music industry. These are primarily regarding rights management, copyright, licensing, royalties, piracy and live performances (Bear, Fohrman and Gatto, 2018). However, blockchain is likely to cause an

evolutionary, rather than revolutionary change in the industry. Take for example Spotify's recent dispute with the National Music Publishers' Association, who alleged that Spotify did not obtain licenses for many of the songs on its service. The matter was ultimately settled for \$20 million, but Spotify alleged that, while it did not make required payments for royalties, this was due to difficulties in determining legitimate claims and how to locate those who are owed (Jacobson, 2017). Blockchain could be utilised to simplify the payment process by establishing the rights-holder and subsequently distributing the royalties to that party. Copyrights on a sound recording lack a database that records the ownerships of those rights. Add to this the rise of streaming and the increase of user content, it is increasingly difficult to establish the ownership of content, as well as controlling the way this content is distributed. In the context of rights management, blockchain technology can detail the complete ownership of any particular song through the use of smart contracts. The terms of ownership can be instantly transferred, which is detailed in the code. This means that unauthorised parties are unable to modify information, and the transfer of ownership rights are both instantaneous and public. Implementation of Blockchain technology's revolutionary application has almost ended any third-party or intermediary engagement, figure in (appendix 2) shows the rise in use of blockchain technology and its expected increase (Ultimate Guide to Blockchain Smart Contracts & Their Roles, 2020).

Blockchain's benefits are not solely limited to the issue of rights management. Blockchain can be an effective tool in copyright protection. The illegal distribution of music through peer-to-peer file sharing systems such as Torrent, Limewire and Napster allow file sharing without paying royalties to the artist (Escalona, 2019). The immutable nature of blockchain and the implementation of smart contracts both establishes the authentic ownership of material as well as providing proof of ownership as recorded through a decentralised ledger. Existing technology such as COPYTRACK

allows content creators who have uploaded material onto a platform to search the internet for unlicensed uses of their material, or any use which breaches the terms of their copyright, and enforce ownership of the material when those breaches are detected (Tönnissen, Beinke and Teuteberg, 2020).

Additionally, an immutable ledger simplifies the licensing process and allows for the disbursement of royalties to be paid directly to the rights-holder (Daley, 2020). Rights-holders often have an arduous task of receiving royalties through various platforms through which their material is played, and a single, centralised database complete with irrefutable information formatted into code that identifies the royalty holders streamlines the royalty revenue process for artists. The use of blockchain technology can also address the loss of royalty payments through secondary markets, such as the resale of tickets to live events. If blockchain technology is employed and tickets to a live event are distributed as a token, then a record of the initial purchaser of the token is tracked in the blockchain's ledger. The token can be programmed so that only the initial purchaser of the ticket is able to attend the event, or transfer a portion of the profit to the artist if the token is re-sold by a third party. Hashing, a function which converts inputted information into an encrypted output, ensures that blockchain's ledger is immutable. If a hacker attempts to alter the information of the blockchain, the hash will be altered and will no longer match the hash in the second block of the chain. (Appendix 3) shows an example of what would happen if a hacker tried to change any of the information in the blockchain (LARSON PH.D., 2018).

#### **4. LEGAL CRITIQUE**

While much literature is dedicated to blockchains technological impact, there isn't much insight into how it would function under a legal framework. Theoretically, smart contracts and subsequent coding protect right-holders and prevent information along the blockchain being edited, distributed or altered without consent. The peer-to-peer network operates on a decentralised ledger, so in what jurisdiction are laws applied? The legal question isn't just based around supply and demand but also around the issue of copyright. Copyright laws are not universally applicable and vary from region to region. Without jurisdiction there is no applicable financial or legal legislation, and blockchain cannot operate in this context with impunity. Simply put, how will the blockchain be held legally accountable, and how will the revenue generated from it be taxed if there is no universally applicable jurisdiction with which to assess it?

For consumers, questions around blockchain technology and the wider cryptocurrency space still persist. To the untrained eye, blockchain is synonymous with various cryptocurrencies like Bitcoin, commercially famous for its market volatility. If consumer confidence surrounding the technology isn't strong, blockchain will struggle to challenge the status quo. Confidence hinges twofold here, upon both reliability and legitimacy. Firstly, some people may be unwilling to deal in a resource the market deems so volatile. Significant falls and rises in the market value of cryptocurrency may result in consumers preferring to deal in more traditional methods. Blockchain must also address questions regarding its legitimacy, particularly its reputation for deep web activity. Well known sites such as Silk Road, an online marketplace for illegal materials such as narcotics and firearms, gained notoriety for exploiting decentralised and untraceable aspects of blockchain technology to deal in criminal activity (FRANKENFIELD, 2019). I would argue this is an issue of perception, rather than a fundamental challenge to the technology itself. Perhaps what blockchain needs is a more commercial image to satisfy consumers that the technology is sound, safe and a genuine alternative.

## **5. CONCLUSION**

Despite critiquing blockchain and assessing its shortcomings, it is a question of when rather than if the technology will become adopted into the music industries supply chain. It is already prevalent across the fringes of the industry and is utilised by numerous platforms. Mainstream media platforms investing into blockchain technology showcases its potential impact. It may not prove to be the saviour independent artists crave; there is still significant scope for third party involvement when it comes to resolving disputes, establishing pricing and running successful marketing campaigns.

Should blockchain successfully overcome issues with compatibility, functionality and legality its potential for success is unlimited. Until this point, blockchain will evolve the market for the better, especially considering the lack of remuneration for artists from streaming services and the complete destruction of live events due to COVID 19. However, a blockchain revolution will hinge upon how competently it engages with these issues.

## 6. APPENDIX

### 1. The star and chain blockchain structure (Ferretti and D'Angelo, 2019).

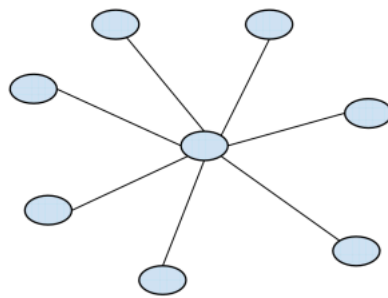


Figure 2: star

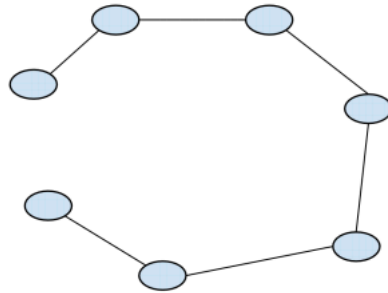
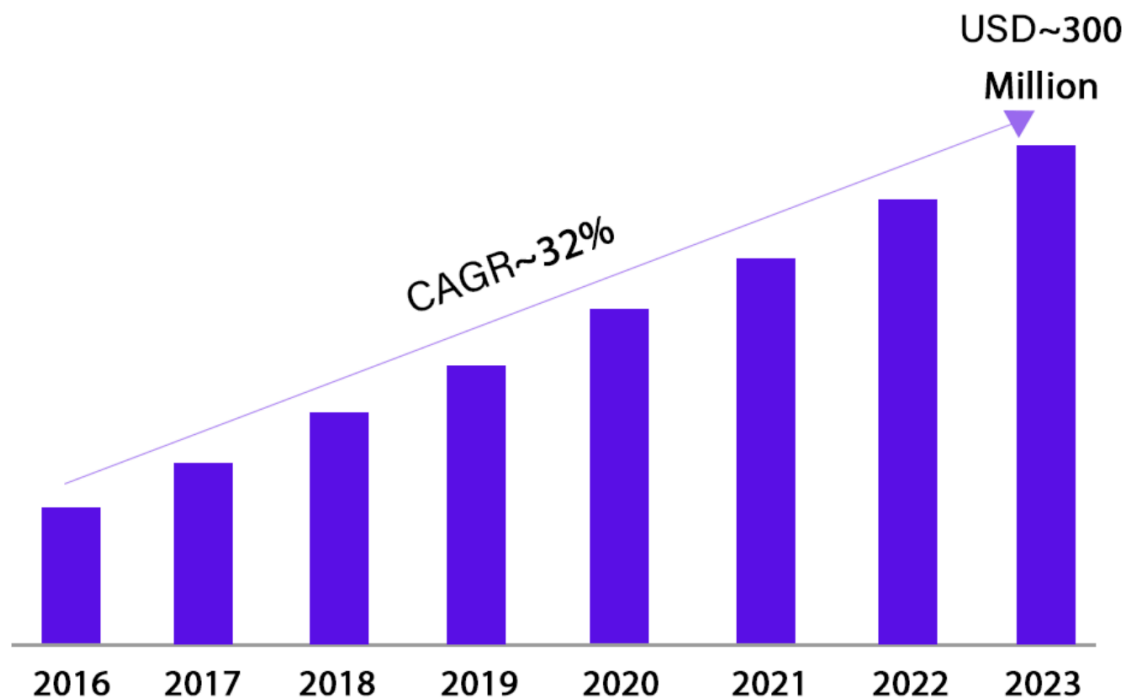


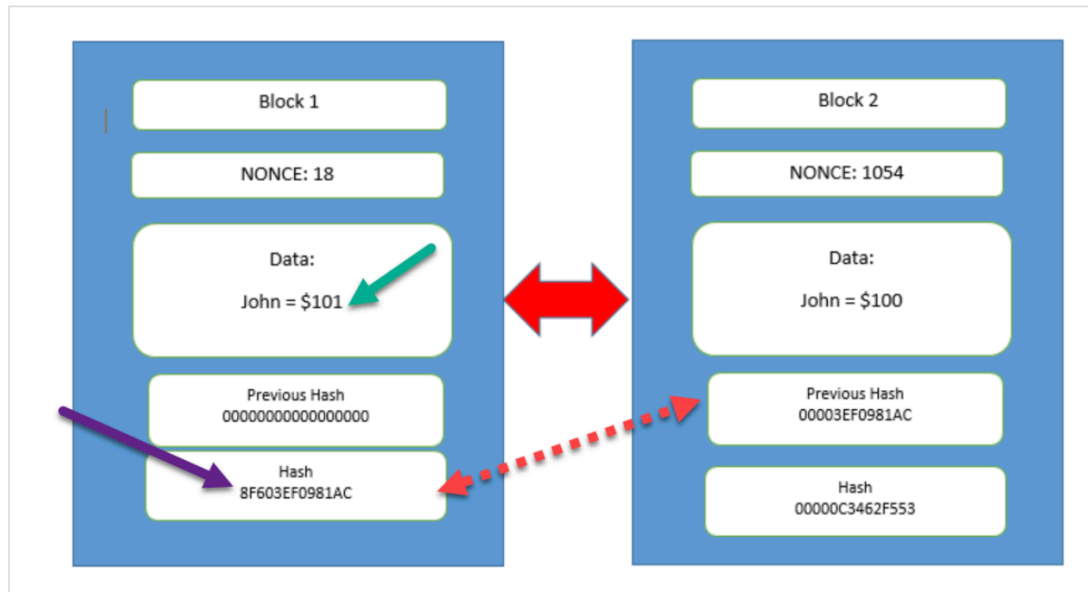
Figure 3: chain

### 2. Global Smart Contracts Market, 2023 projection. (Smart Contracts Market Report – Forecast 2023 | MRFR, 2020).

## Global Smart Contracts Market Over Years (in USD Million)



3. What happened to the blocks when a piece of information is altered in the chain? (LARSON PH.D., 2018).



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