An analysis of risks and opportunities of blockchain technology in the music industry

October 2019

First Streaming, Now Blockchain

Is it a hype or a real chance for the music industry?

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Introduction

Since blockchain technology is based on the ideas of database decentralisation and enhanced security, it holds huge potential for multiple industries, including the music industry. There have been several initiatives to further develop blockchain technology for industry-specific applications, for instance contract and payment solutions in the music industry, music rights management, online marketplace for live performances, secure ticketing, and financing. Blockchain technology is aiming at changing the status quo.

Over the past few decades, the music industry has undergone constant change, in particular due to the process of digital transformation. Physical ownership has lost importance in the face of 24/7 digital availability, and audio streaming players like Spotify have emerged as market leaders. In the Netherlands, trailing behind Spotify in the paid-subscriber format is Apple Music, which is thought to be the second most popular service ahead of number three on the list, Napster. Other players offer unique selling points – JUKE allows subscribers to add radio music directly to playlists, while Tidal focuses on quality and exclusivity.

As the digital transformation of the music market has progressed, the stakeholder landscape has evolved. Yet, the old structures that formed the backbone of the music value chain have hardly changed to date. This gives rise to many challenges in today's music ecosystem, for instance:

- **The volume of data has increased considerably** due to significant growth in streaming. To date, there is no central global database for copyright and neighbouring rights in the music industry. This can make it difficult to determine which persons or organisations are entitled to royalties. Among other things, this poses a considerable risk for digital business models.

For example, in December 2017, the market leader Spotify was sued for $1.6 billion (€1.4 billion) – according to Spotify, only because the data needed to identify the rights holders were either missing or incomplete.

- **The processes and income streams in the industry are very complex**, even when the respective rights holders are known. In the EU alone, 28 collection societies collect royalties for public performance rights and mechanical recordings in 28 different markets. Heterogeneous data from multiple sources, data that is sometimes of poor quality, and inherent inconsistencies, make it difficult and time-consuming to clearly identify music titles from the registration and licensing stages through to billing.

- **Despite their large share of the video streaming market, operators like YouTube contribute only a small amount to royalty payments.** They rely on the safe harbour rule, and, consequently, responsibility for claiming any rights lies solely with the rights holders.
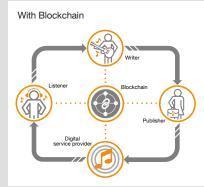
Blockchain 101

Blockchain technology validates and stores records (events or transactions) in a decentralised chain of blocks. These publicly visible blocks are linked together, making all previously recorded records fully traceable and preventing manipulation of individual blocks in the future. The particular advantage of this technology lies in the high degree of security and transparency it offers, fitting perfectly with the needs of the music industry, particularly for its notoriously complex rights management.

Though the most established blockchain application is Bitcoin, a cryptocurrency, the next developmental stage platforms, such as Ethereum, can also handle so-called smart contracts. A smart contract is a programme that is stored in a tamper-proof way and, when certain conditions are met, executes predetermined actions. A smart contract could therefore be set up between a music streaming service and a collecting society to transact royalty payments fully automatically and securely. For example, when a consumer hears a song via a music streaming service, a payment is automatically made to the artist. This allows new business models in streaming - while the users of today's audio streaming services pay monthly fees, future consumers may just pay small amounts for the use of individual streams, that is, pay via microstransactions.

There are other applications of blockchain in music. For instance, blockchain can be used to securely specify rights and create a networked database of music rights. That is helpful, since there are no industry standards for contracts. They are drawn up individually making it difficult to set up a globally networked database without the use of blockchain technology. Many stakeholders in the industry are looking into this issue and the applicability of blockchain.

To read more about blockchain technology and its application in music, read our report on *Blockchain in music* (in German).

Without Blockchain

Flow of Rights

Writer   Publisher   Collective management organisation   Digital service provider   Listener

Bono   Sony   Collection Agencies   Spotify   'Ian'

Flow of Revenue/Profit

With Blockchain

Writer

Listener   Blockchain   Publisher

Digital service provider

Status of blockchain in music

Experiments show blockchain can establish new business model

The music industry has been experimenting with blockchain for a few years now. Grammy winner Imogen Heap has been among the earliest supporters of the technology, famously releasing her song "Tiny Human" on Ujo Music in 2015. Two years later DJ Rac was even more successful with his album EGO, generating ten times as much revenue as Heap, together demonstrating that blockchain can be used to establish a new business model. In the live performance segment, Slovenia-based start-up Viberate has put itself on the map by providing more decentralised organisation for performances. The blockchain-based live music marketplace allows event organisers to rate, select and even boo musicians on terms defined using smart contracts. It has raised a total of $11 million in funding over three rounds, the latest one in 2017.

Business models and monetisation opportunities

Various business models and monetisation opportunities have already been discovered, as companies try to differentiate themselves and establish their unique selling points. Start-ups have been instrumental in this innovation phase, with the more established labels and streaming companies catching up. In 2018, Sony announced the development of a rights management system for digital content that utilizes blockchain

technology. Other large companies took a different route and started working with, and acquiring start-ups. Warner Music Group started experimenting with US-based start-up *dotblockchain*, also in 2018. Earlier in 2017, Spotify acquired blockchain company Mediachain Labs, hoping to improve music attribution and decrease the risk of lawsuits for unpaid royalties. Mediachain, which is a US-based start-up, was involved in developing an open source peer-to-peer database and protocol for registering, identifying, and tracking creative works across the internet.

Blockchain-based applications in music

Each of these applications are bundled in a variety of ways to form unique business models. Despite the diversity in blockchain business models, one of the biggest challenges is to identify clear paths to monetising the technology.

Contract and payment solutions	Rights management solutions	Live performance and ticketing	Tokens and financing
• One of the most prominent issues prompting the interest in blockchain is the complex contracts and payment mechanisms in music. • Blockchain can allow management of smart contracts that can make efficient and timely payments to rights holders, as soon as their content is consumed on a platform. • This has been demonstrated by blockchain-driven streaming platforms like Choon and Peertracks, which executes micropayments to artists as their work is consumed.	• The lack of a global rights database is one of the biggest challenges for the music industry. Blockchain can help advance the creation of a global database for copyright and neighbouring rights. • Some companies (and consortiums) are aimed at developing new standards for sharing rights data (like the Open Music Initiative) and others are aimed at improving on existing rights data. • The latter helps the industry reconcile different sources of rights data that exist at the moment using blockchain (like dotblockchain and Blokur).	• Blockchain can be used to create a decentralised organisation model for performances. For example, Viberate brings musicians together with booking agencies and organisers of performances in an online marketplace format. • Another application in live music is for smart and secure ticketing. Blockchain allows control over the secondary ticketing market and prevents profiteering and fraud.	• Initial Coin Offerings or ICOs* have been extensively used by music start-ups to raise funds (e.g. Pindify, GUTS Tickets). • ICOs can also be used to finance new artists or the production of an album. • In return, the purchasers of the tokens could receive fan privileges like backstage passes, live session access during studio recording or for meet and greets with artists.

* ICO is a method of funding used extensively by start-ups in which new digital tokens or coins are issued. A company can create a new cryptocurrency or digital token via a number of different platforms, which is then offered to the public in an ICO, who then pay via cryptocurrencies like bitcoin. Unlike an IPO, an ICO does not offer equity, instead the token is used on a product or platform of the company raising funds.

"Artists have to wait 3 – 6 months for payment. In 2019, that is just absurd"

– Antonio Talarico, Co-founder of BLKCHN Records

For example, many start-ups launched their own streaming services based on blockchain. While this model has seen some successes, it has been challenging for blockchain-based platforms to act as alternatives to the much larger streaming services like Spotify and Apple Music. With significantly smaller catalogues, they are largely driven by the listeners intent to support budding artists. Without very high levels of artists' acquisition and/or exclusivity agreements, the value of the companies is largely reliant on the value of the technology itself, developing which could be prohibitively expensive for many start-ups.

Despite such challenges, there are clear opportunities for the use of blockchain in the music industry. The scale of influence it could have, in terms of how much money is at stake, is huge. Europe remains the world's largest region for music royalty collections in the world – representing the size of the market that blockchain use could benefit directly. To put the scale in perspective, collections from the music business in Europe reached 4.3 billion euros in 2017, driven by streaming and video on demand. The scale of collections in the Netherlands was not small either. Netherlands ranked tenth amongst the countries with the highest music collections in the world in 2017[1].

The benefits for the industry are multi-fold. Efficiency improvements in royalty payments to music authors is already recognised as one of the factors driving the growth on music collections. Experts we interviewed for this paper also recognised that blockchain can help in creating better functioning markets, with better distribution of income for music authors and a lower chance of abuse of dominance by streaming players, all together leading to an industry where artists are free to be more creative.

Incumbents and start-ups have already identified a number of business models that could be instrumental in bringing about blockchain adoption on a wider scale. The need for a global rights database is widely recognised, especially after the failure of the Global Repertoire Database effort. Till a global rights database is established, any company that offers a scalable solution to reconcile diverse rights data, holds incredible value for the industry. Other start-ups could focus on other means of monetisation, like acting as a technology provider for streaming companies, effectively claiming their own ground in the industry.

Innovation and developments in the Netherlands

Many companies in the Netherlands are experimenting with blockchain applications in music. Dutch DJ Hardwell was among the earliest proponents of blockchain use in the industry. He collaborated with the company RightsShare (also Dutch), and announced in 2016 that he intended to use blockchain to manage his rights and payments. He followed up on this intention by placing the rights from his music and own label, Revealed Recordings, on a blockchain platform. Since then, more start-ups and newer business models have sprung up. Volareo is a Dutch start-up that was founded in 2018 and initially went beyond the

"blockchain-based streaming platform" business model. Its value proposition included a smart speaker that the user could control with an app or using voice commands, also based on blockchain. However, considering the high costs of including hardware in their offering, the founders of Volareo are now focused on developing the software side of the business through BLKCHN Records.

Other start-ups are attempting to leverage the huge live music segment in the Netherlands[1]. GUTS Tickets is a Netherlands-based company that implemented the GET protocol to create a smart ticketing service. Founded in 2016, the company's business model is centred around countering exorbitant secondary market prices and ticket fraud. Apart from secure tickets, GUTS offers attendee insights to organisers and allows direct communication with everyone who has a ticket.

While the start-up space in the Netherlands is quite active, more established companies from the rest of the world are also starting operations in the region. London-based blockchain company Bitfury is planning to launch a music and entertainment division that will create an open-source music platform secured by blockchain, named Surround. The company plans to base the Surround business division in Europe, with operations in Amsterdam and Berlin. As the technology is developing, the incumbents in the music industry are also entering the mix. Buma Stemra, the collection agency in the Netherlands, has been hosting the innovation platform, Buma Music Meets Tech to support

start-ups for the past two years. It also participates in the Open Music Initiative, led by the Berklee College of Music, which is aimed at creating an open-source protocol for the uniform identification of music rights holders and creators. Warner Music is a pilot participant (alongside BMG, Global Music Rights, Outdustry, Phoenix Music International Ltd, Sentric, and Warner/Chappell Music) of the blockchain network KORD (launched by London-based start-up, JAAK). The interest in the technology is not limited to labels and collection societies. Other players like Fuga, an Amsterdam-based music distribution and marketing platform (founded in 2006) have also started working with blockchain.
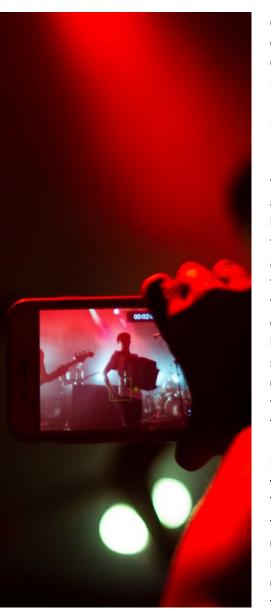
Current and future challenges

Though blockchain is an exciting technology for the music industry, it is still in the initial stages of innovation. According to Gartner's Hype Cycle for blockchain business, smart contracts and blockchain in media and entertainment are both in the "innovation trigger" phase, expected to reach a plateau in 5 to 10 years[2]. There are many challenges that need to be addressed before the technology develops and reaches a critical level necessary for industry-wide adoption.

Process of creation, verification and maintenance of rights data needs an overhaul

The lack of a global, comprehensive database of rights is one of the most pressing issues for the music industry, one that is not easily solved. With multiple stakeholder

2 *Hype Cycle for Blockchain Business*, Gartner, 2018

categories, like creators, music publishers and labels, collecting societies, event organisers, achieving consensus on data standards is inherently challenging. While there are initiatives to standardise data (for example the Open Music Initiative), the issue of interoperability of industry platforms is far from solved.
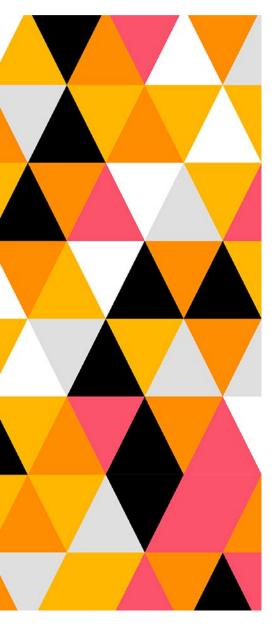
If blockchain is to be used to ensure artists get paid for their work quickly, it is all the more urgent to have correct and complete rights data, since once recorded on the blockchain it will be inherently unalterable. This implies that for blockchain to be adopted widely, data collection and reconciliation processes need to be standardised first. We believe that this could present an opportunity for collecting societies, who otherwise could face the challenge of disintermediation in the industry due to blockchain. Collecting societies could offer a clearing service, that is, they could verify and, if necessary, correct data before entering it into the blockchain. This approach would make it possible to ensure that revenues reaches the artists as intended.

Legal and regulatory issues need to have tailored solutions
The legal aspects of using blockchain technology in the music industry – such as guidelines, legislation, or established case law – do not currently exist, nor do best practices. Consider the issue of data protection. Like others, the music industry is also required to comply with the EU General Data Protection Regulation (GDPR). When

using blockchain to record personal data, these rules become especially relevant and complex.
Following the GDPR guidelines implies that personal data should not be recorded without the consent of the persons concerned. This consent cannot (yet) be obtained through a blockchain, because the technology currently does not have this capability. So for now, the consent must be obtained manually – in some cases in written form – from the persons concerned. While this is a challenge, there are even bigger concerns. If a person wishes to change or delete their data (exercising their right to be forgotten), it would not be possible on the blockchain because the technology is designed to prohibit retroactive changes to the ledger.

Other rules, like intellectual property, will also need attention. The EU legal requirements concerning intellectual property and IT law do not yet provide any special rules for blockchain-based music businesses. The existing IT law invariably assumes the existence of a central operator, also called a provider or service provider, to whom rules on due diligence requirements, liability and other regulations can apply. However, public blockchains have no central operator, and so practitioners are calling for the eIDAS Regulation to be applied to blockchain technology. eIDAS contains provisions on electronic identification and electronic trust services and creates a uniform framework for the cross-border use of electronic identification means and trust services. This could ultimately provide a practical set of rules for identification

within the blockchain.

Other open questions include the following:
- In principle, does a blockchain meet, or can it meet, the requirements of a trust service?
- Can a transaction in a blockchain database be considered a valid timestamp?
- Can the proposed regulations on liability be applied to blockchain records?
- Is a private key a suitable means of electronic identification?
- Is the signature process for transactions and blocks in common blockchain protocols a suitable process in the sense of defining electronic identification?
- Do cryptographic procedures fall under the definition of an electronic identification system?

These, and other questions, need to be answered and best practices defined before blockchain can be used in the music industry on a wider scale.

Disintermediation is a valid concern, which needs innovative solutions

First and foremost, it is important to acknowledge that, as with most tech-driven disruptions, the power balance among the stakeholders in the industry is likely to change with blockchain. The roles of the various intermediaries, such as record labels, publishers and collecting societies, will need to change to accommodate the new value chains and evolving power dynamics. The role of labels

and copyright collection societies could be diminished with the increase in smart contracts and micropayments. Established players that do not modify their value propositions and business models in time, could see this disintermediation as a threat.

However, blockchain is unlikely to be a zero sum game, limited to redistribution of value among stakeholders. Incumbents could branch into additional services like issuing tokens, which could be used to finance artists or concerts in advance. The tokens could also be part of a loyalty programme and generate useful data and information about user behaviour. Such services will add to the overall value creation from the technology, while helping combat disintermediation.

Despite such opportunities, blockchain-driven disruption will undeniably impact the music ecosystem. Established companies could lose at least a part of their market share to innovative start-ups, and the industry could see an increase in mergers and acquisitions. Steering the industry past the chaotic phase will be critical for blockchain to achieve its full potential.

Interview
Bitfury Surround

Blockchain can help close the value gap in the music industry

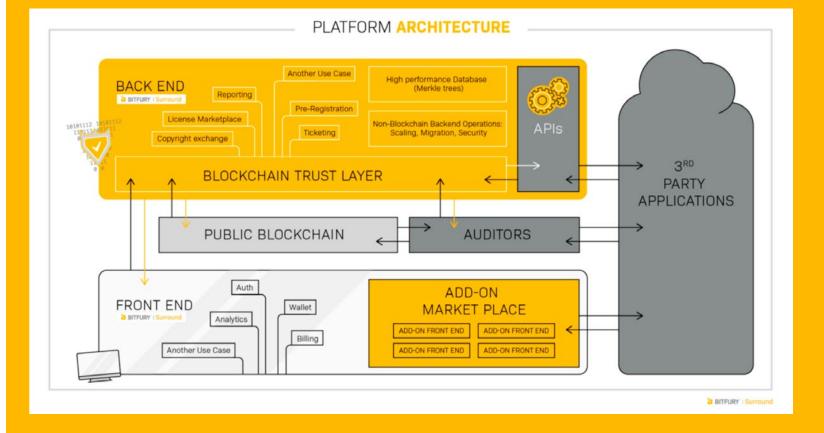**Stefan Schulz**
CEO at Bitfury Surround

Alex Shevchenko
CTO at Bitfury Surround

How is Surround currently approaching blockchain? What are your plans for the future?

The Bitfury Group has a history of working with blockchain, which along with our experience in the music industry, makes Surround uniquely positioned to bring blockchain to the music industry. Surround's first initiative is to create and launch the open-source Surround™ platform (to be set up as a cooperative), which will allow secure transfer of copyright assets, streamlined connectivity, better monitoring and management systems. The Surround ecosystem will be built on Bitfury's Exonum private blockchain platform, creating a transparent environment aimed at closing the value gap between the creative side of the industry and the platform economy. The platform will include an extendable backend and frontend framework with built-in services and features that can be expanded.

We have been focused on developing the Surround platform since the past year, and plan on launching the first version soon. We aim to take a soft touch approach, testing everything before we expand to more use cases.

> "The only thing blockchain will challenge is the efficiency and ethics of the music industry."

What do you think is the biggest challenge for blockchain in music?

The biggest challenge for blockchain in music is the dated infrastructure and incompatible systems of the industry. A quick win would be having a universal data language for the exchange of rights data. That is long overdue, even though there are various initiatives that are looking at resolving that gap - including initiatives from educational institutes. I believe that having clear data standards would be key in simplifying the collection and registration process in the music industry. We personally believe change needs to come from within the industry, then followed by regulation.

Who do you expect to challenge with the Surround platform once it is launched?

Music is inherently a collaborative industry, so it is not a question of challenging any existing stakeholder. When talking of blockchain you constantly hear the message of "cutting out the middlemen". We do not believe that is the way forward. The only thing that blockchain will challenge is the efficiency and ethics of the music industry. When talking of collection mechanisms, we have to appreciate the original purpose of that part of the business. The intention was to pay artists for their work, and not to complicate and over administrate. There is a need to create a clean collaboration model based on trust that will bring us back to original purpose of the business.

What is the long-term vision for Surround?

In a business such as ours, it is difficult to talk in terms of five and ten years ahead. Blockchain technology is developing rapidly, and we aim to accelerate the innovation and close the value gap for the music industry. We are already looking at various use cases, such as ticketing and reporting, and will initially focus on testing and the launch of the platform.

In the long term, our vision is to carry over our technological edge to other markets where intellectual property needs to be managed through its lifetime – this includes in the music industry but potentially other verticals as well. We believe blockchain can act as an enabler as well as a differentiator, helping us act as a common denominator for all businesses where copyrights need to be managed on a global scale.

Interview
Buma Stemra

**The right timing is vital
for blockchain in music**

Eric Hol
CIO at Buma Stemra

Frank Lucassen
Business development and
Innovation at Buma Stemra

**What do you think are the biggest
challenges for the industry at this moment?**
One of the biggest issues for the music industry is the availability of a complete data picture of musical works and associated rights. At the moment, most of the data sits in different places, in multiple formats and without adequate sharing mechanisms in place. Even with these complications, they are often incomplete and inaccurate. This issue is at the core of the music industry. It is a big challenge, but it is also important to note that this is not just a data management issue. Every piece of music (or any type of content) generates a complex mesh of rights data that keeps growing with time. The music industry lacks a consensus mechanism by which different rights holders' claims can be verified and recorded. Once verified and recorded, blockchain could help in making the data immutable, but using blockchain will not automatically solve the issue of data verification. Blockchain could offer ways to create such consensus models without a governing authority, but it might not be the only way to achieve that result.

**How is Buma Stemra
currently approaching blockchain?**
We consider blockchain to be an interesting technology for our industry. Last year, we worked on a pilot project along with our sister organisation SENA. The solution was all about metadata management by using blockchain technology (Hyperledger to be exact). To be more specific, we worked with unmatched works, where we didn't know what those materials were. The premise was that the crowd knows, or might know, and can seek consensus among themselves using blockchain-

based technology. The pilot allowed the creatives to manage the metadata themselves, instead of relying on rights societies. In turn, the rights societies could act as users of the data instead of the authority that maintains the data, which is their current role. By using a crowd sourcing mechanism to verify rights data (each right owner could vote and verify the data on the platform), an efficient mechanism to generate accurate data was created. While the pilot was interesting and successful, it is not scalable at this point. Apart from such initiatives, we are also involved with the start-up community and support upcoming innovations in the area.

"The technology needs to mature some more for the real use cases to be established clearly."

**How bullish are you about the potential
of blockchain for the music industry?**
We are definitely bullish about blockchain for music, though relatively cautiously. At the moment, on the scale of scepticism we would score a reasonable 6-7 out of 10. As I mentioned earlier, the music industry faces multiple challenges at this time, but the technology (blockchain specifically) does not yet have all the answers. While it has potential to solve many of the issues including rights management and payments, there is still a long way to go.

Some of the limitations that need to be resolved first: blockchain applications are not yet standardised, and for any use case to have long-term potential and scalability, standardisation is important. It is also not (yet) very transaction friendly for high volumes. At the current stage of technology, it is also far too costly to implement on an international scale. Having said that, we are experimenting with blockchain technology and are keeping a close eye on the developments in the area. There are benefits to be reaped from blockchain, but the right timing is vital.

What do you think will help bring the benefits of blockchain to this industry?
At this time, technology needs to develop before serious and scalable use cases can be established. An early solution to global rights management issues would be a significant enabler for blockchain use in the industry. All things considered, the technology needs to mature a little bit for its full potential to be realised. Other regulatory issues such as data privacy will also need to mature with time before blockchain can be used on a wider scale in the music industry.

Interview
GUTS Tickets

Usability is key to driving adoption

"Similar to the internet, not everyone should have to know how blockchain works, but everyone should be able to reap its benefits."

Olivier Biggs
Community Manager at
GUTS Tickets and GET foundation

Where do you see the biggest opportunities for blockchain use in live music?
In live music, the area where there is still the most ground to cover is in protecting the fans. Everyone acknowledges that the problems of ticket fraud and exorbitant ticket prices from scalpers are very real and very urgent, yet no one seems to act. Convincing consumers and artists that their tickets can indeed be distributed fairly and safely with blockchain, is slowly changing this from the ground up. Fans are waking up to this reality and are starting to demand to be protected when buying tickets.

How is GUTS currently approaching blockchain?
We use blockchain for its core advantages: Transparency and accountability, for ticketing. The solution that we use, GET Protocol, registers all state changes (purchases and resales) of every ticket on the blockchain. We want to ensure that the way consumers buy their tickets does not change from what they are used to; the only changes are 'under the hood' so to speak. We believe this is the quickest way to mass adoption and usage of blockchain technology. Similar to the internet, not everyone should have to know how it works, but everyone should be able to reap its benefits.

Do you think blockchain can act as a big differentiator?
It can. It all goes back to accountability. Blockchain technology has the capacity to shine light in areas where none used to be. This can lead to quick and massive changes in the entire sector, as there is no need to wait for slow regulatory change or an unrealistic sector-wide overhaul coming from the inside. The right application of blockchain technology can have an enormous impact, especially in the case of honest ticketing.

In your opinion, what are the biggest hurdles to using blockchain in music in general and ticketing in particular?
Firstly, it still needs to prove its benefits for mainstream usage in many instances. Innovative technology is great, but blindly applying it everywhere, is not a formula for success. Fine-tuning and battle testing its application is an important step that should be done carefully and rigorously.

For ticketing in particular, the biggest hurdle is probably the established order. The way things are currently set up with event ticketing (and especially in live music events) provides fertile ground for dishonest business practices. No one knows how many tickets exist, who owns these tickets and for how much they are being sold. That 'black box' system plays into the hands of any players who want to maximise their profits at the expense of the consumer. This leads to some resistance, but the overall benefits for consumers and artists are becoming clearer. At the moment, the biggest hurdle is to ensure artists and fans truly understand the power that they have.

Outlook

Despite early successes, blockchain in music is still very much in its formative years. Most blockchain initiatives by large companies are in their pilot phases, and though some start-ups could be considered as being further along (blockchain music start-ups have collectively raised at least $150 million through ICOs and venture capital investment)[3] they too have a long way to go. We expect the music market will undergo structural change as blockchain adoption spreads. The roles played by traditional stakeholder groups will evolve, and so will the manner in which the business was conducted. Despite the expected disruption, there are definite gains from blockchain at the industry level. The costs of intermediaries and transactions will be reduced considerably. The decentralised storage of data in blockchain systems will simplify governance and ensure data integrity. And ultimately, the financial benefits to artists will likely boost overall creativity.

While it is almost certain that blockchain technology will touch the music industry, when and how it will happen is relatively uncertain.

Further development of the technology itself and establishing feasibility of use cases will be the first step towards bringing blockchain to the music industry. It is clear that without cooperation on an international scale from multiple intermediaries, the full potential of blockchain cannot be realised. However, if first indicators are anything to go by, the technology must not be underestimated. While it may take a few years for its impact to become apparent, the time to establish early leadership might very well be passing by.

Therefore, our recommendation is to engage with the technology early enough to have the necessary expertise in-house when the evolution begins within the industry in earnest. ∎

3 *Bitcoin for rockstars mastermind DA Wallach revisits his utopian vision for the music-industry*, Breakermag, 2019

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