



Another technology transforming the Music Industry: Blockchain

Written by

Miguel Carvalho Marques

Student Number: 152117090

Dissertation written under the supervision of
Gonçalo Saraiva

Dissertation submitted in partial fulfilment of requirements for the MSc in Management with
Specialization in Strategy and Entrepreneurship, at Católica-Lisbon School of Business & Economics

April 2019

ABSTRACT

Title: Another technology transforming the Music Industry: Blockchain

Author: Miguel Marques

The blockchain is an emerging technology, receiving increased attention due to its applicability in several different areas of business, among other reasons. One of the possible applications of blockchain is in the music industry. New ventures exploring this subject have been appearing, offering a range of different solutions to some of the most pressing issues in the industry.

Past literature focused on the technology and how its specificities can help in changing a culture of lack of transparency and inefficiency in the revenue streams, ultimately harming the artists. This study starts by providing a detailed picture of the music industry, their several actors, their functions and relationships, only then framing blockchain in this network.

By collecting insights from different players in the music industry, positioned along the value chain and with heterogenous interests, the research goes further in understanding their vision on the industry. It is learned that there are two contrasting dimensions in it, one of which is seemingly more accessible to the new platforms. Moreover, the pain points identified are confirmed by the music community, even though other issues seem to be more critical. Considering this, the level of attractiveness of the industry for the blockchain projects is assessed and a new limitation to its market penetration is discovered: the lack of knowledge on the subject existing in the music community today.

Still, its impact is estimated by providing a new image of the possibly reorganized music industry supply chain.

Keywords: Blockchain, Industry Attractiveness, Music Industry, Supply Chain, Technology

SUMÁRIO

Título: Outra tecnologia a transformar a Indústria da Música: Protocolo de Confiança

Autor: Miguel Marques

O protocolo de confiança é uma tecnologia emergente, recebendo crescente atenção devido à sua aplicabilidade em diferentes áreas de negócio, entre outras razões. Uma das possíveis aplicações da tecnologia prende-se com a indústria da música. Novos projetos que exploram este tema têm aparecido, oferecendo uma gama de diferentes soluções para alguns dos problemas mais prementes da indústria.

A literatura passada focou-se na tecnologia e em como as suas especificidades podem ajudar a mudar uma cultura de falta de transparência e ineficiência nos fluxos de rendimentos, prejudicando sobretudo os artistas. Este estudo começa por dar uma imagem detalhada da indústria da música, dos seus diversos atores, das suas funções e relacionamentos, só depois enquadrando o protocolo de confiança nesta rede.

Ao recolher testemunhos de diferentes personalidades da indústria da música, posicionados ao longo da cadeia de valor e com interesses heterogéneos, a pesquisa vai mais além em perceber a sua visão sobre a indústria. É aprendido que há duas dimensões contrastantes na mesma, uma das quais é aparentemente mais acessível às novas plataformas. Além disso, os problemas identificados são confirmados pela comunidade musical, apesar de haver outras adversidades mais críticas. Considerando isto, o nível de atratividade da indústria para os novos projetos é avaliado e uma nova limitação à sua penetração no mercado é descoberta: a falta de conhecimento sobre o assunto existente na comunidade atual.

Ainda assim, o seu impacto é estimado ao providenciar uma nova imagem da possivelmente reorganizada cadeia de fornecedores da indústria.

Palavras-chave: Atratividade da Indústria, Cadeia de Fornecedores, Indústria da Música, Protocolo de Confiança, Tecnologia

ACKNOWLEDGEMENTS

First and foremost, I want to thank my parents and my sister, who are the biggest inspirations and role-models I have in life. I will never be able to fully repay all the sacrifices they made to provide me with the finest education and all the great opportunities I had, but I can only try my best to make them proud every day. If anything, I hope this dissertation does just that.

My gratitude goes also to my supervisor, Gonçalo Saraiva, whose guidance and valuable insights proved essential to the completion of this work. Thank you to all my colleagues in “The Business Opportunity of New Technologies” seminar for their precious feedback in the earlier stages of this dissertation. And lastly, I want to thank all the kind people that have shown their availability to answer my questions, making up for essential content for the development of this article.

Finally, my appreciation goes to all my beloved friends from my hometown Porto, as well as to the ones from Amsterdam and Lisbon. Thanks for accompanying me in this long journey that now reaches a peak that truly makes me proud. That would not be possible without their presence in my life, and the help of all the institutions, professors and colleagues that I encountered throughout this path. My gratitude goes to all of them.

TABLE OF CONTENTS

ABSTRACT 2

SUMÁRIO 3

ACKNOWLEDGEMENTS 4

TABLE OF CONTENTS 5

LIST OF TABLES AND FIGURES 7

 Tables 7

 Figures 7

LIST OF ACRONYMS 8

INTRODUCTION 9

LITERATURE REVIEW 12

 Music Industry 12

 Some facts: data and technology 12

 The industry’s supply chain 15

 Pain points 22

 Blockchain 23

 Bitcoin as the genesis 23

 Ethereum and Smart Contracts 26

 Public vs Private and Permissioned vs Not Permissioned 26

 Blockchain – a definition 27

 The technology’s potential... 28

 ... and limitations 28

 Blockchain in the Music Industry 29

 Potential applications 29

 Limitations in applying the technology to the music industry 31

METHODOLOGY 33

 Research Approach 33

Case Selection and Data Analysis	34
FINDINGS AND DISCUSSION	36
Case Studies – Interviews	36
Industry Implications.....	41
Supply.....	41
Attractiveness	43
CONCLUSION	46
Limitations and Future Research.....	47
REFERENCE LIST.....	49
APPENDICES.....	53
Appendix 1: Interview structure.....	53
Appendix 2: Interviewees’ Biography	54
Appendix 3: Interview Highlights – André Fidalgo Moniz	56
Appendix 4: Interview Highlights – André Santos	58
Appendix 5: Interview Highlights – David Santos	61
Appendix 6: Interview Highlights – João Abrantes	65
Appendix 7: Interview Highlights – Luís Montez	69
Appendix 8: Interview Highlights – Martinho Lucas Pires	70
Appendix 9: Interview Highlights – Ricardo Duarte	72
Appendix 10: Interview Highlights – Rui Teixeira.....	74
Appendix 11: Interview Highlights – Simone White.....	77
Appendix 12: Interview Highlights – Tiago Castro	78
Appendix 13: Blockchain projects in the music industry	82

LIST OF TABLES AND FIGURES

Tables

Table 1 - Interviewees' short description.....	35
Table 2 - Interviewees' biographies.....	56

Figures

Figure 1 - Global recorded music industry revenues 1999-2017 (US\$ billions) (IFPI, 2018)	13
Figure 2 - Music revenue by sub-segment (US\$ billions) (PwC, 2018).....	13
Figure 3 - US Recorded music revenues by format (RIAA, 2018).....	14
Figure 4 - Musical networks (Leyshon, 2000)	16
Figure 5 - The structure of activities (Graham, 2004).....	18
Figure 6 - The choice of actors (Graham, 2004).....	19
Figure 7 - The governing mechanism (Graham, 2004).....	19
Figure 8 - The coordination structure (Graham, 2004)	20
Figure 9 - Recorded music supply chain - past (Hosoi et al., 2015).....	21
Figure 10 - Recorded music supply chain (major artists) - present (Hosoi et al., 2015).....	21
Figure 11 - Recorded music supply chain (smaller artists) - present (Hosoi et al., 2015).....	22
Figure 12 -Transactions in the Blockchain (Nakamoto, 2008)	24
Figure 13 - Blockchain as a combination of three technologies (Voshmgir & Kalinov, 2017)	25
Figure 14 - Adoption of foundational technologies in four phases (Iansiti & Lakhani, 2017)	29
Figure 15 - Recorded music supply chain after blockchain	43

LIST OF ACRONYMS

A&R	Artists and Repertoire
ASCAP	American Society of Composers, Authors and Publishers
BPM	Beats Per Minute
DLT	Distributed Ledger Technology
DSP	Digital Service Provider
EDI	Electronic Data Interchange
EP	Extended Play
GDA	Gestão dos Direitos dos Artistas
ICO	Initial Coin Offering
IFPI	International Federation of the Phonographic Industry
IGAC	Inspeção-Geral das Atividades Culturais
IP	Intellectual Property
IPFS	InterPlanetary File System
IT	Information Technology
LP	Long Play
LR	Literature Review
P2P	Peer-to-peer
PoS	Proof-of-stake
PoW	Proof-of-work
PR	Public Relations
PRO	Performance Rights Organization
PS	Problem Statement
R&D	Research and Development
RIAA	Recording Industry Association of America
RQ	Research Question
SC	Supply Chain
SPA	Sociedade Portuguesa de Autores
WIN	Worldwide Independent Network
YCWCB	You Can't Win, Charlie Brown

INTRODUCTION

In 2018, population around the world spent on average 17.8 hours per week listening to music (International Federation of the Phonographic Industry, 2018). IFPI's Global Music Report (2018) provides a picture of the state of the music industry according to which last year its revenue accounted for a total of \$17.3 billion, continuing a three-year series of growth tendency for the industry. In the biggest music market in the world (IFPI, 2018), the United States of America, revenues from recorded music saw an increment of 16.5%, amounting to \$8.7 billion at retail value (Recording Industry Association of America, 2017), while Americans spent an average of over 4 hours a day listening to music (Edison Research, 2014). The relevance of the industry is hardly in question, especially if we consider this recent upturn.

There is also no doubt that technology and music are tied together from the earliest stages of the latter. Throughout the years, consumers experienced the changes in the way recorded music is made available: from being able to acquire physical copies in formats such as vinyl, cassette tape or compact disc, to having full digital libraries available on the Internet. And the Internet was indeed revolutionary for the industry: music consumption is no longer a matter of "ownership" but essentially one of "access" (Arcos, 2018). After 17 years of continuous growth in the industry following the introduction of the CD in the 1980s (RIAA, 2018), the digital era brought along new challenges, with the emergence of illegal downloads being the most prominent and impactful one (Leyshon, 2007). And even if the advent of streaming partly offset the effects of piracy (Watson, 2015), the matter of fact is that this issue is still around: in 2018, 38% of consumers around the world obtained music through copyright infringement (IFPI, 2018). Other challenges in this new era of the industry are complex revenue streams, structures still not adapted to the digital age, lack of useful data regarding who listens to the music and decreasing compensation for the artists (O'Dair et al., 2016). In fact, according to McCandless (2015), musicians signed to a label need over a million plays on Spotify to earn the equivalent to an US minimum wage (\$1,260). Additionally, they are the last of the supply chain to ever see any profit (Arcos, 2018).

In an industry where the three major labels (Sony BMG, Universal Music Group and Warner Music Group) control most of the music market (Worldwide Independent Network, 2018) and technological giants such as Apple, Google (including YouTube) and Spotify thrive as the biggest distributors, the basic assumption is that the artist is powerless in the grand scheme of things. However, without musicians and producers there is no music and without listeners there is no market for it. Can this system be changed? Is there an alternative? Can a solution to the

problems mentioned before be found? Some authors argue that blockchain, the technology behind Bitcoin (Nakamoto, 2008), can have a major impact in the music industry by solving some of its most prominent issues. In this paper that hypothesis is evaluated.

It is argued that innovation is ultimately the one factor responsible for virtually all economic growth (Baumol, 2002). Thus, studying a potentially disruptive technology like blockchain since its earliest stages of development is a crucial endeavour. After all, it is argued that blockchain can be one of the most important IT inventions of our time (Naughton, 2016), “at the same level as the World Wide Web” (Mougayar, 2016). Such bold statements spark anyone’s curiosity. And, however young the technology might be, articles focused on the many different uses of blockchain have been proliferating recently. Yet, “young” and “recently” are keywords: the technology is new and there is a lot to be said about it. When it comes to papers on the theme of blockchain in the music industry, one thing that can be noticed is the preoccupation in explaining all of blockchain’s different uses, and the technicalities associated with it, a concern that does not extend to quantifying the impact it can have. In other words, it is more often about the blockchain than it is about the industry in question. This dissertation takes a deeper picture of the music industry, by providing an analysis of all of its crucial characteristics, quantifying all elements and understanding how and who operates in it. Only then blockchain comes into play, and its impact is studied. This serves the purpose of understanding if the industry structures are prepared for a technological change and if they are aware of the existence of blockchain and, if so, by which means. Therefore, the Problem Statement and Research Questions proposed for this thesis are the following:

PS: The history of the music industry is filled with disruptions caused by the introduction of new technologies. In this study I try to understand if blockchain can be the next one to cause such a disruption. In a vast ecosystem where many different actors cooperate and compete for revenue and where issues like rights ownership, royalty management, piracy, payment delays and information silos are common issues (among others), decentralization can prove to be as a secure and reliable way for any artist to share their work, without ever feeling that their creativity is being constrained by third parties or financial matters.

RQ1: How is the music industry structured?

RQ2: What is “blockchain”?

RQ3: How can the blockchain technology be applied to the music industry and what major changes will result from that?

RQ4: What will be the impact of blockchain on the industry as a whole?

The first and third research questions will be answered through a mix of literature review and original research, utilizing methodologies such as in-depth industry analysis, aggregating and scrutinizing mostly secondary data, and interviews with different people along the value chain. The second research question will be answered through revision of literature. The objective is to provide a detailed definition of “blockchain”, explaining in a clear and understandable way how it works. This means that a lot of technical jargon will be put aside, in order to focus on what is really essential for Management purposes. Finally, the last and central question of this study is approached with original research, using frameworks such as the Five Forces of Porter, analysing, once again, the interviewees’ responses and providing a particular look on the Supply side of the industry analysis made.

LITERATURE REVIEW

To start this section, revision on literature about the music industry (and creative industries in general) is made, allowing the reader to understand what differentiates it from other industries. There is a focus on its structure and pain points. Then, in order to better comprehend what is at stake with the introduction of this new technology - the blockchain - in the music industry, we ought to have a clear understanding of what blockchain is, how it works and what its key characteristics, features and effects are. At the same time, the revision on some technical parts must be kept at a surface level, only explaining what is deemed as essential to understand the financial and economic implications of the use of the technology. Moreover, limitations of the technology and eventual scepticism from authors will also be approached in this section. Finally, there is a combination of both topics - blockchain in the music industry, thus revising what was already studied on the topic.

Music Industry

Some facts: data and technology

Music, radio and podcasts revenues were globally worth \$94.4 billion in 2017, with live performances constituting the biggest part of that total (PricewaterhouseCoopers, 2018). By the end of that year, the recorded music industry revenues accounted to \$17.3 billion, thus giving continuation to a three-year growth tendency, after 15 years of decline (IFPI, 2018). This recent upturn is much due to the advent of streaming services, whose revenues grew by 41.1%, becoming the single largest revenue source in the industry for the first time (ibid). These facts can be explained by the growth (45.5%) in paid subscriptions (ibid), especially in developed countries and from leading providers (PwC, 2018). Moreover, demand for ownership of recordings is diminishing (ibid), with both physical and download revenues dropping by 5.4% and 20.5%, respectively (IFPI, 2018). It is estimated that nowadays 86% of consumers use on-demand streaming services and 75% use the smartphone to listen to music (ibid). Yet, the revenue numbers for 2017 represent only 68.4% of those observed in 1999 (ibid), a peak year for the industry, after 17 years of continuous growth following the introduction of the CD, and just before the introduction of P2P programs like Napster (RIAA, 2018), that, at its height, registered 75 million users and ten thousands songs downloaded per second (Ku, 2017). In fact, to this day, 38% of consumers still access music through copyright infringement (IFPI, 2018), be it through P2P downloads or the growing stream ripping, with such websites counting 416 million visits in January (ibid), mostly made by young people with ages between 13 and 24

years old (MusicWatch Inc., 2017). Despite that, the rise of streaming showed an improvement on this era of digital music consumption (Watson, 2015). There is no doubt that the Internet rearranged the music industry (Arcos, 2018), with a shift to an access-based model rather than ownership (O’Dair et al., 2016). With that, new challenges started to show up: complex revenue streams, structures not yet adapted to this digital age, lack of useful data and decreasing compensation for the artists (ibid).

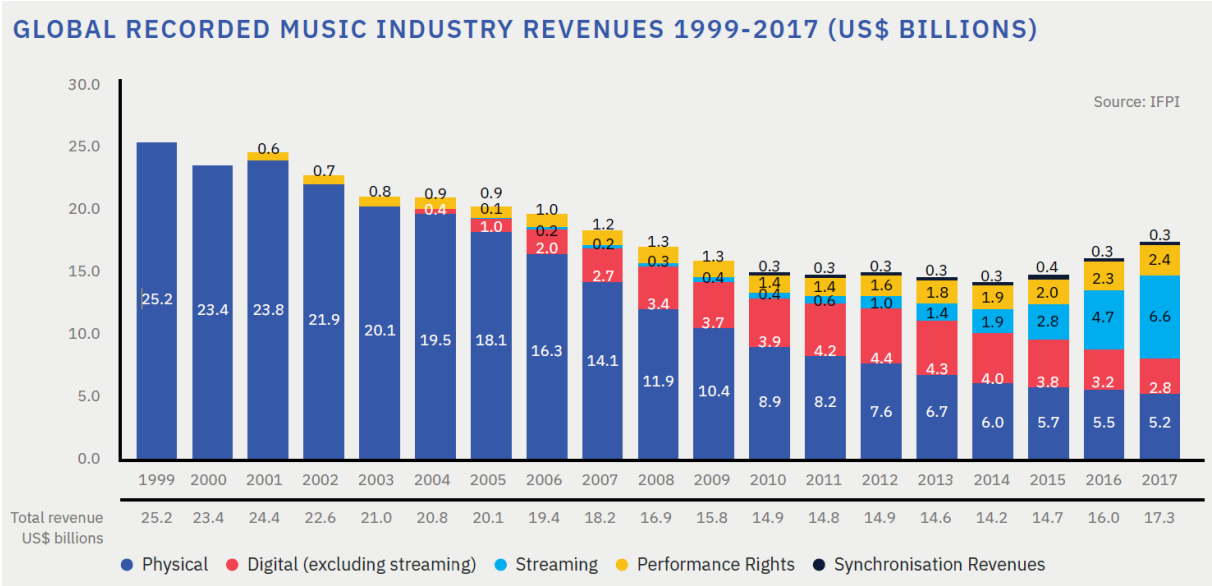
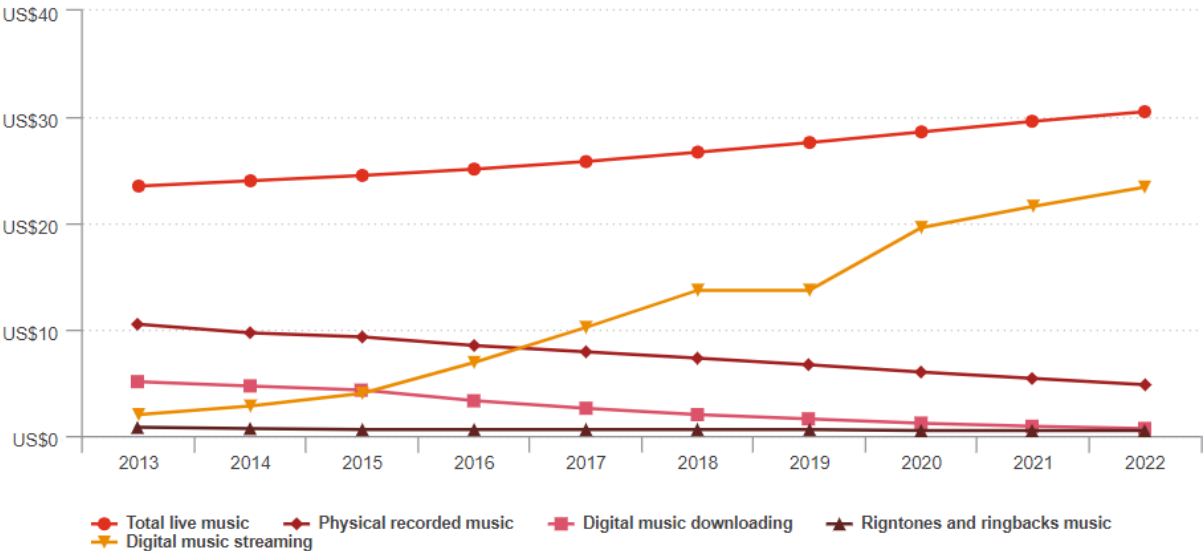


Figure 1 - Global recorded music industry revenues 1999-2017 (US\$ billions) (IFPI, 2018)

Contrasting fortunes for music subsegments

Music revenue by sub-segment (US\$bn)



Source: PwC Global Entertainment & Media Outlook: 2018–2022. PwC. Ovum

Figure 2 - Music revenue by sub-segment (US\$ billions) (PwC, 2018)

U.S. Recorded Music Revenues by Format
1973 a 2017, Format(s): Todos
 Source: RIAA

Source: RIAA. Permission to cite or copy these statistics is hereby granted, as long as proper attribution is given to the Recording Industry Association of America

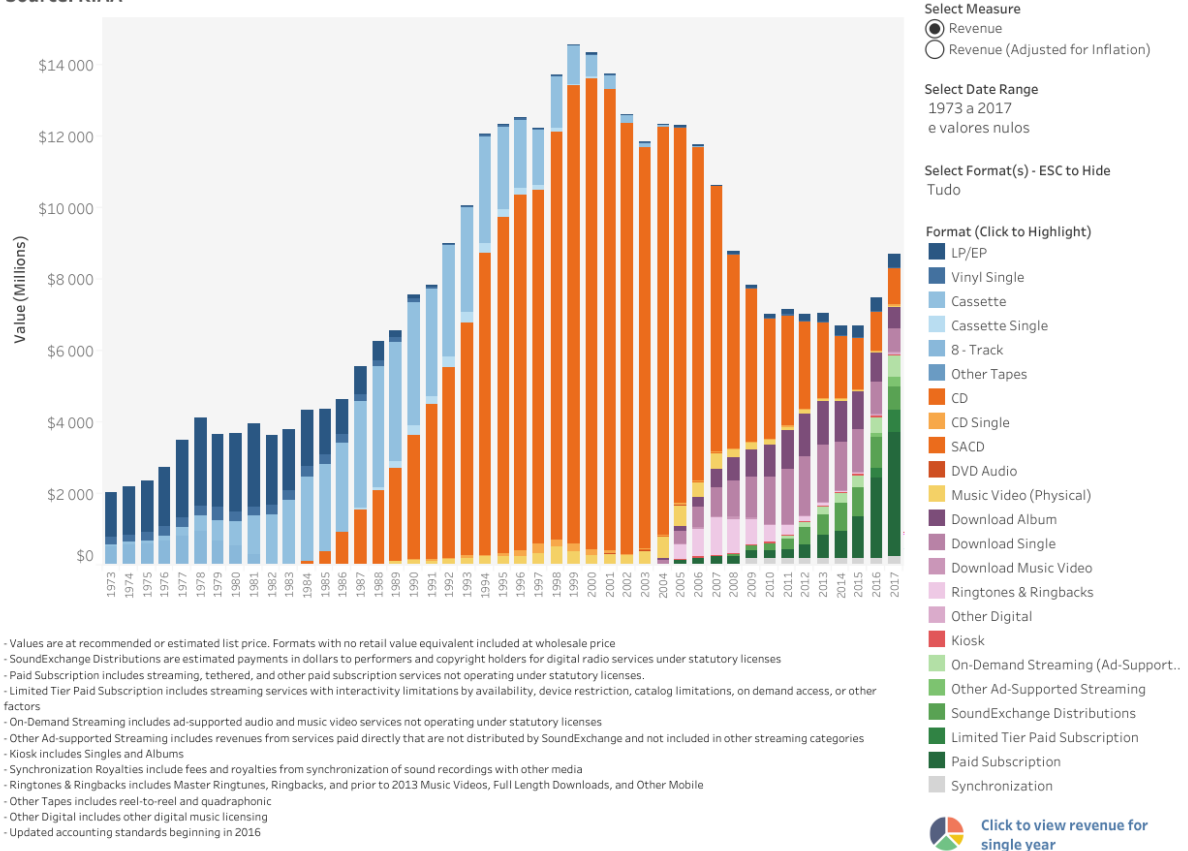


Figure 3 - US Recorded music revenues by format (RIAA, 2018)

The music industry has long had close ties to technology, observable by the evolution in audio formats: from vinyl, to the magnetic audiotape and further to the digitalisation of music (Leyshon, 2000). Such transformations were normally welcomed by the industry, that saw an opportunity to sell old records in new formats (ibid) or to sell new reproductive equipment (e.g., Sony, which produces both entertainment and technology) (Watson, 2015). This changed with the creation of the program MPEG-1 Audio Layer 3, more commonly known as MP3, that had the ability to compress digital audio files to a size that could be easily distributable through the Internet (Leyshon, 2000). It rearranged the music industry (Arcos, 2018), where it is argued that illegal copying and transferring of music over the Internet acts as a substitute of sales, reducing the inflow of capital that would be used for the discovery and development of new acts, an argument actually used before, in the 1970s, when home taping was supposedly killing music by encouraging counterfeit (Leyshon et al., 2005). Albeit significant, the impact of piracy goes further and harms more than just the owners of the intellectual property (Siwek, 2007). In

the case of the USA, the biggest music market in the world (IFPI, 2018), by 2007 it was estimated that piracy resulted in 71,060 lost jobs, \$2.7 billion in earnings lost for workers and a minimum of \$422 million in tax revenue lost for governments, globally totalising a \$12.5 billion loss in total output for the American economy (Siwek, 2007). And even regarding the crisis in the music industry, Internet piracy was just the “tipping point”, since the industry was already precarious by nature: the recovery rate kept dropping, hitting a minimum of 3%, meaning that only that percentage of recordings was able to recover costs of production (Leyshon, 2006). What is important to notice is that industries that rely on copyright legislation were subject to significant restructures and that was most notable in the music industry (Leyshon, 2007). To some extent, the industry embraced legal downloads as a solution, with iTunes in the forefront of the process, but, despite its success, it was still far behind the popularity of free (and illegal) downloads (ibid). The latest big change in the music industry concerns the introduction of streaming services, such as Spotify, launched in 2008 and since then growing up to become “the largest streaming platform in the world” (Watson, 2015). Thus, music consumption has changed in two key aspects: it is now based on access to a vast library instead of owning a limited one – it is a service rather than a product; and that access is granted by mobile devices, which showcases a shift in consumer habits (ibid).

The industry’s supply chain

The global music industry comprises a lot of different actors: artists, record labels, publishers, retailers, streaming services providers and performance rights organizations are some of the entities involved in the supply chain (Arcos, 2018). It is important to establish who these actors are and understand how some of the technology advancements mentioned before rearranged their role in the value chain. Before, even if the physical product itself was subject to changes, the distribution channels and division of labour within the industry remained stable: “artists create music, record labels promote and distribute it and the fans consume it” (Graham et al., 2004). Since any piece of music contains two different copyrights – one for the sound recording itself and another for the words and music – we can already distinguish the figures of performers and record labels, related to the former, and songwriters, composers and publishers, related to the latter (O’Dair et al., 2016). Leyshon’s (2000) musical networks provides a picture of the industry at that time, with record companies and artists being in the centre of it:

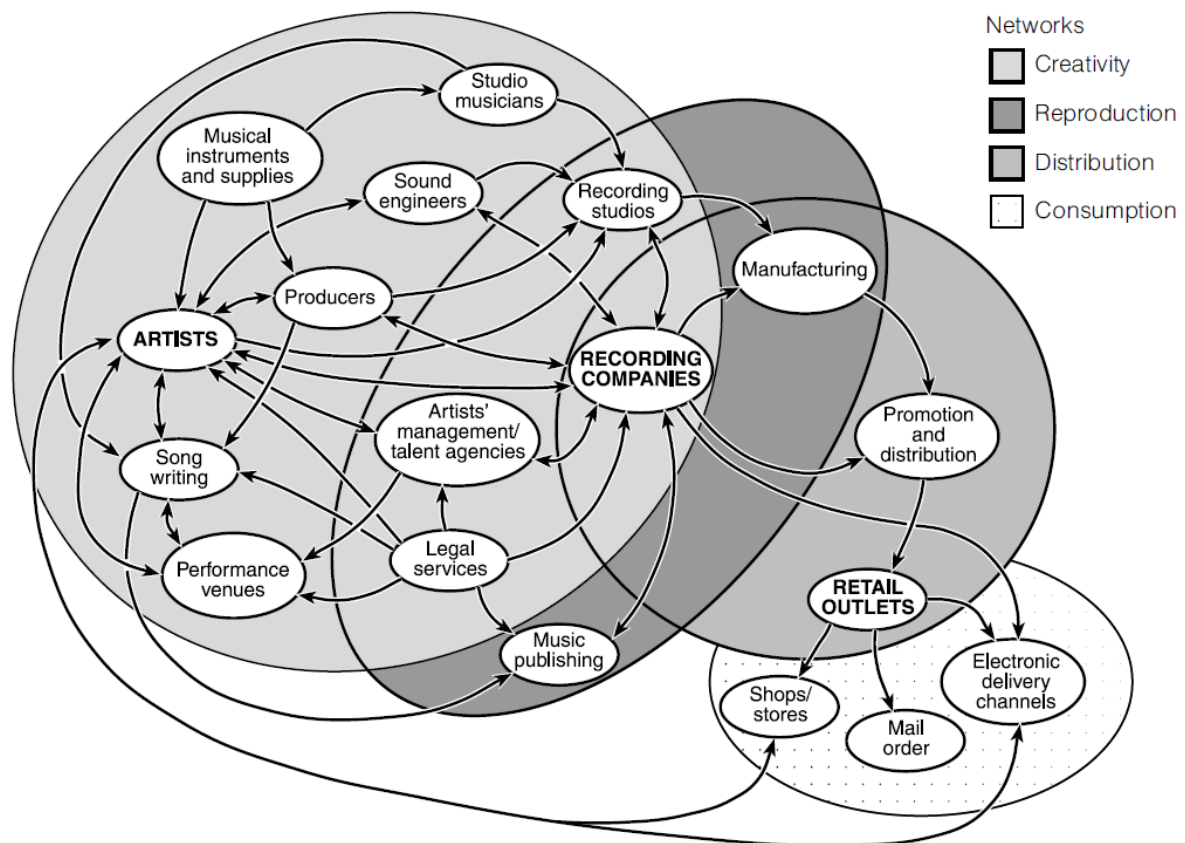


Figure 4 - Musical networks (Leyshon, 2000)

Albeit a good way to understand who operates in the industry and what activities which one of them is responsible for, the field research made for the development of this paper led to the identification of some other actors and connections that are missing. For example, between the artists and the performance venues or the agencies and those same venues, there are companies focused on promoting live concerts, the promoters. Moreover, one way to reach to the audience is through radios and other media (movies, TV adverts, videogames, etc.) comprising, respectively, two new sources of revenue: performance rights and synchronization (Watson, 2015). In 2017, the former accounted for 14% of the industry revenues and the latter for 2% (IFPI, 2018). Between the radios, for instance, and the record companies there is then another entity: performance rights organizations. Finally, the picture is obviously outdated and does not account for streaming digital services providers nor for the digital (and legal) download platforms, both forming the biggest threat to retail outlets. The aggregators, responsible for distributing music to these platforms and collect royalties from them, are also missing.

The emergence of streaming services has speeded up the reorganization of the music industry's value chain (Arcos, 2018). But, before that, digitalisation had already brought significant

changes. In the case of recording studios, for instance, digitalisation and the advent of new software formats (Leyshon, 2000) led to a democratisation of technology, with newer, smaller and more affordable equipment being available to anyone (Leyshon, 2006). Not only a musician is able to have a competent home studio, but even the structures within professional studios changed, with resident sound engineers and producers starting to become freelancers, entrepreneurs, as studios did not have the means to keep them due to increasingly constraining Artists and Repertoire (A&R) budgets in the record companies (Leyshon, 2007). As far as record companies go, digitalisation brought significant challenges, and reducing A&R budgets and artist rosters, and having to find new revenue streams (merchandising, for example) were some of the consequences of it (ibid). Record companies were seen as pivotal for the artist's ability to create new work since they are the ones to provide them their initial contracts and necessary money to produce it, by hiring specialised work and institutions (Leyshon, 2000). Moreover, record companies have the necessary marketing know-how to promote and distribute music on a large scale (Graham et al., 2004) and currently also pay special attention to data and analytics, evaluating fan engagement (IFPI, 2018). Graham et al. (2004) analysed the impact of the internet on the music industry supply chain, paying close attention to the case of major labels (which currently are just three: Universal Music Group, Warner Music Group and Sony Music Entertainment), and concluded that the structure of the music industry would change to a more flexible, network structure, no longer vertically-integrated, and also that the Internet liberalized the access to distribution channels and minimized the influence of promotion, for the easiness for consumers to find and obtain new music. The power was shifting from major labels to artists and consumers. And what we see now is that indeed independent labels have seen an increase in market share, which was of 39.9% in 2017 (WIN, 2018). The research of Graham et al. (2004) is then summarized in the following figures:


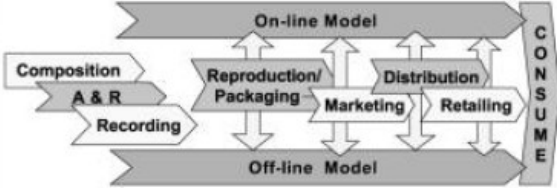
Traditional	Future
 <ul style="list-style-type: none"> • Activities serial interdependent • Sequential logic of activities in a linear value creation process • High vertical integration of activities/resources • Physical goods/marketplaces (physical value activities) 	 <ul style="list-style-type: none"> • Simultaneous, parallel activities belonging to different value creation processes • Complex constellations • Focus on core competencies • Partnerships/collaborations allow sharing resources and capabilities • Increasingly digital goods/market-places (virtual value activities)

Figure 5 - The structure of activities (Graham, 2004)


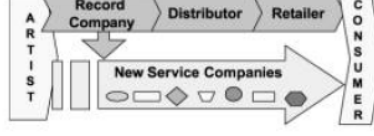
Traditional	Future
 <ul style="list-style-type: none"> • Static • Limited choice of actors (high vertical integration of record companies) • Relationships mainly long-term 	 <ul style="list-style-type: none"> • Dynamic • High flexibility in the choice of actors • Relationships ad-hoc with an arising business opportunity • Nature of relationships varies from long-term to short-term and from formal to informal

Figure 6 - The choice of actors (Graham, 2004)


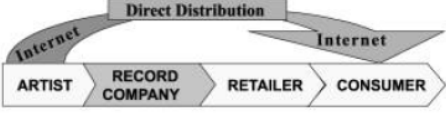
Traditional	Future
 <p>Dominant position of major record companies because of:</p> <ul style="list-style-type: none"> • Entry barriers due to high transaction and production costs • Economies of scale and scope (competitive advantage due to high vertical integration) • Control all distribution and marketing channels • Artists depend on record companies • Consumers are restricted (in terms of choice of music) 	 <p>Elimination of the dominant position of record companies:</p> <ul style="list-style-type: none"> • Low entry barriers due to decreased transaction and production costs • Economies of scale and scope do not apply (vertical integration means no longer competitive advantage) • Loss gatekeeper position • Artists gain more control (over their music and activities) • Consumers gain bargaining power

Figure 7 - The governing mechanism (Graham, 2004)

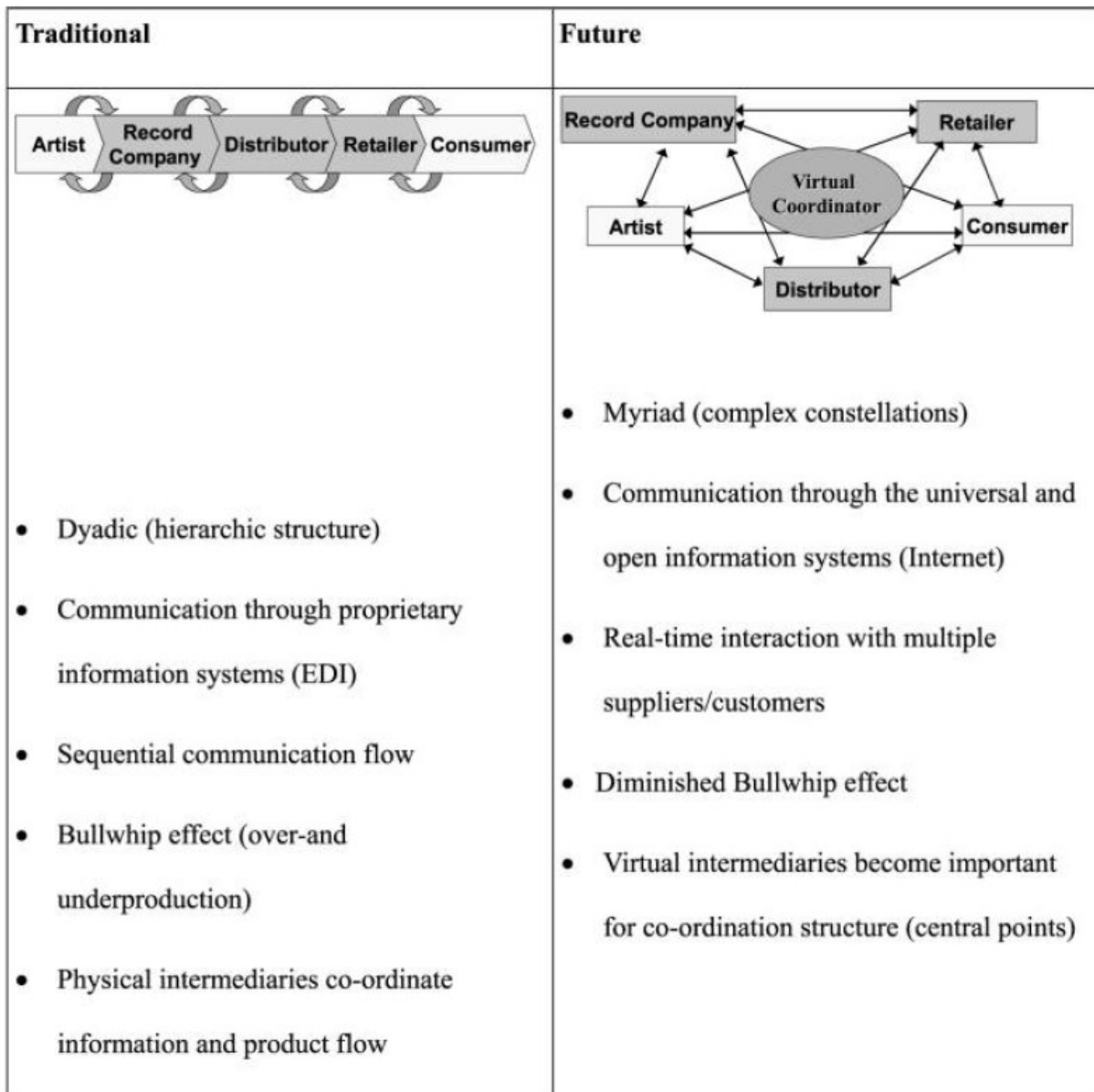


Figure 8 - The coordination structure (Graham, 2004)

Going back to the streaming services, those can have both original or distributed copyright content. Unknown artists, not as worried about revenue streams from royalties, have then access to a platform that can easily give them exposure by having one of their songs in a curated playlist, for example (De Leon & Gupta, 2017). Hosoi et al. (2015) pictured the music industry's supply chain before the digital era and after (differentiating between major artists and new ones):

Recorded Music SC - How it was (Pre iTunes era)

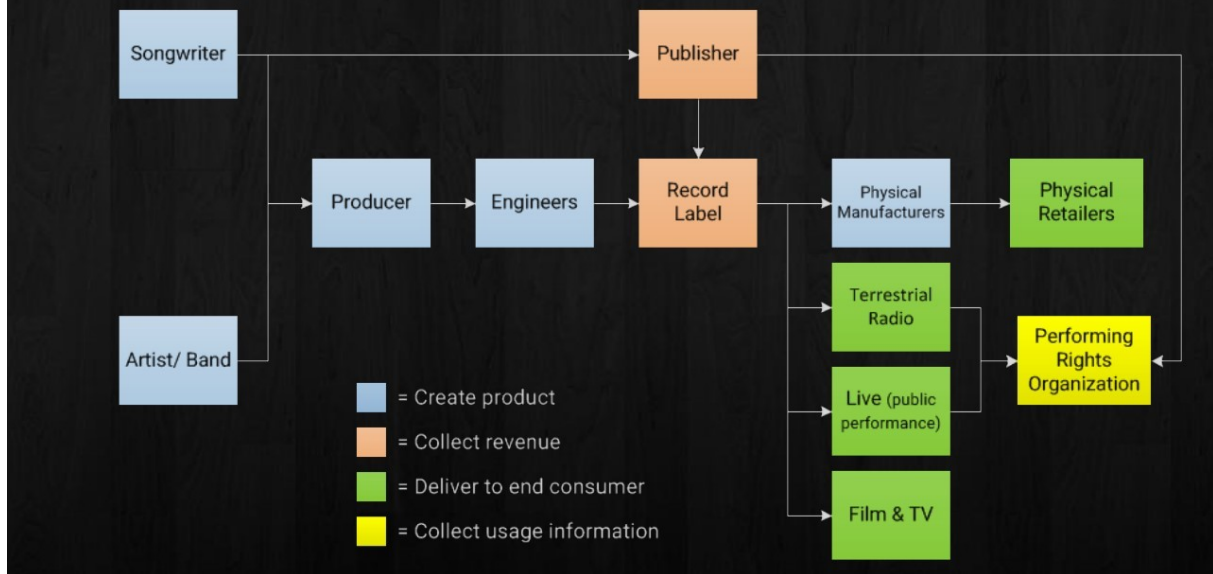


Figure 9 - Recorded music supply chain - past (Hosoi et al., 2015)

Recorded Music SC - Today (Digital Era - major artist)

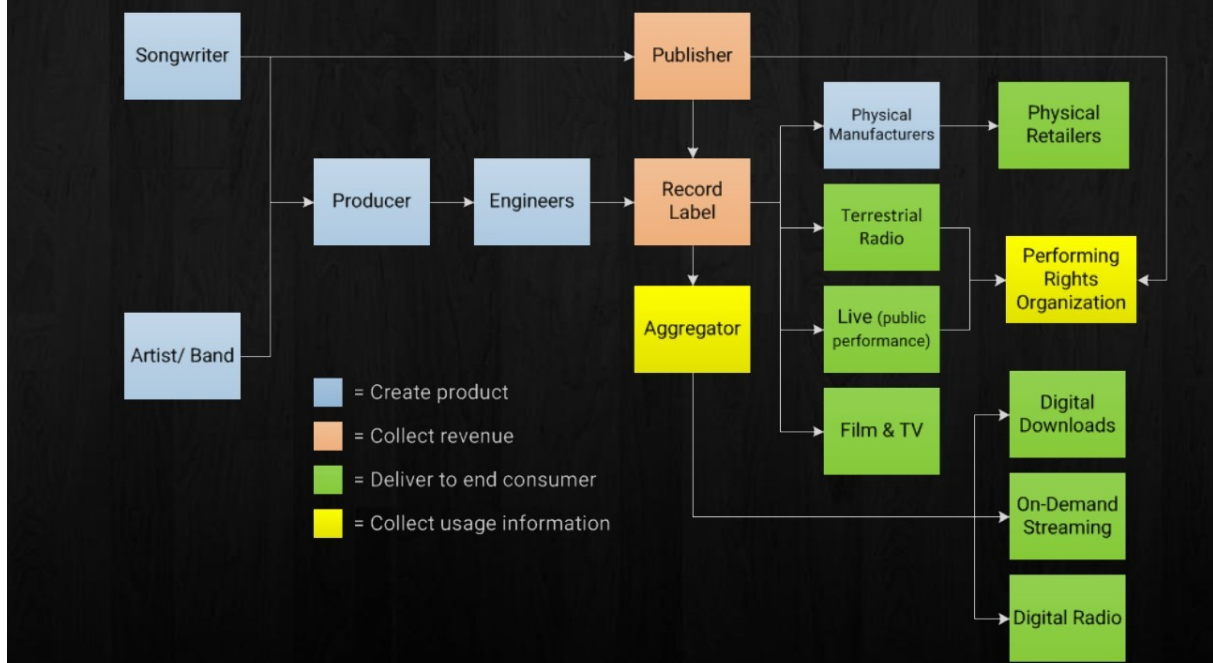


Figure 10 - Recorded music supply chain (major artists) - present (Hosoi et al., 2015)

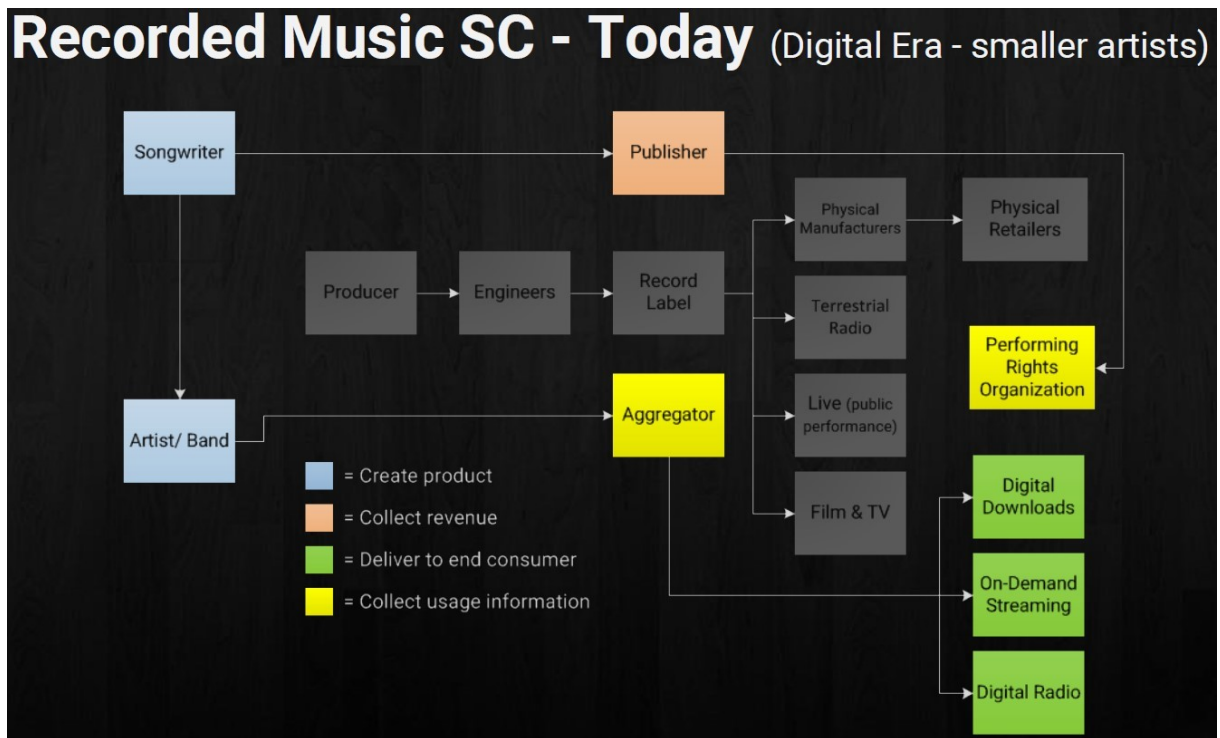


Figure 11 - Recorded music supply chain (smaller artists) - present (Hosoi et al., 2015)

Pain points

In an industry that relies on the ability to exploit copyright ownership (Leyshon, 2000) and when, to this day, piracy is still commonplace through torrenting and unregulated streaming (Rivière, 2018), it is evident that this is a matter of preoccupation along the value chain. The advent of lawful streaming services (ibid) contributed to the attenuation of its effects (Watson, 2015), but other issues have arisen (O’Dair et al., 2016).

Creatives in the industry are usually the first to put in any work and the last to see any profit (Arcos, 2018), as royalty payments are slow in reaching the rights holders (O’Dair et al., 2016). With Performance Rights Organizations (PRO) and Digital Service Providers (DSP) inserting themselves into the value chain (Takahashi, 2017), remuneration to artists gets meagre (Rivière, 2018), with artists making as little as \$0.0011 per play (McCandless, 2015), while at the same time having little to no information about how their works are priced, shared, advertised (Takahashi, 2017), and who, how and where people listen to their music (Heap, 2017). When music is at the distance of a click, the current system seems archaic (O’Dair et al., 2016). Moreover, PROs may have deducted administrative fees by the time money reaches rights holders and often there are significant amounts paid to the wrong party (Rethink Music, 2015). All of that causes transaction friction and time wasted, likely resulting in undervalued creative

work (Casares, as cited in Takahashi, 2017). But, essentially, there seems to exist lack of transparency in the value chain (O’Dair et al., 2016) and significant information asymmetries, to the disadvantage of musicians (De Leon & Gupta, 2017).

Furthermore, as of now, there is no global registry of music creatives and their works (Heap, 2017), which makes conflicts and disputes overly complex (O’Dair et al., 2016). Explaining it further, since any piece of music holds two different copyrights (one for the sound, the other for the words), these could be stored in the blockchain and a single database documenting who owns the copyrights could be developed from there (ibid). This would help in organizing the immense amounts of music and, therefore, of data on copyrights, that are uploaded everyday (Heap, 2017) on platforms based on user uploads, such as YouTube (IFPI, 2018). Moreover, it would help in avoiding the “black boxes” phenomenon – owners of copyrights cannot get access to revenues generated due to the lack of a good system of identification of the proprietaries (Rethink Music, 2015).

IFPI (2018) identifies the value gap – the mismatch between what platforms like YouTube earn from music and what they return back to the community – as another pressing issue, reporting that the industry is calling for action taken by policymakers. And that is what the infamous Article 13¹ is also for, to solve that gap. However, critics claim that major labels are the only ones to actually benefit from it by having everything licensed (the same that happens in the cases of Spotify and Apple Music, for example) and at the expense of the small, independent acts (Masnick, 2018).

Finally, there is limited access to capital for artists that want to operate without the help of a record label, fact that derives by the struggle of understanding a pathway to profitability and of assessing capital effectively (O’Dair et al., 2016).

Blockchain

Bitcoin as the genesis

Blockchain is the technology behind Bitcoin (Voshmgir & Kalinov, 2017), the payment system introduced by Satoshi Nakamoto (2008) and that uses cryptocurrency, a digital currency secured by cryptography (O’Dair et al., 2016). Nakamoto (2008) identified a double-spending

¹ Part of the Proposal for a Directive of the European Parliament and of the Council on copyright in the Digital Single Market. It tackles the relationship between copyright holders and online platforms, so that the latter enforces tighter regulation (Jones & Conners, 2019).

problem in current e-commerce, where financial institutions serve as middlemen in transactions: this model not only relies on trust in these intermediaries, but also raises transaction costs. Things (like money) with underlying value and that depend on scarcity cannot be reproduced infinitely if there are expectations to maintain that said value – that is the double-spending problem (Tapscott, 2018). This motivated the creation of Bitcoin (Rivière, 2018). In its essence, Bitcoin allows “any two willing parties to transact directly with each other without the need for a trusted third party”, by “using a peer-to-peer distributed timestamp server to generate computational proof of the chronological order of transactions” (Nakamoto, 2008). Thus, blockchain was initially designed as a solution for P2P money, without having banks involved (Voshmgir & Kalinov, 2017). And that solution was then Bitcoin, the first alternative e-money to efficiently tackle the double-spending issue of digital transactions (Rivière, 2018). However, despite the name, a coin in this case is a chain of digital signatures (Nakamoto, 2008). Every actor holds a unique and unforgeable private key and each one of them is associated with a distributable public key (Rivière, 2018). These private keys are then a means to digitally sign transactions (O’Dair et al., 2016) and the payee can verify the chain of ownership by verifying such signatures. This is schematized by Nakamoto (2008) in the Figure 12 below:

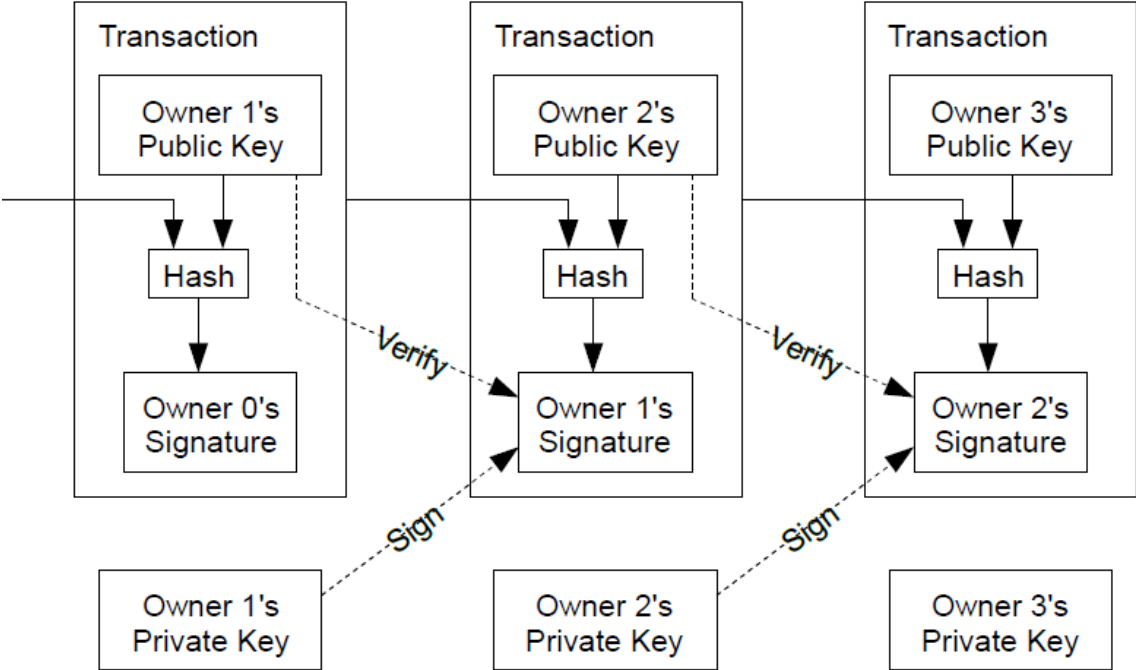


Figure 12 -Transactions in the Blockchain (Nakamoto, 2008)

If a transaction is signed with a private key, then it is possible to “identify” every actor in the ecosystem through the associated public key (Rivière, 2018). This by itself does not solve the double-spending problem. As the earliest transaction is the one that matters, the payee will need proof in real time that the majority in the network agreed that was indeed the first transaction. The solution starts by adding a timestamp that proves that the data existed at a given time, and that timestamp will include previous timestamps, thus forming a chain (Nakamoto, 2008) and creating a “single chronological history of all transactions in the order in which the network received them” (Rivière, 2018). Furthermore, proof-of-work (PoW) is implemented, in a way to achieve network consensus (O’Dair et al., 2016). As proof-of-work is determined by CPU effort, the majority is then represented by the longest chain, the one with more effort invested (Nakamoto, 2008). In other words, thousands of computers work to verify transactions (Tapscott, 2018), thus utilizing two resources: CPU time and electricity (Nakamoto, 2008). As an incentive for the so-called miners to expend these costly (Rivière, 2018) resources, they are rewarded with coins (O’Dair et al., 2016). The first transaction in a block is then deemed as special for starting a new coin (Nakamoto, 2008). One last important aspect to note about the Bitcoin network is that it is “permissionless”: anyone with an Internet connection is free to participate (Rivière, 2018). In essence, there is a combination of three technologies, here portrayed (Voshmgir & Kalinov, 2017):

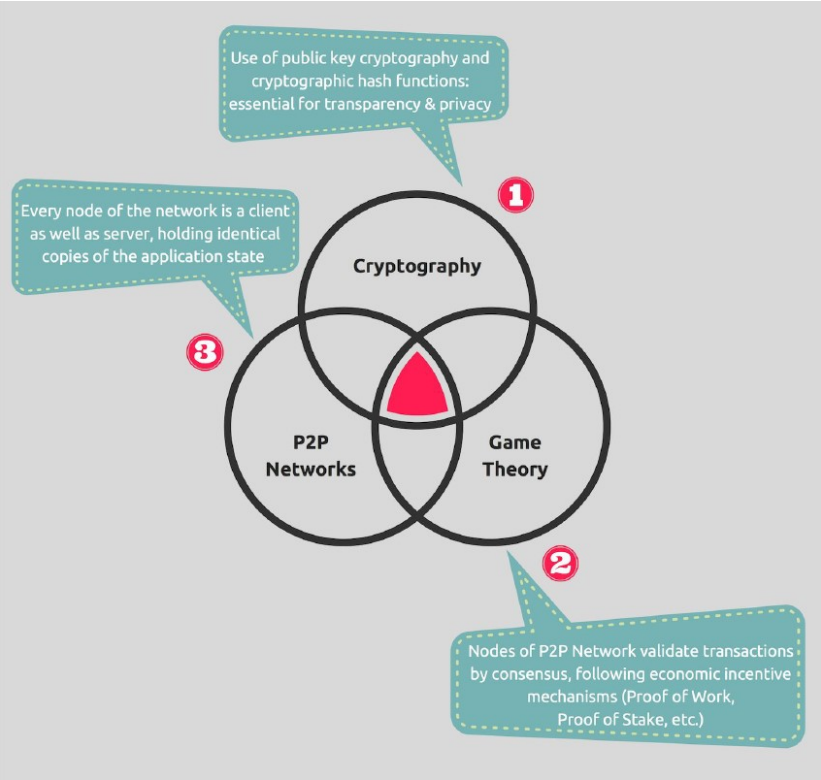


Figure 13 - Blockchain as a combination of three technologies (Voshmgir & Kalinov, 2017)

Ethereum and Smart Contracts

Bitcoin was then the first use case (Voshmgir & Kalinov, 2017) of a network allowing payments to be conducted peer-to-peer, thus excusing the need for a third party to oversee the validity of such transactions (O’Dair et al., 2016), by also combining distributed economic incentives based on game theory and cryptography (Voshmgir & Kalinov, 2017). It tackled the “age-old human problem of trust” (ibid) by having it lying in the software only (Ølnes, 2016). And others followed the Bitcoin example. Most notably Ethereum, that uses the ether cryptocurrency (O’Dair et al., 2016). One of the most notable differences is that Ethereum has intentions for a transition to proof-of-stake (PoS) from PoW (Voshmgir & Kalinov, 2017). This means that the number of coins to be mined directly depends on the amount already owned (O’Dair et al., 2016) – the higher the stake a user has, the higher the probability for block generation (Voshmgir & Kalinov, 2017). Another important property introduced by Ethereum was the notion of smart contracts (ibid). Rules and obligations are defined in these and are automatically enforced (Rivière, 2018) once those certain pre-conditions are met (Voshmgir & Kalinov, 2017), instead of the usual way of enforcing agreements: “through laws or courts of arbitration” (Narayanan et al., 2016). Digital assets in the blockchain network are controlled by smart contracts and its arbitrary rules, thus providing “a more flexible development environment” than what it can be observed in the Bitcoin blockchain (Voshmgir & Kalinov, 2017). A use case of smart contracts is, for instance, the registry of ownership and intellectual property (ibid), which will be of the utmost relevance in the case of the music industry, as studied further ahead.

Public vs Private and Permissioned vs Not Permissioned

So far only public and not permissioned blockchains were subject to scrutiny in this study. These are said to hold the most potential in replacing traditional institutions, like in banking more specifically (Voshmgir & Kalinov, 2017). However, other types of blockchains exist. Namely, we can differentiate public from private blockchains and permissioned from “permissionless” ones. In permissioned blockchains use is restricted to known participants (O’Dair et al., 2016). It is used in private institutions such as banks (Voshmgir & Kalinov, 2017) and, in that context, “distributed ledger technology” is a more acceptable term than “blockchain” (ibid). In private blockchains read access is limited to certain users (O’Dair et al., 2016), setting a determined group of people who can verify transactions internally (Voshmgir

& Kalinov, 2017), thus absorbing scalability and security advantages (ibid). In the case of public blockchains, that can be either permissioned or not (O'Dair et al., 2016), there is a scalability issue, where networks like “Bitcoin and Ethereum can only handle less than a dozen transactions per second” (Voshmgir & Kalinov, 2017).

Blockchain – a definition

“Blockchain is a distributed ledger” (Arcos, 2018). In its broadest sense, this technology is public and transparent (Rivière, 2018), since everyone can inspect (Schwab, 2016) every transaction and associated content (Rivière, 2018), but no single entity controls it (Voshmgir & Kalinov, 2017). It has a decentralized and distributed nature (Rivière, 2018), consisting of a “network of chronologically involving replicated databases” (Arcos, 2018), whose protocol runs on top of the Internet (Voshmgir & Kalinov, 2017), synchronizing such databases through a P2P network of computers that hold identical copies of them (ibid). This P2P way to make transactions turns the need for middlemen obsolete (Arcos, 2018), thus being characterized as “trustless”, as no third-party is required (Rivière, 2018). Since exact copies of the ledger of transactions (Takahashi, 2017) are saved in independent locations (O'Dair et al., 2016) accessible by any participant (Takahashi, 2017), there is no central point of failure (O'Dair et al., 2016), making the system secure (Schwab, 2016). Moreover, through cryptography (Voshmgir & Kalinov, 2017), the data written is immutable (O'Dair et al., 2016) and protected against tampering and revision (Voshmgir & Kalinov, 2017). Therefore, there is a reliance on mathematics (Rivière, 2018). These features make the blockchain an attractive source of storage for data (Arcos, 2018). In addition, transactions are validated by consensus among participants (Takahashi, 2017) in a given timespan (Voshmgir & Kalinov, 2017), making fraud more difficult (Takahashi, 2017). In fact, the consensus rules are designed in such a way that cheating is not worthy (Voshmgir & Kalinov, 2017). One last characteristic that is important to highlight, is the technology's cost-efficiency (Rivière, 2018): blockchain (and smart contracts) reduce transaction costs through auto-enforceable agreements (no bureaucracy; standardizes rules in reaching, formalizing and enforcing contracts) and bypass the principal-agent dilemma of organizations through its trustless nature (Voshmgir & Kalinov, 2017).

The technology's potential...

For all these reasons, blockchain is a game changer (Voshmgir & Kalinov, 2017). It has the potential to become a disruptive force (Takahashi, 2017) in current business models through disintermediation (Voshmgir & Kalinov, 2017), since all kinds of value exchange could be hosted on the network (Schwab, 2016) and not only the original intended financial transactions (Takahashi, 2017). In fact, “any transaction, product life cycle, workflow or supply chain could, in theory, use blockchains” (ibid). “Blockchain has taken P2P architectures to a new level” (Voshmgir & Kalinov, 2017), being now possible to move to completely decentralized data structures (ibid). Rivière (2018) goes as far as saying that it is likely that blockchain changes the way innovations are conceived and protected. The technology could be the main driving force for a new generation of the Internet, the Web3 or the Decentralized Web (Voshmgir & Kalinov, 2017), one that is closer to what the “original Internet” was supposed to be: “more decentralized, more open, more secure, more private, more equitable, and more accessible” (Mougayar, 2016). Ultimately, blockchain can reshape the economy (Iansiti & Lakhani, 2017).

... and limitations

However promising blockchain might seem, there are limitations identified. Iansiti & Lakhani (2017) claim that blockchain will indeed revolutionize businesses, but it will take longer than what most people think. First off, the technology in itself is a novelty: not a lot of research was done on the subject and, so far, many of the applications of it are only exploratory (Rivière, 2018), making it unclear how and especially when it will be adopted (Iansiti & Lakhani, 2017). Smart contracts in particular might take the longest to be adopted in many industries (Voshmgir & Kalinov, 2017) as heavy institutional and legislative support is necessary (Rivière, 2018) or if network effects that require technology adoption or standardization through the supply chain takes place (Voshmgir & Kalinov, 2017). As a foundational technology with the potential to deeply impact economic and social structures, the institutional change and technologic adaptability necessary will suffer a gradual, and not sudden, process (Iansiti & Lakhani, 2017). In this respect, Iansiti & Lakhani (2017) developed a framework where different blockchain applications can be mapped depending on the levels of novelty and complexity, with use cases where those levels are low (single use) are easier to implement and other cases where there are higher degrees of complexity and novelty (transformation) which require deeper institutional changes, as can be seen below:

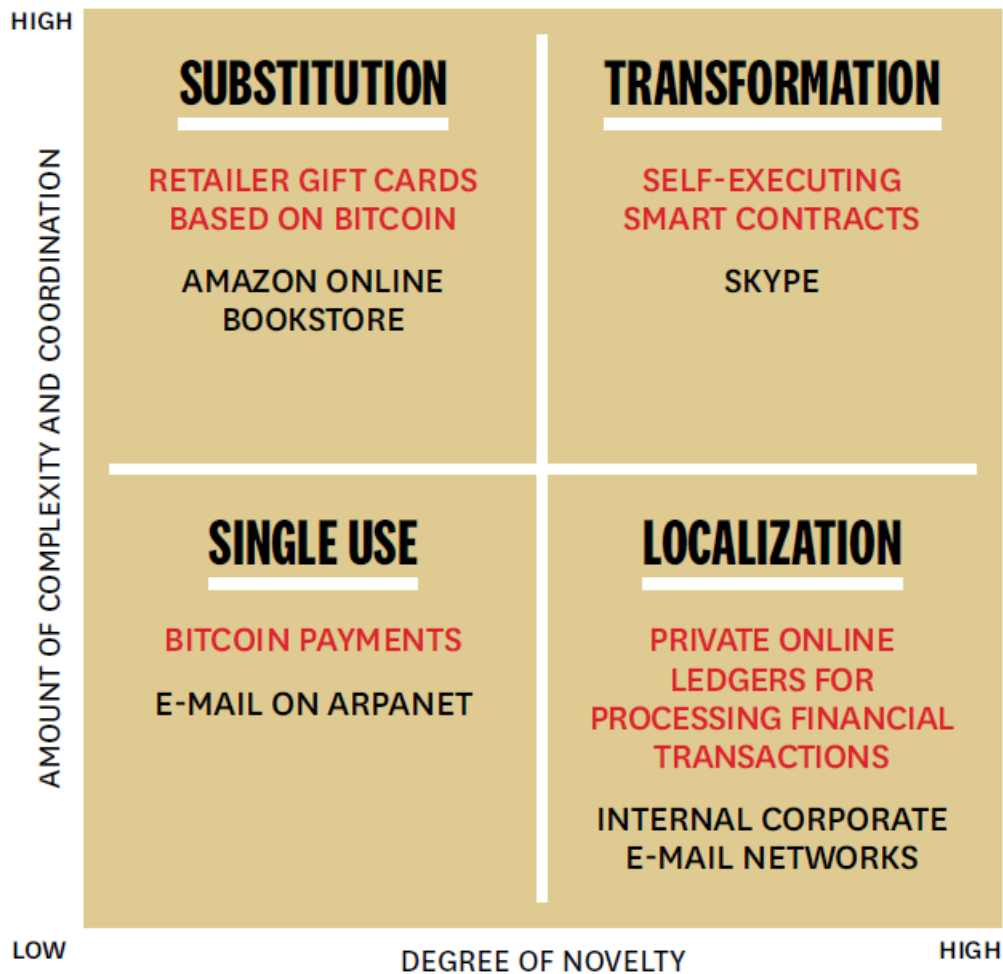


Figure 14 - Adoption of foundational technologies in four phases (Iansiti & Lakhani, 2017)

Other preoccupations are related with scalability, since as of now “blockchains are too slow” (Voshmgir & Kalinov, 2017); environmental sustainability (Tapscott & Tapscott., 2016) – in a pessimistic scenario, by 2020 Bitcoin mining could lead to a similar energy consumption of a country like Denmark (Deetman, 2016); and privacy, that is not allowed in the technology by design (Voshmgir & Kalinov, 2017), since all transactions can be inspected by everyone, even if someone is under a pseudonym (Insiati et al., 2017).

Blockchain in the Music Industry

Potential applications

“In the creative economy, blockchain can redefine how artists are remunerated by acting as a platform for creators of intellectual property to receive value for their work” (Takahashi, 2017).

It introduces the concepts of “authenticity, condition and ownership” (Tapscott & Tapscott., 2016) and rebalances the rights between creators, intermediaries and consumers (Rivière, 2018). The technology can bring significant change to the industry by working as a database and network (De Leon & Gupta, 2017), easing the task of identifying the true copyright holder and “tracking derivative works through the value chain” (Arcos, 2018). It brings transparency to it (ibid). More detailed uses of the blockchain are specified below.

The blockchain can work as a “networked database for music copyright information” (O’Dair et al., 2016). By having it on a distributed ledger, updated instantly and automatically, and available to everyone in the network, the information would no longer be in silos (ibid). It would help in the organization of the immense amount of data related to the music that is uploaded every day, making clear who was involved in the making of the song and other metadata (Heap, 2017), like terms of use and contact details for anyone who is interested in licensing it (O’Dair et al., 2016). “Thus, the real dynamic value of a product could be calculated by tracking a complex system of relationships” (De Leon & Gupta, 2017), allowing for “micrometering” or “micromonetizing” – snippets of a song could be made available for a certain price and the blockchain would track the precise components of the creative work that were used by the end user (Takahashi, 2017). This is possible because of the low transaction costs associated with cryptocurrencies, whose denomination can go to eight decimal places (O’Dair et al., 2016). Moreover, pricing for creative content could be more dynamic, fluctuating according to supply and demand (Takahashi, 2017) and PROs could charge consumers of music for what they actually play rather than for a fixed rate (De Leon & Gupta, 2017). Therefore, there is a potential for revenue optimization (ibid) and for the creation of a comprehensive copyright database for music (O’Dair et al., 2016), solving the issue of global registry (De Leon & Gupta, 2017).

Another possibility with this new technology is “facilitating fast, frictionless royalty payments” (O’Dair et al., 2016). Smart contracts could allow music royalties to be distributed between rights holders as soon as a stream or a download occurs, according to the terms of those contracts (ibid). Such terms could also be fairer to all the stakeholders involved (Takahashi, 2017) and both creators and end users could have quicker and smoother interactions (Heap, 2017). The time it would take for an artist, in particular, to receive what they are due could decline drastically (De Leon & Gupta, 2017), all while in a transparent manner (Takahashi, 2017) that reduces counterparty risk (O’Dair et al., 2016).

In regard to transparency, the distributed ledger technology would offer it along the value chain (O’Dair et al., 2016). Its public nature allows for scrutiny on who owns a certain piece, who accessed it and how much revenue it is generating (Takahashi, 2017), thus combating a culture of “black boxes” and non-disclosure agreements within the sector (O’Dair et al., 2016). This new culture of transparency could go as far as having the artist getting access to data on those listening to their tracks – who, how, when, where (ibid).

O’Dair et al. (2016) propose another use for artists of this technology: they could seek alternative sources of capital, like crowdfunding or by having portfolio investors offering the means for emerging artists to get “access to resources, mentoring, facilities and networking in exchange for a small stake in their future sound record income”, while being able to monitor their activity due to the transparent nature of blockchain. According to Takahashi (2017), a reputation system could also be implemented, where both content creators and consumers would be allowed to verify one another, promoting stronger collaboration between them.

It has been suggested that blockchain could promote disintermediation in the industry due to the trustless nature of the technology. However, in practice, what is likely to happen is that any third party that adds value will remain, and, at best, musicians may capture a larger portion of the value generated, while the supply chain reorganizes itself: one such party could focus on a different role instead of intermediation (O’Dair et al., 2016). What is of particular interest is that the DLT could bring change in transparency, sharing of value and relationships with intermediaries, strengthening the most important relationship in music: the one between the artist and the fan (ibid).

Limitations in applying the technology to the music industry

To the same extent that many people are hopeful in the potential applications of blockchain, others tend to be more sceptical, believing that many of the claims are overstated and it will take years to see the benefits of the technology in the music industry (O’Dair et al., 2016).

To begin with, government action is necessary, for legislations supporting the implementation of blockchain are required (McMullen, 2017). Only after legal frameworks are defined, transactions using the technology can be recognized (Takahashi, 2017). Moreover, any dispute may still require traditional mechanisms (ibid), such as courts, being difficult to predict how they will receive them (O’Dair et al., 2016). This is particularly important in the matter of governance and permissions, as it is unclear whether the blockchain in this economy should be

public or private (Takahashi, 2017), with the present fear of erroneous data being entered (O’Dair et al., 2016). That is, who enters the data and how it would be verified are pressing issues, as there are concerns over “dirty data” and the troubles of resolving conflicts caused by it (ibid). In summary, while the potential benefits are clear, reaping them will require the development of the technology “within the right regulatory frameworks” (Takahashi, 2017).

Other limitations are related to the technology’s reception by both the industry and the masses. Firstly, not everyone seeks transparency – adoption by labels and publishers would most likely happen if there was a belief that this transparency would attract more fans and artists; fans, on the other hand, may be unwilling to share some data; and the same applies to the musicians, as not all of them feel comfortable in disclosing their revenue, for instance (O’Dair et al., 2016). At the same time that it is easy to imagine an emerging artist employing the technology, the same cannot be stated about major stars (ibid). And while some platforms intend to focus on the independent segment, some see this alienation from the major label system as a fundamental weakness to achieve critical mass (Silver, 2016). Furthermore, it remains unclear how big the threshold of artists has to be in order to disrupt the status quo in the industry (Takahashi, 2017). The involvement of high-profile artists could be helpful in that task (O’Dair et al., 2016). In any case, even though the technology’s potential for disintermediation could have been exaggerated, it can still be seen as a threat by the industry and its adoption by large corporations may be dependent on the value proposition it brings (ibid). Moreover, the musicians’ ability to market and promote their creations is questionable and the traditional agents might still be helpful in these tasks (Takahashi, 2017).

Finally, Takahashi (2017) finds further challenges in the storage of this creative media (should it be as metadata or access keys?) and in the methodology for micrometering and micromonetizing. Moreover, he states, such pricing mechanisms could “miss the subtleties of how creative works are valued”.

METHODOLOGY

Research Approach

The literature reviewed provided information on the blockchain technology, answering the question “RQ2: What is “blockchain”?”. Furthermore, significant steps were taken in the objective of solving other two questions: “RQ1: How is the music industry structured?” and “RQ3: How can the blockchain technology be applied to the music industry and what major changes will result from that?”. For the former case, it was defined the industry’s history with technology disruptions, bringing up important changes along the supply chain. The several players in the sector were identified and characterised, just like the most prominent issues currently affecting the industry. For the latter, the potentialities of the blockchain within the context of the musical economy were established, while taking into account the characteristics of the technology pinpointed in the answer to RQ2. However, there is more to those answers than what the literature provided. Thus, the objective in the next section is to complement them with real life scenarios, getting a deeper understanding of the subject matter and to finally answer “RQ4: What will be the impact on the industry as a whole?”.

In order to do so, a qualitative approach was chosen, since that is the most appropriate way of responding to questions of “how?” and “why?” (Yin, 2010). That being said, a number of case studies were selected, thus providing a multitude of perspectives on the subject matter, which can only enrich the analysis. The objective was to have respondents along the industry’s value chain and with heterogeneous interests and visions. These multiple case studies were taken in the form of one-on-one interviews, audio recorded, and ranging from 45 to 90 minutes long, with the exception of one interviewee that replied by email. It is also important to note that most of the respondents were based in Lisbon, where the interviews took place, between the months of December of 2018 and March of 2019. Beforehand, all of them had access to a brief description of the paper and the objectives of the study. Although there was a script created for each interview, there was a lot of flexibility in reordering questions or getting deeper in certain subjects with follow-up questions. The qualitative data collected, complementing the information studied before, allows for the expansion of the analysis on the industry. More specifically, an outlook on supply and strategy (with focus on attractiveness) in the music industry will be provided, utilizing the Five Forces framework, which is relevant to find differences among industries, to understand how they evolve and, most importantly for this case, how companies can find a unique position (Porter, 1998).

Case Selection and Data Analysis

“The music industry is a difficult target group to gain access too” (Graham et al., 2004). While the main objective was to have each of the industry actors represented in these interviews, that was not entirely possible: there was no realistic way to reach to a major label or a digital service provider on an international scale (or any big player for that matter). However, the cases selected are all very interesting in their own terms: among the different artists interviewed, for example, there is an amateur musician that takes music as a “serious hobby”, an amateur musician that dreams in reaching a higher status and that has another role in the industry (in the case, the role of a radio broadcaster), a professional musician with an international career or a professional musician who is successful in his national territory. Moreover, a big and a small promoter were interviewed, as well as a retailer and a booking agency. In addition, two participants are entrepreneurs in the music business and have knowledge on blockchain. While not every actor in the sector was covered, there was still a high degree of diversity in the perspectives registered, which is crucial for a better qualitative analysis. A brief description of the most notable blockchain projects within the music industry as of now can be found as an appendix, thus expanding on the real-life cases that were already studied. With this work, a current picture of the industry is proposed. The relationships between the several entities are understood from an inside perspective. The pain points identified before are either confirmed or rejected, and the smaller players have an opportunity to voice their opinion. And, most importantly, we understand where blockchain is currently situated in the overall picture. For instance, do these actors even know what blockchain is? A biography for each of the interviewees can be found in Appendix 2 and a short description is provided below:

Interviewee	Role	Associated Act or Organization	Description
André Fidalgo Moniz	Co-founder and Programmer	Tradiio	Digital Platform
André Santos	Co-owner	Flur Discos / Filho Único / Holuzam	Retailer / Promoter and Booking Agency / Label
David Santos	Musician	Noiserv / You Can't Win, Charlie Brown	Solo Act / Band

João Abrantes	Musician	Jonny Abbey / MEERA / Aurea / Isaura	Solo Act / Band / Collaborator / Collaborator
Luís Montez	Managing Director	Música no Coração	Promoter and Radio Stations Proprietor
Martinho Lucas Pires	Lawyer and Part- time Musician	Marty / O Deserto Branco / Amor Fúria	Solo Act / Band / Label
Ricardo Duarte	Engineer and Co- founder	Nariz Entupido	Promoter and Label
Rui Teixeira	Co-founder and Producer	Soundbet / BetProtocol / b4rr	Digital Platform / Service Provider / Solo Act
Simone White	Musician	Simone White	Solo Act
Tiago Castro	Musician and Radio Broadcaster	Acid Acid / SBSR.FM	Solo Act / Radio Station

Table 1 - Interviewees' short description

FINDINGS AND DISCUSSION

Case Studies – Interviews

By approaching these multiple case studies, a number of objectives were to be accomplished. One of the first goals was to expand on the literature review regarding the positioning of certain players in the supply chain and the relationships between them. Furthermore, it is important to understand how these entities bring value to one another. Only then, it will be possible to frame the upcoming blockchain platforms within this network.

One thing that is noticeable straight away is that the music industry and formalities do not go hand in hand. This also helps to clearly differentiate at least two large layers of the industry, something that had been hinted before in the past literature: one where large corporations operate, including major labels, signed artists, big promoters and agencies; and one where the word “independent” is key.

To better explain, a few examples from our case studies: none of the smaller artists that were interviewed are indeed signed, albeit most of them work with a specific label. At the thought of being signed, Martinho Lucas Pires laughs: “at this level it doesn’t work that way”, then adding that “the label is more a group of friends than anything else”. It was exactly that way that Ricardo Duarte’s promoter and label, Nariz Entupido, was born. And Nariz Entupido, which is about to release Tiago Castro’s new record, does not have any signed contract with the musician. It is all talked over and done with trust and friendship. These verbal agreements include for the most part the costs of manufacturing the physical releases, their distribution and some promotion, including the help in obtaining offers for live concerts. The lack of formal structures is necessary at such a small dimension, since “if you put lawyers and such in the mix, the money is so little, it isn’t worth the investment”, says André Santos.

With majors, things work differently. Once an artist is signed, there are a few contractual obligations they have to comply with, which can go from making a certain amount of records to performing a certain amount of times, in a given period. The labels then take care of the distribution of their work, both physically and digitally, something that does not happen all the time at a minor level – from the examples studied, there is the case of João Abrantes and the label Discotexas, that takes care of putting his works available to listen in the online platforms; other minor artists take care of that themselves. Moreover, major labels can take a percentage of the fees paid for live performances and hold the mastering rights of the records, which means royalties are split between them and the artist. On the other side of the spectrum, there are

benefits for these musicians when it comes to promotion, career management, agency (bookings) and PR, to name a few. In order for Luís Montez's Música no Coração to bring these acclaimed musicians of our contemporaneity to the Portuguese stages, they have to participate in auctions and a lot of bureaucracy goes into the whole process. A reality that is not remotely close to the one faced by a small promoter like Ricardo Duarte's Nariz Entupido or André Santos's Filho Único.

At this point, the distances between the two realities present in the music industry are fairly distinguished. The question is: how will blockchain platforms intrude themselves in this network of relationships? Looking at real life examples, it seems that some of them have been opting to deal exclusively with the independent layer of the industry. Bittunes, for example, states it clearly in its mission, by wanting to shift the power from the major corporations currently running the industry to the artists. PeerTracks is another case of a blockchain company leaning towards the independent layer. Nevertheless, it appears to be simpler to convince an unknown artist to use such platforms, as they could see it as a possible extra source of revenue. Models like the one Tradiio experimented are particularly interesting for them, since having a patron in the early stages of a musician's career can prove to be a defining moment for its success. For the musicians there are little to no risks associated with what current blockchain platforms offer – an example is Ujo Music, where musicians can share their work for free. As it was possible to understand from the interviewees' testimonies, many of the artists take care of their digital distribution themselves. The lack of constraints in this subject is certainly appreciated by the new platforms, who do not have to deal with labels and the contractual obligations they could have with the musicians. David Santos, known as Noiserv, chose Bandcamp to be his online store – that role could potentially be taken by a blockchain platform. As seen in the LR, democratization in music came for both the recording aspect (better quality equipment for cheap, which means anyone can record an album at home) and the distribution side of the business (a great variety of platforms to share the music with little to no entry barriers). Meaning, increasingly more people can record music and share it, which means that the tendency is for the “long tail” of the industry to continue to enlarge.

For many of the next blockchain startups operating in music, this magnitude of the market can only be relevant if the musicians are aware of what they have to offer to them. This pushes forward another objective to be reached from the interviews made: to understand the level of knowledge existing in the industry in relation to blockchain. When asked if he had ever heard of blockchain, Luís Montez funnily replied: “No. What music style is it?” It seems evident from

this sample of the music industry that there is an unfamiliarity with what blockchain is and even with terms like cryptocurrencies and Bitcoin. In most of the cases, at best they had heard the word before, but were not able to explain their meaning and uses, much less the technology behind it. Even Martinho Lucas Pires, who due to his professional background as a lawyer and PhD candidate, has a deeper level of understanding on the subject of blockchain, had only heard of Imogen Heap's project, Mycelia, and did not seem convinced on how innovative the technology can be for music. Rui Teixeira argues that musicians do not have to know about blockchain, nor they do have to lead the way to its adoption. "It's like saying the path to get electrical cars has to be done by the consumers", he adds. But the reality is that musicians are the ones to potentially benefit the most, the most affected party. Moreover, it is safe to say that no one will suddenly switch from a system that, even if inefficiently, is working to one they have never heard of before. That is, if the future of musicians goes in part by accepting cryptocurrencies as payment for their work, there must be a certain level of understanding of its advantages.

The keyword here is "education". The success of the blockchain platforms in the music industry could be dependent on educating its public, so they can understand why it is better to use them and transition from the current system. That is what Mycelia is also trying to do, by touring the world, giving conferences on the subject. Another word for this process can just simply be "marketing". The platforms are offering a service and the musicians ought to know what it is about them that makes it worth embracing. As stated above, at least for the long tail, there are no access constraints, and there is a potential to capture a big audience from that segment. However, as it was noted in the LR, there is a limitation to this task: the lack of practical results due to the novelty of the technology. That is the reason why Rui Teixeira thinks that, at this point in time, the biggest advantage for musicians to adopt this innovation is solely for R&D. He says that nowadays "the users are the investors too. It's still a niche." So, perhaps there is a need for the subject of blockchain and cryptocurrencies to go mainstream, in order to receive massive appeal, especially in a global market such as the music one. That is also why having Imogen Heap, a Grammy Award winner, as the face of this movement is relevant, and getting international stars like Björk and Pitbull aboard the blockchain wave brings notoriety and credibility to it. As stated in the LR, it is important to have high-profile artists involved in order to achieve critical mass (O'Dair et al., 2016).

However, do musicians really feel the issues blockchain is trying to solve? This question is the genesis of the third objective of these interviews and comes from the obvious idea that it could

not even make sense to advertise something no one needs to begin with. It is safe to say that, in general, the pain points identified before are felt by the musicians. Nevertheless, those do not seem as obvious to them as other issues affecting their work at the moment, namely the difficulty in breaking through in the industry, in getting exposure and promotion for their creative work.

Starting with the eventual need for a database that gathers information on who wrote, performed, licensed and, generally, on who has rights over a song, it can be said that this is not a pressing issue in the music community as of now, but they see its utility. In other words, while none of the interviewees brought up the subject by themselves, when confronted with a potential solution that was transparent and accessible, besides allowing one to stipulate (or see) the conditions of use to their songs (or another's), which could be done through smart contracts, it was unanimous that something in those parameters could be useful. Dot Blockchain Media is an example of a project tackling the issue of incorrectly matching the songs with their creators, while Blokur is another project focused on data accuracy in music.

When it comes to piracy, an issue that can be at least attenuated with storage of data on a blockchain, the general perception among artists is that they do not mind it at all and, in some cases, are even thankful for the opportunity it provides to anyone wanting to discover new music. “Without piracy, people would have never gotten to know my work”, states David Santos, and Simone White recalls a time when she got to know how many tens of thousands of times her album was downloaded: “I wasn’t mad, I guess I was flattered. Sure, it would have been great if those were sales, but everything has changed, and I don’t think you can expect that anymore.” Despite understanding how this phenomenon can hurt labels and distributors, the musicians show a feeling of comfort – they can live with piracy. And that is mostly because what they seek the most is exposure: they need to have people listening and liking to their records no matter what, because only then they can sell out shows, which is musicians’ “biggest source of income”, says João Abrantes – a consensus among the interviewees.

This necessity in having their music listened to helps explaining why the current solutions (most notably, streaming platforms and radios) are accepted by the artists. Judging from the data previously gathered, where the industry’s recent recovery is much due to these digital platforms, it is possible to conclude that consumers are adopting these services more and more. And, given that, there are not that many incentives for the public to switch to new platforms based on blockchain. Rui Teixeira makes it clear: “If consumers aren’t using a certain service, that’s

because the service is either bad or isn't that good enough yet. Why would I switch from Spotify to imusify? There's no reason for that. We start using things when they are useful." Knowing that, Aurovine rewards fans with AudioCoins, its cryptocurrency. But while the traditional platforms are not perfect, Tiago Castro thinks they "are essential" and Simone White adds that "if you don't have your music on Spotify, it's like you don't exist." The criticism surrounding such platforms is understandable for the artists, but Noiserv leaves things clear: "Spotify isn't here to help musicians. It's a company that wants to make money. People accept to put their songs there or not. I may not have them there. If I think they should pay me more, I can just remove my work from there."

This brings the discussion to the final pain point to be confirmed: the lack of transparency and efficiency in the revenue streams to musicians. In the case of the streaming platforms, besides the low and undiscovered rates, the most pressing complaint regards the time it takes to receive royalties. "I can be receiving in January from three years ago. I have no idea", says David Santos. This latency is clearly addressed by the blockchain platforms that promise instant payments. The concept of receiving accurate dividends in real time seems "ideal" to the artists.

However, the biggest concerns are related to the work of Sociedade Portuguesa de Autores, a PRO (or a copyright collecting agency) in Portugal. From artists to promoters, from entrepreneurs to radios, almost all the respondents did not seem to hold SPA in high regards, with complaints on its archaic and non-transparent way of collecting and distributing royalties. The first red flag comes when some of the musicians were not even bothered to be registered in SPA. In those cases, since the due payments would be so irrelevant, the musicians think it is not worth going through the process of registering and periodically ask for the copyrights, which ends up being costly. Because of that, some of them also have the perception that it is always the same people getting the money – an idea refuted by João Abrantes, who thinks royalties for unregistered artists are kept in possession of SPA until they claim them. But this sentiment is a strong reason for the emergence of the so-called "black boxes", as seen in the LR. Moreover, SPA does not take into account the different dimensions existing in the industry, treating everyone the same way: both Ricardo Duarte and André Santos think SPA only introduces more limitations to the growth of artists, as they are obliged to pay to play, which can deeply hurt an artist in the early stages of their careers. Regarding this, David Santos, who is not a newbie in the industry, feels the same way: "It doesn't make sense" – the most repeated sentence during these interviews, mostly in regard to the archaic methods of collecting royalties today. It is important to note that this is not a national issue. Simone White, American, brings

the same topic to discussion: “I’m signed with ASCAP to collect my royalties, but lately I’ve heard there are many different bits and pieces that aren’t being collected by them. It’s hard to keep track of everything that’s collectable.”

The current system relies on trusting the radios to make the playlists with all the songs they transmitted and send them to the PROs, and then trusting those organizations to collect the right amount of royalties and distributing it among the musicians who are signed with them. “The amount of errors that can happen is enormous”, says Rui Teixeira. With the existing technology, it is safe to think those errors could be avoided completely, as “it’s possible to know exactly how many times a certain song and artist were on the radio and the amounts [of money] due because of that”, he adds. If that kind of information were to be stored in a blockchain and smart contracts were to be implemented, there would be no way around: artists, no matter the notoriety they have, no matter how many times their songs were played and no matter where those were broadcasted, would receive their royalties accordingly. That is the kind of guarantee they seek.

A limitation to the work of blockchain platforms in this particular matter is the existing level of “ignorance about all of those processes” in the music community, as Ricardo Duarte mentions. Tiago Castro then adds that this unawareness can also be blamed on the artists themselves: “many don’t even care anyway and are only interested in the creative side.” One more time, part of the job of the new platforms is to educate the musicians that there are valuable alternatives for them.

Furthermore, the cultural aspect is something to consider for any company with a strategic vision. As stated before, not everyone seeks for transparency. Luís Montez sees the South European economies, in which Portugal is included, as places where “if they can avoid stuff like taxes, they’ll do it”.

To end the discussion, one final note: while the entrepreneurs interviewed, André Fidalgo Moniz and Rui Teixeira, seem to believe in a world with digital music exclusively, the reality the music community – artists, labels and retailers – perceive is different, since, not only they themselves are interested in putting out physical copies of records, they also firmly believe there will always be a market for them.

Industry Implications

Supply

Until the moment that a fan hits “play” and listens to a song, a lot of different processes take place and a lot of different actors interact. It was the objective of both the LR and the previous

section to understand who these actors are and how they connect with each other. The whole point of this discussion is that between an artist and a music fan there are countless intermediaries. In this segment, there is a focus on what will happen to the supply chain of the music industry if blockchain is successfully introduced.

So, how can blockchain impact this area? First of all, blockchain brings more innovation to the industry. New ways of reaching out to fans could potentially be found. Working as a database, the blockchain would allow new projects related with the treatment of data – and that could go from new social media based on music to music databases. In summary, new players could appear and add value outside the main chain of supply. Regarding that, there are some chances that new platforms using blockchain could be the only ones standing between the artist and the consumer. For that to be successful, though, the consumer would have to find value in it. If streaming is popular now, it is because it is cheap and convenient. New blockchain platforms not using streaming would have to provide new experiences and advantages to the fan to make it worth for them to pay for a record. An example of this are crowdfunding platforms using the distributed ledger technology. People who contribute to the artists' revenues are rewarded with their derivative works or with tokens, to name a few examples. However, blockchain platforms can still wage on streaming, thus competing with the already existing platforms. And it is also possible that the already existing DSPs adopt the technology: Spotify acquired Mediachain, a blockchain startup, and, together with YouTube, SoundCloud, Pandora and others, is a member of the Open Music Initiative. Finally, and most importantly for this section, if the new blockchain platforms work as intended, there is no reason why inefficient and costly intermediaries like PROs would not be substituted by them. For instance, looking at the case of radios, there are already applications that retrieve the playlists used by them in a broadcast. Using that information, the blockchain platform can pay the rights immediately to the artists – with its fair value and with no “black boxes”. Therefore, a reorganization in the industry could happen. Blockchain is not able to produce marketing efforts, data usage, networks nor counseling, so labels will always exist. But their focus could potentially shift to those tasks. In summary, whatever adds value will always stay. And, as seen in the testimonies from the previous section, artists do value the work labels do.

Having all of this in consideration and taking Hosoi et al.'s representation of the recorded music industry supply chain into consideration, a new one is proposed below. It is to be noted that the link between record labels and blockchain platforms may exist or not, depending on the

dimension of the industry considered. Physical retailers are still in the equation, since it was proven that demand for it will keep on existing.

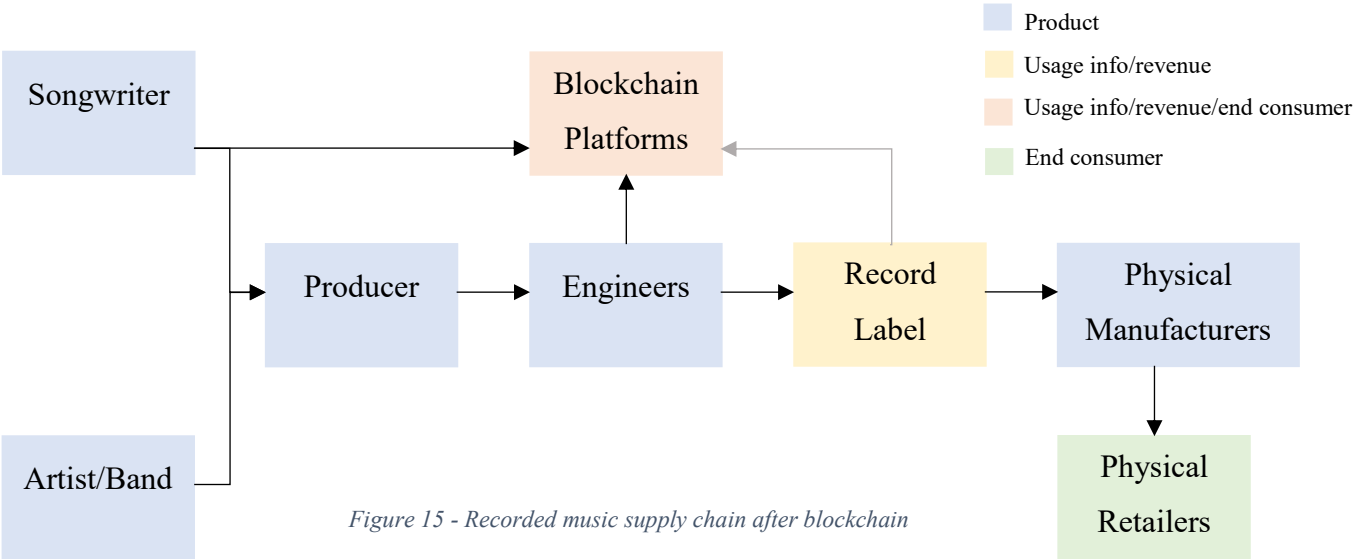


Figure 15 - Recorded music supply chain after blockchain

Attractiveness

In order to evaluate how the new blockchain platforms and networks would enter the market, the Five Forces of Porter are used, establishing the key factors and characteristics of the industry that a new entrant should consider.

Starting with rivalry among existing firms, we should note that the music industry is comprised by a lot of players competing for revenue. In the case of labels, as it is simple to start one, that becomes more evident. However, small labels can differentiate themselves by specializing in a certain music genre or by releasing records in certain formats. A blockchain platform can either compete against or complement the work of labels, and questions about product differentiation can mostly concern the catalogue of artists (and, therefore, of labels) available in that platform. What is more relevant to note is perhaps that the industry is controlled by three major labels, but also that the independents have been gaining market share, totaling 39.9% in 2017 (WIN, 2018). But, again, when we look at cases such as Bittunes, that pretty much rejects major labels or any label that does not give full control to the artist, it can be seen that there are ways to differentiate through the catalogue. It is also important to register that the industry’s revenues have been growing for the past three years, much due to digital, which makes it attractive for new blockchain platforms. Looking at streaming, a blockchain platform providing such service will face competition of several giants: Spotify, Apple Music, Google Play, YouTube, Pandora, Deezer, to name a few. Moreover, streaming’s adoption has been increasing, with more users

subscribing every year (IFPI, 2018). For those reasons, rivalry is considered to be medium to high.

The threat of new entrants is the next dimension to be evaluated. While it is true that there are no relevant barriers to entry due to the democratization in music-related technology, and since capital requirements and switching costs are not high, especially compared to other industries, it is also true that to succeed in the industry there is a need for access to an extensive network of artists, labels, publishers, DSPs, and so on. In a sense, the already established networks, formed with highly talented, experienced and specialized people, constitute a barrier to entry to new platforms based on blockchain. Or, at least, they constitute a limitation to their quick ascension. However, that is mostly the case for the layer of the industry where majors operate. As proven before, the independent layer is less formal in its relationships and less specialized, so more accessible for new entrants.

When it comes to the threat of new substitutes, it is possible to look at it from two perspectives: the consumers and the artists. From the consumers side, access to music can be done in several ways. The most relevant substitute to the traditional methods of accessing music will always be piracy, since there are no switching costs associated with it and its price is either much lower or nonexistent. Other forms of entertainment can also be considered as potential substitutes to music, and in that scenario, digital music is deemed as a cheaper form of entertainment. Looking through the artists' perspective, there are several different ways of sharing music too, once again with little to no switching costs in the case of independent artists. If they choose to put their music available online for free, they can. If they find a more profitable way of promoting their music, they will adopt it.

The most important suppliers of music are the musicians themselves. They are the ones using their talents and abilities to create new songs. Their voice, their skills with instruments, their creativity and capacity to innovate, their expertise in a certain musical genre – these are all characteristics that make a musician unique and, therefore, a highly differentiated product. In addition, through technology democratization and the advent of the internet, musicians hold the possibility to make forward vertical integration, recording and producing their own work and releasing it to the public. It would seem that the bargaining power of the suppliers would be high in this case. But, in reality, as proven with the research presented before, the artists need the platforms more than the platforms need the artists, with the exception of the ones that reach

a status that the majority are unable to achieve. And even those seek scalability, something they cannot attain on their own.

Finally, when it comes to the bargaining power of buyers, who are the music listeners, history shows that, by choosing alternative ways to acquire music, the fans forced the industry to reduce prices of records, both physical and digital. This is due to the virtually nonexistent switching costs and the fact that buyer concentration relative to suppliers is much higher.

All things considered, the music industry is only mildly attractive for new entrants, such as blockchain platforms. On one hand, the industry is growing, the market is huge, and the potential to bring in artists to try this new system is very relevant. However, on the other hand, the competition is fierce, with major corporations battling it out for the control of the market, and the most accessible segment of the industry is also not the most lucrative one.

CONCLUSION

Analyzing past literature on the subject of blockchain in music, it was noticeable the focus on the “blockchain side” of it. This research aimed to provide a better picture of the music industry, by identifying all the agents involved in the process of recording and distributing music and studying their relationships. Only after that, it was possible to frame the new blockchain platforms in the grand scheme of things.

Despite the potential for disintermediation that blockchain brings, a first thing to note is that whatever adds value will be kept in the industry. And there is a consensus in the music community on the importance of labels: “there’s a myth that if you have access to the internet then you can do everything by yourself”, says Martinho Lucas Pires. While the advent of blockchain allows for the distribution of creative content in a direct fashion, it is also true that the work of labels goes beyond just that. Therefore, what blockchain might bring for labels is a reposition in the value chain.

Current streaming platforms are also deemed as “essential” to the musicians and, according to Rui Teixeira, the best solution the market has to offer. In this regard, blockchain platforms waging on this model (and even on the crowdfunding model) will face a fierce competition, with big players already established in the market and capable of offering what musicians seek the most: visibility.

The matter of fact is that, despite being able to confirm that the pain points identified by the blockchain ventures exist, they do not represent the most pressing issue in the industry. A platform which is not capable of providing the exposure musicians need is doomed to fail in a market where other players are able to do so.

The first step should focus on educating both the future consumers and the musicians, which can be done recurring to marketing efforts. The research showed that few people know about blockchain, and even less know about its potential in the music industry.

But it is not all bad news: there is an enormous pool of artists with potential to be adopters of these platforms. One of their main characteristics is the fact that they do not have strings attached to other entities, many times taking care of the recording and digital distribution themselves, and thus more easily accessible. They are part of one of two dimensions identified in the industry – the independent, in this case. These artists seek exposure, but they also feel the pain of having to count every penny, so an extra source of income (crowdfunding or

licensing bits and pieces of songs) would be welcome, as well as a more efficient system, in which they can be fairly compensated for their work – all things that blockchain can grant.

All things considered, blockchain can reorganize the industry and bring more value to it. However, it is not expected for it to happen in the near future. Aside from the institutional changes needed to embrace the technology, a level of familiarity with it from both the end consumer and the artists is necessary. Only then, exploratory blockchain platforms can evolve and prompt all the expected benefits to the industry.

Limitations and Future Research

An obvious limitation faced when researching on the subject matter is the novelty of the whole situation (not only the technology, but its application to this industry too), which culminates in a lack of practical case studies with actual results. As of today, it is difficult to say if the companies venturing in this area will be successful. The theme of blockchain is far from being mainstream, there are not many adopters, and so there are not many conclusions to be taken on the profitability potential of these platforms or how much they will contribute for the continuous growth of the industry.

For that reason, it is recommended that future research focuses on the financials of these companies, answering questions like the following: what are the costs of implementing the technology? How much more revenue are the artists getting compared to traditional methods? What is the most suited business model? How can they be profitable? Then, it should focus on the impact on the industry as a whole: how many consumers adopted these services, shifting from others? How much are they contributing for the growth of the industry? Are they really more efficient than the traditional methods? What was the impact on the industry in quantitative terms?

Smart contracts can be implemented in the music industry. It is one of the main reasons why blockchain can be disruptive there. Yet, smart contracts are the most transformative tool in the blockchain spectrum, the one that requires the most institutional changes due to its high level of complexity and high degree of novelty (Iansiti & Lakhani, 2017). In other words, it will take some time until we see them being implemented at their full potential. Meaning that answers to the previous questions can take years to be fulfilled.

Despite the judicious selection of people to be interviewed, who provided very valuable content to the realization of this dissertation, coming from different perspectives (in some cases, one singular person was positioned in different sites of the musical network, being able to reply

from contrasting perspectives), it is undeniable that the sample is small and the research is skewed to one region of the globe: Portugal. While the music market is global and many of these people participate in it in such dimensions, it would be interesting to gather opinions from people operating in other markets, most notably the North American and the British, to name a couple.

Moreover, the perspective of international music stars, major labels and tech giants (distributors) is missing. How much of a threat is blockchain for them? Or is it an opportunity? Furthermore, it would be valuable to analyse the thoughts of the founders of the new blockchain platforms. Why did they start this? What do they expect in the short and long term? What are some of the biggest issues they are facing? Can they coexist with the current system? What is their strategy to achieve mass appeal? In addition, some cases of failure should also be studied in future papers.

REFERENCE LIST

- Arcos, L. C. (2018). The blockchain technology on the music industry. *Brazilian Journal of Operations*, 15(3), pp. 439-443.
- Baumol, W. J. (2002). *The Free-Market Innovation Machine: Analyzing the Growth Miracle of Capitalism*. Princeton, New Jersey: Princeton University Press.
- Daley, S. (2018). 17 blockchain music companies reshaping a troubled industry. *Built In*. Retrieved April 5, 2019, from <https://builtin.com/blockchain/blockchain-music-innovation-examples>
- De Leon, I., & Gupta, R. (2017). *The Impact of Digital Innovation and Blockchain on the Music Industry*. Inter-American Development Bank.
- Deetman, S. (2016). Bitcoin Could Consume as Much Electricity as Denmark by 2020. *Motherboard - Vice*. Retrieved April 5, 2019, from https://motherboard.vice.com/en_us/article/aek3za/bitcoin-could-consume-as-much-electricity-as-denmark-by-2020
- Edison Research. (2014). *Share of Ear*. Retrieved April 5, 2019, from <https://www.edisonresearch.com/edison-research-conducts-first-ever-share-of-ear-measurement-for-all-forms-of-online-and-offline-audio/>
- Graham, G., Burnes, B., Lewis, G. J., & Langer, J. (2004). The transformation of the music industry supply chain. *International Journal of Operations & Production Management*, 24(11), pp. 1087-1103.
- Greene, T. (2017). Björk's blockchain-based music project breathes life into a dying industry. *The Next Web*. Retrieved April 5, 2019, from <https://thenextweb.com/cryptocurrency/2017/11/06/the-recording-industry-may-have-just-found-its-savior-in-bjork-and-blockchain/>
- Heap, I. (2017). Blockchain Could Help Musicians Make Money Again. *Harvard Business Review*. Retrieved April 5, 2019, from <https://hbr.org/2017/06/blockchain-could-help-musicians-make-money-again>
- Hosoi, T., Kim, J., Stainken, D., & Caro, F. (n.d.). *Disintermediation in the Recorded Music Supply Chain*. Retrieved April 5, 2019, from <https://blogs.anderson.ucla.edu/global-supply-chain/2015/08/disintermediation-in-the-recorded-music-supply-chain.html>

- Iansiti, M., & Lakhani, K. R. (2017). The Truth About Blockchain. *Harvard Business Review*.
- International Federation of the Phonographic Industry. (2017). *Global Music Report 2017*.
- International Federation of the Phonographic Industry. (2018). *Global Music Report 2018*.
- International Federation of the Phonographic Industry. (2018). *Music Consumer Insight Report 2018*.
- Jones, C., & Conners, S. (2019). What is Article 13 and Article 11? *IT PRO*. Retrieved April 5, 2019, from <https://www.itpro.co.uk/policy-legislation/32552/what-is-article-13-and-article-11>
- Ku, R. S. (2017). The Creative Destruction of Copyright: Napster and the New Economics of Digital Technology. *The University of Chicago Law Review*, pp. 263-324.
- Leyshon, A. (2000). Time-space (and digital) compression: software formats, musical networks, and the reorganisation of the music industry. *Environment and Planning A*, 33, pp. 49-77.
- Leyshon, A. (2006). Sites of sound: recording studios and the musical economy. *Association of Professional Recording Studios*. University of Nottingham.
- Leyshon, A. (2007). The Software Slump?: digital music, the democratisation of technology, and the decline of the recording studio sector within the musical economy. *Environment and Planning A*, 41, pp. 1309-1331.
- Leyshon, A., Webb, P., French, S., Thrift, N., & Crewe, L. (2005). On the reproduction of the musical economy after the Internet. *Media, Culture & Society*, 27(2), pp. 177–209.
- Masnick, M. (2018). YouTube's \$100 Million Upload Filter Failures Demonstrate What A Disaster Article 13 Will Be For The Internet. *Techdirt*. Retrieved April 5, 2019, from <https://www.techdirt.com/articles/20181214/17272041233/youtubes-100-million-upload-filter-failures-demonstrate-what-disaster-article-13-will-be-internet.shtml>
- McCandless, D. (2015). *How much do music artists earn online?* Retrieved April 5, 2019, from <https://informationisbeautiful.net/visualizations/how-much-do-music-artists-earn-online-2015-remix/>

- McMullen, G. (2017). Blockchain & Law in 2017: Finally friends or still foes? *Medium*. Retrieved April 5, 2019, from <https://medium.com/ipdb-blog/blockchain-and-law-in-2017-f535cb0e06c4>
- Mougayar, W. (2016). *The Business Blockchain: Promise, Practice, and Application of the Next Internet Technology*. Hoboken, New Jersey: John Wiley & Sons, Inc.
- Musicwatch, Inc. (2017). *Music Consumer Profile - 2017*.
- Nakamoto, S. (2008). *Bitcoin: A Peer-to-Peer Electronic Cash System*.
- Narayanan, A., Bonneau, J., Felten, E., Miller, A., & Goldfeder, S. (2016). *Bitcoin and cryptocurrency technologies: a comprehensive introduction*. Princeton, New Jersey: Princeton University Press.
- Naughton, J. (2016). Is Blockchain the most important IT invention of our age? *The Guardian*. Retrieved April 5, 2019, from <https://www.theguardian.com/commentisfree/2016/jan/24/blockchain-bitcoin-technology-most-important-tech-invention-of-our-age-sir-mark-walport>
- O'Dair, M., Beaven, Z., Neilson, D., Osborne, R., & Pacifico, P. (2016). *Music On The Blockchain*. London: Middlesex University.
- Ølnes, S. (2016). *Beyond Bitcoin Enabling Smart Government Using Blockchain Technology*.
- Perez, S. (2017). Spotify acquires blockchain startup Mediachain to solve music's attribution problem. *TechCrunch*. Retrieved April 5, 2019, from <https://techcrunch.com/2017/04/26/spotify-acquires-blockchain-startup-mediachain-to-solve-musics-attribution-problem/>
- Porter, M. E. (1998). *Competitive strategy: techniques for analyzing industries and competitors*. New York, NY: The Free Press.
- PricewaterhouseCoopers. (2018). *Global Entertainment & Media Outlook - Outlook segment findings: Music, radio and podcasts*. Retrieved April 5, 2019, from <https://www.pwc.com/gx/en/industries/tmt/media/outlook/segment-findings.html>
- Recording Industry Association of America. (2018). *News and Notes on 2017 RIAA Revenue Statistics*.

- Rethink Music. (2015). *Fair Music: Transparency and Payment Flows in the Music Industry*. Boston, Massachusetts.
- Rivière, J.-M. (2018). Blockchain technology and IP – investigating benefits and acceptance in governments and legislations. *Junior Management Science*, 3(1), pp. 1-15.
- Schwab, K. (2016). *The Fourth Industrial Revolution*. Cologny/Geneva, Switzerland: World Economic Forum.
- Silver, J. (2016). *Blockchain or the Chaingang?: Challenges, opportunities and hype: the music industry and blockchain technologies*. CREATE Working Paper Series.
- Siwek, S. E. (2007). *The True Cost of Sound Recording Piracy to the U.S. Economy*. Institute for Policy Innovation: Policy Report.
- Takahashi, R. (2017). How can creative industries benefit from blockchain? *McKinsey & Company*.
- Tapscott, D. (2018). *Blockchain Revolution: The Internet of Value*. Insight Investment.
- Tapscott, D., & Tapscott, A. (2016). *Blockchain Revolution: How the Technology Behind Bitcoin Is Changing Money, Business, and the World*. New York, New York: Penguin Random House LLC.
- Tapscott, D., & Tapscott, A. (2016). The Impact of the Blockchain Goes Beyond Financial Services. *Harvard Business Review*. Retrieved April 5, 2019, from <https://hbr.org/2016/05/the-impact-of-the-blockchain-goes-beyond-financial-services>
- Voshmgir, S., & Kalinov, V. (2017). *Blockchain - A Beginners Guide*. Blockchain Hub.
- Watson, A. (2015). *New Business Strategies and the Reinforcement of Intellectual Property Rights in the Digital Economy*. Staffordshire University.
- Worldwide Independent Network. (2018). *WINTEL - Worldwide Independent Market: Report 2018*.
- Yin, R. K. (2010). *Qualitative Research from Start to Finish*. New York: The Guilford Press.

APPENDICES

Appendix 1: Interview structure

A script for every interview was created, even though it was only loosely followed. Depending on the answers given, some other follow-up questions could arise and there was a constant back and forth between the interviewer and the interviewee. What is more important to note is that the interviews were structured in four main themes or areas: one or two introductory questions regarding the person or the organization's biography; questions revolving around the industry's structure and relationships between the several actors; questions on the industry's pain points, with an emphasis on the ones the blockchain promises to solve; and finally a question

Background

To begin with, I would like you to confirm some facts about your musical career: it started in the year 2000, releasing your first album three years later on The Sincere Recording Company label; so far, you've released five albums, the latest, which was self-released, in 2017; the other three albums were released through the label Honest

The business – relationships in the music industry and its structure

Can you describe the process of recording songs? Do you do it at home, with your own equipment, or do you do it at a professional recording studio (with producers, sound engineers, etc.)? If the latter, is that something that your label arranges for you or do you incur in costs yourself?

Industry pain points

What are some of the biggest challenges a musician faces? Why is it difficult for someone to live from music alone?

Your music is available in pretty much every platform: Spotify, Apple Music, Bandcamp, Soundcloud, YouTube... However, not every album is, for instance, on Spotify (at least in Portugal). Why? And, in general, how has this streaming business been for you? As an artist, what's your opinion on this kind of service?

regarding blockchain, in order to evaluate the level of knowledge of the interviewee on that particular subject. With the exception of a few very peculiar cases, the theme of blockchain did not come before that final question. The reasoning is that it was assumed the interviewee did not know about blockchain and its implications. For that reason, it was tested if the person felt the pain points and, only then, blockchain was introduced in the conversation. Below there is an example of the script for Simone White's interview, which was the only interview conducted by email:

Jons, to which you are signed; you've toured all over North America, Europe and Japan. Is this correct? So, when did you realize you wanted to take music seriously, as a career and not just as a hobby? Was it planned, a dream of yours or it just happened somehow? Tell me your story. And what's next for Simone White as a musician?

What about labels? You're signed to Honest Jons and you released an album on The Sincere Recording Company. What was the difference in agreements/relationship between the two? What makes it advantageous for you to be signed to a label? Do you think labels are a "necessary evil"? Just tell me your general opinion on them.

I read that you had at least two songs in ads. How did that happen? Did you know beforehand, or did it catch you by surprise? Do you think you received all the copyright revenues that you were supposed to receive? Same question for every time your music played on the radio. In summary, do you trust performance rights organizations?

Is there a lack of transparency in this subject of royalties and copyrights? What would you do if you found out that one of your songs was being used by another person or entity (let's say in a video)? Is the industry missing a database on who created what, who owns the rights to what, who licensed what, etc.?

Blockchain

Finally, a simple question: have you ever heard of blockchain? If so, what do you know about it?

Appendix 2: Interviewees' Biography

So, what do you think about the music industry in general? What are some issues that you still identify? Do you think it is healthy at the moment? Also, has piracy ever hurt you, so to speak? And do you think the industry has learned to coexist with it?

Biography	Description
<p>André studied Computer Engineering, which led him to jobs in consulting and software houses in the beginning of his career. He started to lose interest in the field and decided to look at the business side with more attention. He went from company to progressively smaller companies. Working part-time, he dedicated his free time into creation of a new business in software development. Things went well and he ended up selling the company to one of their clients. Later, he started working in several online projects, while collaborating with Startup Lisboa. Along the way, he met Álvaro Gomes, who had the idea for Tradiio. With him and Miguel Leite, the trio would put the idea into action. Nowadays, André is collaborating in several other projects.</p>	<p>Tradiio comes from the mind of Álvaro Gomes, who found something off about the paradigm of the music industry, namely the way money and talent were distributed within it. The business started in the beginnings of 2014, after receiving a substantial investment. The initial idea revolved on how to extract talent from the industry in a more democratic way. In its first version, Tradiio was a music player, comparable to SoundCloud and Deezer. Artists would upload their music there and the tops would be based not only on number of plays, but also of votes, through virtual coins, from the public, making it more democratic. It was more like a game: you invest in an artist, who would increase their value, and then you would sell your share to buy others. Then, in a second phase, there was a clearer intersection between the music and the gaming industries. The logic behind it was mostly financial. Later, a new mutation: inspired by crowdfunding platforms like Patreon, the Tradiio team thought a monthly subscription would help musicians more directly. Despite the several different strategies attempted for three years, the company failed to successfully get a Serie A funding round and the software was not financially sustainable. But there are still plans for the future of Tradiio, as interest in it has been shown by investors.</p>
<p>André Santos is a historian that soon realized that he wanted to work in the music industry. He started collaborating with Flur Discos around 2004, doing press releases, eventually joining the store in 2006 after he finished university studies. He started by doing some work more related to logistics and customer service. Soon, he was doing a bit of everything at Flur and joined as a partner. The retailer then decided to start a label as well – Holuzam – and André is responsible for distribution. He joined Filho Único out of the necessity of doing even more for music, being closer to artists. He started by doing production and agency, and now he is a booking agent specialized in foreign artists mostly related to electronic music.</p>	<p>Flur Discos started in 2001 from the minds of Pedro Santos, of the record store Ananana, and José Moura, who worked at Valentim de Carvalho, where Flur is now located. That Valentim de Carvalho store was mostly dedicated to dance music, and Flur carried on with the legacy, but adding some of Ananana's catalogue. / Filho Único was launched eleven years ago as a promoter, but recently it transformed into a booking agency. / The label Holuzam is directly associated with Flur Discos and started out of the will do edit some vintage electronic music from Portugal that had never seen the light of day.</p>
<p>David's journey in music started in 2005 when he made a demo with three songs for an acoustic band competition. At the time he was finishing his studies in Electrical and Computer Engineering, at Instituto Superior Técnico, and pursuing music was not in his plans. When Tiago Sousa, a pianist, created the internet label Merzbau and listened to David's demos, he asked if David would be interested to release those three songs through the label. With the help of Tiago and his connections, David was able to perform live several times, until the point when he released his first album as Noiserv in 2008 and he settled in the music industry. Besides his two projects, his talents are recurrently requested for the making of soundtracks.</p>	<p>Noiserv is David Santos' solo project. His first album release was in 2008, with the help of Tiago Santos from Merzbau. Later, in 2010, he released an EP through the label Optimus Discos. Following that there were two more records, both self-releases, in 2013 and in 2016. Moreover, his repertoire counts with a live concert DVD, out in 2014. / The band You Can't Win, Charlie Brown started in 2009 with just three members, receiving more members as time progressed. Currently, they are six and David Santos was the fourth to join. They have released a self-titled EP in 2010, two albums under the label Pataca Discos (2011 and 2014) and the most recent one in 2016, released through Sony Music Portugal.</p>

<p>João Abrantes does not come from a background in arts. In fact, he studied Pharmaceutical Sciences for at least two years. But, when he was 18, he started to have guitar lessons, eventually finding in music a sense of gratification that he could not find anywhere else. To pursue this career path, he enrolled in Productions and Technologies of Music, in ESMAE, Porto. That is how the doors to the music industry were opened for him. As time passed, he was finding his artistic identity – Jonny Abbey. But that was not always a lonesome path: João was involved in several projects along the way. The first one was Fingertips – he was the “intern” guitarist for two years and even joined international tours with them. Later, he also joined Mirror People after being invited by the front man of the band, Rui Maia, to participate in a song. That experience went so well that he eventually joined the band for the production and tour of the whole album. Moreover, João is a producer himself. He often receives incomplete songs that he transforms, with an electronic beat or a new guitar sound, for example.</p>	<p>Once his “Jonny Abbey” persona was found, João dedicated his time to compose and write songs in his small home studio. Those songs were eventually played in some radios and João started getting invites to play in festivals. From there, new projects have been showing up. / Jonny Abbey was always the cornerstone of João’s adventure in music. However, that solo project gradually evolved to MEERA. He was joined by Cecília Costa, who was already the drummer for Jonny Abbey’s live performances, and who is now the vocalist for MEERA. This project experienced an unexpected growth and they end up signing with the electronic music label Discotexas. So far, they have released some singles and remixes and expect to continue to do so for some time. / One year ago, João was invited to join the production of Aurea’s latest album and to join her supporting band in live concerts. He is still her guitar player. / Isaura is a singer based in Lisbon. João collaborates with her on the regular.</p>
<p>Luís Montez is the Managing Director of Música no Coração. Passionate about music, he started by studying Engineering at Instituto Superior Técnico. He had the opportunity to attend some of the biggest music festivals in the United Kingdom when he was working at Rádio Comercial and saw an opportunity to replicate the same concept but in better conditions: without cold weather, rain and mud – so, in Portugal. His mission is to plan all the events, always trying to innovate.</p>	<p>Música no Coração is a promoter and producer of events, operating in Portugal since 1991. It is responsible for two of the biggest music festivals in Portugal – Super Bock Super Rock and MEO Sudoeste – and a few others, like Sumol Summer Fest, Galp Beach Party, Super Bock em Stock, Sons do Atlântico (Angola) and Festival Caixa Fado (Angola). It also organizes concerts outside the context of a festival. In addition, it is the owner of six radio stations: Nova Era, SBSR.FM, Amália, MEO Music, Festival and Marginal.</p>
<p>Martinho Lucas Pires is a doctorate in Law and academic at Universidade Católica de Lisboa. Before that happened, he also spent some time in Edinburgh studying Cinema and a short career in financial markets. For him, music is mostly a hobby... But a serious one at that. He always enjoyed listening to it and eventually learned to play the guitar. He had his first band with high school friends. Later, a friend of his decided to create a label (Amor Fúria) and invited him to join. He started by creating songs and releasing them online, until he edited his first EP and serious project.</p>	<p>Marty is Martinho’s solo project, realizing two albums under that name. / O Deserto Branco is Martinho’s more serious and notable band. They had songs playing on the radio and played at one of the biggest music festivals in Portugal: NOS Alive. A new LP is in the making. / Amor Fúria was an independent label created by Manuel Matos, who signs as Manuel Fúria and was the front man of Os Golpes.</p>
<p>Ricardo studied Chemical Engineering, field to which he still dedicates most of his time. However, he is passionate about music and found in Nariz Entupido an opportunity to be actively part of it.</p>	<p>Nariz Entupido started when Ricardo Duarte and three other friends found themselves annoyed with the fact that one of their favourite artists was touring all around Europe but would never end up playing in Portugal. So, they wondered if they could bring her. The show went so well that they decided to keep doing this job of promotion, learning on the go, since 2009. Later on, Nariz Entupido became a small independent label as well.</p>
<p>Rui had classical training since he was just five years old, when he learned how to play the piano. Later, he realised how much he likes creation – of product, of ideas. Eventually, he enrolled in Técnico Lisboa. But four years before that, he was already a music producer dedicated to a more commercial style. After his collaboration with RedMojo, when he was already in Técnico, he decided not to pursue the musician path and dedicated his time to software development. He wanted to create platforms and develop software, so he left college. Before creating Soundbet and, later, BetProtocol, Rui also had an experience in consulting at Bee Engineering, where his desire to create products was reinforced.</p>	<p>Soundbet’s core idea was to create a stock market for music, much like Tradii did. / Soundbet’s experience paved the ground to BetProtocol – Rui had already spent some time researching the betting market and developing software for it. The startup raised \$400,000 last year and they are trying to create a Shopify for betting, based on blockchain for its regulation, with very cheap prices for any businessman interested in launching a betting platform. It is an attempt to simplify a market full of middlemen. / Rui Teixeira is also a music producer. He started by doing deep house beats, for commercial pop songs. At 16 years old, with just two songs released, he had reached three million plays on Spotify. Later, he worked at RedMojo, collaborating with the likes of April Ivy, Virgul or Diogo Piçarra.</p>
<p>Simone White is an American singer-songwriter, photographer and director, who actually started her career in arts as an actress.</p>	<p>Simone’s career in music started in the year 2000, releasing her first album three years later with The Sincere Recording Company label. So far, she has released five albums, the latest, which was self-released, in 2017. The other three albums were released through the label Honest Jons, to which she is signed. She has toured all over North America, Europe and Japan.</p>
<p>Tiago Castro studied Communication Sciences, more particularly Journalism, to pursue his goal of working in radio. Tiago started his career in RADAR, but he currently works</p>	<p>Acid Acid is Tiago Castro’s solo project. After being invited by Nariz Entupido to perform at an event, he started doing more concerts on a regular basis and eventually</p>

<p>for SBSR.FM. When it comes to his life as a musician, he always made “bedroom music” and played in bands when he was younger, but very few things recorded in that period have seen the light of day. When Nariz Entupido, knowing that he made music for himself, challenged him to create a piece to be played live at an event, things started getting more serious for him.</p>	<p>a friend invited him to record songs at his home studio. That is how his first album, edited by Nariz Entupido, came to fruition. On top of that, he has two other bootleg releases of concerts recorded live – one of them with the musician Vitor Rua. Currently, he is finishing his next album, hoping to turn this music business more professional for him.</p>
--	--

Table 2 - Interviewees' biographies

Appendix 3: Interview Highlights – André Fidalgo Moniz

The business – relationships in the music industry and its structure

“It’s a super competitive market. There are thousands of music apps.”

“In our first year [Tradiio in its first version], we were only in Portugal, and things went really well. It was extremely easy to convince the artists to upload their work there, the adherence was spectacular.”

“It was some kind of game, but the highest rated artists would end up receiving prizes as well: equipment, concerts at Musicbox, and some artists even got a contract with major labels – ÁTOA and Isaura are examples, as they signed with Universal and started in Tradiio. We would send reports to the industry giving note of who was better placed in our charts, and so the labels were attentive to this situation.”

“We always managed to get talent to emerge naturally. It’s also not like they wouldn’t have a career without Tradiio, but it helped.”

“We had agreements with Universal, for example. But when it comes to return distribution... They wouldn’t make things easy for us.”

“[On those agreements] The logic behind it was that we would do all the work when it comes to find and listen to artists and understand which ones can be popular, thus giving that information to the labels. They would then negotiate with the artist directly. We couldn’t intrude in their relationship afterwards.”

“When it comes to mission, we were almost as a label at some point. We wanted to create our industry, to help artists. As the rational side of the business, we did edit one or two English artists’ records, but the amounts we could extract from it were minimal. Of course, it didn’t help that those musicians couldn’t make their breakthrough. The idea was for us to pick these artists and help them grow. If

successful, we would get something from downloads or for each song [royalties].”

“One of the things we offered musicians [that performed well in charts] was the making of a music video. They would get quality content for themselves.”

“They uploaded their music – MP3 format – in our platform. A bit like SoundCloud. They would have all the rights to those songs. Sometimes we had to remove some songs from Radiohead, for example, that some random person would put there. But normally it was the actual artist putting their work there. Or sometimes the label itself would do it or their manager... Actually, almost none of them has a manager...”

“The paradigm in the music industry changed and we gained quite a bit with that, since we were exposing new musicians. That’s what they want and need now.”

“Artists don’t do business with their art because they want to. They make art because they have to [vocation].”

“In its broadest sense, the streaming platforms were our competitors. At the time, Spotify didn’t have as many musicians as they have now. We were more similar to SoundCloud – we were for the masses, for the emerging artists, for the long tail [of the music industry pyramid]. However, SoundCloud’s business model has nothing to do with ours, we were testing a new thing. The idea was even to eventually be acquired by them, for example. Spotify has their Spotify Sessions, like we used to have – that’s a point of contact between us.”

“We were in direct contact with many artists. They would come to our office and we even had some sort of studio there.”

“[In the context of Tradiio] Fans would get some benefits. Could be a Skype call, a dinner, a meeting in the backstage or some art made by the musician. Personal stuff. Of

Industry pain points

“At first we wanted to gain traction. We needed the artists and the listeners. It was meant to be a three-year process, only then we would think of “how to make money?”, of monetizing the project. The investors’ discourse shifted at some point. They were now looking for something with traction, as well as proven models.”

“There’s a big percentage of people who play [gaming apps], but a small percentage of people who pay.”

“At the same time that the core of our idea was changing, we were trying to expand the business to the United Kingdom and the United States of America. It was very hard to manage our resources. Also, not all artists were interested nor prepared for a crowdfunding. Which is normal, they just want to play. But I think the idea was interesting in the sense it could capitalize on the so-called “super fans”. Patreon has been successful, at least in the US, with something similar, but they also have major artists leading by example.”

“We initially thought it wouldn’t require much work from the musicians. However, things weren’t exactly how we predicted in that sense. Also, it’s essentially that fans also want that [solution]. For an artist to put in work and receive a small amount, it’s not worth it. I don’t believe as much in a model like this now.”

“These ideas that try to help the industry... The industry itself closes the doors. The big players, such as Universal and even Spotify now, put barriers to our entry. They cut on innovation. Meaning, sometimes they buy smaller companies to prevent them to go big, and to acquire their talent and technology. This puts limitations on innovation and on people who want to change the game. And the fact is that it hasn’t been changing. Platforms such as SoundCloud helped in disseminating and Spotify helped against piracy, but in the middle a lot of value was lost. There are much more valuable industries in the world. The thing is that it is related to an artform and people love music, so it won’t ever go away. I grew in disaffection with music, I probably wouldn’t do it again as a business. In

course, it would help if major artists led by example. In any case, many artists would never get into that process and that’s understandable too.”

music there’s a clear emotional side and mixing business with it, was not the best for me. I don’t regret it, the experience was still good, I just plan on focusing on software for companies again.”

“Startups and labels don’t run at the same pace. We had to test things in six months. And we did it as a label, it just didn’t work. It made sense because of our mission, but in reality...”

“We lost the ability of giving exposure to some extent when we tried new business models. Especially when we left the national perspective we had. In the UK we were just a drop in the ocean. We didn’t have the resources to spread [the music of the artists].”

“Going to investors to talk about music is difficult. The market has stabilized with Spotify, SoundCloud doesn’t grow anymore... The industry is too small [for risking].”

“When we started, I looked at the industry and saw some unfairness. Nowadays, I still most of the same issues. The industry, when it sees that something works, injects capital and makes it grow. Commercializes it, then. There are still many artists that try the independent path and sometimes it works out at a large scale. But most of them struggles in getting exposure. What I feel is that artists in general really like to play and create, nothing else. If they can live from it, that’s better. Actually, there’s a gigantic layer to whom music is a hobby, they don’t plan on making a career out of it. The problem there is that a lot of potential and talent remains undiscovered.”

“We wanted to be some sort of Robin Hood for music. To be fair, nowadays, profits are more distributed. Platforms such as Spotify don’t pay that much, but they still give something back to the musicians. Same thing with SPA. I do feel a bit sorry for the artists that release physical copies of their records, because nobody buys those anymore. That is going to end.”

“We brought together many people that were angry with Spotify, as they wouldn’t receive anything. With us [in its crowdfunding platform version], it was easier to raise twenty fans and make more than that. There were people making 300 euros a month, which obviously is not enough to make a living out of that, but it helped in acquiring equipment, for instance. Issue is that they would have to be constantly promoting themselves.”

“We left a “piracy mode” to one where people are more rewarded. That’s positive. Still, the industry seems made almost exclusively to the masses in the perspective of live shows. That’s how the musicians make money. It’s just

Blockchain

“Right from the bat, many of our potential investors would mention Bitcoin as a solution, since we already had some sort of virtual currency in our game. There was a lot of hype for it at the time. We thought: “why would music fans buy Bitcoin to invest in artists?” It was confusing for us. It’s funny to see now that the continuity of the project is based on what we could do with blockchain. Although it isn’t certain that we are applying it to music.”

“We had that thought of going to decentralize the rights in music or decentralize the distribution of revenues. When someone pays through blockchain, it’s immediate. Everything is distributed as should, all transparent. We saw several projects trying that. And then we also knew of others that were trying to finance the listening of songs through cryptocurrencies. At the time we were just there witnessing, seeing what worked.”

“Personally, I didn’t like the hype for cryptocurrencies. I do think the concept of blockchain is interesting, even though I still hasn’t seen it applied to any industry. That’s what scares me. Maybe there’s people against transparency, maybe the big players don’t like that. On the other hand, the hype didn’t help, since there’s a lot of speculation. I mean, almost everything is speculation. A lot of ICOs were scams. All of that discredit was harmful for the technology itself. I’m not too into all of that, this is

difficult to make a career out of music. And, truth is, there’s no room for everyone. Especially in such a small country as Portugal. At least there is more people creating and exposing their work for the public, and that’s good. It’s good that there’s access. But even fans can’t listen to everything. They even choose the easy way by playing some playlist on Spotify, while doing something else. The time allocated to listen to records is now maybe allocated to go to concerts.”

“There’s a lot of room in the industry for it to be better. The industry’s giants obviously have economic interests, but they also want it to prosper. It’s going to evolve.”

just what I have been watching from afar. Anyway, I do think the concepts of decentralization and transparency are important and in music that’s relevant. More decentralization may bring fairness.”

“[On a blockchain project in music he is acquainted with] The logic behind it is more of experimentation and less of disruption. The rational part is being used in another area.”

“If blockchain is going to help in the industry’s next evolution? I can’t say. Honestly, it’s either the blockchain itself without the cryptocurrencies and speculation, or else I find it hard [to be successful]. Perhaps before that there will be a better live experience with augmented reality.”

“We followed the beginnings of some startups that were trying to be completely disruptive, by putting themselves between the client and the artist. The issue is that they will find barriers to entry. You either go to the small labels and convince them, or else you will be “stopped”. But yes, I saw many trying to cut the middlemen. “It’s transparent, now sell your music this way” – that was the idea. Others were trying the [smart] contracts on the blockchain so that the revenues could be distributed to the label and artist and everyone who had rights. That could be good to the distributors, as it would be more efficient.”

Appendix 4: Interview Highlights – André Santos

The business – relationships in the music industry and its structure

“[Regarding Filho Único] The lack of managers... That is true. But we are agents in the sense of being booking agents, which is different from being a manager. And you notice that artists that have a manager develop themselves very differently than the ones that do not have anyone to guide them. They are people who know what to do. As for the job of booking agents, we sometimes end up doing the work of managers, but we do not have time for everything, and the two roles should be distinguished. Even for increasing negotiating power.”

“[Regarding Flur Discos] We knew the business was in decline. And we felt that: we were six and now we are only three. And that is how we survived, by adapting to reality and cutting costs where we could. We also had only four big suppliers and now we have twelve or thirteen. This means that you before focused more in one direction and now you must look for the records that people want, within our preferred genre – a niche electronic dance music –, thus maintaining our identity. That keeps us alive. Our country is terrible for our business. There is no market. A store like this in the United Kingdom would be much bigger. We exist by surviving and adapting to needs.”

“Before, we had distribution (for Fnac, e.g.) so we billed much more and now those are one-off cases. But we also had more costs. We also created our own market for certain things. What we do is that we try to sell things that no one else sells.”

“We wish people would remember us when it comes to buy records, but that does not seem to be the case. I think if they can buy outside, they do. But this physical record market also relies on convenience, so people with those habits come to us.”

“I think there will always be a market for physical releases. But I feel that vinyl sales will drop soon. There are more releases now, but demand does not grow. There can be some saturation... But going back a bit, I think there will always be people buying physical records. Not only because they like to own them, but it is almost like decoration at this point. But prices are becoming a bit absurd, labeling them as premium. That is an issue.”

“We end up looking too much at what we like and that is what we sell.”

“We many times buy directly from artists or labels. The thing about importing the records... If we think we are only going to sell five of them, it is not worthy. But here is different. I tend to privilege direct contact with people. It is good for them and for us.”

“[Going back to Filho Único] Most of the artists we work with are of medium-small scale... It is all based on trust, we do not have contracts signed with them. How do we get to meet them? Either they are the ones coming at us or you listen to their music, check if they already have an agent and write to them. One really good thing about working at this scale is that, if you do a good job, the artist could very well recommend your services to their peers. That happens to us a lot. On another scale, even looking at “major independent” labels like Domino, Warp, Ninja Tune, what happens is that they normally already have agencies associated with them, which they privilege.”

“Ariel Pink was ours. Then, when he signed for 4AD, he went to one of those big agencies. But what happens with those big ones... Normally they are British. And the Brits usually have an approach to the market very different to the rest of Europe. That is, they saturate the market. If the artist is worth €60,000, they always ask for those €60k. It does not matter if they have 1,000 people watching or 10,000. So, if an artist flops, they eventually drop them. They only care about the ones who make money. And that is why Ariel Pink ended up returning to us, even though he is not with us at the moment. That is one of the problems of working in Portugal, at this scale. You may have a good network of people, but you are not close to anything. It is not like you are in Central Europe, which facilitates communication.”

“Venues? We create our network... Almost one with friends. You end up working regularly with people, knowing what they want at those venues, and also what they do not want. When you are booking an artist and you see that he fits a certain place, you propose it. And since there is growing trust, the venues will know that, if you are recommending that, it is because the artist indeed fits there.”

“If the promoters and venues make money, that is good for us too. They eventually look for your services again. Many times, the venues and festivals are the ones coming to us.”

“Internationalization? Not the Portuguese artists’ problems. It is very simple. The state already invests. But not in the right way. They may fund small events to showcase the Portuguese music to international promoters. But no promoter in the world is going to pick an artist that nobody knows. So, the money that is already being used should be channeled to other things. If you want Portuguese artists in international festivals, then pay for everything: trip, stay, etc. If you offer this to a promoter that actually likes the music but does not have to spend any money with it, they will look at it differently. The money spent ends up being the same, but they would see much better results.”

“[Regarding Holuzam] At this scale it is almost always verbal agreements. Based on trust.”

Industry pain points

“This scale is too small. Streaming gives you a lot of money when you hit millions of listens. The thing with digital... It creates a false perception of your audience. With our label, we created a Bandcamp account, as it is the easiest way to sell your records digitally. Digital sales are not as residual as I thought, but still they are nothing special. In practice, the consumers are not paying less on Bandcamp when compared to going to a physical store. Also, the labels are doing the job that artists do not want to do when distributing their records.”

“[On labels] They have to exist. Artists need a PR agent, who usually represents several artists and has his own network of contacts, something the artist would not achieve by himself. Those kinds of things. It is a cost, sure, smaller margins, sure, but you have to look at what you can focus on if you are not dealing with things that should not be your responsibility. The artist does a much more special thing.”

“If you can live from streaming? I think it has to be from live performances.”

“You pay 7€ for a monthly subscription but artists get something like zero point zero, zero, zero, zero, etc. So, per month, you would have to listen a million times to pay for the subscription. It is a platform that is vitiated.”

“We cover costs with production and then we function on a “50% after break-even” basis. It is either that way or we pay a certain flat value directly to the artist, which I think it is a bit unfair in the case sales go really well. Or you can give the copies to the artists themselves for them to sell, but, again, it is not fair.”

“We are talking about 500 copies. This can only work with informal structures. If you put lawyers and such in the mix, the money is so little, it is not worth the investment.”

“The records we edited are available on streaming platforms. We are not in charge of that. We work with a German publisher for that.”

“Digital is better for the consumer. I think that is quite unquestionable when you can access all the music you want in your smartphone. It is convenient. There is the question about the quality of the sound, but that is another discussion. For the artist that is different, it was much better thirty years ago.”

“It is also much easier to perform live now. There are bigger audiences.”

“Many artists are not registered in SPA because they are either lazy or nobody explained to them how important that is. When you are there, there is always some return. Not much, but it is something. The distribution of that is not well done, obviously, it privileges the bigger names.”

“The question about Article 13 is not as dramatic as some may make it seem... Some old institutions are trying to safeguard something that cannot really be safeguarded. Things changed. And if they did not, they will soon.”

“A database would facilitate the process. The problem with copyright is that it was created with the principle that there were not many authors. But the number of creators increased. The solution has to be different. Sometimes there is an opportunistic thought on the people who own the rights. I do not think a new platform solves the problem. I think that needs to stop being a problem at all.”

And I do think that people who create should receive their share. But maybe in a different way.”

“The system is archaic, but it works like that everywhere.”

“I think there is money in PROs that never reaches the artists. But that is also the artist problem, who should collect what they earned. There is lack of transparency, of course. Those organizations always seem like they were made so a select few could get rich. They are not transparent, and I think they represent the mentality of past times. Things are not like before anymore. And it is not even like they need to evolve. They should actually cease to exist, and new things need to be created. For instance, PassMúsica is a complete joke. It is a license that was

Blockchain

“I have heard of blockchain. I do not know too well how it works, I know some things. It is how the Bitcoin works.”

Appendix 5: Interview Highlights – David Santos

The business – relationships in the music industry and its structure

“I pretty much always did self-releases. There was that one partnership with Tiago [from Merzbau] and his net label, which wasn’t the typical label. I did release my 2013 record with a French label, in which had the rights to distribute it for the whole world, except Portugal. So, that record did indeed have a commercial release with a label. But here in Portugal I’ve been self-releasing all my records. I have an agreement with Sony for their distribution, but the editing is done by me.”

“I have a contract signed with that French label and, regarding You Can’t Win, Charlie Brow [YCWCB], the latest record was released and distributed through Sony, so we also have a contract signed with them.”

“There are several different types [of agreements with labels]. There’s the old-fashioned way where the master belongs to the label, while they cover all the costs of production and eventually of the videoclips as well. Putting the purchase of the master aside, there’s also the contract of licensing, which is what we have. We reach out to the label with the record already done: everything is produced, mixed and mastered. Then, what they do is they will license it to the market. So, they pay for the

created some years ago for restaurants and stores that want to have music playing in those locations. If I want to have the radio on in my shop, I need to pay for that. And I am paying to Portuguese artists even if all I listen is to foreign music. I do think musicians should get paid for having their music played in public spaces. But there are already means to control that, to know how many places are playing the music, etc. If we know exactly what song is playing, then I think it is fair for that musician to get paid. If not, you are always “feeding” the same people, getting richer who is already rich. I say this in favor of creation. Whoever is earning should be the ones who are actually creating new things.”

manufacture of the CDs and they do all the distribution and promotion of the record. Again, we had the record done already. We covered the costs of recording and all. For that process, they don’t pay anything. Perhaps they could put something upfront for the making of videoclips, but that would be then discounted from the profit you were to receive from the sales. They basically pay the physical release and then there’s the income distribution.”

“With YCWCB we recorded in several different places. The latest album was recorded in the studio House, where we had a person putting the microphones in the right places and such, but who isn’t the typical music producer either. There are also different types of producers. There’s the old-fashioned American producer who makes all the arrangements from a simple guitar melody the musician brings. So, when I say producer, we never had someone like that. We did have someone responsible for the sound mixing and, in that case, some decisions were taken just like a producer would. Yet, at the same time, that’s all done in collaboration with us too. The experience we had was more of having a week to record the whole album, renting the studio for that period of time and rerecording the things we had in demos already.”

“Labels are maybe the most pragmatic side of what music is. That is, music, regardless of who does it and of who likes to do it not looking at it as a business, things only subsist, the musician and the label only subsist because it is indeed a business. There are things made to sell and the more sales, the bigger the profit for the label, and the bigger the notoriety for the musician, since their work reaches more people. A kind of success that brings much money to the label and maybe could bring more to the musician than it does – but that’s a question of percentages and such. In any case, the notoriety an artist earns can be enough for them to make a living from music, which in a more alternative scene can be possible, but it’s perhaps more difficult, since it’s one thing to be alone, taking care of everything, and it’s a whole different story having the structure of a company with people working in different areas, backing you out. In conclusion, I think labels are just part of the system – and you can do it with or without them, having advantages and disadvantages in both scenarios.”

“In many truly independent productions, what happens is that the musician contacts the promoters directly, or the distributors directly... Pieces [of the network] that a label knows how to deal with.”

“As a business... Bandcamp aside, since it’s something that you create that ends up being your online store – an area where things work well in this case, because if you create a special item without a commercial release, you can always sell it there or in concerts. So, when people look for that stuff, they have to go there. Sales would go much worse for me if I didn’t have a place online that gathers all my stuff. Often things are not in Fnac, for instance, so this makes it easier. When it comes to Spotify, YouTube... it’s all much more debatable. My work is on all platforms because I use an American digital distributor called CD Baby, where you register your songs and your records, which in turn are then distributed to all those platforms. From time to time you receive [the royalties], while they keep 9% and there are some other taxes too. Contacting CD Baby and all is a work done by me. Sony just takes care of distributing the physical releases.”

“There are people making a lot of money with YouTube, but they have to have millions of views, not 400 thousand. From there I make like fifty euros every three months. It’s

residual. It has the advantage that, if you want to share a song... it’s not all about the song. It’s the videoclip, the images. If people like it, there are more shares, and YouTube facilitates all of that.”

“I don’t have music on these platforms with the idea in mind of making money. If I get something, that’s for the better, but what’s important is that my work is available for people to listen to it.”

“It facilitates in what really gets me money, the concerts, of course. It’s not that I have that many streams per month, but it is at least twenty to thirty thousand plays on Spotify alone. Without Spotify, those thirty thousand plays wouldn’t have happened. That’s a thousand a day. If that didn’t exist, a big volume of my music was not being heard. If people listen to it repeatedly and I go perform live somewhere, they might go and see the show. It leads to more demand of concerts. In the end, that’s also music – to make records and perform them live to the people who liked them.”

“I get money from having songs on the radio, through SPA. About that matter, there are several distinct situations: if you have your music broadcasted in an author’s program, it has its impact; if you have your song in the Antena 3 playlist, the value for it is different.”

“[In the case of soundtracks] They usually contact me directly, yes. I had a song in a commercial too, but it was all agreed upon. There are known cases of advertisements using one’s music without their knowledge and authorization, but there it’s pretty clear who is in the right – the author. In those cases, the artist is the most affected part and should make the first move, although it reaches a point in which is just law and something has to be done. SPA and GDA can actually provide some judicial support.”

“[Royalty distribution within YCWCB] We actually have a very mathematical way of doing things. Song by song, after the record is done and we register it in SPA, we decide how much one’s work is worth in percentage in each song. From there, there’s no discussion, everything is objective and clear. If in a song I have 10% and Afonso has 30%, SPA itself knows that and makes the proper

distribution. When we perform live, we just divide it equally for everyone, since we're all there."

Industry pain points

"It's difficult to make a career out of music for several reasons. In Portugal, the biggest issue is that we live in a small country. A musician to survive has to receive money from the concerts and from record sales. Here, they would have to perform live four, five times... maybe even ten times per month, every month. That's 120 concerts per year. And if you are with a band, you have to split the fees you get. For such a small country that's impossible. There's no demand for that. If you can do twenty to thirty, that's already good most of the times. Then, there's another challenge musicians face, one more personal. Unlike other professions, where there's career progression, in music there's none of that. At every album release you are starting from zero. If people don't like it, you can "disappear". Then, there's the question regarding ambition. How many people do you want to reach? Do you have the means for it? It's not only about making the music, even if it turns out incredible. There are numerous factors that work together to prevent that a record turns out completely inconsequential, without anyone listening to it. People have to know that a new record is out, the media has to cover it, etc. Of course, there's the alternative of working with a major label that helps you promoting the music, although you receive a smaller share from record sales and even concerts. However, if the promotion is well-made, your name is going to be talked about, leading to a snowball effect."

"A serious problem to internationalization of Portuguese artists is the fact that we don't live in the center of Europe. And when you start, at a small dimension, many times you just pick up your car with your instruments and go to some town to perform live. If you want to do the same thing in a foreign country, it's pretty much impossible. Then you have the example of Iceland, which is even more isolated, but the state would pay for the trips and all of that, and that's how Björk and Sigur Rós became what they are. In summary, the problem is the lack of money and exaggerated costs due to living in the corner of the continent."

"If there was non-repayable investment from the state in the travels for artists that wish to play outside the country, then in ten years the difference would be absurd."

"In Portugal there's no culture of taking the kids to concerts or to the movies since they are very young. That's also an issue. Many people are just not interested."

"There's some lack of transparency in these payments from platforms, sure. With CD Baby I already know that I will get paid every three months. It's never Spotify directly and I don't know how regularly Spotify pays them. I can be receiving in January [royalties] from three years ago. I have no idea. They do send me a report where maybe I can find that, in some day, I made a cent, but I also don't have the time to look at all that. I never dug deeper in trying to find how much Spotify profits [in comparison]. I know some stories from Portishead, Radiohead... I remember the guy from Portishead getting 200 euros for something that was played four million times. I can't tell for sure if it's unfair or not. At first glance it seems that what they pay is too low when compared to what they earn, but then we go back to the beginning: Spotify isn't here to help musicians. It's a company that wants to make money. People accept to put their songs there or not. I may not have them there. If I think they should pay me more, I can just remove my work from there. In today's world there's a bit of that cruelty – just being there is already important."

"Before, things were more unorganized. Today, with digitalization, each radio is supposedly obliged to send SPA all the songs they broadcasted. But then, same question: the fees radio and television pay to SPA are big compared to what they [SPA] pay [to musicians]? What I know is that, if SPA didn't exist, then I wouldn't even receive those payments to begin with. I like to look at the bright side of it. One's objective should be to just make music and have pleasure in doing so, while getting enough to live. If you start overanalyzing things... Of course, it's known that older authors receive some thousands of euros per month from SPA. But maybe you will be in that

position too someday. I'm not sure if it's fair or unfair, as I don't know enough about it."

"One of the big problems of all those things, be it Spotify or SPA/GDA, is that, when plays are practically irrelevant... Imagine someone who has millions of plays, receiving a certain amount, and someone who only has two plays, getting nothing at all. And maybe that one person should still get something. But if the amounts are distributed according to the notoriety of each artist, it's normal that there are differences. It's not like it's fair, but when you are so small, your work ends up vanishing in the grand scheme of things. So, I do believe that someone who had their music broadcasted ten times in a month in some radio from Sesimbra is not going to get paid at all but should. Hopefully, now that things are much more computerized and discriminated, we can reach that idea that everyone should receive their due copyrights, even if little."

"It's not that I think it's always the same people profiting... Some artists keep receiving money from SPA even if they don't put out new music, but that's because their music is still being played on the radio. Copyrights don't disappear just because records are old. It's what the public demands for that makes artists receive more or less."

"It all depends on the context in which my music is being used. If it's some kid using it for schoolwork, that has a certain value or maybe even no value at all. For me personally, it has been a pleasure to help every time someone like that asks me to use my music. If it's the case of using my music in a campaign for volunteering or fundraising, that's one thing. If it's to be used in a brand's ad, that's another. The problem of a platform like that [where someone could lay down the amounts for the use of certain songs] is if you can't distinguish all those different situations. If you could, then it would be much quicker, sure. But the best for me it's to just be in contact with the people interested in using my music. And through something like SPA or GDA people can know who's behind a certain song."

"[On receiving dividends in real time] If well-made, that would be ideal. In the case of Spotify, I know that every country has some sort of ranking, and that ranking defines

the value given to that country, and then within each country, every artist also has a ranking, so that's how they distribute things. That seems a bit unfair, since if a person is only "worth" a tiny percentage, in total that would amount to zero. Now, if it was stipulated that every play is worth, let's say, a tenth of a cent, then every time someone pressed play, you would get that tenth of a cent. I don't know how practical that is with how many millions of songs exist. I would receive more money that way. Radios also pay to SPA, they don't pay in real time. That idea doesn't seem bad. If it happened in a fair way, that would be ideal. Now, with so many songs and so many people... And what would you do with those songs that you don't really know right away who's the author? But if it worked, that would be a good idea."

"You pay for a service and there you only listen to that specific thing, then why isn't your money going for that specific thing? It seems a bit unfair."

"[Paying copyrights for performing live] I think that might make sense as a way for you to earn a bit more whenever the remuneration isn't that great, since whoever organizes the concert also has to pay to SPA. Now, the stupid thing about all that is that, if you have a show in your name, you still pay to play your own songs. So, imagine you are playing in a venue with 800 seats. Everything is organized by you and so you must pay a 400 euros license to SPA. You are paying such an amount without even knowing if you will be able to sell those 800 tickets. That's just wrong."

"[On PassMúsica] Bars and places that want to play music have to pay for that license monthly. No, I don't get paid anything from there. I know that license is related with SPA as well. I know they would use the playlists from the five or six most important Portuguese radios to calculate the percentages for the whole country. Local radios and such don't count. And PassMúsica is that: each place pays a set amount which is then distributed to the musicians who get more plays on average [according to those playlists]."

"If someone's music was broadcasted one time in the radio for a month, then that person should get something in return in relation to that, because that place has paid a fee. So, even if there's a ridiculous percentage belonging to

that artist, he should still be able to get it. The future should be that.”

“I’m from a generation of musicians to whom record sales were already less important. Without piracy, people would have never gotten to know my work. I can understand that it is a bad thing, but without it I wouldn’t be a professional musician today. I can accept that people download my work illegally, that they listen to it, and, if they enjoy it, that they go to my concerts and eventually even buy my record. The illegality from their initial act has faded at that point. In the past, when a record came out, you could like a song because you had listened to it on the radio. But you wouldn’t have access to the remaining of the album, everything was hidden. You had to buy the record just for one song. That’s not right.”

Blockchain

I have never heard of blockchain.

Appendix 6: Interview Highlights – João Abrantes

The business – relationships in the music industry and its structure

“[Work as a producer] It depends a lot on what I actually do for that song. If a song comes to my hands already structured and I maintain it faithful to the original version, I won’t have copyrights on it. If the structure is the same, the melody is the same and I just put a beat on top of it... That’s not worth a lot. At least in the decree-law on copyrights, that situation is not safeguarded. But that also depends on the relationship you have with the person. Now, if what I have is just a melody and structure the whole song, then I will have copyrights on it.”

“They pay me for the production. And often that includes the copyrights. However, if the person is somewhat closer to me and doesn’t have that kind of money, then I just keep my rights on the song and receive my payment according to that distribution.”

“Having the producer’s name on the song title is a recent thing and it only happens with big names in the industry. My name shows up in the credits of the song [shows me an example of Aurea’s CD].”

“I have a friend that has been helping me from the beginning, when it comes to get concerts. I’m my own manager, but she helps me a lot in that regard. In Portugal, if that figure exists, is mostly as an attempt to go international. I think big labels have someone that works as your advisor. My friend actually has a booking agency now. I think it’s important to have an agent for booking concerts because there’s quite a bit of logistic going and there’s the matter of discussing the fees, so having someone doing that for you adds a lot of value. It’s very difficult for you to say how much you are worth. And imagine someone says they don’t have money to pay for your concert. But what you really want is to perform. There’s a dilemma here. As I said in the beginning, even though this is not a “business”, it’s still your work and it has its value. Having someone making that agency for you makes everything a lot easier.”

“For example, in my collaboration with Aurea, I don’t have copyrights, as the songs were already structured.”

“There are two kinds of rights: copyrights that are paid by SPA and related rights which are paid by GDA. And those related rights encompass those cases where you don’t have copyrights. Me, as a performer and musician, have due rights from GDA. Nobody has to pay me that but them. The money comes from people paying electricity fees or promoters having to pay for licenses... From all of that comes those rights. It’s not the music listener that is paying.”

“Yes, we are “signed” with Discotexas. It isn’t a formal contract, but rather an agreement.”

“There are two kinds of labels: the major labels, such as Sony, Universal, Warner, and the independent labels, which is the case of Discotexas, and these aren’t affiliated with any multinational. Nowadays, most of them are specialized in a certain musical style, thus becoming much more efficient and working much better in that specific

genre than a multinational that tries to do a bit of everything, which sometimes makes them less efficient.”

“We [MEERA] don’t have any contract signed with Discotexas, but if it was the case of a major [label], then we would have to sign one. For example, Isaura is signed with Universal and Aurea is signed with Sony. The way of working is also different there.”

“Discotexas mostly has an enviable portfolio and it is a quality stamp on us. Moreover, they have numerous connections in the industry, which is something very appealing and valuable to us. With us, they help us with promotion above all. Furthermore, they distribute the music as well. In this specific case, they do it digitally. We have never had a physical release, even though they [Discotexas] have done it before for artists like Moullinex or Xinobi – vinyl, CD, etc.”

“Regarding money more particularly... It works differently compared to a major [label]. If it were a major, they would pay the [production of the] record, but then they would keep a bunch of rights over that record and they also do retention of those rights with concerts. Meaning, whenever you play live, a part of the fee goes to the label. In our case, there’s more flexibility. As our way of working also allows that... With time we build our autonomy, so we can record without needing a big studio. Especially since one of the members of the band is Leonardo Pinto, son of Mário Barreiros, one of the biggest music producers in Portugal, having worked with Da Weasel, Ornatos Violeta, Clã, and being the original guitar player for Bandemónio, Pedro Abrunhosa’s band. So, with Leonardo and Mário, help MEERA a lot when it comes to equipment. In other words, we don’t have to pay to make a single. We only have to invest time for that. That’s another reason why we don’t have the need for a major label.”

“[About studios] It depends on the stage of creation of the song. If I am in the process of composition, I can be here [home studio], where I won’t need the maximum sound quality. But there are three crucial moments, at least for our music style, which requires high acoustic quality: the recording of the vocals, since it’s essential to have a good microphone, a good preamp, and a space that doesn’t allow for great reflections, so your voice seems dry and thus

providing a good raw material; then, there’s the mixing, whereas you need a space where you can have a good perception of all the frequencies, so that every instrument sounds balanced; finally, the mastering – normally, Mário Barreiros takes care of this for us and it’s good that someone who isn’t part of the band does that, since you [band] already invested so much time in the song that you can’t discern what is off-putting about the sound of the song.”

“There’s some work we wouldn’t be able to do by ourselves. There’s nothing bad for us about having a label. In our case, they work as mentors too and I can even say that I feel I gain more from this relationship than the label. Even though they don’t need to do a lot for us to gain a lot. In any case, I also feel that it is the duty of any musician to inform themselves before signing any agreement. And labels now are much different from the labels of the 70s, a time when some shady business was going on and musicians wouldn’t see any royalties, while their manager would fly in a private jet. If a person knows what they’re doing... There are situations where it’s advantageous to sign with a major. The contracts... There’s a big percentage that goes to them, but they also invest more, so it can go both ways.”

“All those platforms are a way for you to expose yourself and reach people. We invested in advertising on Facebook, Instagram and Google Ads and I believe we haven’t received enough to pay back that investment. Should be close to break-even, which isn’t bad at all. Now, our biggest source of income are concerts. Concerts, publishing... We are trying to get into the latter more. That is, to sell our music to advertising, brands, etc. That’s also a good source of income. But live shows are above all. And we can only get concerts if we reach people somehow, and if we have fans and if people know our songs – and that includes promoters.”

“We still haven’t received the money from Spotify this year and I’m actually quite curious to know how much we got. Jonny Abbey’s song with the most plays had about eight thousand plays, but we [MEERA] are at like sixty thousand now, all songs combined. That perhaps can get us a bigger margin. However, that money... I can give you the example of some of my peers that have millions of

plays on Spotify and use all the dividends to invest back in the band – either to pay for international promotion or to pay for the next videoclip or to pay for press office. Those are all costs that we'll get anyway.”

“In the case of MEERA, it's Discotexas who makes the connection with Spotify. They take care of distribution. Or rather, there's a company that takes care of the digital distribution for them. We just take care of the music.”

“With my solo project, I took care of that digital distribution. I resorted to the services of Altafonte, which

Industry pain points

“It would be interesting having all the credits discriminated [in digital platforms]. Personally, I'm not too bothered by that. For example, there is an Isaura song that I wrote with her and I have half of its copyrights. Yet, my name doesn't show up explicitly. I don't know, it's a good question.”

“It's difficult because there is no recipe for success. The way I view things, for someone to have success as a musician, work must be put on and persistence is needed. They must have things to say, be kind and respectful towards your peers. Yet, there are many talented people who do all of that and somehow are incapable of breaking through in the industry. We have to do a bit like Apple... Meaning, people don't need you, don't need your music, and if you didn't exist, the world would be the same. However, you have to create a product that, even though people don't know of it, will make them feel that they actually needed it all along.”

“A big problem that exists with musicians is related to mental health. Our profession is risky because we don't have the ability to plan things on the medium and long terms. We always have that sensation of “living on the edge” because you can't say “in two years, I'll be doing this”. You can even have some plans, but they won't always go the way you want. You don't have a stable job that permits you to have that kind of decisions. That inconstancy creates many problems to musicians.”

“I have mixed feelings about managers because I truly believe no one wishes we can do the best work possible as

is a Spanish company that distributes the music in the several platforms, retaining 30% of the earnings.”

“We never deal with Spotify directly. Spotify pays to the distributors, who in turn pays the artists. Meaning, there are a lot of intermediaries in this process. That's why the share of returns get smaller and smaller.”

“I am registered in SPA. But even if you are not registered, when you do, you'll get the copyrights. They don't expire. It's actually one of the easiest ways to get back from the singles we put out, because of radios. Much easier than with Spotify and other platforms.”

much as us. That is, if you really want to do something, only you can do it. On the other hand, if someone is able to find a manager with the exact same vision you want to have for your work and that is able to bring the best of you and that is a genuinely good person willing to share the wealth between the two, then... Anyone having someone like that has to feel lucky. Now, if we're talking about a person that is mostly worried about their own profits and that is doing the same work for you and ten other artists, that could also lead to a toxic relationship.”

“I never got much money from those plays. To receive something from Altafonte you must have at least eighty euros worth of rights. Which is almost nothing.”

“[On the current system] Maybe it's even more direct than when you're selling physical releases and the label takes a big part of it. It also takes its time. I don't feel that, in music, there's fairness and unfairness. I think we dedicate most of our time to something we feel like it's our own masterpiece, the best we could do at a certain moment to transmit our thoughts and feelings, but at the end of the day who decides its value it's the public. And it doesn't even mean that more means better. You could have done a complex work that only twenty people like, but those twenty people think that one song changed their lives, or you can have a song with millions of plays, while being way more of an easy listening, just for fun. There are several types of validity when you make music and there isn't one above the other. Just assume what are your purposes with the music you make. And I think most musicians are capable of that.”

“If someone plays our song a hundred times and we would only get money from those plays... Maybe we wouldn’t get much at the end of the day anyway. People tried to change the process by reaching the musician more directly. There was a platform called Tradiio in which the listeners sponsored the musicians directly. You would give them an allowance and that way you would also receive exclusive content, invitations to concerts. In that case, all the money would go directly to the artist. A system like that can be a utopia that is able to work, if the musicians are committed to give back to the people who spent a little extra just for them.”

“I actually think that method [copyrights from SPA] works pretty well, even if sometimes there are some news about SPA that makes us question if it is well-managed or not. Yet, it’s a good payment method for artists.”

“I’m sure radios don’t adulterate the listings of songs. But of course, the musicians whose music is broadcasted in the radios with the biggest share [in audience] get much more money. I can’t really complain about Antena 3, which only has about 3% of share, but that still ended up giving me enough to keep doing this by playing my music. I think the money ends up going to the people at the end of the day...”

“We receive a listing of how many times our music was played in the radio and total time and that results in an “x” amount of cash for us. I do trust the work that radios do with those listings that they send to SPA.”

“In the case of streaming, I don’t think there’s lack of transparency, since any artist can simply go to their profile and check how many plays they got and do the calculations. In the case of radios, well, it’s impossible to know. What I do think is there are too many intermediaries. SPA is one of them, since they also retain a percentage. Same as the digital distributors and the labels. I mean, the streaming platform itself is also taxing it. However, it’s true that there’s people working in any of those “checkpoints”. Despite all of that, they add value. If people are so bothered with those platforms and all... It’s not like it’s obligatory to put your music there. Yet, artists choose to have their music there because it is beneficial all things considered.”

“A direct connection between artist and fan can only exist in the indie scene. I would be interested in something like that, but I feel like I would have to offer something more to the fan. Imagining I have five supporters, if they stop “sponsoring” me, I would still continue to make music. But there’s the issue that maybe the listeners don’t have time for this kind of things either. I would say 90% of the people who listen to music everyday do it because the music is offered to them somehow. They consume it, without being that deep of an interest. A platform like Tradiio for me would be more of an extra.”

“I wasn’t part of the industry when the payments were absurd, I’ve always been in that phase where everybody complains. Still, I can’t really whine, since I’m privileged enough to make music as my daily job, allowing me to pay my rent and my bills and my equipment.”

“The industry got thinner... because it also needed to get thinner. I don’t look at piracy as this devil that showed up and destroyed everything. People want to have access to music and the industry has provide that, with good quality and at the lowest price possible. Of course, creatives and people who have a more bureaucratic job in music need to get paid. Just not to the level of ostentation that we saw in the past. It really is the industry’s responsibility to create a product that can be easily accessed by anyone. One that doesn’t demand people thinking if they should spend twenty euros in a CD or download it illegally from the internet. Don’t you pay for Spotify? Because I do. For seven euros per month you have the convenience of accessing almost any song from your mobile phone, without interruptions, advertising, nothing.”

“The industry seems better to me.”

“[On having his music used by another person] It depends on the person. If it’s a singular person, like a student, I wouldn’t be bothered at all. If we are talking about a multinational profiting from my music... That’s different. If they can pay, they have to.”

“I gain from that kind of work [using music by other people]. There are a lot of producers that create samples, sounds of a guitar, for instance, which individually are not part of any song, but from those sounds you can create an actual song. They usually make those samples available

for free or by paying for a whole pack of them. This way you don't have to pay for royalties later nor sign any contracts. At the end of the day, those are also tools that you utilize with your creativity. I could see myself making an excerpt of a song or some samples available for people

Blockchain

"I have never heard of blockchain."

Appendix 7: Interview Highlights – Luís Montez

The business – relationships in the music industry and its structure

"We already have a strong competition in Portugal and in Europe."

"Artists in Portugal cost the same as in Germany, yet the purchasing power is completely different."

"We have sponsorships to help us, but it is a mature market already, so it is not easy."

"We have to create an identity in each festival. They cannot all be the same."

"When you have these many festivals, there is a risk of cannibalizing, competing with ourselves."

"We have to segment, with what our budget allows."

"Then we have to go the agencies – the American and British ones, that control the market."

"This starts in September, when we get to know which artists are available."

"We look at dates, prices... Some artists are very valuable outside Portugal and here not so much (and vice-versa). Today we have the help of social media – measuring how many people follow a certain artist in the country."

"An artist is not going to bother going from Los Angeles to Zambujeira do Mar. There has to be more dates available in countries nearby."

"Prices? Agencies do auctions."

"We have to respect hierarchies. And an agent usually represents several artists. So, if you go directly to an artist, that agent might get angry. Artists are for performing, composing... Sometimes you negotiate an artist that you

to use under certain conditions, yes. And having my name associated would be an advantage. Even if not for the general public, but for the people who would use that piece of a song."

really want with an agent, but you then must take others that he also represents."

"It would be better to own the venues but that represents a huge cost. We are the owners of the Herdade da Casa Branca, where Sudoeste takes place. Then, there are partnerships. But if you are successful, they will increase the rent next year."

"First we have the confirmation that they accepted the offer by email. Then they send the contract, where they ask for 50% upfront to being able to announce the artist. You pay those 50% and then they send the photos and material that you have to put on posters, etc. Then you send back the work done to the agent who sends it to the manager, analysing if the font is too big, if the colour is incorrect... After they are comfortable with that, they give us permission to announce. Then, we look at dates when our competition is going to announce artists and we negotiate with tv and radio to give the exclusive. It takes time."

"I think the budget people had to buy records is now the budget to go to live shows. Then, the digital side gives us real time information on the number of listeners and followers of a certain artist. We can reach many more people. You have never seen so much music out, and so few records being bought. When there is a release now, it is for the whole world. I spend a lot of time listening to the weekly playlists on Spotify for new releases. This is a great advantage."

"The industry is growing. Big funds are investing in entertainment, buying venues, festivals, etc. We ourselves are getting offers. But it follows a purely financial logic. The artists that they contract are going to all the festivals

around Europe (e.g.) that they own. But then festivals are the same. People who can watch an artist nearby, will not travel to watch the exact same thing.”

“We have to differentiate ourselves and is not all about music.”

“Labels with big offices, cars... That is all over. Because of transparency and labels, themselves, adapted. Nowadays, any label has a margin over the earnings of an artist for the live shows too. Because they invested in marketing.”

Industry pain points

“When we do not sell, we lose money. And sometimes we sell too much, and people do not fit. We have to manage that. Cancellations are always tough. One time I had a sold-out stadium and the band decided not to show up. That is why I prefer to do festivals... If one artist cannot show up, it is easier to replace them as there are many more artists to perform. The environment is also a big concern. But in the end, everything works out well.”

“We have to try and predict the future with the data we gather.”

“We had some advantages before. We did not have competition. Bands were cheaper. One thing did not change: people’s will to get out of their homes.”

“In Portugal, there are no managers. Someone who gives the artists some orientation.”

“The market here is small. Artists’ incomes from one year to the next can see a tremendous fall.”

Blockchain

“I have never heard of blockchain. What music style is it?”

“Everything that is for the better is welcome. But in South Europe there are economies where if they can avoid stuff

“Radios pay copyrights. Radios are a great way to promote music. And we have specific ones with different music genres. It is a way to promote events and give us information on what people are listening. And then radios can have their own events, like Nova Era Beach Party (sponsored by Galp).”

“We pay a fee to Sociedade Portuguesa de Autores. Radio playlists are controlled and according to what was played, they pay to the rights owners.”

“My revenues come from tickets sold, sponsorships, beverages, merchandising, food.”

“Internationalization? There is no structure. Fado is the exception.”

“I think there are artists that even like piracy. They want to reach people. They get money in concerts. And if they can get it through streaming as well, that is good too. But generally, what they really want is promotion. Then they can perform, sell their image, etc.”

“They earn less if they do not get a lot of plays. But if they have many listeners... I think artists are happy with the existing platforms. First of all, it is transparent: they know exactly how many people are listening. In the old days, labels could say that they sold an x amount of records while in reality selling much less.”

“I think any content creator likes their work to be read, seen, listened to. And so, I think they should get remunerated for that. But I am not one for barriers, fees, taxes... We have to get a fair mechanism for authors... But then the media that promote it also have to receive compensation for that.”

like taxes, they will do it. And with that kind of digital platform, everything is very transparent and auditable. People here do not like that.”

Appendix 8: Interview Highlights – Martinho Lucas Pires

The business – relationships in the music industry and its structure

“There are studios where you pay a fee for a day of use or sometimes it’s an hourly fee. But it also depends on what you want and what are your financial capabilities. Many times, you only record a certain instrument, like drums, in a studio. There is always someone that has the right equipment and software. Then, it depends on who is recording and mastering the sound. In studios there is at least one guy that is specialized in that. It is always a game of what you want versus what you can afford versus how much time you have. I have always recorded in home studios, except for particular instruments.”

“My career? I started playing live in 2009.”

“I come from the Myspace times. We have technology that allows us to record easily. It also depends on music taste. Some bands do not have a very refined sound and that is the point. Sure, technology allows us to record with the best sound quality, but sometimes that is not what we are looking for. I know people that record the drums sound with an iPhone. The sound can be richer and more dynamic this way.”

“Signed with the label? [Laughs] At this level it does not work that way. The label is more a group of friends than anything else.”

“The agreements signed with labels used to include all the costs of production of the record, the distribution of it and something else related to concerts. After MP3 and digitalization, they get revenues from promotion mostly.”

Industry pain points

“When you start as a musician, unless you already have a label “carrying” you, it is very difficult for you to know how to succeed. That goes from knowing who you should talk with to just knowing how to move in a small market such as Portugal.”

“Having music in a streaming platform is essential and is easy. You just need to have the rights to the record, pay some money and just like that you have your music in all platforms. And the process of royalty collection is not difficult either. My problem is that I am not registered at SPA. So, my royalties are kind of stuck there. I imagine I do not have that many royalties to collect. Maybe it already

“My label never gave me a cent. It just helped me in getting live shows. And I was not obliged to perform. It is one of the advantages of independent labels. Other artists might have to do “x” number of concerts every year, or they had to pay to an agent who was part of the label... So, really, I never had a contract. It was a group of friends and they helped me in getting to know people and in distributing my music, but not really in the sense of having it in retailers, even though they could do that through an agreement with another label called Mbari that had connections with Fnac. Personally, having a record being sold at Fnac would be unnecessary. It would be more of a showcase, but it would not pay off. So, my label was useful as a platform to reach media, to the exterior.”

“There was a case within the label where they reached an agreement with Valentim de Carvalho for them to pay the production of the record.”

“There is a myth that if you have access to the internet then you can do everything by yourself. That is false. And Portugal is a small market dominated by the radios. So, you are either very good in a certain niche or you manage to reach mainstream popularity. Labels try to have partnerships with radios to have their works played there. Labels are crucial for that. For artists, as a means of promotion, they are essential. It is difficult to manage all of that without a structure, a team.”

“My work at Amor Fúria was to help in developing it. Then, I tried to help with the shows logistic or by doing marketing. It was a short time.”

paid my record. But it does not worry me, music is my break from actual work. In the case of Bandcamp, it is different. People can pay for the download of your music and I received some money from that platform. I also know there are tools to monetize your work, with ads and such, but I never used them.”

“Digitalization changed this completely. Before, you had the guarantee that your rights were protected, and people made a lot of money. I think it is hard to live just from royalties and copyrights. But piracy brought a lot of changes. Streaming and a generalized combat against piracy made things better. The costs are also low. For

about seven euros you can access all the music you want. But I do not know how that money reaches everyone. But with this thing about Article 13, I see some positives, because it is important that content creators are compensated for their work.”

“Artists earn money from shows, that is true. But what you earn from there is not that great either... If you manage to have a lot of shows per year, I guess it should be fine. But I know of people that pay to play live.”

Blockchain

“If blockchain can guarantee more transparency, if it can guarantee more equity, while encouraging the production of content... That is great. It also depends on the project of blockchain in question. It is better to think of the purpose first.”

“I heard about the project of Imogen Heap. The money is transferred immediately when you buy or listen to the song. But, honestly, Bandcamp is not that far from that. It uses PayPal and I received the payment that quickly. I do not know how innovative blockchain is for music, but...”

Appendix 9: Interview Highlights – Ricardo Duarte

The business – relationships in the music industry and its structure

“When we started, we really did not know how to do things. We even went to the artist’s pages and tried to contact them directly. Usually we would get a reply saying to get in touch with their agent. Now, we receive the rosters of a bunch of European agencies. The issue is that we are very small, and every promoter gets these rosters and knows who is on tour, prices, etc., and we have no way to compete with them. This is the most usual process now. But when there is an artist that just started their career, we have a person in our small team of now three people that finds these emerging artists and gets in touch with them through Facebook.”

“How do we discover them? Well, one of my colleagues follows the work of certain independent labels. I like to listen to podcasts and read (e.g., The Wire Magazine). That is how I discover music. And references. Having friends working on the radio is great for that.”

“I know I had a couple of songs in the radio. But, again, I was never registered at a PRO. I do have a lot of friends registered but it is more like “it is better than nothing”.”

“Knowing how much you are owed and how the calculations were made... Yes, there is some lack of transparency. Especially since you even have to pay to be at SPA. As an artist, you always have costs. But then you can also sell your rights to a lot of different things: films, ads, soap operas... People who can do that earn a lot of money. And you even get promoted.”

“What blockchain is is still a bit undefined. You had the protocol that supported the Bitcoin and it was originally for just that, a decentralized payment method, P2P, creating confidence in a system and not in a singular person. And that is very interesting, very good. At the same time, picking that structure and using it for other things... I think there was some hype. There are things where it can work well and others probably not as much. I think any decentralized development will work in some areas and others need actual centralization. Now I want to see other projects in blockchain getting results.”

“We sometimes have signed agreements, but it is rare. Usually it is just based on trust. Here also works differently than the United States, where they pay upfront. We usually only pay in the end, after getting the money from tickets sold.”

“Even American artists accept that way of doing things, yes.”

“As for the venues, we try to look at what makes sense for the band. But, to be honest, there are not that many places where it is easy to do shows. And since most of the shows are in Lisbon, we already have established relationships and contact them directly. When we try a different, more exclusive place... It usually gives us much more work. The equipment has to be rented, for instance.”

“Agreements? Sometimes we pay for the renting of the venue, other times it’s fifty-fifty at the door, and some other venues pay you the fee beforehand.”

“This is almost a hobby and so we sometimes lose some money. For instance, when they pay for the fee, we usually get no profit. We also have no costs. It is more profitable when you sell at the door and split with the venue or when you take the artists to festivals. But that is a different role, more of an intermediary.”

“Cancelling is rare. What we lose? We almost never put money in advance, so that was not an issue. Just the costs of marketing. In our case, it is not as risky. Sometimes we are able to get a different artist for the same date and venue.”

“The way we edited for the first time was purely based on friendship with the artist, but that opened a nice precedent for us.”

“With this first album, we took the opportunity to try to make things more professional at Nariz Entupido. I followed closely the whole process of recording the album, at a friend’s home studio, we hired a designer and created the album. It was supposed to be vinyl so that it could be

Industry pain points

“Every platform that allows music to reach any place is cool. I listen to a lot of Bandcamp, for example. Also, I think artists mostly have earnings through concerts.”

“The paradigm shifted. That idea that you will sign a millionaire contract does not happen anymore. Nobody gets rich selling records now.”

“Digitalization? It is true that the major labels lost a lot, but... I understand that copyrights have to be respected and that they prefer to sell the music. But some bands like Arctic Monkeys appeared from the Internet, really. In my view, I would not mind sharing stuff online since I have the chance to be listened by millions of people. Inevitably that will lead you to get money, even if it is with live shows only. There are artists that play a lot live and that also gets them recognition.”

“Piracy never affected our work, really. It affected the majors, but that is also because they were too slow to react.

more special, but the budget and logistics did not allow for that at the time. It would not make sense to wait six more months, so we went along with CD that, in the end, is still sold the most in concerts. Meanwhile, we had tried to do a live album of the same artist in a partnership with a record store. After that we started working with more friends of ours.”

“We cover the costs of production and distribution and get the money from sales. As I said, this is very much based on friendship, so Tiago will not receive a cent until the record’s costs are covered by the sales, and that is okay. With Violeta, it is different: she holds a percentage of sales (smaller than ours).”

“Our artists are in the platforms, but we usually let our artists to deal with that.”

“We plan on getting artists that are not really our friends. Right now, editing is my favorite thing to do.”

“João Paulo has some of his music in Bandcamp, at least. But he has a very peculiar view on his music, and that includes the way it is presented. So, he is not a big fan of streaming.”

They still do not live well with piracy, but they are able to manage that issue differently.”

“There are labels and agents. And agents are those intermediaries that kind of gained more importance, I think. Maybe. There are more big names for them to represent.”

“[About the lack of managers in Portugal] I think that is true... But it is too difficult, the Portuguese market is too small. Having someone managing your career would make more sense if he had the ability to put you in international stages. In our cases, all of our artists have other jobs and I know some of them would not give up on them even if they started succeeding.”

“We end up doing a lot of a manager’s work. I am trying to showcase Tiago’s music outside, we want to tour in Germany.”

“The music our artists make is not really suited for a radio. Yet, there were occasions where some of their songs played in the radio. (...) We never received any royalties. I think you have to be registered at SPA and I am against it. I see them as an entity that creates more limitations to the growth of artists than anything else (in the case of music). If an unknown artist wants to perform live, he must pay the license for it to SPA, even if they are not registered. For an artist like that it does not make sense at all. Supposedly we have to make a list of every track played at the show and send to them. But even I do not know that much about all of that.”

“First there is a gigantic ignorance about all of those processes. I really think there is a gap in Portugal on that subject. Even if you try to ask someone about it, they will tell you “I think...”, no one is sure about anything. I know of someone who went to SPA to collect their royalties and was negatively surprised with the amount, and when he exposed it, he ended up receiving more. And what it was needed there was an explanation on why the amount was

Blockchain

“I never heard of blockchain.”

Appendix 10: Interview Highlights – Rui Teixeira

The business – relationships in the music industry and its structure

“Labels still make a lot of crucial work regarding content distribution. I know cases of artists, especially in hip hop, that were able to create their own channels of distribution, but they still signed with labels at some point, for a matter of scaling your business. So, I think it’s much more of a question of scalability than of access to the market. You have gigantic channels like Spotify, SoundCloud, iTunes, YouTube, that make all that work for you.”

“Labels went from discovery to a product of acceleration. And they are transitioning from acceleration to consistency.”

“There are artists building their whole careers through online channels of distribution, as it’s more democratic. The future in that matter is blockchain. Because there’s no more democracy than having, let’s say, YouTube making

so low. It is like if you bother them enough, you might get more money in return.”

“There is a lack of transparency in these processes.”

“I understand that in some cases those organizations might facilitate when there are disputes, for instance. But then you have to look at the dimension of things. Because it might work well when you have an already big artist, but it constrains you a lot when you are small. You already counting every penny... You ask yourself “why am I even doing this?” We were talking about the industry adapting before... And this is a case where I think it has not adapted yet, since there are a lot of people that just want to get in a band and play a lot, that is their thing, that is how they are going to get famous, but then some entity will tell them “wait a minute, you cannot perform today”. There is no flexibility with SPA.”

“We abide by all the rules. For instance, we have to deliver one or two copies of every album to IGAC. It is like it is our patent. We pay something and that protects us in disputes.”

revenue every time someone generates it and knowing exactly why and how much.”

“The last things I signed were in paper, saying I had 12.5% of a song. That’s ridiculous, we are in 2019. It’s not that we need blockchain for that in specific [database], but it would facilitate and create new layers of encryption on top of it. It would clearly help in knowing exactly who the producers [of a song] were and they would sign with their key, saying that indeed was produced by them. It guarantees that that really happened, the credits should be those, which percentages exist. It will happen, for sure. There’s a lot missing for it to happen, but we will be there someday. Spotify is working on that. They acquired a blockchain company for that.”

“I got around €1,200 from 500,000 plays on Spotify.”

“Spotify is a big source of income to major artists, while surely it’s not the biggest.”

Industry pain points

“[On how blockchain will tackle the music industry’s problems] First thing, at an IP level. For example, I’m still not registered in SPA and I never will, because I think it just doesn’t make sense. The way SPA works nowadays doesn’t make sense, for having liability. That is, my music goes on the radio and there is an entity that has to know that happened so that they can pay me. This makes no sense. Why isn’t this information being streamed online? This information should be stored in a blockchain, in some information system that isn’t owned by a government or a private entity. In this matter, it would help a lot. I don’t need SPA to send to my bank account the capital I should have, when I could go to a portal where I can retrieve my money directly and tells me exactly where my music was played. Instead of receiving an A4 paper sheet that three people had to trust each other to know if my songs were played there or not. RTP has these issues constantly. They play songs, from Adele or something, and they don’t pay these artists.”

“There’s lack of transparency, of course. It looks like we are in 1940 with this industry, it makes no sense. J. Cole [popular American rapper] even says that the only way to make money in this business is on the road. And that’s reality. There you know the money is going to you.”

“Streaming functions through platforms such as Spotify and they still can’t manage to be profitable yet. Not the way they want.”

“Automation for this kind of actions would help.”

“It is possible to know exactly how many times a certain song and artist were on the radio and the amounts due because of that, of course. From the moment that information is stored in a smart contract... Imagine a radio wanting to broadcast a song and, the moment they do it, the rights are at a cryptographic level... It’s possible, though trust is needed. But there’s that ability of guaranteeing non-redundancy of data, so every time that song is played, a song with this bytecode and structure, there can be a level of variance of 93% - since it can have ten seconds more or ten seconds less; or having an extra

beat to dodge YouTube’s IP detection, for instance – but there are ways to reach a certain point of accuracy, much better than what we have now, and a capacity to retain that information in a database, which in this case would be blockchain. And why? Because it’s nonredundant – I don’t have a database in my home and you have another in yours; it’s a singular database in which the artist gives their hash, like personally saying “this is my song”. From the moment it’s there, you can register every time there’s a call being made, every time there’s a request for information. That’s recorded. From there, it needs scaling. And the hard part is going from the physical world to the digital. It’s one of the biggest hindrances blockchain faces. My idea would be from there – from stabilizing all the information that goes on the radio and retrieve it in a direct way from a network connect to the internet, which in turn is connected to a blockchain, retrieving directly the hash or some data that show that that song is indeed that song.”

“[On radios making lists and sending them to SPA] That’s completely poorly done. The amount of errors that can happen is enormous.”

“And it’s always the same people getting money [from SPA], of course. Also, if I don’t go get my copyrights in a certain period of time, they are distributed among the other artists.”

“Agir must be the guy making the most money from SPA and he’s far from being a millionaire.”

“In the short term, I can’t see something better than Spotify for the industry.”

“The problem with Spotify? For the user, there is none. For the artists, there are few. It’s the best there is in the market. It’s safe. There are more issues when it comes to big artists, but smaller ones... It’s the best thing there is for them. They know a priori how much they can make from it. They believe in the entity. And it works. Maybe there will be better solutions in the future, but for now it works.”

“Spotify had a loss of about \$20 million last year for the simple fact that they didn’t count well, meaning, there was a database error, the number of plays of an Ariana Grande song, if I’m not mistaken. They lost the case in court and

Blockchain

“My knowledge on blockchain and its uses came from IPFS and some R&D data, in order to understand some kinds of information, such as BPM data that I would gather from Spotify for Soundbet. I would daily take that data and save all that information in IPFS instead of a regular database. So, it was much more for R&D, since it’s not a common database. It was cool to understand its utilities, and, on the other side, all that area related with smart contracts and its usefulness when it comes to save that data in an exclusive way. That is, imagining the question regarding Intellectual Property (IP) of some songs, it would be interesting in the sense of obtaining in an ephemeral, nonsingular and nonredundant way what songs exist and, for example, what a remix is – what is an official remix versus a non-official one? All that is an enormous industry. That’s why SoundCloud exists as is, because there’s a whole second layer of the music industry when it comes to styles such as deep house or trap.”

“There are several blockchain startups attempting interesting things in music. I can remember one that was utilizing the blockchain Steem just for monetization. Meaning, when users liked a song, they would upvote, like people do on Reddit, and so, at an economy level of the platform, it revolves around a user liking it, they use their own money as a way of upvoting proactively, which then goes to the artist. Then, there’s also a part related with upvoting the users’ comments, almost creating a Ponzi scheme for upvoting. They even made an ICO, which didn’t work, but the project was interesting for R&D and for the tests they made.”

“There are also some other platforms working on blockchain and tokenization. For example, Current.eos (?), which made an ICO. It’s a mobile application that basically gathers APIs from YouTube, Spotify, SoundCloud, Deezer, and uses that in such a way that a user of their platform, which gains in ads or premium features, gets paid with their tokens every time they watch a video or listen to a song. It’s working minimally, they are

cost them that much. Blockchain solves that issue due to immutability. That was the key factor for their acquisition of that blockchain company, not just for the talent.”

still young, but it’s interesting. We will see if it works or not.”

“There are very few projects that I can say that worked well. It’s very new and fresh, which is good, but we are yet to see results.”

“There’s also another project called imusify and I trust that one completely. My first platform, Soundbet, was heading in that same direction until I realized investing in music is not very profitable, especially when you put tech in the mix. We already have Spotify for that. But they are doing something interesting. Something that was basically what Tradiio tried to do, which is something like a stock market for music, but in this case everything is automated. You listen to a song, you buy a share of the artist and you keep it until the artist gets successful. Imagine buying a share of Drake when he signed with Lil Wayne [his label – Young Money Entertainment], you would have quite the hefty amount of money now. Same thing as buying Amazon in 1995. So yes, I believe in that, it makes a lot of sense. They are the front face of what’s happening today at a blockchain in music level when it comes to utility and its most commercial side.”

“[On blockchain] Is trusting an entity that isn’t, in fact, an entity.”

“Blockchain will bring immutability and transparency.”

“Blockchain platforms could be more successful with smaller artists, yes, but there’s no audience. I feel that these platforms are much more about R&D right now, and not so much about usability.”

“[On imusify] This isn’t coming as a substitute to labels or Spotify. Instead, it’s creating a second layer market. I believe in it as to bring more democratization by using a scalable and highly secure blockchain. That is, you have a token, it’s yours, and it doesn’t go in a “Robin Hood kind of market”, which is something very complex, needing licenses and legality.”

“Tokens exist to ensure blockchain’s safety. It’s an incentive for it to keep running. Blockchain is nothing more than a group of guys that put servers working in a synchronized manner. And there has to be incentives for them to keep those servers up, since you’ll be spending money. Tokens are the returns from doing that. So, blockchain has to be “tokenizable”, or else it would simply be a system of servers that could cease to function at any time. It goes hand in hand. You can’t have a functional blockchain, with goals of being immutable and decentralized, without those tokens.”

“What matters here is all speculation... Yes and no. Yes, there’s speculation, which doesn’t mean they are not crucial to the existence of blockchain. Without cryptocurrencies, why would someone be doing mining at home. It’s very expensive. And that’s why they exist and are valuable – there aren’t that many of them.”

“I don’t think blockchain has to be a mainstream subject. Microservices and databases don’t need to be mainstream.”

“I look at blockchain as a tool of technology, just like AI and machine learning.”

“There’s no way to modify contracts in Ethereum [example], unless it goes down. That’s the crucial part here: immutability and transparency of data.”

“When you bring it as a matter of “selling” – and it should be for selling – I see it much more as a tool to solve problems in the real world, in which one entity is ensuring safety, while the other focuses on profit. Regulators ensure the safety of the users and the operators ensure that they are making money. Then, there has to be a third party not regulated by any of them that says “yes, this is true” – blockchain exists for that. At least it’s one of its uses.”

“Musicians don’t have to know that they are using a smart contract. What they have to know is that they will receive their part when a song is played on YouTube, that they will receive their returns.”

“Musicians don’t have to know what blockchain is nor they are supposed to know. The developers are the ones who need to know that. That’s why there are several layers in product development. I think that’s a work they must do in order to offer the best product possible to artists. Me, as an artist, I want to know if blockchain is the best thing for me... Why? I don’t want to know what blockchain is, I want to know for sure that, if my music is played somewhere, I’ll receive money from it.”

“Developers should be in contact with Spotify, YouTube and such platforms, and not with the musicians. It’s a matter of education. Doing that is a noble task, but businesswise it is a bit redundant.”

“I’m sure it will happen someday, but there’s a lot of work to be done. It’s the reality. It will take some time.”

“[On the incentive for an artist to put their music in a blockchain platform] At this time? R&D. Not much more than that. There are no uses yet. We live in a time very focused in crypto: the users are the investors too. It’s still a niche. It’s a good time to understand what’s going to happen in the next few years relatively to that. And I think the music market will be one of the last ones to use it. It will take a while until platforms such as Spotify see it as usable. But it will happen.”

“The path to having blockchain in music doesn’t have to be done by the artists. It’s the opposite. It’s like saying the path to get electrical cars has to be done by the consumers.”

“Artists will receive cryptocurrencies as a way of payment. That will happen. In that sense, they must be educated on the subject.”

“The market decides. If consumers are not using a certain service, that’s because the service is either bad or isn’t that good enough yet. Why would I switch from Spotify to imusify? There’s no reason for that. We start using things when they are useful.”

“It will take some time. A lot of education to be done.”

Appendix 11: Interview Highlights – Simone White

The business – relationships in the music industry and its structure

“Sometimes I record at home, sometimes with producers. I've paid for it myself, sometimes my label paid me back in part or in full, depends on the deal.”

“The two big ads I had music in – the Audi R8 and the Omega watch – were mysterious how they came to me,

Industry pain points

“I think the hardest part about being a musician these days is getting your music heard, there's a lot out there.”

“Not all of my albums are on Spotify because 1- I don't like my first album enough to put it out there 2- I have to get the digital distribution together for my latest one Genuine Fake.”

“I feel neutral about streaming services, sure I'd like people to buy records, but nobody does that anymore and if you don't have your music on Spotify it's like you don't exist. So, I'm happy for it to be there.”

“I'm signed with ASCAP to collect my royalties, but lately I've heard there are many different bits and pieces that

Blockchain

“I've only just heard the name blockchain, I don't know how it applies to musicians.”

Appendix 12: Interview Highlights – Tiago Castro

The business – relationships in the music industry and its structure

“Working with a professional recording studio involves costs.”

“The good thing about the time we live in is that any sound engineer can have a home studio. In my case, my friend works in cinema, with sound, so it was a challenge to both sides: I brought some demos recorded some years ago and adapted them to create new things, in a process of not only recording but also capturing new sounds in a very small room. But things worked out well, the album had great sound. This time around, I tried being a bit more professional and recorded in a proper studio, a professional one, but also for smaller acts, which is called Spring Toast. It is all geared up, with an open space where you can use the drums they have, amplifiers, everything. And so, I ended up spending there a month recording. Anyway,

they didn't say, just that the music somehow landed on their desk. My publisher Domino has got me a few other placements.”

“The Sincere Recording Co was my friend's label, it was basically a self-release.”

aren't being collected by them, it's hard to keep track of everything that's collectable. It's on my list of things to figure out.”

“Piracy - my brother found a site that showed how many tens of thousands of times my album I Am The Man was illegally downloaded. I wasn't mad, I guess I was flattered. Sure, it would have been great if those were sales, but everything has changed, and I don't think you can expect that anymore.”

“I was always told it was impossible to make a living as an artist, so everything that I've received has been a gift. I can't complain.”

these are still small steps. It is not like this is a professional studio like how we have seen The Beatles or Pink Floyd using. Or like Valentim de Carvalho, with big spaces and lots of sound engineers. It has some of that but on a more familiar level. But, for instance, Filipe Sambado recorded his latest album here and it has been critically acclaimed.”

“I took care of everything. Nariz Entupido is only concerned with editing the album. I take care of the recording process. I oversaw those costs and the label will be in charge of the publishing costs.”

“Things are mostly talked over, there is nothing signed. We just discuss things along the way. Especially because I want to have control over the recording, and since they are not even obliged to accept the final product... I could present a pop album, like Britney Spears, and they

probably would not be interested in it. Yet, it could be interesting for me. So yeah, I want to have creative control over my music. Nariz Entupido has been working as a platform of communication, to divulge Acid Acid, and also by arranging concerts, as they end up being my agency. And it is a gentlemen's agreement where things occur naturally. We are talking about very small platforms. Nariz Entupido is mostly a promoter and they give exposure to some marginal music acts. Their label aspect has started with me and they are still learning how things work in our market, even though the "market" is something almost nonexistent – I also look at my records and do not see much commercial value in them. I mean, it is not a question of not believing in the music, but I know physical releases are not sold as much in Portugal, and I also know that it is a kind of music that does not appeal to the mass market. On the other hand, I truly admire the effort this label, and other small labels I know of too, put in the release of physical copies of records. Maybe they do not profit that much, but at least they get enough to continue supporting that one artist. They have been putting out some interesting releases, the latest of which was with Folclore Impressionista, and had a box, a cassette tape, some posters, some drawings and whatnot. The big labels would not wager on these left-field musical genres."

"Until the production of the record gets paid, everything that Acid Acid earns, being it with record sales or live shows, is going to the label. After that, we distribute the profit equally."

"Labels add value. And if we look at the small labels, we see that many times they are born out of necessity, for there is a group of friends that wants to put some music out and otherwise they would not be able to. Or at least they would not know how to. It is very hard to get to a label like Valentim de Carvalho, or like Sony, Universal, etc. Those are levels that, for a more marginal genre of music, like ambient music or experimental music, do not seem as compatible. We witnessed the emergence of "internet labels", where you create a label, put the music available on the internet, and it is done. But if you want to release something physical, there is a need for some investment, and labels are a necessity, yes. An artistic need. I think the role of these smaller labels is that one, to carry out that dream of an artist which is to have albums out there. So,

labels are needed. To release an album is a team effort. From the moment in which it is recorded, to when it is edited to the moment when the album is promoted. Few people can do this all by themselves. Firstly, you must have some economic power, a lot of contacts, because releasing an album and promoting it in order to reach as many people as possible is a complicated task."

"I am at a level where career management [by an agent] is not really necessary."

"It is like a producer: I go in the studio and, as I said earlier, I want to be the sole "owner" of my creativity, but I gave everyone who was working with me a chance to express their opinions on what was happening. If it was not working out well, we would try to do in some different manner. I think a career manager could do something like that, finding the weakest and the strongest points of an artist and work around the latter. As an example, there was this one time when I was interviewing an artist and he would give me the most basic answers. I am saying this because part of job of being a musician could also relate to giving interviews. And that has to be taught as well. This is where a manager could come in handy, for instance. And in Portugal that figure does not exist, in fact. Yet, Portugal is very small and there are barely any "stars" in music. That ceased to exist. It also takes a dose of humility from an artist to ask someone to help them in their career path."

"At a big label level everything is thought out in order to sell. It is a whole new dimension."

"The ultimate goal for an artist is to reach as many people as possible. And that does not necessarily mean to sell. Even if the music is not bought, it can be listened to. That could lead to sold out concerts. Even then, that also depends on the communication, the career management... There are just a lot of factors in the mix."

"Portuguese artists create a lot and with good production behind. The issue is not in the music. In many cases, there is a lack of ambition [to go international] from the artist. Moreover, that manager person is not there to guide the artist in that path. And finally, there is a lack of support... Or rather, of rules from the central government. Something that is a reality for years in many Nordic countries. For example, to have regular invitations to play in festivals

abroad, the people outside the country have to know the music. That is also a very important task for a label. But if we talk about really small ones, they do not have the financial capabilities to promote their acts at that dimension. But if there is an office that can communicate what we have to offer to the outside... Financial returns can even occur for them.”

“I had some examples where I notice a particular kind of music works with a certain audience. One thing that we discuss a lot with Nariz Entupido is to try and take my music to Germany, more specifically to Berlin, where electronic music and ambient music are strong presences in the scene. And we have to look at the size of things. Even if that is a niche, one in Germany is not the same as one in Portugal, and you can live off of being relevant in that niche in a big country. So, we sometimes think of “where is the audience for this kind of music?” The thing left is the work on the field.”

“Big labels give bands more exposure.”

“My music is available in all streaming platforms similar to Spotify and Apple Music.”

“I haven’t really earned much from it yet. And there are costs, since I pay to a platform that manages my music in the several streaming platforms available. But I notice is that there are people listening to it and it facilitates in communicating what “Acid Acid” is.”

“Personally, I’m not a fan of Spotify. I have my music there and I understand its dimension and value, but... Anyway, for someone who isn’t very known, I think those platforms are essential. With the way Spotify is constructed, by giving recommendations based on each person’s tastes, it can bring exposure to lesser-known musicians. I mean, I witnessed the rise of Myspace. It gave a platform to smaller bands. It’s like that now too. But when it comes do dividends... That mostly goes to the bigger acts.”

“One time a musician sent me a song so I could broadcast it on the radio and very naively asked me if he would get any money from that. The answer was just no. The song was on the radio, we promoted it and divulged it. Radios pay a certain amount every year for the rights of

broadcasting and from there SPA distributes the money. If you are registered, you’ll get something. SPA manages the profit a band makes.”

“I’m not registered in SPA. I’m only registered in IGAC so I could “defend” my album. That way my record is protected when it comes to copyright.”

“SPA should work as a profit manager. But for some reason that doesn’t happen. I know artists that are able to earn a lot of money from them. Either because they have a lot of records out or because they performed live many times.”

“Yes, you also pay them [SPA] to play live. I often sign agreements relinquishing my rights, so that the venue doesn’t have to incur in that extra cost. That ends up reflecting in the fee I receive too. And since I’m not registered in SPA...”

“If a movie wants to use a song, there’s no discussion when it comes to rights: there must be a process [of acquisition/licensing]. When it comes to sampling... That’s a discussion that comes from the 80s. Hip Hop was born from that too. It’s more of an artistic issue, but I still think it has to be talked over. It’s a complex situation. If someone uses my music for a commercial, for instance, profiting from it, I know that my rights are reserved. If it is used for something more artistic... I don’t know, it depends. At least I would have to be credited. I admit that having my music sampled by an artist, then able to earn a lot of money from it, would bother me a bit. On the other hand, it goes against what I feel in relation to music. There needs to exist a more democratic side. And when you sample, you are in fact creating a different thing, a new thing even. We must value that too. Of course, it’s better if the artist talks with me beforehand about that and there’s an agreement.”

“Having a base price for my music seems too formal. Or even having certain required conditions. That’s a bit weird to me.”

“At a bigger scale [for movies using famous songs], listing the conditions to use a song should be a thing. Knowing that using a certain song for “x” amount of time is worth this much and they just have to contact the label.”

Industry pain points

“Music does not sell that much.”

“Personally, I would like to continue to work in radio and in music at the same time. If there is a chance to go on tour for six months... I would love that, of course. I love music above all, and radio ends up expanding on that.”

“To reach the number one sold album in Portugal you just have to sell something like five thousand copies. Very little. Bands get profit from live shows. But even then, you cannot get a great fee every concert. Then there are other ways to get more money whilst still working in music. A common example is that some people play in several bands. That way they can also collect revenue from SPA. But it is complicated, there are very few bands that live from music alone.”

“There is no audience, the market is too small.”

“Even artists that are solely dedicated to music end up finding other solutions. For example, PAUS: they built a recording studio in Lisbon. From there they are able to get some dividends. They are still working in music, but not only their music exclusively. Other case is when an artist just plays live a lot. An example is Molarinho, from Baleia Baleia, who could not dedicate full-time to music some years ago and now he gets a living from it. But he has like eighty or more concerts per year. In small venues, medium venues, but never in big places. He just has to go everywhere. Obviously, when you are a solo act, this also gets easier. Especially since you do not have to share the fee with anyone.”

“If you listen to Acid Acid many times, the money goes to me directly. But I’ll give the example of radios: they pay a certain amount of money per year for copyright. However, they are not the ones that manage that money. There’s a big flaw in this. SPA won’t pay for copyright to that one specific band – let’s say an unknown English band. What happens is that there is a pool of artists to whom the money is distributed and the ones with more airplays receive more. Because of that, the money goes always to the same people. When it comes to streaming, I know of people that at the end of a month get something like ten euros. It’s residual. At my level, we don’t expect to earn money. We use these tools to communicate to your followers.”

“If we [radio] wager on an unknown national artist that has just started and isn’t registered anywhere, he won’t get anything [from SPA]. Actually, even if he is registered. Also, because that work has to come from the artist himself, declaring how many times he played on the radio, which is exactly the work that SPA should be doing – and only does it in a small scale.”

“Lack of transparency is an adequate way of describing this. To add on that, the musicians themselves are simply unaware of many of those things. There’s no clear way for them to learn the bureaucracies associated to their music and the profits resulting from it. Well, many don’t even care anyway and are only interested in the creative side.”

“It makes me sad that it’s always the artist that has to “knock on SPA’s door” and not the opposite. If you are registered there, the work should be done by them. If I don’t say anything, I’ll get nothing. But if you really want to get a living from music, you have to come through this process.”

“A database is essential. Something easily accessible that stored information on where the song is registered and whatnot.”

“What I think is that there must be rules, or else it becomes a bit anarchic. Having a song played in a TV show is [monetarily] more important to the artist than to the show.”

“I was a “pirate” myself. I don’t have any issues in admitting that. That helped me discovering many new musicians at a time when Spotify and YouTube weren’t a thing. It took me years until I was able to listen to the whole discography of one of my favorite bands, the Talking Heads. Now, anyone can go to YouTube and listen to all of it in a weekend. So, when it comes to the democratization of music, I’m all favorable. The industry just took too long in adapting and there are cases where bands revolted against the amounts of money earned by the industry and went fully independent. However, not all bands can afford to do that, obviously. Many smaller acts need the streaming services and some years prior they needed that people pirated their music. Labels that signed big artists were hurt by it, but I think they learned to use these kinds of services now. In fact, piracy was reduced.”

“Records were always very expensive. Now you just go home and play it for free. And if you are listening in an official channel, you are still giving money to the band. It’s good that that is the case.”

“I’m not really against piracy, as I’m in favor that music is able to reach as many people as possible. That goes beyond the industry, creativity...”

“I do think that artists are more satisfied with the way that things work now, because before you just couldn’t break through. There are many examples of bands in the 70s that

recorded an album and, since it wasn’t commercially successful, they had to disband and do something else – being it in music or not. The dream of being a Rock & Roll star should not be pursued anymore, that doesn’t exist anymore. Yet, I think that, at any time of your life, being a professional musician or not, being able to record an album in your home and share it in the several platforms, is for an artist completely fulfilling. Almost every artist that we listen to now has been in that process. The exception are some pop stars that are industry plants. But usually musicians nowadays just start independently.

Blockchain

“I have never heard of blockchain.”

Appendix 13: Blockchain projects in the music industry

Aurovine

Aurovine utilizes the AudioCoin cryptocurrency. Not only it connects fans and musicians through, yet again, smart contracts, but it also allows the consumers to be rewarded with AudioCoins for sharing music on social media or for attending live shows.

Bittunes

Bittunes is ambitious in its mission: it clearly wants to tackle the big corporations running the industry, giving all the power to independent artists. In other words, its target is constituted by emerging artists that are yet to sign a record or label deal (O’Dair et al., 2016). Once again, musicians can publish their music directly on the platform, having control on the terms of use. The app already has users in more than 100 countries, being at a more advanced stage of development (O’Dair et al., 2016).

Dot Blockchain Media

Dot Blockchain Media identified two recurring issues affecting the industry: failure to properly match songs with their creators, leading to unclaimed royalties, which represents a loss in revenue; and that it is expensive to clean bad data in music. Given that, a solution matching the identification of creators to the speed of the digital era

Blokur

Through machine learning and the blockchain technology, Blokur intends to be an accurate source of publishing data. Having 50,000 songwriters and 7,000 publishers on the platform, the technology provides a way to resolve disputes and get better data, which means more revenues. It works by having publishers comparing the data on their catalogues to the one on the blockchain.

Choon

Choon is an Ethereum-based music streaming platform that uses smart contracts to reward every song contributor almost instantly. The platform can also be used for crowdfunding for emerging artists. In addition, fans can also be rewarded in certain scenarios.

in music was thought of. All the players along the supply chain can work together by sharing data that they have in common using technologies such as the blockchain. Thus, they will benefit from correctly attributing song credits, less expensive clean-up of bad data and fairly claimed royalties, through storing that kind of information into the audio file itself – a new one (.bc) containing minimum

viable data and replacing the usual MP3 or WAV files (Arcos, 2018).

imusify

imusify connects the music industry stakeholders through a direct P2P network. Artists are free to upload their songs on the platform, receiving votes from the fans, or start their own crowdfunding campaign. It is built on top of the NEO blockchain.

MediaChain

MediaChain was essentially a database – a decentralized one at that – targeting media applications, in which music industry players can be included. Data regarding rights could be shared without the need of a third party. Moreover, the smart contracts feature is also enabled in the platform. The startup was acquired by Spotify in 2017.

Mycelia

Mycelia comes from the mind of Imogen Heap, a Grammy Award winner, after she learned about Ethereum and smart

contracts and envisioned them in the music industry. She started by releasing the track “Tiny Human” in a blockchain-based platform, “being the first song ever to automatically distribute payments via a smart contract to all creatives involved in the making and recording of the song” (Heap, 2017). Then, Mycelia, a research and development hub for music makers, came to fruition. Ultimately, Heap envisages including all kinds of information about a song using the technology (O’Dair et al., 2016), which could help spawn new apps and services atop of those datasets, creating new revenue streams (Heap, 2017). Right now, Mycelia is busy in touring the world, educating musicians about the potential of the blockchain and their two current projects: Creative Passport – a verified profile for the musician with their works or payment mechanisms, to name a couple – and LOAS Life of a Song – dissecting all the revenue streams and agreements of a song, showing how the industry works.

Open Music Initiative

The Open Music Initiative is essentially a think tank with about 200 members, ranging from academic institutions to media organizations, including the likes of Spotify or Netflix. The initiative is not looking for profit or for selling a product, but rather finding a protocol that can help in the identification and due compensation of rights owners.

PeerTracks

PeerTracks is a completely free streaming platform built on blockchain, allowing artists to receive royalties instantly after someone listens to their song. The blockchain ensure the transparency of these transactions, which occur by the means of smart contracts (Takahashi, 2017).

Smackathon

Smackathon is a competition created by the popular musician Pitbull with the objective of finding the best business ideas utilizing the decentralized technology of blockchain for the music industry.

Ujo Music

Ujo Music is a platform to connect artists and fans or entities, and that uses the Ethereum blockchain. It envisions the empowerment of the artist, who can share their music on the platform for free. Through smart contracts, they can then license their music or sell it to fans, receiving instantly 100% of the royalties, split automatically with whoever collaborated in the making of the song.