



# A Systematic Review of Blockchain Technology in the Music Industry

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**Abstract**-This paper explores the current discussion in the music industry where blockchain technology has emerged as a potential solution to long-lasting issues with sales, licensing, publishing, distribution, streaming, and consumption. Initially, conferences, media, opinion pieces, and academic studies were coated with techno-utopian ideals; nevertheless, the conversation gradually moved from "radical" goals to more "incorporative" ones. The former grand technological aspirations got dampened as social barriers to technological solutions appeared. It is argued that blockchain acted as a "convening" force in this instance, uniting a variety of stakeholders rather than solely being a technological fix, referencing Clive Barnett's hypothesis of convening the public. Nonetheless, worries are sparked about who might be abandoned in this gathering process and who gets included.

**Keywords:** Blockchain, Systematic review, Music, Industry.

## I. INTRODUCTION

The disruptive and inventive power of blockchain tech has been at the forefront of the music industry's recent, profound transformation [1]. The music biz stands out as one of the key benefits of blockchain tech, which was initially developed as the foundation for cryptocurrencies like Bitcoin [2]. However, blockchain has found use in a range of industries out of finance [3]. This revolution tech has the power to transform how music is created, distributed, and consumed [4]. Blockchain's decentralized and transparent structure offers answers to long issues in the music biz, such as unclear royalty distribution, copyright violation, and the creation of new revenue streams [5].

This intro set the stage for a deep analysis of various ways that blockchain tech is affecting the music biz [6]. The original intent to serve as the found for cryptocurrencies like Bitcoin, blockchain tech has grown to become a disrupt force with the ability to change a variety of industries completely. Blockchain offers a revolution solution for long-standing issues and a new definition of acceptable norms in the music industry [6]. Blockchain, in contrast to conventional systems, allows for safe, decentralized transactions and produces an open, unchangeable ledger. This tech is gaining popularity in the music biz because it has the potential to fully change how musicians share, safeguard, and profit from their works [7]. In recent years, the music biz has experienced tremendous change, shifting away from traditional sales methods and toward subscription-based streaming services [8]. This overview of blockchain tech in the music biz paves the path for further investigation of its uses, advantages, and changing dynamics in the production, distribution, and consumption of music [12].

## II. OBJECTIVE

This blockchain concept has the potential to revolutionize the creation, distribution, and monetization of music. It can address key problems such as ownership and financial transparency. Therefore, the way blockchain operates is by recording information on a decentralized platform that is completely transparent and tamper-proof.

It's important to maintain authenticity and integrity in the music industry. You have the option to track and authorize songs safely, reducing the risk of copyright issues and unlawful downloading. It's similar to having a security guard at an event - filtering out the moochers and allowing the genuine talents to stand out.



III. WHAT IS BLOCKCHAIN?

Blockchain is an expanding list of records connected by encryption, or "blocks" [1]. Every block in the series uses a reference or more specifically, the parent block's cryptographic hash value, to point to the block that came right before it. The genesis block, which has no parent block, is the first block in a blockchain [13]. The newest and most innovative technology in the contemporary economy is the blockchain. In essence, a blockchain is a public ledger or distributed database that contains all of the executed and shared digital transactions or events amongst participating parties.[2] Version number, preceding block hash, Merkle root, date, difficulty target, and nonce are among the fields that are present in the block header [1]. Blockchain is an expanding list of records connected by encryption, or "blocks" [1]. Furthermore, a single digest produced by the Merkle tree is uploaded that makes use of safe hash techniques such as the SHA-256 hash algorithm [4]. The original evidence's integrity will be covered in this summary. Once recorded, the data in a block cannot be changed backward without changing all blocks that come after it, which calls for network majority consensus [4]. To put it another way, blockchain resists data structure changes. The blockchain's consensus process, such as Pow in Bitcoin, is guaranteed by the algorithms [3]. It ensures that every node in the network may verify a new block. We classify blockchain into four types: public, private, hybrid, and consortium, depending on how accessible the data is [7]. Every record on a public blockchain is accessible to all users. Conversely, the data recorded in the private blockchain is only accessible to approved parties or users [8].

IV. HOW DOES BLOCKCHAIN WORK?

Blockchain is a ground-breaking mechanism for organizing contracts and documenting transactions [1]. It was first announced in 2008 as the technology behind Bitcoin. It functions as a decentralized network with efficiency, security, and transparency. Users, or "nodes," in this peer-to-peer (P2P) system, are uniquely identified by their alphanumeric addresses, which guarantees anonymity while maintaining transparency in the data [2]. Blocks are used to safeguard transactions, which are then encrypted and checked by miners by having them solve challenging math problems [3]. Blockchain networks can be public (available to everyone online) or private (visible only to certain users). To guarantee the blocks are added to the chain chronologically, miners compete to solve riddles [4]. A block that is added is included in a transparent, unchangeable record that is accessible to the whole network. It is used for non-financial purposes such as keeping transparent and unchangeable records, like marriage licenses, health records, legal documents, music business royalties, notary services, and private securities [6].

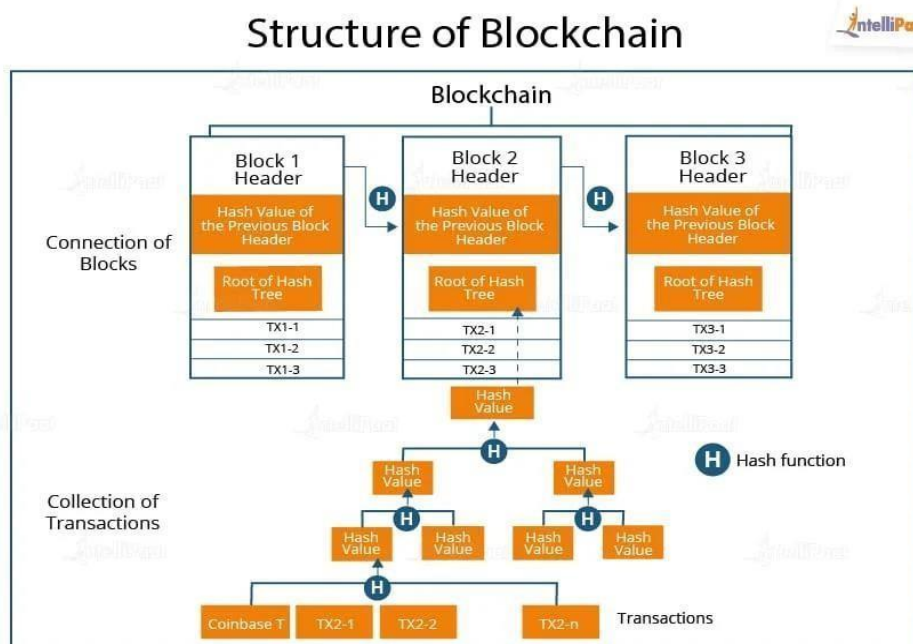


Fig. 1 Structure of Blockchain



## V. USIC INDUSTRY

Before the internet, the music industry expanded steadily under the direction of major record labels. Labels had complete control over the supply chain thanks to physical distribution, such as CDs sold in retail stores [5]. But as the internet grew in popularity, physical distribution lost significance, and by 2000, industry earnings had begun to plummet. Music piracy proliferated as new business models evolved, such as the P2P music-sharing network NAPSTER [11]. The introduction of the iTunes Store by Apple, which altered the way people listened to music, was a momentous milestone. Apple devices allowed users to purchase digital material, but there were issues with pricing and royalties for musicians and record companies. Despite these problems, the industry managed to make money with digital media [1]. On-demand streaming services, such as YouTube, Spotify, and Apple Music, brought about another revolution and accounted for half of industry profits in 2016. Customers benefited most from this change since it made music more easily accessible and faster [2]. Nevertheless, despite these significant shifts in the industry, musicians continued to confront difficulties in regaining control over their works and realizing their worth. They don't have enough information about where and how their music is being listened to, or about royalties [3]. The supply chain in the conventional recorded music industry was vertically integrated, entailing interconnected processes to transform music into a tangible good (Graham, et al. 2004) [2]. The final product either reaches customers physically or through promotional formats such as films, advertising, live performances, or radio. Intermediaries, keeping control, provide value to the chain [4]. Record labels also managed the intricate task of gathering and sending royalties, which added to the knowledge asymmetry between customers, middlemen, and artists.

## VI. LITERATURE REVIEW

Before exploring blockchain research in the music industry, the author looks at the basics of the industry, including its definition and present supply chain setup [1]. In creative industries like music, goods, and services are created by artists and are distributed to consumers via a variety of the word "digitized" which acknowledges the shift from analog to digital by reflecting the digital production, sharing, and listening of music [7]. Other creative industries including the cinema, gaming, and art sectors are also being digitalized. The music industry, which is defined by a variety of financial sources, includes public music press, hardware, instruments, retail, music publications, production technology, merchandising, and services related to licensing, royalties, and rights [8]. These operations are becoming more and more coordinated and managed by businesses looking to maximize profits.

## VII. CHALLENGES

The music industry faced numerous obstacles before adopting blockchain technology, which affected musicians, stakeholders, and the dynamics of the industry as a whole [1]. With the widespread use of illegal music distribution, piracy has become a major problem that has cost creators and rights holders a significant amount of money. Traditional royalty distribution methods were complicated and led to delayed and frequently erroneous payments to artists, which exacerbated discontent in the creative community [9]. Complex discussions and a lack of standards were involved in music licensing, which made it difficult for music to be used seamlessly in multiple markets. In addition, musicians were not informed about how their music was used or the associated financial rewards due to opaque record-keeping and royalty computations [10]. The logistics of tracking royalties across the globe became difficult due to different systems and non-standardized procedures. Ineffective anti-piracy tactics plagued the industry, and high entry barriers hindered budding artists' ability to break into the market without significant support [11].

## VIII. HOW IS BLOCKCHAIN IMPLEMENTED IN MUSIC INDUSTRY?

A revolutionary era has begun in the music industry with the adoption of blockchain technology, which has completely changed how consumers, producers, and musicians engage with and view music [1]. Blockchain is a decentralized, secure ledger system that was first created as the foundational technology for cryptocurrencies like Bitcoin. It tackles long-standing concerns about equitable compensation, copyright management, and transparency in the music industry [2]. Creating transparent, unchangeable ledgers to track the ownership and distribution of musical works is one of the main uses of blockchain in the music business. Historically, disagreements over royalties and ownership rights have frequently resulted from the intricate network of contracts and agreements between record companies, distributors, and artists [3]. Every transaction, from the creation of a musical composition to its dissemination and consumption, is recorded and time-stamped thanks to blockchain's distributed ledger. This openness guarantees that artists are fairly compensated for their services and lessens the possibility of disagreements [4].



One important aspect of blockchain technology is smart contracts, which are essential for automating income sharing and royalty payments. These self-executing contracts are designed to run predefined code automatically in response to certain triggers. Smart contracts have the potential to revolutionize the music industry by streamlining royalty payments and guaranteeing that musicians get paid promptly for the actual use of their work [5]. This creates a more effective and fair system for artists and content creators by speeding up the payment process and lowering the possibility of mistakes and fraud. The music industry has long been plagued by copyright infringement and piracy, a problem that blockchain technology attempts to solve [5]. Artists can create a tamper-proof and verifiable record of ownership by registering their works on the blockchain, which establishes a decentralized database of intellectual property rights. This lessens the possibility of unlawful usage and makes it simple for artists to monitor and protect their rights [6]. Furthermore, because blockchain is decentralized, it is more resilient to manipulation and hacking by nature, making it a more secure environment for managing intellectual property. New paradigms for the distribution and consumption of music have also emerged with the introduction of blockchain [7]. Blockchain is used by decentralized music streaming services to establish a direct line of communication between musicians and their fans, cutting out middlemen and guaranteeing a larger portion of profits reaches the artists [7]. Through microtransactions, fans may directly support their favorite musicians, and artists can experiment with novel methods of monetization like tokenized ownership of music or exclusive access to premium material [8]. Blockchain not only resolves financial and copyright concerns but also promotes a more diverse and cooperative music industry ecology [9].

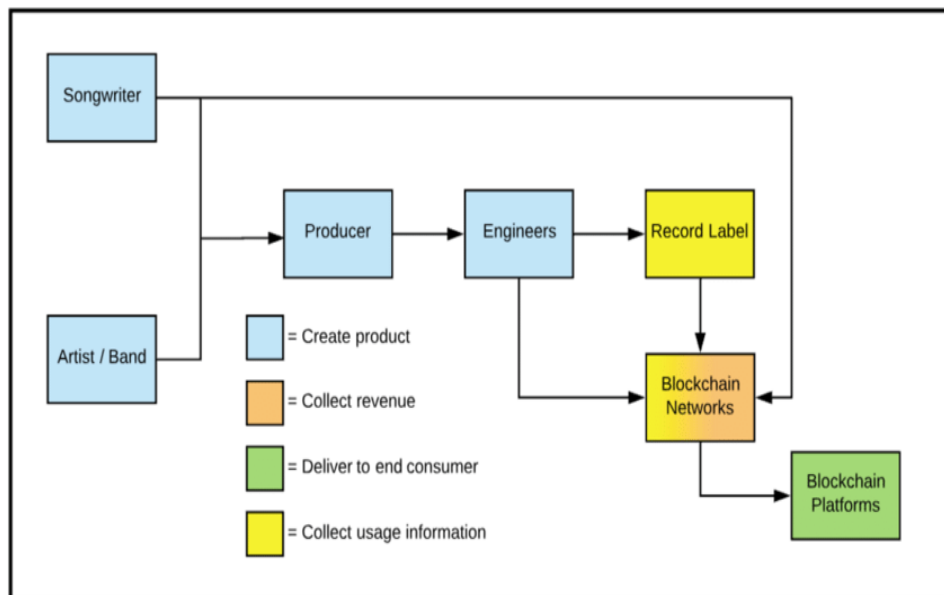


Fig. 2 Working of blockchain in Music Industry

## IX. CONCLUSION

Many people praise blockchain technology as a revolutionary force that can be compared to the internet and has potential uses in many different industries [2]. It may take years before it has a significant impact on our economic systems, though, as it is still in its early phases [3]. The excitement surrounding the technology has increased due to experimental models in finance and other areas [4]. The introduction of blockchain-powered models has the potential to completely transform the music industry. Using record-keeping, smart contracts, and metadata analysis, common problems including a lack of transparency, musicians' restricted bargaining leverage, and inefficiencies in royalties' payments could be resolved [5]. Realizing that these new business models are still in their infancy is vital. For certain customers, using cryptocurrencies in place of fiat currency may be contentious [6]. Because of the novelty of blockchain technology and associated platforms, it is difficult to forecast whether these models will succeed. Furthermore, it's unclear how these music platforms will be able to compete with well-known services like Spotify and Apple Music if they don't have a reliable source of income [7]. The original intention of disintermediation may be undermined if platform usage is charged for. Blockchain technology can bring novel business models to the music industry, notwithstanding these uncertainties [8]. It is hoped that new businesses will create applications, expanding business and consumer usage. Including independent and major musicians in this process could significantly affect how widely blockchain is used in the music business [9]. Obtaining adequate statistics on the performance and uptake of these blockchain-powered platforms is difficult because they are still in their early stages of development [10].



Their development toward mainstream consumption may be better understood by contrasting their outcomes with those of conventional subscription arrangements [11]. It's unclear if these approaches will succeed in the face of competition from well-known services like Spotify and Apple Music [12].

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