

An Investigation Into The Use Of Blockchain In The Music Industry

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1. Introduction

Blockchain is a buzzword that has been in the main stream news focus for several years, and the technology is now becoming widely adopted into diverse global markets. This essay will explore what blockchain is and how it is disrupting the current models for market economies and legal structures. The music industry remains in a state of chaos as the outdated systems connecting artists, labels, fans and other parties are being redefined by the rapid progression in the development of new technology, and blockchain may be a solution that removes friction and provides clarity to a confusing market.

2. What is Blockchain Technology

Blockchain technology was first detailed in a paper published in 1991 by Stuart Haber and W. Scott Stornetta. The original purpose of the protocol was to provide a system for creating time stamps that were un-editable after creation (Haber & Stornetta, 1991), however the technology was only applied successfully in a paper from 2008 entitled “Bitcoin: A Peer-To-Peer Electronic Cash System” by Satoshi Nakamoto, an alias belonging to an unknown group or individual. Blockchain formed the basis of the system described in this paper, which relies on public verification and database distribution (Bitcoin, n.d.). A blockchain is comprised of ‘blocks’ of information that record every transaction or digital event processed by the network. A block contains information for a transaction including date, time, and value of the transaction, as well as the digital signatures of the sender and recipient and a unique block identifying code called a hash as well as the hash from the previous block. Once a transaction is entered to the network, it is validated by other computers on the network confirming that all the information about the transaction is correct. The information is confirmed by computers solving an algorithm with a 1 in 5.8 trillion chance of success. If the algorithm is solved by a computer, this leads to the transaction becoming confirmed and entered into a block which is added to the blockchain. A block can store 1Mb of data, and can represent thousands of transactions and these transactions are all considered to have happened at the same time. Once a block is added to the chain, the transactions become public and the information regarding the transaction may be viewed by anyone. Blocks can only be added to the chain in chronological order, and

is defined by its height meaning its numerical position in the chain. (Crosby, 2016) (Siddiqui, 2018) (Rosic, 2017)

The protocol incorporates several security features to maintain anonymity and prevent tampering with the data in a blockchain. In a blockchain network, every computer within the network has a copy of the blockchain that is updated whenever a new block is added. Because the ledger is on every computer, someone trying to manipulate the information within the chain would have to do so on every device connected to the network to successfully edit the chain. Additionally, the hash of a block is the result of an algorithm that incorporates the data from the block as well as the hash from the previous block. If the information in a block is changed, this will alter the hash for the next block and every block after it making it extremely difficult to tamper with. To edit a block would require recalculating all of the blocks proceeding hashes which would require enormous computing power and is essentially impossible. Although transaction data is public, primary user data is hidden and a public cryptographic key acts as a user signature. This key is derived from a private key via an algorithm that is very difficult to reverse. The funds or data sent to the public key is only accessible with the corresponding private key. These methods of public verification and a distributed database of information ensure trust in the system and make it extremely secure as well as being able to maintain privacy. (Crosby, 2016) (Siddiqui, 2018) (Rosic, 2017)

3. Current Applications of Blockchain

1. Bitcoin and Finance

The first operational system to incorporate blockchain technology. Bitcoin enables the financial transfers of the digital currency Bitcoin from the wallet of the sender to that of the recipient, without the authorisation and validation of the transaction by a bank or other third party financial authority. The time for a transaction to occur is hugely reduced compared to if the centralised system is used, and can accommodate global payments easily. When an algorithm is solved by a network computer and a block validated, the

“work” is rewarded with a small amount of bitcoin. Bitcoin demonstrated the first functional and secure peer-to-peer transfer system using a distributed mesh structure, opening up opportunities to develop new uses of the protocol for a wide range of market and create immutable, decentralised databases of information for any application. Blockchain is now being used for a wide range of financial applications including in global trade, where records of trade previously kept by several parties such as the broker are encrypted and decentralised, protecting and simplifying the trade process and removing the vulnerability to errors. It has also been applied in confirming insurance claims, with an insurance provider able to confirm ownership of insured assets independently from a claimant. A lot of insurance information is still processed on paper, creating potential for errors, fraud and delays. The cost of insurance fraud in the US alone is estimated at \$40bn p.a., and blockchain may eliminate that loss. (Bitcoin, n.d.) (CBInsights, 2019) (Fortney, 2019)

2. Property Ownership

Blockchain has also been used to validate ownership of assets and facilitate the transfer of ownership without the necessity for significant documentation and hassle that comes with the current system. This can be used in issuing loans from any third party, allowing for digital transfer of assets to be used as collateral in an agreement and automatically returned when the terms of the loan are fulfilled. All trusted member of the network will have a record of the loan, preventing fraud as well as protecting borrowers from the loss of a physical home over an unpaid loan. The cryptographic keys also allow for access to secure information or property to be granted and transferred easily, and a lost ‘key’ can be replaced by the backup information in the blockchain. (Tombs, 2019) (Fortney, 2019)

3. Internet of Things

As more and more devices gain the ability to interact with each other via the internet, vast amounts of new, private data are created and transferred. Blockchain will play a role in ensuring the secure storage of that data as well as maintaining an immutable record of it that can be used for analysis , research and development. In a domestic application,

blockchain encrypts all of the data from smart appliances and defines ownership, allows transferability and protects the devices from being accessed by an unauthorised party. In a commercial application, real time data from a supply chain can be stored and protected by a blockchain allowing commercial decisions and work flow rates to be optimised streamlined. (Kshetri, 2017) (Fortney, 2019)

4. Contracts and Agreements

The use of blockchain in validating a contract or agreement removes the requirement of third parties such as a notary or a legal system to validate a contract and ensure terms are adhered to. All participants in the contract receive all of the information and agreed terms, as well as everyone in the network. The blockchain can then automatically implement terms once the completion of the agreement is validated by the network, preventing fraud and ensuring changes to a contract are validated by both parties, theoretically reducing legal disputes. These agreements are known as smart contracts. (Frankenfield, 2019) (Black, 2019)

4. Future Applications in the Music Industry

Blockchain has so far demonstrated wide reaching applications, and it is likely to continue to revolutionise many industries including music and entertainment (PWC, 2018). The music industry is one of the most complicated markets due to the high number of stakeholders and the diversified nature of income from copyright works. The main expected role of blockchain in the industry is the overhaul of rights management and royalty payments. Currently, the collection of royalties and distribution to musicians operates as a complicated and confusing system of artists, labels, collection societies and consumers, which is further complicated by the collection of global royalties. This system presents several flaws. Royalties can take a very long time to reach an artist or rights holder, usually months or years after the fact. An artist exchanges rights such as performance or publishing with a label in exchange for financial support of a project. The income from streaming, sales and performances is then collected by the local collection societies, which then is passed to

other collection societies via international collection agreements until it reaches the label. This process can take months just for each society to transfer and register funds before it reaches the label, and each society will take a cut of the royalties. There is then a further delay as the label processes and transfers the money to an artist, and all of the costs and fees associated with delays including loss of interest may result in an artist getting a much smaller cut of the money than they should. (Daley, 2019) (ifpi, n.d.) (PWC, 2018)

Blockchain can streamline this process in several ways, combining all of the benefits demonstrated through its use in other markets. Firstly, it allows information regarding rights ownership to be stored immutably in the distributed ledger system. This means that parties claiming to own rights will be able to prove ownership and the size of their cut through validation by network peers. This protects artists from fraudulent claims of content ownership as any agreed splits, contributions and involved parties are detailed in the blockchain and cannot be altered. As ownership of a work can be determined, this allows a company to directly pay the owners for the use of that work when a song is streamed or an album purchased digitally. It will also be used for live performance rights. An owner could receive the royalty payment within around ten minutes, about the time it takes to solve and add the transaction containing block to the blockchain. This will have implications for intermediaries including labels and collection societies, which may disappear from the market. Currently, many artists still rely on labels to provide advances for projects which are then recouped through royalties before an artist begins to receive their agreed cut, and depending on the success of a record this may take a long time. Recording contracts can also be biased against an artist and can damage the future careers of new artists. This is still the primary funding structure for new music projects, with a cost to the label of between \$0.5m and \$2m to break a major new artist. This amount of money is usually inconceivable for a new artist, so several start-up ventures are working on tokenising the funding model for artists. Instead of a label providing the funds, rights 'tokens' are sold and distributed to fans in exchange for a share of ownership of the rights of the song. An artist can then use that money to create a record, and when the record is streamed or played by fans the artist gets their share directly, and token owners automatically get paid their share of the royalty. This system is similar to investors owning a stock or share combined with the idea of

crowdfunding, but includes the added benefits of transparency and security that blockchain can provide. (Rosic, 2017) (Rossow, 2018) (SingularDTV, 2019)

A transition to blockchain based royalty payments seems inevitable with a growing list of companies becoming involved in developing an economic model and software that can be implemented successfully. Companies like ARAYZ Token and Choon have demonstrated the concept of tokenisation on a small scale and even Spotify has purchased a blockchain rights management company. With such a big industry player becoming involved, labels and collection societies will have to rethink their roles and attempt to position themselves in a role that remains relevant in a hugely different industry landscape. (SingularDTV, 2019) (Rossow, 2018)

5. Conclusion

Blockchain is a gateway to an unrecognisable future of the music industry and has many different implications for stakeholders. Artists and creators are likely to earn significantly more for their work, with the removal of intermediaries taking cuts. This is also likely to be popular with fans as they know that their money is directly supporting an artist they like as well as offering the chance for investing in the rights of a future project. Fans are excellent sources of income as they are emotionally connected to the project and the artist and the involvement of labels in funding artists will disappear. Many of the legal issues relating to the music industry revolve around contracts and infringement cases, both of which may be eliminated with the introduction of blockchain based systems that are already entering the market. Integration of new technologies will take time and require multi industry collaboration to ensure a smooth transition. The eventual end point may be at a point where all currency is digital, and every transaction occurs on a blockchain based platform combining the markets of different industries into one unified and transparent system. Blockchain technology is still considered by many to be in its infancy, and with the level of investment in research and development our current expectations of its future are likely to shift dramatically, and potentially alter industries beyond recognition. This will also require

an overhaul of legal structures to regulate the industry as the potential implications of new services are revealed.

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