



## **Department of Business & Management**

BACHELOR'S DEGREE IN MANAGEMENT & COMPUTER SCIENCE

### **Managing Artists' Rights using Digital Tokens**

**Supervisor:**

**Prof.**

Massimo Bernaschi

**Candidate:**

Gabriele Focolari

253941

ACADEMIC YEAR 2022/23

# Table of contents

CHAPTER 1.....	3
Introduction .....	3
CHAPTER 2.....	4
The Digital Music Industry and its Issues .....	4
2.1 Digitalization of music .....	4
2.2 Retribution for artists .....	5
2.3 Saturation of the market .....	6
2.4 Upcoming artists.....	7
2.5 The Role of Labels.....	8
2.6 Royalties .....	9
CHAPTER 3.....	11
Blockchain, NFTs & Royalties.....	11
3.1 What is blockchain?.....	11
3.2 Tokens and NFTs.....	12
3.3 NFTs as a funding opportunity.....	13
3.4 Tokenizing music royalties.....	14
3.5 Blockchain environments .....	15
3.6 Royal.io.....	15
3.7 ANote Music.....	16
3.8 Wrapping up.....	17
CHAPTER 4.....	18
A New Platform Based on Contests.....	18
4.1 Importance and history of musical contests.....	18
4.2 Combining contests and tokenization .....	19
4.3 Layer 2 solutions.....	20
4.4 The Polygon blockchain .....	23
4.5 Artists' compensation.....	24
CHAPTER 5.....	25
Conclusions .....	25
References.....	26

# CHAPTER 1:

## Introduction

The music industry has undergone a profound transformation in the digital age, with technology reshaping the way music is created, distributed, and consumed. As digital platforms have democratized music production and consumption, they have also introduced complex challenges, particularly regarding the fair compensation of artists and the protection and management of intellectual property rights. In this era of streaming services and global connectivity, the need for a transparent and efficient system for managing music rights and royalties has never been more critical.

Blockchain technology, initially conceived as the foundation of cryptocurrencies, has emerged as a powerful tool with the potential to address the music industry's long-standing issues. Its decentralized, immutable ledger, and smart contract capabilities promise to revolutionize how music rights are managed. The application of blockchain in the music industry offers a possible solution to the challenges of royalty management and artist empowerment.

This thesis delves into the issues that artists must face in the modern industry, and how blockchain technology or, to be more specific, digital tokens, have the capacity to solve them, reshaping the entire music ecosystem.

In Chapter 2 we will focus on the current state of the music industry, the history of its transformation and the aforementioned difficulties for artists, the main characters of this “game”.

In Chapter 3 we will introduce the concept of blockchain technology and we will make an overview of how digital tokens work, as well as an analysis of some successful new startups based on the tokenization of artists’ music royalties.

In Chapter 4 I will express my personal point of view on this topic, and I will propose a new implementation aimed at giving more opportunities to upcoming artists as well as possible new investors for this industry.

## CHAPTER 2:

# The Digital Music Industry and its Issues

## 2.1 Digitalization of music

In order to analyze the current state of the industry and assess some of its issues, we must talk about digitalization first, specifically about how digital technologies transformed the way music is created, distributed and consumed throughout the years.

We can identify some milestones of music digitalization:

- **Digital Audio Formats:** the development of digital audio formats, such as MP3, in the late 1980s/early 1990s, allowed for the compression and storage of audio files. For the first time, music could be shared and distributed in digital form.
- **Napster and file-sharing:** in 1999 an American student named Shawn Fanning and his uncle John Fanning launched Napster, one of the first peer-to-peer file sharing platforms. It gained wide popularity since it challenged the traditional distribution system, but it also raised some concerns about copyright infringement and piracy.
- **Itunes store:** Apple's Itunes store, launched in 2003, was the first legal alternative to illegal file-sharing. Itunes popularized the concept of buying individual songs or full albums in digital format.
- **Expansion of digital platforms:** digital platforms such as Youtube (launched in 2005) or Soundcloud (2007) made it possible for artists to promote their music online for free and connect directly with their audiences.
- **Streaming services:** The early 2010s were characterized by a rapid growth of music streaming services such as Spotify (2008) and Apple Music (2015). These services offer on-demand access to vast libraries and, as for digital platforms, users can stream music without need for ownership. Streaming has gradually become the dominant method of music consumption.

- **Advancements in technology:** Over the years, technology advancements made it easier for artists to create music digitally. More affordable and accessible recording equipment was developed, DAWs (Digital Audio Workstations) and software plugins became common, resulting in the creation of home-studios equipped with digital tools.

## 2.2 Retribution for artists

Digitalization had a deep impact on the retribution of artists, with both positive and negative effects.

With the rise of streaming services, physical sales of CDs and other formats have declined significantly. This resulted in a decrease in revenue from traditional album sales, which used to be the major source of income for artists. We said that nowadays streaming is the most popular way to listen to music, yet the revenue generated per stream is relatively low: for instance, on Spotify, artists earn on average between \$0.003 and \$0.005 per stream (“How Much Does Spotify Pay per Stream in 2023”, Ditto Music, 2023). Even for well-known artists, this may not be sufficient to sustain their career, especially in a saturated market (see point below).

Another challenge brought by the digital revolution concerns the much-discussed royalties. Indeed, determining and tracking royalties from various platforms in order to calculate fair compensation can be complex.

The new opportunities for artists to monetize their work reside in the direct-to-fan approach, as artists can sell their music, merchandise, concert tickets and other content through various platforms and websites. This, apparently, allows them to retain a large portion of this revenue and have more control over their financial sustainability. Alternative revenue streams that became more profitable with the digital age are sync licensing (placing music in TV shows, movies, ads, ecc.) and brand partnerships, other than live performances and tours.

But how much do artists exactly earn? According to the 2017 Citigroup report, artists received only 12% of the \$43 billion generated in music industry revenue in the United States in that year. (Reference: [Noah Yoo, “*Artists Made Only 12% of Music Industry Revenue in 2017, Citigroup report finds*”, in “Pitchfork”, 2018]) In more recent years this statistic does not seem to have reversed: most of the revenue is still captured by middlemen, including tech companies, radio stations, and, most importantly, record labels. It is quite bizarre that while the industry is very

profitable, its protagonists, such as musicians, singers and songwriters, people who actively produce the richness and around whom the entire system revolves, are only left with crumbs.

## **2.3 Saturation of the market**

The increasing availability of affordable recording equipment and software has made it easier for artists to create and produce music. As a result, there has been a huge increase in the number of artists and music releases across various genres. Digital platforms, streaming services, social media and online music stores have also made it simple for artists to distribute their music to a global audience without the need for physical distribution. This accessibility has lowered the barriers to entry, allowing more artists to release their music independently. The same platforms are equipped with recommendation algorithms and playlists which make new tracks more reachable by associating it with already existing ones.

Eventually, what seemed like a wonderful opportunity turned out to be an obstacle: the market became saturated. Music has always been an extremely competitive field to work in, and the more the years pass the fiercer the competition becomes. All this factors both affect the personal retribution of artists and the overall quality of music for a certain genre, since artists are forced to release as much material as they can in shorter periods of time.

“Taking the music industry as an example, we can see a definite trend leaning away from releasing full-length LP records to shorter but more frequent EPs or single releases. In July 2020, Spotify’s CEO controversially stated that it is simply not enough for artists to release an album every 3-4 years anymore.”

[“7 of the Biggest Problems with the Music Industry?”, Bryan Clark, 2022]

## 2.4 Upcoming artists

If these difficulties also affect established artists that have been working in this field for a while, the situation can only be worse for the upcoming ones.

In this constantly expanding ocean of genres, albums and tracks the main goal of an upcoming artist remains the same: to be noticed. Social media are some powerful tools to do so, as they allow artists to build their online presence, engage with followers, and share their music directly. However, this also adds to the saturation as numerous artists compete for visibility on social media platforms. Breaking through the noise requires effective marketing and a unique value proposition that resonates with the target audience.

In addition to their image, an artist must focus above all on what makes them so: music. Developing an unique music identity is crucial and, as for the previous qualities, it is difficult to achieve on your own. Producers, agents and social media managers need to work closely with artists. Artists needs the financial resources to pay for their work, which is not cheap.

Here we come to what, in my opinion, is the major issue in the modern music industry: upcoming artists' struggle to finance their activity.

In the early stages of their career, artists surely cannot rely on sponsorships and partnerships nor from live performances incomes, which might be pretty low or even non-existent. Consequently, the most reliable source of money appears to be self-funding. At the present state of things, lots of talented upcoming artists with niche but solid fanbases remain unnoticed, while some less good but richer ones manage to be heard. Some of those belonging to the former category may even struggle to afford high-quality studio sessions and their work is likely to remain unrecorded. Home-studios are still a luxury for the few.

“Most musicians are in it for the long game, hoping that it will eventually pay off. Unfortunately for those seeking a career releasing original music, it doesn't pay off financially for most”.

[“7 of the Biggest Problems with the Music Industry?”, Bryan Clark, 2022]

## 2.5 The Role of Labels

Record labels are the best-positioned entities in the game. They work as intermediaries between artists and the market, providing all kinds of services they need to get “on top” and, often, shaping their images to their liking.

Labels have been helped more than harmed by digitalization, as it gave them more tools to understand what consumers like to hear: it is sufficient to think about the huge amount of data on listeners’ behavior and consumption patterns they have access to. Surely digitalization has also opened opportunities for independent artists to work autonomously, but labels still represent the maximum point of arrival for those who seek broader exposure and support.

“Similar to what happens in any market dominated by a handful of key giants, the music industry remains very hard to break into for an “outsider.” Though we see occasional inspiring examples of artists being accidentally “discovered” by someone in the industry and then skyrocketing to fame, these are the infinitesimally few exceptions. The internet has somewhat democratized the process of entry into the mainstream to a limited extent, as shown by the rise in popularity of Soundcloud rappers and runaway streaming hits, but success via that avenue remains very much a function of luck, chance, and fierce marketing.

Connections within the industry and contacts amidst labels are still the best bet at reaching the masses.”

[“7 of the Biggest Problems with the Music Industry?”, Bryan Clark, 2022]

Because of this power they have achieved over time, labels seem to determine the entire course of artists’ careers. They solely decide what is suitable for the “great public” (which is mainly composed of superficial listeners following the latest trends), so that who does not follow these guidelines has a smaller chance to grow and be recognized. By doing so, there may be, in my opinion, a risk of overlooking some medium-niche fanbases of upcoming artists that may be able to expand and generate revenues in the future.



## 2.6 Royalties

We mentioned them before in relation to the challenges brought by digitalization: their complexity partially contributes to the artists' retribution issue. Yet, as we will see, they could represent a solution to the same issue and also a financing opportunity for upcoming artists, if handled differently. But, more specifically, what are royalties?

A royalty is a form of payment that right holders receive when their work, which has to be copyrighted, is used or exploited by others. In the context of music industry we must, first of all, note that there are two different copyrights in one song that protect different aspects of it: composition copyright and sound recording copyright.

The composition copyright, also known as “publishing” or “musical work” copyright, protects the underlying lyrics and melody of a song and is typically owned by the songwriter(s) and music publisher(s). The sound recording copyright protects a specific record of a song, and it is owned by the recording artist, record label or producer who financed and organized the recording session.

Furthermore, we can distinguish between five different types of royalties:

- **Mechanical Royalties:** Paid to songwriters and/or publishers every time a song is recorded and released in physical formats, downloaded or streamed.
- **Performance Royalties:** Paid to songwriters, composers and music publishers for all types of public performance of their work, including live performances, radio airplay and public performances in restaurant, bars and concert halls. They are collected by PROs (Performance Rights Organization) and distributed to right holders.
- **Synchronization Royalties:** Paid to songwriters and/or publishers for the use of music in synchronization with any visual media (movies, TV shows, videogames, commercial ecc.)
- **Grand Rights Royalties:** Earned for the use of music in dramatic shows, such as Broadway shows and stage plays.
- **Print Rights Royalties:** Earned when music is printed and sold in the form of sheet music, folios or song books. These royalties are usually calculated as 20% of the retail price for a single song of printed sheet music.

[“5 Types of Music Royalties: Full Breakdown”, in “Pooksomnia”, 2020]

At the beginning of the paragraph, I stated that royalties can be a solution for the artists' retribution issue if handled differently. What is wrong with the traditional management of royalties is that they represent more a future, uncertainly valued income than a present resource for an artist. Everybody with a minimum knowledge of music knows that great songs may take time to be appreciated and widely recognized. If a moderately famous artist makes a good song, which however is not an instant radio hit or club banger, they probably need to wait some time before earning a significant amount of money on it.

There is, luckily, an approach that allows royalties to be transformed into instant income by exploiting a recently born and fast-growing market. In order to study this possibility in detail we first need to introduce the concept of blockchain technology.

## CHAPTER 3:

# Blockchain, NFTs & Royalties

### 3.1 What is blockchain?

The concept of blockchain first emerged in 2008 as a key component of the Bitcoin cryptocurrency, introduced by an individual or group of individuals using the pseudonym Satoshi Nakamoto.

Blockchain is a decentralized and distributed digital ledger that enables the recording, storage and verification of transactions among a network of computers in a safe way. Each blockchain is a set of blocks, each block contains a set of transactions and blocks are linked together using cryptographical techniques. This makes the ledger immutable and transparent.

The key feature of blockchain is its decentralized nature. Blockchain doesn't rely on a central authority like, for instance, a bank. Instead, it operates on a peer-to-peer network, this means that each participant (called node) holds a copy of the entire blockchain. This level of decentralization ensures that there is no point of control or failure and reduces the risk of fraud, making the network almost tamperproof.

Before being added to the chain, a block of transactions has to be validated. There are two consensus mechanisms that allow to do so, Proof of Work (PoW) and Proof of Stake (PoS). They have the same function, which is maintaining the integrity and security of the blockchain, but they differ in their approach.

PoW is the original consensus mechanism, first implemented in Bitcoin. In PoW-based blockchain, validators (called miners) compete to solve complex mathematical puzzles via their computational power. The first miner to find the solution for a block can add it to the blockchain and is rewarded with newly minted cryptocurrencies, in addition to transaction fees. PoW tends to be more centralized initially, since anyone with sufficient computational power can participate in mining. The security of PoW depends on the high computational power required to solve the puzzles: a malicious agent would need to control most of the network computational power to manipulate the blockchain, which is practically impossible.

In PoS-based blockchain instead, validators are chosen based on the number of coins they stake as collateral. PoS is more energy efficient than PoW since it doesn't require high computational power.

Its level of decentralization, however, may depend on the distribution of wealth among participants. If validators behave maliciously, they will lose their staked coins.

These mechanisms help to protect the network from the double spending problem, a.k.a. the risk that a digital currency or token could be spent more than once, leading to the creation of fraudulent transactions.

## **3.2 Tokens and NFTs**

Blockchain networks are mainly used for the buying and selling of tokens and non-fungible tokens. Both can be created and managed through the creation of smart contracts, which are automatically executed when certain conditions are met.

Tokens are digital assets that represent value. They can be cryptocurrencies (like Bitcoin or ETH), utility tokens (used to access to specific services or apps in blockchain ecosystems) or security tokens (representing ownership in real-world assets).

Non-fungible tokens (NFTs) are something much more interesting for what concerns the music industry. They represent unique ownership of a specific item or piece of content. Their most important feature is uniqueness, since each NFT is unique and cannot be exchanged with other ones. This characteristic makes NFTs ideal for the representation of digital collectibles, art and other assets including music.

However, the NFTs market is relatively new and, for some aspects, unregulated. Other challenges may regard scalability issues, since, as NFTs popularity began to grow, some networks have experienced congestion, slower transaction times and higher transaction fees. We also have to keep in mind that this market is highly volatile: some NFTs are sold at sky-high prices and other may lose value rapidly.

### 3.3 NFTs as a funding opportunity

NFTs are emerging as a significant trend in the music industry. Artists can tokenize all forms of their creative works, from unreleased tracks and limited-edition albums to concert tickets, virtual experiences or merchandise. By doing so, they are selling their art directly to fans, creating a more straightforward and personal connection between author and audience.

Several artists have explored and engaged to this world. Worldwide renowned DJs Steve Aoki and Deadmau5 launched their own NFTs including exclusive music experiences and art collectibles. Musician and visual artist Grimes (also known as Elon Musk's wife) has sold NFTs artworks and a one-of-a-kind music video for her song "Death of the Author". American rock band Kings of Leon released an entire album ("When You See Yourself") as a NFT, offering exclusive experiences to buyers.

Sometimes, NFTs' sales opportunity can extend also to "not-famous" artists. In the short paper "NFTs in Music Industry: Potentiality and Challenge", R. Folgeri, P. Arnold and A.G. Buda state:

"A case study worth mentioning as an example is ClownCore. They are a duo (saxophone and percussion) who play in disguise to conceal their identity. They launched an industrial project and minted their latest 4 songs as an NFT collection on Opensea. These tracks were sold for a total of ETH 2.1922 (€ 6179.98 at today's exchange rate). Interestingly, their fanbase is very limited (only 180000 subscriptions on YouTube). Despite this, clowncoin3, which is the only NFT for sale is currently out at ETH 3.124 (\$ 10082.49 - € 8806.79)"

This described case study shows that NFTs have the potential to enlarge an existing audience and market. However, as we said before, we are dealing with a highly volatile market. Some buyers may purchase NFTs as speculative assets rather than for their real value and knowing this information can discourage other buyers to invest. In this context, the music itself risks being valued less than all the marketing around it. Could there be a way for an artist to create NFTs that actually reflect the value of their work? The answer is linked to royalties.

### **3.4 Tokenizing music royalties**

The tokenization of music royalties is a revolutionary concept that leverages blockchain technology to transform the way artists and investors interact in this environment. It can boost the careers of deserving emerging talents and consolidate the position of already established ones.

An important aspect to be considered is disintermediation. We have seen that, traditionally, music royalties were managed through complex intermediaries. In this system, artists used to struggle to access their earnings in real time and some possible investors could not invest directly in music assets. With tokenization, music royalties can be converted in NFTs or other token standards on blockchain platforms like Ethereum, creating a direct link between demand and offer.

The process can work in various ways, but its core is the fractional ownership of royalties: the music rights holder can divide them in smaller fractions, enabling the creation of multiple NFTs, each representing a share of the royalty stream. The resulting tokens can then be sold through auctions, marketplaces or directly to interested buyers. Fans and investors can purchase them and become beneficiaries of the royalties generated by one or more songs or, more generally, by a specific musical asset. As the music generates revenue from streams and/or purchases, the royalties will be distributed automatically to the NFT holders based on their respective shares. This last step in particular would not be possible without blockchain's transparency and automation.

We said that the new opportunities (brought by digitalization) for artists to monetize their work reside in the direct-to-fan approach. The possibility for fans to become stakeholders of their favorite musicians is something extremely innovative and it is exactly the kind of opportunity artists should invest in.

Some challenges may regard copyright management and the need of a standardized practice across the industry, since the legal aspect of this concept is not that simple.

There are recent innovative startups that have already explored this business idea.

### **3.5 Blockchain environments**

Before analyzing two cases of startups which successfully started a business on the tokenization of royalties, it is worth to say a few words about some major blockchain environments. Each of them operates with their unique characteristics.

The most popular and widely used is Ethereum, developed in 2014 by a young Canadian programmer Vitalik Buterin and other co-founders. In November 2013 he had published the Ethereum White Paper, in which he described a new blockchain platform that would enable developers to build decentralized application (DApps) using smart contracts. Its adaptability (a proof of that was the successful transition from PoW to PoS consensus mechanism) and open-source nature attracted developers from various industries, leading to the growth of Decentralized Finance (DeFi), NFTs and a plethora of other innovative applications.

There are lots of other suitable environments for the creation of DApps, like Binance Smart Chain (which is also compatible with the Ethereum Virtual Machine) and Elrond.

### **3.6 Royal.io**

Royal.io is one of the first music royalty investing platforms. It was launched in May 2021 by American DJ and producer Justin Blau, popularly known as 3LAU. 3LAU was the first artist to give away tokenized music, as he offered in a contest 50% of royalties for his song “Worst Case”.

Royal.io is built on top of the Polygon blockchain, a layer 2 scaling solution platform for Ethereum. In simple terms, the Polygon blockchain is a separated platform that aims to solve Ethereum’s scalability issues and it is designed to enhance the performance of DApps and smart contracts. Polygon’s Software Development Kit allows users to deploy their own sidechains, acting as a “bridge” between these sidechains and Ethereum.

How does Royal work? The platform offers sales of NFTs referred to as Limited Digital Assets (LDAs). Token holders earn royalties from songs, catalogs or albums along with exclusive fan experiences. The advantage for artists resides in selling their future royalty earnings for immediate cash, while investors receive passive income and fans can support their idols more closely.

The platform is periodically refreshed with new drops of LDAs. These drops divide tokens in three categories: Gold, Platinum and Diamond.

	<b>Gold NFT Tokens</b>	<b>Platinum NFT Tokens</b>	<b>Diamond NFT Tokens</b>
<b>Price</b>	Cheapest	Balanced	Most expensive
<b># of Tokens</b>	Largest	Medium Amount	Smallest
<b>% of ownership</b>	Smallest	Middling Amount	Largest
<b>Streaming Royalty yield</b>	Lowest % yield	Medium % yield	Highest % yield
<b>Amount of perks</b>	Least perks	Middling perks	Most perks
<b>Liquidity</b>	High	Good	Potentially Limited

As we can see from the table, higher-tier tokens are numerically limited, sold at a higher price and bear highest yields. For instance, there have been drops of which Diamond tokens sold for \$9,999 each. It is quite easy to understand that, for new drops, the higher the tier, the better the value. Gold tokens are less valuable when they are dropped, but they can represent interesting long-time bets.

Royal gained significant attention for his partnerships with famous artists. American rapper Nas became the first artist to sell streaming royalty rights for his songs “Ultra Black” and “Rare” in January 2022. Other notable collaborations include Diplo and The Chainsmokers.

### 3.7 ANote Music

ANote Music was conceived during the 2017 Sanremo Festival, when Italian businessmen Marzio F. Schena and Matteo Cernuschi realized that it was impossible for people outside the industry to invest in music, if not with an extremely conspicuous budget. They relied on the Algorand blockchain to fund the platform in 2018, which gained major returns and popularity in 2021.

Its business model is similar to Royal’s. Users can buy tokenized royalties from a catalog, the company receives listing fee commissions, based on the value of the catalog at the end of an auction, and distribution commissions as royalty payments are distributed.



Today ANote Music has 110 thousand catalog titles from more than 100 different artists (including worldwide-hits like Avicii's "The Nights" and Drake's "In My Feelings") and over 12 thousand investors' portfolios. The estimated users' annual return is 9.66%.

### **3.8 Wrapping up**

We have seen that the process of converting music royalties into digital tokens, referred to as tokenization, can bring consistent benefits to the industry.

Artists have the possibility to exchange some future earnings for an immediate sum of money: this makes tokenization an important source of revenue, especially when streaming platforms are not that profitable. Tokenization is a more transparent method for managing royalties, thanks to blockchain technology. Royalty payments are indeed tracked and recorded on a public blockchain, ensuring a fair compensation for artists. It is also far more efficient, since it eliminates the need for intermediaries. Normally, record labels and music distributors would slow down the payment process and take a significant portion of the generated revenue. Tokenization, instead, creates a direct relationship between artists and investors, empowering both parties. Lastly, the concept of fans owning their favorite artists' songs is revolutionary and not exploited enough yet.

What is still missing in this mechanism is an effective solution for upcoming or underground artists, since they don't have the right recognition and prestige (yet) to represent an investing opportunity. There are some exceptions, such as the aforementioned Clown Core case, but we need to contextualise it: Clown Core is a jazzfunk duo and their music has no vocals, that means its value resides more in the possibility of being used for audiovisual products, rather than streamed by a large portion of public. Furthermore, what makes Clown Core interesting is their anonymity, since the two members of the band always wear clown masks in their Youtube videos and nobody knows who they are.

At the moment the existing royalty-tokenizing platforms do not seem to be a launch pad for new artists. However, new platforms addressing to solve this problem can be developed in the near future.

## CHAPTER 4:

### A New Platform Based on Contests

#### 4.1 Importance and history of musical contests

“Music competitions have always been an important part of the human experience. In the ancient world, Greek and Roman societies considered them a central part of the worship of their gods, usually pairing them up with a religious procession and a sacrifice.[...] [Nowadays] using a public forum seems to be the natural way to find the strongest young players while promoting the musical genre and helping to establish new professional careers. Even today, where all you need is a social media account to be able to reach a potentially large audience, music competitions offer way more than just visibility.”

[“Once upon a tempo: a dip into the history of classical music competitions”, Laura Volpi, 2018]

For every artist at the beginning of their careers, musical contests have always been a great opportunity to gain exposition, validation, credibility, guidance, useful contacts in the network and, of course, financial support. At the same time, contests contribute to the diversity and variety of the music landscape by introducing fresh talents to the world.

Contests for emerging musicians have a long history, evolving over the years to reflect every change in technology, music genres and in the music industry itself. Below is a brief overview of this history:

- **Early 20<sup>th</sup> Century:** Local and regional competitions were often held at fairs, festivals and community events. At that time, they were the only available platform for amateur musicians to show their talent.
- **1940s-50s:** As the popularity of radio grew, so did the opportunities for musicians to participate in talent shows and competitions broadcast on the airwaves, especially in the USA. These shows, such as "Arthur Godfrey's Talent Scouts" and "The Original Amateur Hour," helped launch the careers of several famous artists.
- **1960s-70s:** The emergence of television brought a new wave of talent competitions. Shows like "The Ed Sullivan Show" and "American Bandstand" featured performances by up-and-coming musicians. Additionally, the Eurovision Song Contest, which began in 1956, provided a platform for emerging artists from various European countries.

- **1980s-1990s:** The advent of music videos and MTV led to contests like "MTV's The Cut" and "MTV's Wanna Be a VJ," where aspiring musicians and video jockeys competed for opportunities in the music industry. This era also saw the rise of televised singing competitions like "Star Search" and "The Gong Show".
- **2000s-Present:** Reality TV shows like "American Idol," "The X Factor," "The Voice," and "America's Got Talent" have become major platforms for emerging musicians and have been “exported” from USA to the rest of the world. These programs offer a chance for contestants to receive mentorship, exposure, and the opportunity to jumpstart their music careers. Many winners and finalists from these shows have gone on to achieve major success. In 2012, as hip-hop culture was becoming mainstream, MTV Italy introduced “MTV Spit”, a show based on freestyle battles between rappers from the underground scene, which contributed to the exponential growth of the genre across the country.
- **Online Contests:** With the internet's growth, online platforms like YouTube, SoundCloud, and social media have allowed emerging musicians to showcase their talent independently. Various online music contests, sponsored by record labels or streaming services, have also emerged, offering opportunities for exposure and record deals. For what concerns hip-hop, it is worth to mention XXL, an American rap-centered magazine which in 2007 started to release its annual “Freshman Class” list. This list is aimed at showcasing underground or recently emerged rappers that are considered to be on the rise. Although the Freshman Class is not properly a contest, it shows how some valid artists only need the right push to get on top.

## 4.2 Combining contests and tokenization

We have seen and stressed how in the modern age artists struggle, in simple terms, to get paid consistently and to be noticed, since the music sea has never been so full of fish. We have explained why royalty-tokenization can be an efficient solution for the former issue, but very few people would be willing to purchase the rights of some little-known artist with an unknown expected return. Here is where contest can come in help: what if there was a live-broadcasted contest for both established and upcoming artists and the prize for the winner (or winners) of each category was the possibility to tokenize and sell a portion of their music’s rights?

The contest would be organized and financed by a new royalty-tokenizing platform that would operate both in the NFTs (or cryptocurrencies) market and in the show business sector. Participating artists would present a single, unreleased song, that would be published at the end of the contest or after the first performance, similarly to what happens in the Sanremo Festival. The platform could exploit livestream services like Twitch in order to stream the event and make itself known. At the end of the contest, which could also have two or more winners instead of one only, the platform would organize a drop of the winners' songs' royalty tokens. The drop would be similar to those of the previously mentioned Royal.io: famous artists' tokens would be classified as higher tier, bearing higher prices and consequently representing very valuable assets since their emission, while upcoming artists' tokens would be cheaper but somehow better than many low-tier royalty tokens on the market because of the hype that would be created around the artist and the contest-winning song.

The contest could be held every year or every 6 months. In the latter case, which I think it's the most suitable, the best months for it to take place would be October or November and April or May. Perhaps, the autumn edition would feature more heterogeneous groups of artists and various genres, while it's not hard to imagine that artists participating to the spring contest would focus on bringing a potential summer hit. This would give two separate identities to the two editions and would allow artists to choose the edition that best represents their music. From the investors point of view, spring could represent a better opportunity for short-term returns, because of the immediate peak of streams and usage that the summer hits would reach in the months right after the contest. On the other hand, the autumn edition's tokens would have returns that are difficult to predict exactly: it's reasonable to assume that the songs involved would not have the same peak of the spring ones in the first months, yet they could still generate constant revenues every month of the year.

### **4.3 Layer 2 solutions**

Before talking about the environment in which the platform could take place, we need to explain the concept of layer 2 solutions. Layer 2 solutions for Ethereum are scaling solutions designed to address the network's scalability and high transaction fees by processing transactions off-chain or via sidechains, while maintaining at the same time the security and decentralization of the Ethereum mainnet. Their aim is to increase the throughput and reduce the cost of using Ethereum, making it

more efficient for DApps and users. We can divide layer 2 solutions, for our convenience, in two different implementations: rollups and sidechains. These two solutions offer different designs and trade-offs that developers need to consider.

The concept of sidechains involves creating blockchain networks that run in parallel with a main chain, connected via a two-way bridge. This bridge allows the transfer of different assets and data between the two chains. Sidechains often have their own consensus mechanism and validator sets, providing autonomy to the network when processing transactions, but relying on strong crypto-economic incentives (rewards for a validated transaction and loss of the staked amount in case of malicious behavior) to ensure security. Lastly, sidechains can be EVM-compatible or non-EVM-compatible. The EVM-compatible ones use a custom implementation of the Ethereum Virtual Machine, that means they can run smart contracts and DApps deployed on Ethereum.

Rollups, on the other hand, enhance the scalability of a blockchain by processing transactions in separate environments, while periodically submitting blocks to the main chain. They too have bridges to move assets from and into the blockchain. The method of sending data at intervals to the decentralized parent blockchain guarantees three security properties:

**Availability:** Blocks are always available for verification.

**Validity:** Blocks can be processed only if they meet certain validity conditions.

**Liveness:** Anyone can reconstruct the rollup's last valid state in order to produce new blocks. Users can also force the inclusion of a certain transaction in a rollup to prevent malicious validators from freezing the chain and/or censoring users.

Key differences between sidechains and rollups include throughput, costs, finality and security. Sidechains typically offer higher throughput, since they are independent from the main chain. For the same reason, they also charge lower transaction costs. They provide instant finality but involve greater trust in validators. Rollups, instead, rely on the decentralization of the parent blockchain, so they ensure greater security. They however require longer time-to-finality: for instance, in optimistic rollups, confirmations of transactions can be delayed to ensure that honest participants have enough time to contest possible invalid updates. Generally, the whole process of generating validity proofs is more expensive than using a sidechain.

## TYPES OF ROLLUPS:

1. **Optimistic Rollups:** Optimistic rollups rely on a smart contract on the Ethereum mainnet to settle disputes. They work by aggregating multiple transactions into a single "rollup" and submitting a cryptographic proof to the Ethereum mainnet. This reduces gas fees and increases throughput.
2. **Zk-Rollups (Zero-knowledge):** Zk-Rollups use advanced cryptographic techniques to bundle multiple transactions into a single proof, which is then submitted to the Ethereum mainnet. Zk-Rollups provide high scalability and security while maintaining decentralization.
3. **Zk-Validium:** Zk-Validium is a Layer 2 solution that combines the security and privacy features of zk-Rollups with the composability of Optimistic Rollups. It provides both scalability and privacy for Ethereum.

NOTE: The concept of zero-knowledge is used in various cryptographic protocols to enhance privacy and security. It refers to a situation in which one party (the prover) can prove to another party (the verifier) that a particular statement is true without revealing any particular information about the statement itself.

## TYPES OF SIDENCHAINS:

1. **Polygon (formerly Matic),** which we will examine later.
2. **xDai chain:** xDai is a stablecoin-based sidechain that provides fast and cost-effective transactions. Stablecoins are a type of cryptocurrency designed to maintain a stable value by being pegged to a reserve asset or a basket of assets, such as a fiat currency (like the US Dollar), or other cryptocurrencies. In this case the xDai stablecoin, used for gas fees, is a stable token pegged to the Dai cryptocurrency.
3. **Plasma chains:** Plasma is a framework for creating child chains (Plasma chains) that are connected to Ethereum and can handle a high volume of transactions. Unlike other sidechains, Plasma chains are rooted on Ethereum's layer 1 and they work based on the

assumption that its consensus mechanism can fail. This design guarantees more security, although it makes Plasma chains not suitable to process more complex operations.

## 4.4 The Polygon blockchain

In my opinion, the Polygon blockchain, which we already mentioned in paragraph 4.6 (Royal.io), would be the most suitable environment for the platform to take place. As we have seen, Polygon is a sidechain for Ethereum. It deals with the network's scalability issues by handling transactions on a different blockchain, then it returns processed transactions to Ethereum. By doing so, transactions are sped up and transaction costs are lowered significantly.

In other words, Polygon provides an easy, user-friendly framework for blockchain projects to build on Ethereum without scalability issues. Polygon offers multiple options (among the layer 2 solutions we have previously seen) to developers, such as Optimistic and Zk-rollups as well as Plasma chains. Another feature of Polygon is its EVM (Ethereum Virtual Machine) compatibility. That means developers can easily migrate their Ethereum-based DApps to Polygon, simplifying the development process.

To get an idea of how well Polygon works, just keep in mind that Ethereum processes roughly 17 transactions per second, while, with its sidechains, Polygon has the potential to process up to 65,000. Furthermore, the average transaction fee on Ethereum is around \$15, and during periods of high network congestion it can rise quickly to above \$50 to \$80. With Polygon instead, transaction costs are lower than a cent! [Data from "Polygon blockchain explained: a beginner's guide to MATIC", in "Cointelegraph", 2022]

Polygon was initially known as MATIC, the project then switched to its current name in February 2021. The MATIC network had only plasma chains as primary offering, it then implemented all the other scaling solutions. However, developers decided not to change the name of Polygon's native cryptocurrency, which is still named MATIC. In relation to this, another important and unique feature of Polygon is that it is the only network that allows to stake its token on the Polygon blockchain. Staking allows its users to earn an annual interest for validating transactions on Polygon.

To summarize, Polygon offers different solutions for different needs and it is convenient for everyday users as well as developers and enterprises. This makes it one of the most efficient environments to build blockchain projects at the moment.

## **4.5 Artists' compensation**

The last thing to arrange would be artists' compensation. The other platforms' system, where artists receive the sum of their tokens' sales minus a transaction fee earned by the platform, seems to work perfectly. In the case where artists would like to be more involved with the NFT market and become investors themselves, the platform should consider the idea of paying them with its own cryptocurrency instead of fiat currencies. As a matter of fact, the majority of platforms operating with NFTs have its native crypto or token. By doing so, not only the artist would advertise the platform in the best possible way, by trusting its environment and committing to its vision, but the entire cryptocurrencies and NFTs market would benefit from it. Essentially, the concept of being paid with cryptocurrencies would be legitimized and normalized and that would lead to some positive network effects, with more people willing to invest on royalty tokens.

Anyway, since the purpose of this hypothetical platform is to help artists, they should be left free to choose between the two forms of remuneration.



## CHAPTER 5:

### Conclusions

All in all, making music is nothing but the combination of creating art and selling a product. A successful artist is whoever manages to find the right balance between these two diametrically opposed concepts. While there are no schemes, tricks or facilitations to do art in the “right” way (assuming there is one), selling a product requires a precise and reproducible method: this is where new technologies have come into play.

We have seen how the digital era has brought lots of new earning and growth opportunities for artists. Even if for each of them there is a relative threat or disadvantage, data proof that, in the era we live in, an artist can be “created” from scratch and put on the market successfully in a very short time thanks to the power of social media and digital music platforms. As a consequence, the music industry is continuing to grow exponentially.

Meanwhile, also blockchain technology has experienced a substantial growth over these years. It is gaining adoption in different sectors beyond cryptocurrencies, such as finance, supply chain management, healthcare or real estate. Many large enterprises have adopted some blockchain solutions to enhance security and reduce costs of their operations. Furthermore, several governments are launching initiatives to use blockchain technology for identity management, voting or record-keeping. Furthermore, it is estimated that:

“Tokenization [...] will upend by 2030 the transaction methods of many well-established asset classes, tangible or intangible.”

[Alexandre Birry, Chuck Mounts, “*Toward a Tokenized Future*”, in “S&P Global”]

In light of this, combining two rising realities like the music industry and digital tokens has proven to be a successful idea. Exploring new possibilities related to the tokenization of royalties can solve the majority of artists’ difficulties and help them to keep up with the constantly changing environment of the industry. New platforms can be developed exploiting the wide range of Ethereum’s scaling solutions and offering artists different and immediate sources of income. At the same time, doing so can be extremely beneficial for everyone else working in this world and for new investors who want to “dive in” before everyone else does.

## References

1. Mayende Collins Israel, *“Challenges faced by upcoming musicians and possible solutions”*, 2023
2. Salaamu Maria, *“Challenges faced by upcoming artists in recording and marketing their music”*, 2022
3. Bryan Clark, *“8 of the biggest problems with the music industry”*, in *“Musicianwave”*, 2023
4. Noah Yoo, *“Artists Made Only 12% of Music Industry Revenue in 2017, Citigroup report finds”*, in *“Pitchfork”*, 2018
5. Raphael Nowak, *“Understanding everyday uses of music technologies in the digital age”*, 2014
6. *“How much does Spotify pay per stream in 2023”*, in *“Dittomusic”*, 2023
7. Gary Graham, Bernard Burnes, Gerard J. Lewis, Janet Langer, *“The transformation of the music industry supply chain: a major label perspective”*, 2004
8. Tony M. Fountain, *“The evolution of music industry – and what it means to market yourself as a musician”*, in *“Forbes”*, 2021
9. Mohan Rajagopal, *“Record labels, the third-party monopolies in the music industry”*, in *“Nickled & Dimed”*, 2022
10. Caroline Banton, *“What is a royalty? How payments work and types of royalties”*, in *“Investopedia”*, 2022
11. *“5 types of royalties: full breakdown”*, in *“Pooksomnia”*, 2020
12. Adam Hayes, *“Blockchain facts: What is it, how it works and how it can be used”*, in *“Investopedia”*, 2023
13. Josh Heier, *“Royal – An Overview of the first Music NFT Investing Platform”*, in *“Assetscholar.com”*, 2022
14. *“The developer’s guide to blockchain development”*, Xilinx.com

15. Dan Taylor, *“Music NFT platform Anotherblock welcomes Stride and second Swedish House Mafia member Axwell to cap table in \$4 million seed round”*, in *“Tech.eu”*, 2023
16. Raffaella Folgeri, Paul Arnold, Alessandro Giuseppe Buda, *“NFTs in music industry: Potentiality and Challenge”*, 2022
17. Moriah Costa, *“Investing in Music Royalties: Is it a hit or you should pass?”*, in *“Moneywise.com”*, 2023
18. *“Il marketplace che permette agli appassionati di investire nella musica”*, in *“Forbes”*, 2023
19. *“Cryptocurrency and the Music Industry: Tokenizing Royalties and Ownership”*, in *“The European Business Review”*, 2023
20. Laura Volpi, *“Once upon a tempo: a dip into the history of classical music competitions”*, in *“Bachtrack”*, 2018
21. *“What are the Layer-2 Scaling Solutions”*, Crypto.com, 2022
22. *“Polygon blockchain explained: a beginner’s guide to MATIC”*, in *“Cointelegraph”*
23. Robert Stevens, Toby Bochan, *“What is Polygon? Understanding Polygon and how it works”*, in *“Coindesk”*, 2023
24. *“Sidechains vs Rollups: Breaking Down the Differences for DApp Development”*, in *“Infura”*, 2023
25. Andres Zunino, *“Exploring Layer-2 Solutions: How Polygon’s Scaling Solutions and Studios are Revolutionizing Blockchain”*, in *“Forbes”*, 2023
26. Alexandre Birry, Chuck Mounts, *“Toward a Tokenized Future”*, in *“S&P Global”*, 2023