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THE MUSIC INDUSTRY

A PARTIAL DISINTERMEDIATION DRIVEN BY WEB 3.0

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Abstract

This dissertation analyses the music industry and its first steps within the metaverse and web 3.0. The metaverse, a concept that is still fluid and poorly delineated, has become part of our lives, but it can still be said that it does not fully exist, or that it is not a concrete and clear concept as the internet 2.0 which was also difficult to explain until two decades ago. Now we find ourselves in front of this nascent virtual environment that still has no defined form, but which seems to be the potential playground of capitalism 3.0 seeing the investments of the big companies. While the metaverse is not yet something 100% tangible and concrete, the technologies that characterise it are already part of and being considered by all sectors and industries worldwide.

In this work, I analyse an important slice of the entertainment world: the music industry, a delicate market, constantly evolving and at the centre of countless questions on the distribution of profits between the protagonists. As a necessary part of understanding the advent of blockchain & NTFs some dynamics could change this market.

In this perspective, the metaverse manifests itself also and above all as an innovative marketing tool capable of adding another formidable potential channel for user engagement and for the next level of personal branding. However, the first set-up of a future record industry based on Web 3.0, decentralised and disintermediated (no longer too many middlemen between creation and listening where value is lost) capable of solving and improving processes such as royalty collection, improving the economic conditions of the artist, does not seem to care about one really important aspect: the development of the artist. This refers to A&R (artist and repertoire) processes, marketing campaigns and project projection, capable of increasing the number of streams and audience in a world where everyone makes music, but it is difficult to emerge.

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Introduction

How we will be listening to music and watch live events in 10 years? The metaverse and the web 3.0 might be the right answers.

We report two general effects that the pandemic has brought, which are there for all to see, and are central to this work. The first is the meteoric rise of the audio-visual sector, which, thanks to restrictions and lockdowns, has become a more integral part of our entertainment than before and has been able to remain at high levels even in the post-pandemic era. The second effect, of which the first can be considered a subset, is the exponential digital and technological acceleration. We, too, have become more accustomed and familiar with technology in a symbiotic process that humans had never experienced. This process is but in its primordial stages, but contact has been made and we now see and are able to see and perceive our future as the link between technology and the human being more vividly, foreseeing an ever-stronger bond that often frightens and intimidates us.

However, research is the only way to bridge this information gap and avoid conspiracies and unnecessary dystopian future conceptions typical of times of drastic change. The concept of the metaverse fits well with both the concept of accelerating the virtual bonding of man, which has been theorised but not yet fully realised, and the concept of information gaps. In fact, not much is known about it and several authors and intellectuals think that it is just a bubble destined to burst and never fully evolve. On the other hand, however, big tech and the movement of invested capital attests to an ever-closer future. While this is justified by the huge potential it could bring in almost every sector, there are quite a few issues to be resolved, from privacy to governance, the rights of an avatar, cyberbullying and many more.

In fact, in this work, which is not really and only about the metaverse, we would like to report a review of it: where we started from and what path is being mapped out with the actions of all parties involved. This, according to our method, helps us to understand and link the unresolved problems of the metaverse with those specific to our research.

At this stage, intermediate or even primordial, what is used of the metaverse, and Web 3.0 are above all the leading technologies of which it is composed, will be characterised: the blockchain, crypto, NFTs, the international public registry, smart contracts to name a few. The music industry, among many others, is catching the eye of these technologies that would be able to overcome and improve some of the most difficult nodes of this market.

The object of study of this thesis, the music industry was born at the turn of the 19th and 20th centuries and has a much more troubled and complex history than the metaverse and its technologies that date back a decade and we are only now beginning to see their use. Nevertheless, these innovations have exposed all industries to possible changes and restructuring, certainly among them the music industry, which is very susceptible to the changes they offer, in fact it is always subject to change and in itself unstable, we will see why. The first real revolution and adaptation for this industry dates back to the introduction of social media into mass culture, it allowed a significant rapprochement between artist and fan. This process is unquestionable, and an artist is able to create content, posts, stories and read the reactions of fans as well as respond to direct messages. This process, which is certainly useful from the point of view of fan engagement, personal branding and increasing the audience and on which various ad hoc marketing strategies can be sewn, has also led to the growth of the 'haters' phenomenon. Everyone can write whatever they like and sometimes these are insults, insults and comments in bad taste directed at artists who are forced to read certain statements.

This artist-fan approach continues and is reinforced by the recent advent of the metaverse, again in the wake of mass media. In fact, it has already been used to increase hype through highly scenic virtual performances. Many artists including Travis Scott, America's hottest rapper, Ariana Grande, John Legend, DJ Marshmello have performed on the Metaverse via Fortnite, Roblox etc. recording a 6-figure user presence. From a personal branding point of view, the gamification that the metaverse offers is unparalleled. Not only does it translate a real brand of the artist into a socio-virtual reality via the avatar, but it also manages to brand the environment. In other words, one is able, in a performance, to draw the environment much closer to the artistic conception of the character, which in a real concert always has the physical limits of the surroundings. The metaverse therefore in addition and not as a substitute to a live concert succeeds in providing an experience by increasing the artist's awareness and making him unique in his genre-subgenre. Furthermore, it succeeds in increasing the fan-base by targeting virtual-experience gamers.

This purely media use of the Metaverse, however, is just one more channel in the marketing mix and in our opinion is part of the mass-media revolution mentioned above. We would like to say that this is apart from the functioning of the recording industry and the revolution it might experience with the advent of Web 3.0. In this paper we will explain how an industry that today is worth 26 billion dollars and is expected to be worth 53 billion by 2030, can change with new technologies, what scenarios are emerging and how likely it is that it will change for real. The real

revolution that Web 3.0 offers this industry is big and significant for the industry itself. Web theorists, in fact, speak loudly of disintermediation and simplification of the value chain between artist and listener that has always been populated by so many subjects. The presence of this multitude of actors and the complex value chain is explained by several reasons. First and foremost, the subjection to copyright and the use of the work of art that characterises the process of distribution and sale of a creative work, a complicated matter in which many legal and other figures interact; the recording part and the publishing part; the collection of the various royalties from different channels to name but a few. This complexity led to the emergence in the last century of a type of company capable of handling all these aspects: the major. In fact, today it is able to absorb most of the value and leave the artist who has signed with it an average of 18%. It is precisely here that new technologies come into play which are theoretically capable of fulfilling part of the roles of a label and thus increasing the monetisation of the artist and remuneration for creative effort.

In this thesis, we will try to put ourselves in the shoes of an artist and be able to understand what they need in order to emerge, hence the questions of our theoretical research:

- How did the metaverse and web 3.0 become established and what are the links to the music industry?
- What are today's problems in the music industry and the position of the artist in the value chain?
- Which web 3.0 technologies would help or make the processes in that industry more efficient?
- Does the artist still need an intermediary to make music?
- Does a higher monetisation rate correspond to more revenue?
- Does the marketing, promotion, and development of the artist influence success?
- What scenarios can we imagine for the future of this industry?

The order of the questions just stated outlines the structure of this work. The first three correspond to the first part: the background. The first chapter will be a support and complement to understanding the world of the metaverse and web 3.0, it will not be so much about the technical part but will explain how it is present in the public debate and why, discussing the possibility of its growing affirmation. The second chapter will be entirely about the music industry, its structure,

its functioning and its criticalities. The third finally explains what solutions Web 3.0 currently offers to the music industry and what problems it solves/improves. The last four questions relate to the second part of the work: the conceptual model. Chapter 4 will explain the rationale for the model arising from the background analysis, the methodology the results and the scenarios, introducing the expenditure on project development, marketing, promotions, and investments as a variable influencing the success of the artist in the current state of affairs both in web 3.0. Finally, Chapter 5 will cover discussion, conclusions, and the research agenda for the future.

PART I: BACKGROUND

1. Metaverse Overview

In this work, the Metaverse Overview is more aimed at explaining what the trends of a potential nascent market are and what the strategic choices of the big players involved are focusing on, rather than analysing the technical characteristics of the technological infrastructure that will dominate Web 3.0. If one wants to delve deeper into the subject, it is amply explained in the important survey carried out in 2021 [3], partially used as a source.

This first section devoted entirely to the metaverse will therefore be divided as follows. First of all, we will give a general definition of the metaverse. Then we will understand why the topic has become so present in the public discussion; we will then move on to a "macro" economic analysis studying the market landscape, and finally we will talk about the investments, the strategic choices made by the actors involved in the market and the already about the existing metaverse realities. The aim of this marketing overview is to have a clear idea of the market and towards which scenarios it can most likely tend in order to connect and gain insight into the music industry, an industry which we will discuss in section 2.2 at a general level and in chapter 2 in the context of web 3.0.

1.1. Definition

The Metaverse is the post-reality universe, a perpetual and persistent multiuser environment merging physical reality with digital virtuality. It is based on the convergence of technologies that enable multisensory interactions with virtual environments, digital objects and people such as virtual reality (VR) and augmented reality (AR). Hence, the Metaverse is an interconnected web of social, networked immersive environments in persistent multiuser platforms. It enables seamless embodied user communication in real-time and dynamic interactions with digital artifacts. Its first iteration was a web of virtual worlds where avatars were able to teleport among them. The contemporary iteration of the Metaverse features social, immersive VR platforms compatible with massive multiplayer online video games, open game worlds and AR collaborative spaces [5].

1.2. The advent of the Metaverse

Over the past two years, the word Metaverse has become part of our lives on a daily basis, and although it is still something that is completely unstructured and cannot be summed up in a single definition or narrowed down to well-defined boundaries. Our perceptions and the idea of a virtual environment has nonetheless taken shape in the general imagination.

1.2.1. Public discussion and research

But how does a concept that is still completely new and in the early stages of discussion go viral and project us into the future?

The market today, and this is an example of this, is increasingly deterministic and the rate of innovation seems to be driving the market towards new ideas and not vice versa. As if we are the ones adapting business models, functions, and reasoning to new technologies rather than adapting technology to our existing models in a potential evolution.

The Metaverse is the result of the advent of many drastic innovations that have disrupted scenarios for the time being only on a theoretical and research level but also on a practical level such as the introduction of Blockchain, NFTs and the great strides in nanotechnology. This market has attracted capital and attention from Big Tech companies as well as national governments.

However, it is in its preliminary stages, and it may take a decade or so to see the new frontier of the Internet fully utilised in a complete virtual environment, Mark Z. himself. who is perhaps the one who is most explicitly betting on the metaverse, says: "But I still think it's going to take a while for it to get to the scale of several hundreds of millions or even billions of people in the metaverse, just because things take some time to get there", the same one who on the 21st September 2021 was the triggering agent of the hype around the metaverse concept.

In fact, after his rebranding strategy and presentation on his Metaverse concept, the community went crazy as did the searches on the topic.

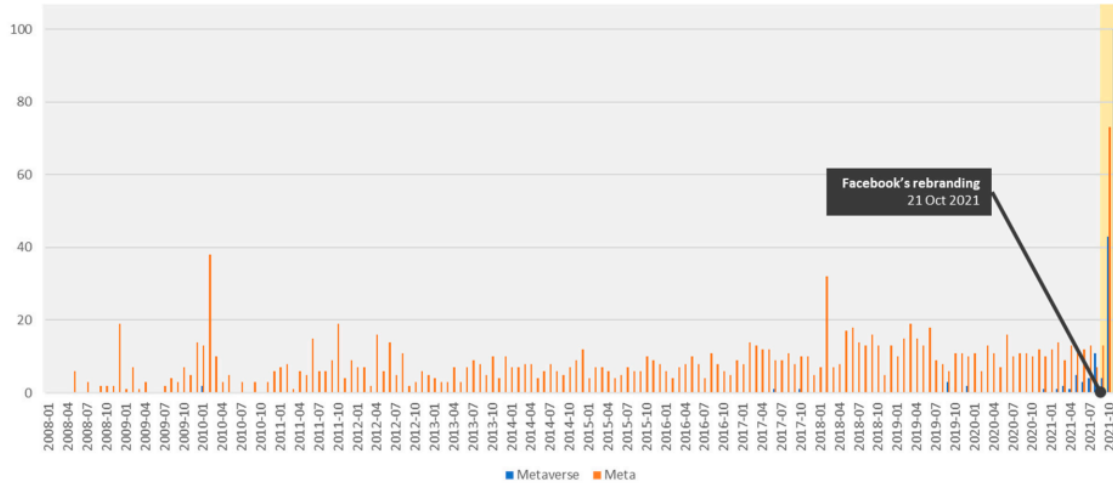
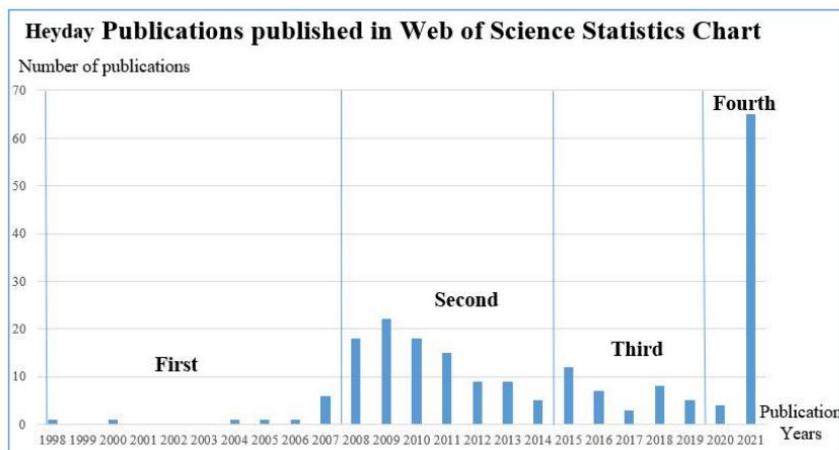


Figure 1. Rising popularity of the terms ‘Meta’ and ‘Metaverse’ terms since ‘Facebook’s rebranding and concept presentation. From [1]

Before the rebranding of Facebook to Meta, the idea of the Metaverse existed only as a science fiction narrative or a discrete conventional concept within digital technology disciplines [1]. Research on the subject has also increased dramatically from a scientific point of view. According to [2], the Metaverse is divided into four developmental stages: Embryonic Stage, Primary Stage, Ebb Stage, and Development Stage.



In this Fig 2 divided by the stages of development of the Metaverse, we can see the development of scientific publications according to the development of the Metaverse concept. The first stage corresponds to the beginning of the 21st century, this concept was mainly explored on an artistic and authorial level, thus present in books, films and works of art. To cite a few examples from

1992, missing from this timeline, the concept of the metaverse is first introduced in history by Neal Stephenson in his science fiction novel *Snow Crash*. In this novel, Stephenson defines the metaverse as a massive virtual environment parallel to the physical world, in which users interact through digital avatars [3], and the first publication about the metaverse on the Web of Science was published in 1998.

Moving on, we find films such as *The Matrix* a parallel world created and controlled by machines. The artist landscape is plenty of other works that hint at a metaverse far from people's imagination, what the source precisely defines its Embryonic Stage, though perhaps futuristic and with a dystopian slant.

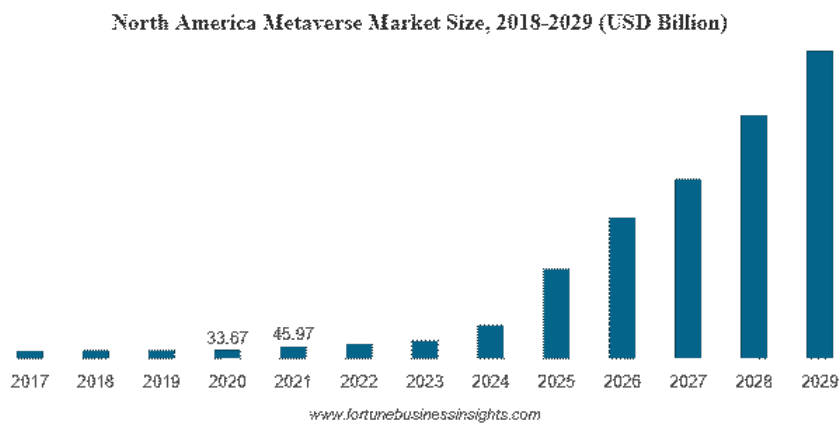
We come to the second stage Primary Stage. Here, the concept of the metaverse is more than anything else underpinned by a sector that still plays a key role today: gaming. With the release of the video games such Roblox, which is still active and a major player, Minecraft in 2009, acquired by Microsoft in 2016, and others such as The Sims, the first real wave of discussion about the Metaverse began.

“Due to the open issues such as interaction issues, computing power pressures, ethical constraints, privacy risks, and addiction risks in the different worlds, and the fact that Metaverse development is still limited by current technology, research interest in Metaverse is at an Ebb Stage after 2013” [2,3].

Now in our days we find ourselves in the Development phase that starting in 2021 through the listing on the New Stock Market of Roblox, the Rebranding of Facebook into Meta and strategic moves implemented by both Big Tech and governments around the world seems to be the true first years of the Metaverse [1,2]. Scientific research, therefore, has increased dramatically on this fourth phase and is mainly divided into two strands of research [4]: the first, like this dissertation, focuses on technologies, applications, opportunities, developments, trends, challenges, open issues, agendas, and conceptual frameworks; the second focuses on the possible negative implications that the metaverse could cause.

1.3. Metaverse Landscape

The market value of the metaverse could reach \$800 billion [6] by 2024 and \$1527 billion by 2029 according to Fortune forecasts [9]. According to the same, the CAGR stands at 47.6% during the future forecast period, a growth rate that is nothing short of extraordinary, in Figure 3 one can admire the growth rate in North America (US, Canada, Mexico) by 2029 which represents 45% of the global market [8].



According to Fortune, one of the driving factors was the Covid-19 had a huge impact on the demand for online games services and changed consumer preferences towards online shopping, which never stopped growing [11]. This led to very high revenues and the major players completed or implemented investments in the Metaverse. (See 2.1.3).

1.3.1. Segmentation by Sector

In order of size, the market is divided into:

1. Gaming Software, Service & Ads
2. Live Entertainment
3. Social Media Ads
4. Gaming Software, Service & Ads

Newzoo (missing source) shows that the first revenue of the global market share is given by the gaming sector which will represent half of it by 2024, reaching more than \$400 billion where the largest slice will be represented by the Software & Game Service slice with a value of \$250. From this point of view, the demand for designers and content creators is very high, as it is necessary to build the whole virtual environment also known as digital twins or AR environment that does not yet exist and on which the ideal metaverse, for example the one Zuckerberg says should be built. In fact, almost in all research the birth of the metaverse is linked to the expansion of gaming, which between 2020 and 2024 has had and will have according to forecasts an exponential growth as well as changes within its sub-composition visible in figure 4.

Fig 4

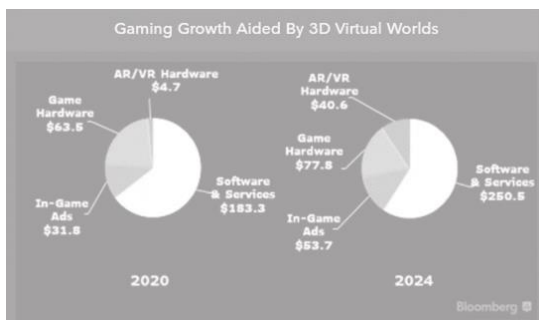
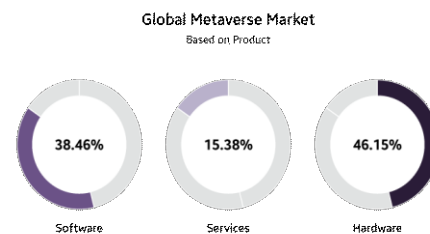


Fig 5



One change explains the general trend of the most significant segmentation of this market: segment by component, explained in the next section from which many of the choices made by Big Tech can be explained.

1.3.2. Segmentation by component

In Figure 4, in particular the AR/VR Hardware increase in the gaming sector (is destined to rise to \$40.6 bn) is representative of the most relevant trend in this market; indeed, if we look at the global Market share based on component the hardware part represents almost half with 46.15% [7] (fig 5).

Metaverse describes virtual worlds that break distinctions between digital and physical space [12] to do this one has to go down to the hardware. The infrastructural problem is one of the main questions the research points out. Building the Metaverse requires a powerful computing system.

Current architectures for computing power cannot yet meet the low-threshold and experience-intensive requirements of the Metaverse [2] for instance. It is also a problem that cannot be underestimated from a privacy point of view, more invasive technologies such as AR, VR & MR use hardware such as microphones, visors, sensors and artificial intelligence capable of picking up private spaces, conversations and very sensitive biometric data. It is necessary to establish a customised security and privacy strategy considering the characteristics of the metaverse, rather than to apply existing security countermeasures. In addition, a strategy for protecting the copyright of creations generated in the metaverse is required [4,13].

Having mentioned the issue of security, which is a very hot topic and discussed in the research, to be further investigated [13], that the game is played in hardware is also shown by the large investments and choices made in the market. In figure 6, we see the major players in the market divided by component.

Online Game Makers	Design Software Vendors	Social Networking	Gaming, AR & VR Hardware	Live Entertainment
Roblox	Unity	Facebook	Facebook	Live Nation
Epic Games	Epic Games	Tencent	Lenovo	Theme Parks
Microsoft	Adobe		HP	Sports Teams
Activision Blizzard	Autodesk		Logitech	
Electronic Arts	Ansys		Acer	
Take-Two			Valve	
Tencent			Razer	
NetEase				
Nexon				
Valve				

Source: Bloomberg Intelligence

Fig 6. Bloomberg Intelligence. Major Players Metaverse Market divide by component

1.4. Players' moves, strategies, investments

All this movement, insights, predictions, and perceptions of the Metaverse are supported by big investments made by Big Techs and also by political choices pursued by states. We wonder if this is enough to believe about the expansion of the Metaverse, i.e., will virtual/augmented reality be an integral part of our lives or will all this money invested just be a failed gold rush. It has to be said that most of the leading technology players are all in the field.

1.4.1. Meta

As already mentioned, Facebook, which has now become Meta, has taken the biggest and most explicit public and communicative step. However, a year after Mark's presentation, the company has lost a lot in capitalisation, dropping from \$900 billion to \$700, the biggest drop in the history of Wallstreet (Forbes).

The company has put a lot of focus on the metaverse and has announced products to be released, including Horizon Home, Spark AR, Gaming, Fitness, Future of Work, Presence Platform, Project Cambria and AR calls. Very ambitious and numerous projects on the part of Meta, which has adopted the communication strategy of making its presence known by guiding the perceptions of others by recognising itself as a Metaverse in its own right. [1] states that Meta as a company is pursuing, recognising that its intention is to slowly shape users' perceptions towards the new Metaverse concept.

An interesting insight is that many scholars and even journalists from business publications see Zuckerberg's strategy, especially that of acquiring Oculus, a division that produces virtual reality visors and more, as a way to compete at the hardware level where we said the game will be played in the next decade. In fact, the former Facebook has so far been nothing more than a software service company. Apps like Facebook, Instagram & WhatsApp are software in all devices, but unlike Microsoft, Android & Apple they have never had power over hardware or the device market. It is true that Zuckerberg's was almost a monopoly in social media except for the last rise of Tik Tok, but that now risked being left out of the hardware game.

1.4.2. Microsoft

Microsoft Acquired "Activision Blizzard" for USD 68.7 billion The acquisition would further improve customer immersive capability for Microsoft's gaming and other offerings with an enhanced metaverse experience. Microsoft is building Mesh to give a metaverse experience to its users as an extension of its Team platform. [4]

1.4.3. Alphabet

Alphabet did USD 1.1 billion investment for metaverse projects in Huahan, a Taiwanese company, for a 4.6% share Through its parent company Alphabet, Google wants to be in reckoning along

with other large players in the metaverse field. It expects many B2B and B2C customers to onboard metaverse in the near future for a comprehensive digital immersive experience without actually traveling. It is investing in inhouse metaverse projects like Glass Door. [4]

Nvidia

Nvidia Invested in developing omniverse platform It is helping its corporate clients realize the potential of metaverse using the omniverse platform. It is helping large manufacturers like BMW to develop digital twins to enhance productivity, safety and reduce downtime. [4]

1.5 Conclusions

We gave an idea of what the metaverse is and what it is for the market and the players who are playing. From this analysis we cannot say that the metaverse will exist for sure, but we can certainly say that someone is creating the conditions for it to happen. Among all, Meta is making a case for existence and against all criticism in its latest commercial continues a confident communication stating: "the metaverse is a virtual space but the impact will be real".

In the next chapter we will describe the industry that is the subject of this thesis a world that is still purely analogue and complex where 3.0 technologies could be the bearers of revolution.

2. Global Music Industry Overview

The music industry recorded a value in 2021 of approximately \$26 billion and is expected to reach \$53 billion in 2030 [22]. It is an ever-growing industry and as explained, with the advent of technology, more room for further incomes has opened, even though it is always at the centre of crises, problems and bottlenecks that have not yet been resolved.

We will try to understand how this controversial industry is historically recognised as such, explaining in this and the next chapter the major problems that plague it and how these can potentially be bypassed (with the introduction of Web 3.0 technologies). One problem above all, and the topical focus of this work is explained by [23]: One important set of criticisms concerns the amount of money that music creators receive for the recorded music that is distributed on these services.

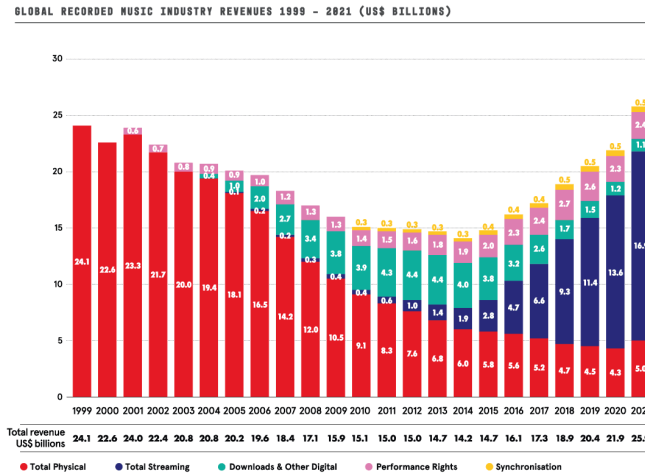
The music industry sector is always in the spotlight, both for its continued growth and for the continuous adjustments to the economic and financial crises affecting the social fabric. This has resulted in an increasing interest by national governments over the past two decades in the potential economic value of the music industry as a source of employment and export earnings. In addition, the industry has become an enthusiastic lobbyist for government assistance, notably in strengthening intellectual property legislation. In this context, a demand has grown for data, for statistical proof of the music industry's importance and success. [21]

Making a brief overview of the music industry is not simple but very complex, we will limit ourselves to reporting the information essential for basic understanding and those of specific interest to the work itself.

This complexity lies in the characteristics of the product itself: music.

1. Music has characteristics of a public good, minimal production cost and very easy replication
2. It comes out of the creative process and is therefore subject to copyright and authors' rights legislation, which is different for each country
3. The role of music has culturally changed over the years in Western society and with it also its enjoyment and distribution

Regarding point 3, look at figure 6 below, which concerns the revenue of the global record industry. At first glance, we can already see the biggest changes in the music industry.



Global Music Report IFPI 2021, Global Recorded Music Industry Revenue 1999-2021 (US\$ billions)

Throughout the 80's and 90's, thanks mostly to CD sales, the recording music industry was dominant in terms of revenue and visibility. It reached record US sales in 1999 and 2000 (over \$14.3 billion in 2000, \$13.2 billion of which for CD albums), and between the years 2000 and 2007, the industry has seen a decline of 44% in its sales of physical records. [17]

The exam of the point of sales in digital music demonstrates the effect technology has had on the industry, especially in two aspects: the decline of vertically integrated firms and the corresponding loss of coordination as new agents in the network emerged. Digital sales have steadily grown since 2004 [16]. Also, mobile phone operators and Internet portals started their digital music stores to service their existing clients, and companies that delivered upstream products and services, like Microsoft and Apple started their digital outlets to explore complementarities with their products. Finally, the most significant thing to mention is that today the biggest income for the industry comes from Streaming, which has grown by leaps and bounds in recent years, certainly boosted by the Covid-19 Pandemic.

The product journey from creative work to fruition involves many entities and actors. It consists of multiple connections and interaction. We will therefore begin by briefly describing the Value Chain, continue by mentioning at a macro level the market structure and what the business refers to, and finally draw conclusions by introducing the core topic of the work.

2.1. Music Value Chain Big Blocks

Record Labels contributed significantly to the chain's value in this pre-internet era. They would pay the artists, give them access to equipment, provide operational support to enable them to produce, record, package, and promote their music, as well as provide them access to sales and distribution channels. In this supply chain, record labels kept around the biggest part of the revenue (around 30%). Record Labels oversaw collecting and transmitting royalty revenues, a difficult and drawn-out process. “This configuration, as it was, allowed for extreme information asymmetry among artists, intermediates, and final consumers [33].”

Today, or at any rate with the introduction of the internet era, selling in the music business is no longer just about selling records, but in addition to the physical shop, music is downloaded, listened to via streaming and any artist can bypass the record label by not signing any contract with it. He can be released on any streaming or download platform through an online *aggregator*. Broadly speaking, an aggregator can:

Aggregators can help by:

1. Preparing your metadata according to industry standards
2. Completing DDEX* deliveries to music streaming platforms
3. Offering different degrees of licensing, marketing, and analytics support
4. Reporting earnings to you

The artist or whoever may choose how to reach the market, using the traditional chain or an online aggregator as seen in Figures 7a and 7b, or both. Perhaps a small artist will choose not to sign with Record Labels and enter the market through the aggregator which is much less onerous as they typically charge a flat fee or keep a percentage of royalties collected on your behalf to cover their services.

* **Digital Data Exchange (DDEX)** is an international standards-setting organization that was formed in 2006[1] to develop standards that enable companies to communicate information along the digital supply chain more efficiently

Figure 7a

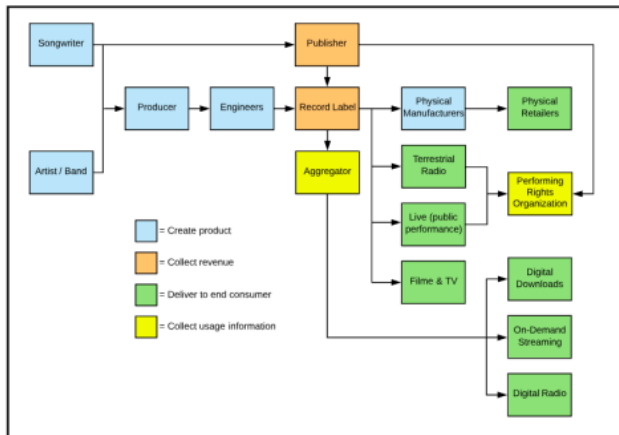
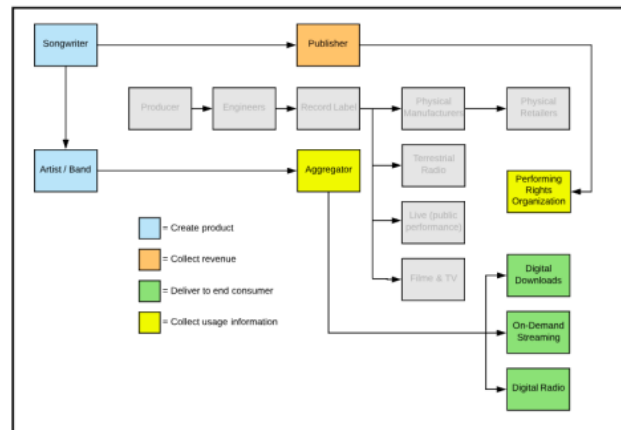


Figure 7b



Recorded music supply chain after digital media for major artists (7a) and small artists (7b) from [33]

We will see in the next section Music industry: macroeconomic structure how the traditional supply chain and the large record labels, also known as *majors*, are still preponderant in the market and have a considerable share of this business.

2.2. Music industry: macro-level economic structure

Traditionally, the music industry is divided into discography, publishing, and live music [21]. Each of these three sectors refers to a few companies that control the whole market. The traditional music industry is characterized by an oligopolistic market structure in which most of the market share belongs to big firms (the so-called “Majors”), while the rest of the market is divided between independent labels [19].

According to MIDiA Research same market type for streaming music platforms: the top four companies accounted for nearly three-quarters of the subscription market in the first three months of 2021: Spotify (32 %), Apple Music (16 %), Amazon Music (13 %) and Tencent Music (13 %). In fifth place was Google's YouTube Music, whose subscriber figures grew by 60% in 2020 [24]. However, these platforms are not traditionally considered except indirectly, in the Music Industry, as well as radio, TV & series & movies, despite they play a fundamental role and as mentioned can exist as a direct outlet to the market via an aggregator.

According to the music industry research blog Music & Copyright (2021) [25], Universal Music Group will have a 32.1% market share for recorded music in 2020, followed by Sony Music Entertainment (20.6%) and Warner Music Group (15.9%). Music & Copyright (2021) also reported that, in 2020, the largest music publishing companies are Sony Music Publishing (24.5%), Universal Music Publishing Group (23%) and Warner Chappell Music (11.2%). Each of these major publishing companies is directly linked to companies of the same name in the recorded music sector, with Sony coming out on top through its 2018 acquisition of a majority stake in EMI Music Publishing.

In both the recording and publishing sectors, the independent sector collectively achieves a higher market share than the major majors - 31.4% in 2020 for recording and 41.3% for publishing (Music & Copyright, 2021). However, the sector includes thousands of individual companies and artists, so their revenues and market power are considerably weaker [20].

The independent sector also covers those collaborations where there are both situations where the record label acts as both publisher and recorder and dedicated services where the artist chooses for instance to manage his or her own copyright and only buy the marketing, distribution, promotion, and the other label tasks.

What's the difference between music recording and music publishing?

```

graph TD
    OS[ORIGINAL SONG] --> C[Composition (Publishing)]
    OS --> R[Recording]
    C --> PR[Performance Royalties]
    C --> MR[Mechanical Royalties]
    R --> DPR[Digital Performance Royalties]
    R --> RR[Recording Revenues (NOT MECHANICALS)]
    
```

Performances that can be played back or duplicated are referred to as **sound recordings**. You can monetize them by offering physical CDs for sale at live events, distributing music via digital platforms like iTunes, Spotify, and Apple Music, or working with a record company to make and distribute CDs on your behalf. The music and lyrics that make up a recording's core composition are closely related to **music publishing**, or the money you earn when other people or organizations use the music you composed (the "composition"). A record label replicating your music (*mechanical royalties*); a radio station, website, or eatery playing it out loud for customers (*performance royalties*); or a producer using it in a film or television program (*sync royalties*) are examples of this. For more information I build this in-depth mini study from [26]

The live music part seems to generate the most prominent income for the artist. As we have seen from the supply chain analysis the artist and what is related to his crew is not at the centre of the value, it only takes 27% of the total industry income [32]. This percentage has gone down a lot during the pandemic as it includes concert revenue.

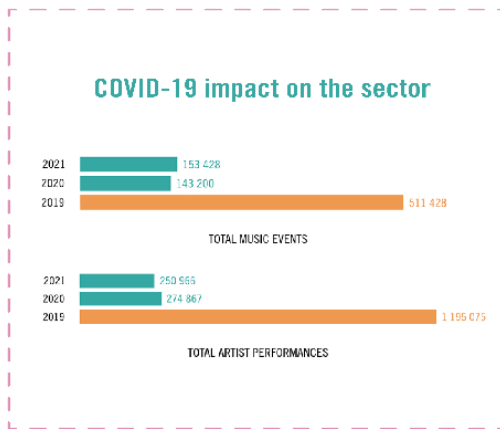


Fig 8 Covid-19 impact on Live music sector from [29]

It should certainly be pointed out that since the 1990s [28], this sector has been on an exponential rise and is now a year since the recovery (Covid 19) is expected to return to 2019 levels (The Survey: Facts & figures of the live music sector LIVE DMA) [29] fig 8. Interestingly, the growth of live music has gone hand in hand with the growth of music streaming, the two biggest growths in the music market and have evolved together and [27,28]. One of the key drivers in live music has been the growth of the music festival sector, with the overall number of outdoor events doubling in the UK between 2005 and 2011 [Crossref 30], and continued growth in global terms since that time.

2.3 The controversial position of the Majors

"When will a (technological) discontinuity overturn an industry - when will leaders become losers?"[31]

The practice of bypassing the majors has become quite common since, a major condition the artist, contracts can be very binding, and the digital revolution has significantly impacted on the traditional business model of the music industry by lowering barriers to market entry. This change is usually depicted as a throwback to the past in which artists have more control and autonomy in the business thanks to a new range of online intermediaries that challenge the big incumbent firms (Universal, Sony, and Warner). [19].

Despite this, the majors have already won the Web 2.0 challenge by moving towards the presidium of streaming, the largest slice of the revenue market segmentation according to [18] IFPI Global Music Report 2022 (65%). They are multinationals that know the market and doing their job, they generate the biggest slice of revenue even today and this is explained by the benefits and guarantees it provides to the 'selected-artists'. However, there is a whole galaxy that would like to get rid of the bargaining power and networking power they possess. So why do they still resist, apart from the benefits and guarantees that can be covered by indie labels or aggregators to a lesser extent?

The majors still resist, and some use the term resilience to express their market presence. This is explained by the fact that nowadays everyone is able to publish music, everyone can decide to do so, including youtubers or influencers or any person who decides to record an EP from their bedroom. The market is really crowded, and the majors still play a fundamental role to rise up.

The next chapter will describe the technologies that could lead to disintermediation by the majors or other intermediaries. We have called the chapter Preliminary Review of Music Industry in Web 3.0 because all the technologies we are going to explain are protagonists of the new frontier of the Internet, potentially applicable to an infinite number of sectors, including the music industry, which we are going to discuss.

3. Review of Music Industry in Web 3.0

3.1. Impact of the Blockchain in the music Industry

The idea of Blockchain was born with the intention of establishing a peer-to-peer for electronic cash without the use of an intermediary to control and verify transactions. The use of this new technology has since gone beyond the mere passing of electronic money as it represents an automated ledger that can fill many roles related to intermediation, not just that of the bank, the role for which it was born.

Intermediation in the music industry we have seen plays an enormous if not preponderant role, both economically and in terms of the number of tasks performed for the work from its creation to reach the final consumer. From this point of view, the blockchain conceptually can replace all the bureaucratic, legal and payment parts of this industry and perform them more efficiently, replacing the many actors in the music value chain: from the so-called Royalties Collectors to the contract established with the record company. It stipulates how much of the total the artist receives from the sale of physical products (CDs, Vinyl), how much from each individual play, for example, on Spotify, and how much from all royalties related to copyright. This whole managerial and administrative side of the sales and income process would be greatly aided by blockchain, which would automate the many and varied sources of takings that a successful creative work offers. It would also help to regulate licensing and copyright law considered the most difficult aspect of the industry that change from territory to territory, complex and not always efficient. The blockchain is a decentralised ledger where every transaction and, in the case of law enforcement, every condition is verified and authorised. It is secure, difficult to hack; immutable, an important point in the case of contracts; and, transparent compared to a centralised institution. All data recorded in the blockchain are public and managed by networks [37].

The blockchain most widely used and chosen by music-oriented projects is Ethereum, which offers several possibilities in addition to the transaction system of cryptocurrencies (bitcoin). It does not have a specific purpose of its own and offers the possibility to use this technology for various grounds, such as smart contracts, domain name registered or intellectual property to name a few peculiarly useful to the music industry having to deal with copyright and licensing; it is also, of

course, used for possible payment of listeners per stream or subscription or for downloading the track in cryptocurrencies (tokenization), or attesting the ownership of exclusive content.

As a result of our research, we do not believe that platforms using the technology are able to eliminate the intermediation of third parties between the creation and consumption of the work generally for two reasons:

1. Web 3.0 streaming platforms are sometimes born as intermediaries, therefore they are going to replace tradition intermediaries (just in case)
2. The know-how of a label/record company is not the same as that of a new blockchain-based streaming platform.

We will now briefly present some of these platforms, then go on to explain how they address issues including Licensing & Copyright and Artist Monetisation and then come to our conclusions and doubts that arose during our research.

3.2 Some of dApps in Music Sector

We are going to briefly explain some of the cited project in order to understand which part of a potential intermediary business units they are going to bypass or replace and what are the parts they still need to implement.

3.2.1 Musicoin

Is a music publishing and distribution platform. The free internet streaming and download service is comparable to soundcloud.com. It employs smart contracts, however, to automatically gather and distribute royalty payments, and it is Ethereum-based. Along with the launch of Musicoin.org, a new token known as \$MUSIC (MC), which serves as a form of virtual money, was also unveiled. They have a pay-per-play (PPP) smart contract. Customers therefore shell out a certain amount of MC each time they stream a song. Musicoin competes with current streaming platforms like Spotify and Apple Music by making it easier for independent musicians to get noticed.

3.2.2 Resonate

Resonate is a music streaming service with a very distinctive business model from the subscription-based business methods used by Spotify and Apple Music. Resonate claims to offer more inexpensive prices for customers and to compensate artists more than twice as much as their rivals do, establishing a blockchain-based democratic system of government (Resonate 2018).

Smart contracts are used to directly pay musicians. Customers that sign up for Resonate's #stream2own program receive 3 hours of free streaming as new members. They then use a "pay for what you listen" business model. The mode of payment utilizes a credit system, with the customer paying in euros or dollars and the artists receiving money in cryptocurrencies.

3.2.3. Ujo Music

The Ujo platform pays its musicians in a paid-per-song approach using cryptocurrencies and smart contracts. Imogen Heap worked with the business in 2015 to show how cutting out intermediaries using Ethereum could alter the music supply chain.

Since then, the company has developed its licensing system utilizing Ethereum and offers both free and paid streaming choices.

3.2.4. Verifi Media

Verifi Media is a trusted data hub for the music and media industries, focused on helping creators and rights owners exchange, improve, and collaborate on a shared truth across every vertical in the industry.

3.3 What Music industry issues Technologies 3.0 has theoretically solved

3.3.1. *Licensing, Rights Management, and Royalty Payments*

We are going to explore what is considered the most complex problem in this transition and where the research has more focussed on: the Licensing Problem that embrace even the monetization, rights management and Royalties Payment (from the use of the creative work).

As was previously noted, record companies and publishers keep track of where their musicians' works are utilized and pay the required royalties based on this. That is partially accurate. However, this profession necessitates a lot of work. For publishers and record labels to concentrate on their primary activities, other businesses have specialized in the area used for collecting royalties. Each nation (and occasionally a world area) has its own collection of copyright organizations. They monitor and grant different licenses.

Whenever musical works are used, royalties are collected and given to the owners of the rights. The owners of the rights to the music are unlikely to have the means to find every instance of usage, and the target audience might not be aware of the proper channels to employ for licensing inquiries. The American Society of Composers, Authors, and Publishers (ASCAP), the Society of Authors, Composers, and Publishers of Music (SACEM), and other collective management organizations (CMOs) come into play here. Music licensing is a crucial tool for rightsholders to profit from their music, but it is also very challenging for rightsholders (licensors) and users (licensees) due to a lack of coordination and information even because copyright law is different among different governments.

In further, as mentioned before there are different types of music licenses that are: mechanical, synchronization, public performances, and print.

Mechanical licenses are permits granted by the copyright holder for the use of a musical work in a recording (such as CDs, tapes, or digital configurations) and for distribution.

Licenses from the copyright holder allowing the ability to synchronize the performance of a musical composition with visual pictures are known as *synchronization licenses*. *Public performance licenses* are permissions granted by the copyright holder to perform a musical composition in public. *Print licenses* are permissions granted by the copyright holder to publish a musical piece in print forms such sheet music, folios, or collections.[37]

Due these complications, pay-outs are delayed due to the numerous transactions that must take place before the publisher or record label can pay the musicians. As stated previously, today's music industry relies heavily on a network of administrative, third-party companies [36], even if this problem, we will see is one that might be solved.

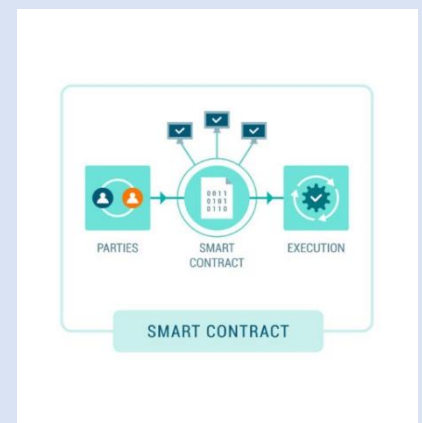
Web 3.0 tech solutions to issues

Copyright law complex accessibility & multi-territorial issue:

A Development of an IP (Intellectual Property) licensing protocol that combines **Semantic Web** with **Blockchain** were covered in [41], with a focus on copyright and how automated licensing can reduce the difficulty of locating the license terms of a work that is protected by copyright. Potential licensees can be assisted by automated licensing by using a public registry for works, a suitable license, and the permitted forms of payment. More people should be encouraged to pursue the legal avenues for using a copyrighted work by making it simpler for potential licensees to and appropriate licenses.

GLOSSARY: Smart Contract

a Smart Contract is, essentially, a piece of software on the Blockchain that, when certain conditions occur, automatically performs the actions for which it has been programmed [42]. Additionally, it has been observed that the term "token" refers to a digital asset traded on the Blockchain (also) through Smart Contracts, which has the capacity to stand in for anything, including an actual object, a right, an intangible asset, and so forth. Therefore, in the context of copyright and related rights, a token could stand in for a copy of a certain protected work, the terms, and conditions of using that work, a specific copyright or related right, a collection of such rights, or, lastly, payment for using that work. It is possible to foresee a wide range of uses for these technologies in the field of copyright and related rights management given the variety of "objects" that different tokens in a Blockchain can represent as well as the wide range of functions that can potentially be encoded in a Smart Contract. Il suo utilizzo lo ritroveremo più avanti nel corso del capitolo.



Contract management issues & Transactional costs [named by 35]:

The firsts, they are referred how contracts should be stored, these issues don't regarding only licensing side but even for recording and publishing. In order to solve this type integrating a **smart contract** on the Blockchain that distributes cryptocurrency to the musician each time a user plays a record could be the solution, blockchain-based initiatives potentially solve the problem of royalty payments. As an alternative, a smart-contract may require consumers to send a particular amount of cryptocurrency to the address of the smart-contract before they may play the digital music file. The cryptocurrency contributed to the smart contract will then be transferred to the musician.

Transactional costs then, regarding the author attribution rights and users and monitoring use, by simply recording on the blockchain, a blockchain-based intervention can resolve problems with author attribution & monitoring by creating an immutable and irreversible ledger of uniquely identified and timestamped digital music recordings. In addition, including **Metadata** in all digital music files could contain following information: Licensing; Ownership; Author and Audio. In *Watermarking Technology and Blockchains in the Music Industry*, Bill Rosenblatt put out the concept through using **Audio watermarks** along with blockchain technology to track musical works.

The following music industry problems, according to Rosenblatt, have made it necessary to track musical works:

- there are two separate copyrights in the musical composition and the sound recording and the difficulty of tying sound recordings to specific musical compositions,
- the lack of a uniform source for mapping recordings to their underlying compositions, and
- standard identifiers in the music industry are “neither ubiquitous nor comprehensive enough to enable automated identification of music without errors, gaps, or ambiguities.”

[35]

How described realities approach licensing

Musicoin.

The legal connection between the Musicoin Foundation (MCF), musicians, and users regarding intellectual property on the platform is outlined in the Foundation's Terms of Service and Artist

Policy. The PPP protocol is the only license that musicians on the site can offer to other users (however musicians may select a different payment strategy than the PPP model). By uploading a musical work to the platform and specifying their address in the receiver field of the smart contract, musicians can license their songs for streaming under the PPP protocol.[35] Additionally, artists can collaborate with one another and use the PPP smart contract to enforce their agreed-upon rules by having their licenses interact with those of other musicians.

Resonate:

Musicians who use Resonate's streaming platform are referred to as Music Maker members and are bound by its Terms of Service. The Terms of Service outline how Music Makers grant Resonate and Music Listener members access to their intellectual property. Similar to Musicoin, the only option for licensing that musicians have on Resonate is a license that follows the stream2own paradigm.

Ujo Music:

According to the Ujo Terms of Service, users are given a limited, non-exclusive, non-transferable, and non-sublicensable license to access and use the Service [(the Site and any other features, tools, materials, or services offered from time to time by Ujo, including our smart contracts)] for personal and non-commercial purposes. As a result, users are only permitted to use Ujo's platform for non-commercial, personal purposes. All musical pieces are stored by Ujo on the Ethereum blockchain and are linked to the musician's Ethereum public address (i.e., musical works uploaded to Ujo cannot be deleted). Musicians must upload their entire albums to Ujo. For streams or downloads of their musical creations, artists can be paid in Ether (ETH) or DAI. Currently, each play costs one cent when streaming.

Dot Blockchain aka Verifi Media: Working on Metadata side, the.bc (or dotblockchain) file extension was created as a dynamic music file format, similar to the MP3 and WAV, intended to improve media rights management on a worldwide scale. The purpose of this new media format is to include all information necessary to identify the owner, payment rights, and other information within the file.

3.3.2 Monetization, Lack of Revenue for the Artists, Distance between Creator & Consumers

The assumption from which almost all Web 3.0 realities start to justify a transition of the music industry towards them is the low remuneration of artists following the marketing of musical works that is lost along the long value chain dotted with many intermediaries.

According to the Moda DAO white paper, a self-published creator who markets his music is left with around 27% of the streaming revenue. In the previous section, we explained how the revenue share from royalties can be optimised through new licensing, but part of the monetisation for artists is the direct ownership, i.e., the purchase of the creative work, the equivalent of buying the physical, online format of an album or single. This process in today's record companies' intermediation is equivalent to the distribution of physical and digital copies, which in the Web 3.0 reality is mainly entrusted to the technology of NFTs which also, as we will see, deals with the monetisation of streaming. Let us start by explaining what a Music-NFT is and then explain its place in the ownership of the work and the stream.

GLOSSARY: Audio Watermarks & Music Metadata

An **audio watermark** is a unique electronic identifier embedded in an audio signal, typically used to identify ownership of copyright. It is similar to a watermark on a photograph.

Watermarking is the process of embedding information into a signal (e.g. audio, video or pictures) in a way that is difficult to remove. If the signal is copied, then the information is also carried in the copy. Watermarking has become increasingly important to enable copyright

protection and ownership verification. (Wikipedia),

Music metadata is the set of information corresponding to a song file, such as artist name, producer, writer, song title, release date and more, used to identify, sort and deliver your audio content. The more detailed the metadata is, the easiest will be the collection and distribution of the royalties generated. (Sonosuite)

A Music NFT is a certificate of ownership of unique audio or a musical piece that can be bought or sold. NFTs provide undeniable proof of ownership via blockchain technology and come with a certification of authenticity that can be validated at any time. Like crypto tokens, NFTs are stored in a distributed ledger, making them hard to forge. Through NFTs, artists can claim full ownership of

their music without having to share their income with intermediaries like music labels or lawyers [Binance, how are Music NFTs Changing the Music Industry]. Continuing the comparison with the physical CD, if, for example, a fan buys it, the artist will receive payment (or rather a percentage), once regardless of how many times the album is played. Furthermore, if this is sold by consumer A to consumer B the artist receives nothing. Most of the time, people who buy music NFTs do so to support artists they believe are being devalued by the current system rather than to acquire the audio or compositional rights. NFTs give artists a great deal of flexibility in addition to allowing them to earn commission-free income because they may essentially sell any kind of digital content. This gives artists more control by offering them another way to monetise their works of art or other types of digital commerce. This includes songs, complete albums, merchandising, concert tickets, and much more. It is not only to buy a song or an album is a sort of investment on the artist, because NFT has a value and it is exclusive, so if Ariana Grande has just released an album as NFTs for Instance 1000 NFTs you are supporting her and if she became more famous and appealing for public her NFT will be grow up in value and you will be able to sell it for more.

Streaming as already stated is the most important slice of this market. We have seen some of the platforms that correspond to the Pjorners of this market such as Musicoin & Resonate, now we see others that are having recent success in Web 3.0. They have proven to be especially attractive to independent artists who can rely on P2P interactions to create a stronger community as well as receive direct remuneration without intermediaries, such as the Emanate platform, NFTs or in this case even tokens (fangibles) represent the so-called 'pay per play' that consumers pay for listening. Some platforms, however, act as intermediaries who then pay the artist through a rewarding system (for instace, Audius Music). Other platforms such as Opus give the user the possibility of also receiving compensation, minting NFTs for the artist or even receiving royalties by creating playlists in order to spread music and know the platform.

3.4. Conclusions & re-launching of the Research Scope

All these dApps help a potential future industry to abating transactional costs, in particular regarding monitoring, negotiation typical of licensing, nevertheless we are aligned with Charles Adjovu & Ewa Fabian 2020; Music industry is affected by so called *wicked problems* [35] are systemic problems that arise in complex systems from the interaction of local parts that do not have a simple nor a single solution. A solution to a wicked problem creates new problems and individualistic solutions are ineffective. In this Web 3.0 perspective, therefore, the interests of all stakeholders should be aligned, as big industry is fragmented into a myriad of start-ups of which we have mentioned a few projects, but which do not solve or do not address the big picture technologically what can be solved. [35] Problems and costs remain unresolved, such as the volatility of cryptocurrencies the tokens the problems of trust not so much in the functionality of the platforms as in the changing value of the currency daily. Imagine a successful artist subscribing to a pay-per-stream platform, he might be lucky if the value goes well but also unlucky and receive an ephemeral reward after so many streams. The amount of work involved in creating artwork cannot be pegged to a speculative market dynamic in our view.

A second generally recognised problem is the immutability of the blockchain, which is certainly the strength of the technology but can also be a problem. If, for example, for whatever reason a musical project needs to be corrected, it is not possible to do so once it has been recorded on the Blockchain. Thirdly, as the platforms analysed are open source, the trustworthiness of the users may be compromised. If, for example, a section of the community is not satisfied with the current composition, structuring of the software, it can launch its own version. Like, for instance, all pirate streaming sites to watch, different versions with different domains. However, this would not really be a good thing and the reliability and constant professionalism desirable for a sensitive industry such as this could be lacking and all to the detriment of the artist. Moreover, as we have already seen during the chapter, the topic is riddled with myriad different approaches that let us say have 'political' decisions behind them. For example, we are reminded of the different pay-per-play or advisor model business strategies which more or less favour the artist as well as the different types of sometimes limited licensing, all choices with clear motivations behind them of an economic nature, of the centrality of the artist. An unclear vision and mission could undermine the structure of a platform, especially in OpenSource.

A fourth fundamental problem for us, which does not justify disintermediation at least for the time being, is the Musician Awareness of Blockchain and the other web 3.0 Technologies. As it cannot but be a barrier to entry for artists. They will have to perform functions that do not belong to them such as self-management understand the complicated business models of disparate dApps learn concepts such as Blockchain, Mining, Cryptocurrencies, Tokens. We are certainly not claiming that they would not be able to there are many contemporary artists who are also very good entrepreneurs and have this aptitude. But this new terrain is really difficult and even the most inclined without intermediaries would end up considering it an uncomfortable and complicated situation. So, we come back to urging a collaboration between all parties to enable the artist to benefit from potentially larger profits through new technologies allowing money tokenization, more efficient royals payment & licensing, less information asymmetry in contracts and the possibility to enter the market more easily than in the traditional system.

Beyond these not insignificant problems, we wonder whether this is sustainable for an artist. It is true that Snoop Dogg launched his first mixtape as NFT on OpenSea, a streaming platform built on the Ethereum Blockchain, as well as the King of Leons, they are the only famous ones who have performed a distribution task typical of the industry for their works; however, these are artists with majors behind them that they have not replaced. It was a launch, an occasional rehearsal. They still have the majors behind them who take care of other aspects such as A&R, artist development, marketing campaigns and branding.

Most other famous artists have not yet taken advantage of the metaverse's technological infrastructure for distribution or streaming, they have instead approached Web 3.0 and the metaverse in a totally media-driven manner. In 2019 Travis Scott on Fortnite caused a lot of buzz by proposing *OUT WEST*, a virtual representation on Fortnite of his album *Astroworld*, which was already conceptually beyond earthly boundaries, and which fit well with the idea of a concert in the metaverse. Many other artists have debuted in the metaverse through virtual performances and concerts. From this perspective, we do not see a need for disintermediation but only for the exploitation of virtual reality as a tool to expand the artist's personal branding and brand awareness in order to increase their fanbase. The scope is clear: bring about a new way of performing in virtual reality, for example, by organising concerts and live performances online using avatars. The potential for increased fan engagement is considerable but can only juxtapose and not replace today's traditional channels in our opinion. Returning to sustainability, these artists do not forego intermediation for several reasons. The major for the big artists or the indie record labels, for the smaller ones or for those who decide not to be

represented by the big players in the market, cover tasks that web 3.0. platforms do not cover completely and some areas not at all. Think of artist development strategies, media and press promotion, the marketing and branding aspect, tour management etc. The research as described in this review stops at the technical aspects of this industry which could be solved by blockchain, NFTs, etc., but does not investigate the support of the artist who is required to have support skills which traditionally he/she may not have.

The motivation for this work is driven by the fact that we know a lot of platforms where the artist can freely release his music without having a heavy support or advice from intermediaries, but he might not know accounting, promotional, marketing.

Spotify, YouTube, Soundcloud already offer this possibility, so why should an ambitious (or not ambitious) artist choose the Web 3.0 platforms described with all the uncertainties and problems described, rather than a label with the know-how on the other skills essential for its development?

Assuming that the problems described above have been solved, in the next chapter, we will present a conceptual model that includes these purely marketing and promotional aspects which are now indispensable for an artist's career and for success. In further we will set out the possible scenarios of the music industry, from artist point of view.

PART II: THE CONCEPTUAL MODEL

4. A conceptual model for artists considering marketing, promotion & brand building

4.1 Motivation

The motivation that drives this research assumes that Web 3.0 technologies will be used in the Music Industry because as we have seen they improve and simplify the most difficult problems of the industry such as monetisation of the artist, management of royalties and the pursuit of current licensing & copyright laws, why not a standardisation that would improve accessibility for an artist. However, we also believe that the disintermediation professed by the apps we have presented, with the possible exclusion of Record Labels & Majors is quite different. In fact, many of these apps only cover certain aspects and tasks that these complex intermediaries perform. We also believe that we should not confuse a possible change in the revenue model of record labels, following a necessary restructuring, with their disappearance from the market. This paper does not want to polarise the two sides Record Labels vs. Streaming 3.0 Platforms and say that one is better than another but puts itself in the shoes of the artist. It therefore takes a critical look at what he needs and what he lacks to succeed. An important if not fundamental part of the artist's development is the A&R, marketing, and artist development, which has always been covered by the record companies; in this, the majors, being a structured and organised machine, have entire departments, as do the small to medium-sized independent labels, albeit to a lesser extent. Among these items of expenditure for the artist we have:

1. Advances: advances granted to the artist to concentrate on the project, on average ranging from \$50,000 - \$350,000.
 2. Recording: \$150,000-\$500,000
 3. Video Production: \$50,000-\$300,000
 4. Tour Support: \$50,000-\$150,000
 5. Marketing & Promotion: \$200,000-\$700,000
- TOTAL: \$500,000-\$2,000,000

[These ranges were published by IFPI (International Federation of the Phonographic Industry) [18] *.]

At global level, on average \$5.8B (billion) of the \$25B worth of the industry is spent on A&R (Artist & Repertoire) & Marketing, IPFI 2021[18].

These spending figures for Record Labels make us realise that development and success strategies also rely on this indispensable part, which amounts to almost 25% of the total industry value. So even if an artist will release without a record label and monetise more, they will certainly have to spend their own capital to invest in themselves through their own- or third-party funding (some web 3.0 apps deal with music self-funding). As music lovers, we demonise art treated in a purely capitalistic and maximising manner, but we certainly have to admit that in a world where music is more accessible and producible than ever before, it is very difficult to emerge, and, marketing and promotion strategies are crucial, as artists know. This is a discourse that should be made prior to monetisation by necessity. Assuming that the problems described in section 3.4 are solved, we have created a conceptual model which calculates the monetisation of the artist pay-per-play given by the number of streams, also incorporating the impact that investments in marketing-promotion and artist development have on the growth of the final monetisation and how they may influence it under different scenarios.

4.2 Methodology

To calculate the monetisation, we will only consider Mechanical royalties and in particular those from streaming platforms under the category *Sound recording copyright** with a pay-per-play (PPP) model so that we can compare monetisation from platforms such as Spotify and Web 3.0 platforms. For Web 3.0 we will take Musicoin as a pilot platform that uses this model (PPP) and Spotify as a comparison platform, since it is the most widely used. The formula to calculate the monetisation is:

$$(b + M^2 * I_1 + M * I_2 + \sqrt{M} * I_3) * p * r$$

*Refer to royalties from on-demand streaming platforms minus song writing copyrights that compensate for the royalties divided between publishers and PROs (Performance Right organisations) through performance royalties. The only remaining royalties are those referring to Recording which can go to Majors, simple Record Labels and/or Aggregators who in turn will compensate the artist or band with different percentages depending on the subject.

The term b (baseline) corresponds to the average number of baselines streams the artist reaches, it is given more by past fame. It is added to M . This term refers to all the cost or investment the record company makes on the artist, or the artist makes on himself if not associated with any label. In our model we assume that this expenditure has a more or less pronounced impact on the number of streams. Therefore, having the given expenditure, the number of streams will be positively correlated with the project development expenditure but will take on different functions depending on the scenario. We call M the Marketing-Promotion & Development expenditure.

The scenarios in this model are represented by three binary or indicator variables:

$$I_1 = \begin{cases} 1 & \text{if the artist has signed with a Major} \\ 0 & \text{if not} \end{cases}$$

$$I_2 = \begin{cases} 1 & \text{if the artist has signed with an Independent Label} \\ 0 & \text{if not} \end{cases}$$

$$I_3 = \begin{cases} 1 & \text{if the artist is in self-production with any label} \\ 0 & \text{if not} \end{cases}$$

Depending on the scenario, M can take a quadratic form, linear tending to infinity or sub-root. This encapsulates the concept that \$1 spent by a major is different from \$1 spent by an independent artist or label due to its more efficient networking and channel management power.

This is multiplied by p . It corresponds to the pay-out each platform pays for each play the consumer makes, in other words for each stream. In the case of Spotify, per stream the artist is paid an average of \$0.003. While Musicoin for the moment corresponds to \$0.011 after making the change from \$MUSIC to dollars.

The monetisation on Musicoin is higher but if in different scenarios this platform is used, the monetisation is lowered by r . Leaning on the web 3.0 platform at the moment would mean that M 's impact on streams could be lowered by the *network error* (r): that error which lowers the number of streams because users are unfamiliar with the platform. Bringing them all to listen through it is

certainly difficult, some will bring you the most loyal and already present in the fan base from the artist, but the new ones will need a double effort, that of approaching a new artist they have not listened to too much so far, using moreover a new platform.

4.3 Possible outcomes and scenarios according to the model

Scenario 1: Artist has signed with major

The model conforms as: $(b + M^2) * p$

The artist who signed with major will benefit from the highest project development expenditure. Depending on the contract with the project house the expenditure can range between \$500k and \$2 mil. The expenditure dedicated to the artist here will have the highest effectiveness and resonance due to the networking and the presidium of different channels by the majors, this in the model is represented by a quadratic function. We are talking about large sums of money invested, but the biggest returns are for the Major who retains. The artist is entitled in most cases on average to 18% of the Sound Recording Royalties (the percentage can range from 16% to 50% but it only exceeds 20% in rare cases, if the pay-out increases it will remain in the usual range, but the Major will pay the artist more).

p , the pay-out that the artist retains from Spotify will be between \$0.003 and \$0.005 per play.

We do not address the scenario where the Major distributes on Musicoin, so in this scenario there will be no r . This is because many successful artists, especially pop artists who are a large part of Spotify's global business, have signed with the Major. In fact, the parties, Spotify, and Major have prior agreements and the former pays a substantial amount to the latter in advance. Therefore, the artist's pay out on Spotify fluctuates slightly in terms of thousandths because the royalty income from user streaming has already been negotiated with the record company. In other words, to date the partnership between the majors and Spotify is very solid, and we can hardly imagine a scenario in which the major publishes on 3.0 platforms, at least for the time being.

This scenario gives rise to some interesting insights and new frontiers for the real business players in the market, which we reserve the right to discuss in detail in this work.

Scenario 2: Artist signed with independent label

The model conforms as: $(b + M) * p * (r)$

Independent labels are usually characterised by working in a specific genre or for a specific target group, the expenditure for project development will certainly be lower major label that collects industry revenues and redistributes the investments to its artists. One of the main disadvantages of signing with an independent label is money, although the artist can aspire to also retain 50% of the royalties; there are very profitable labels, but most independent ventures have little money available. Not only can they not afford big fees, bonuses, or major recording contracts, but they also cannot afford big marketing campaigns or promotional tours to make your work known. This can make it more difficult to build a name for yourself and sell your records.

On the other hand, the artist has more room to manoeuvre and fewer conditions, and his or her talent may bring him or her great results equally if with more effort.

p will be higher in case it decides to distribute on Musicoin but will be subject to the networking error r . We believe there is a space here to try to distribute on 3.0 platforms. The label as such could try to bring its artists to such platforms, driven not only by the better monetisation, but also by the exclusivity and the niche product it could offer. The user, in fact, is more likely to follow the artist wherever they go precisely because they are passionate about them, and the networking error might drop. In addition, the user might also decide to finance the project or support it through the purchase of NFTs that the artist label releases. These revenues O (other direct economic support by fans), could add up to M for future projects and have more effective resonance campaigns.

Scenario 3: Independent artist who self-produces and owns all recording rights

The model conforms as: $(b + \sqrt{M}) * p * (r)$

The artist will make use of an aggregator to distribute his/her music on Spotify and will be able to keep the maximum royalties by granting a fee to the aggregator that usually never goes above 15%, so the artist will be able to keep 85% and above of the Sound Recording Royalties.

However, Spotify's pay out calculation will always range between 0.003 and 0.005. So, from this point of view the independent artist has no incentive to distribute on Spotify at all, because he will get the same pay out as someone who has signed with a major. Why does this happen? For the same reason: the major and Spotify make agreements beforehand where Spotify pays the major for its artists by universalising the pay out that the artist can receive, which remains fixed even for the independent artist who self-produces. In other words, even if he is entitled to almost his full share of royalties because he has no intermediaries, he will get the same pay out.

Another thing is if he decides to publish on a 3.0 platform and in our case on Musicoin, here he will get a pay out, of \$0.011. Just to give an example from 100 streams it will take 1.1\$ against 0.3\$ from Spotify.

What can be said about spending on the project, it will depend on the artist himself, his financial capabilities first and foremost. If for example it is an artist who was previously under agreement with a house and/or career behind, or rather he/she is new to the scene for he/she will probably not be able to sustain a huge expense and it is difficult, especially since the initial expense for those who are new is sometimes higher to reach the audience, which is why we have put M under square root to give this idea of difficulty in coming in. However, the established case of independent artists distributing on Web 3.0 is the case of famous artists with big capital to spend, such as Snoop Dogg with his NFT album. He has his own record company, but even if he were tied to majors and the contract allowed, he could face a substantial marketing spend.

Finally, given M for a certain amount. If the artist is on Musicoin, to M can be added O e.g., investment on the project or purchase of NFTs which the artist releases and which go directly into his pockets, plus the network error r must be estimated.

5. Conclusion & Research Agenda

The model, being conceptual, has many limitations but wants to set for the reasearch agenda some specific issues such as quantifying how much M expenditure affects the number of streams. It is still interesting to know how much r is worth, the networking fallacy that takes away the big problems of platforms such as volatility and other problems that are common to so many industries, not just the record industry. The networking error represents a major barrier to entry. This could be overcome by early adopters: by the entry into Web 3.0 by a major or by many record labels or even some famous artist who could launch it as a trend.

The model is also not suitable for analysing the cases of virality and hype that we often see nowadays. Marketing in this case is usually studied after the viral phenomenon occurs to make as much revenue as possible by riding the wave. Furthermore, the model still does not consider a very important qualitative aspect for art in general, namely talent, and we are glad it does.

The simplified scenarios also leave room for further research questions. One could study the scenario in which a major land in Web 3.0 and presides over that market once the aspects of royalty collection, licensing regulations, etc. have been streamlined. How would the value chain be distributed in terms of revenue shares? And what would be the changes in revenue for a major?

Now with Spotify seems to have taken the shape of a mutually profitable deal, almost an oligopoly, what deal could a major make with a 3.0 platform that professes to want to pay the artist directly from their streams?

On the other hand, from the artist's point of view, he/she should definitely be rewarded more, but needs other people to look after his/her visibility, to administer his/her income and to study the market (this relates more to pop-music) for him/her to emerge. As it stands, streaming 3.0 is merely about the technical aspects that blockchain et Co. can solve. It is not about the aspects of enhancing the artist and his development and investment into yhe project. We are therefore faced with a partial disintermediation that needs to resolve, firstly, the main problems of Web 3.0, above all the volatility of fungible tokens, the problem of the network, and secondly, the relocation of players in today's market who are firmly in their positions and who preside over all the channels and relationships in such a complex market where the upheaval that Web 3.0 proposes still seem to be a long way off.

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