Paradox of Celestial Jukebox: Resurgence of Market Control

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The rise of P2P technology produced a prediction that ubiquitous access to an unlimited choice of music, known as the Celestial Jukebox, would loosen the market control and hence bring about cultural diversity in the market. As the streaming music business grows, however, this celebrated musical experience is giving rise to a resurgence of market control. Underlying the difference between the prediction and the reality is the unexpected problem that has arisen in the process of technological development. This article unravels this missing link by demonstrating the underlying dynamics involved in the innovation process through which digital technologies are applied, consumed, and used in the music business.

Keywords: celestial jukebox; streaming music; playlist; Spotify; digital music discovery; digital playola

Introduction

The arrival of Napster, the pioneering digital music service based on Peer-To-Peer ("P2P") technology, opened up new ways of enjoying music. One of the major changes this new medium has brought is ubiquity of music listening with an immeasurable scope of music choices, known as the "Celestial Jukebox". While Napster and its progeny have offered this vision since 1999, it was only recently that it became a highly visible reality, when streaming services, sparked by Spotify, arose as a new digital music consuming platform, bringing the majority of digital music users back into the legal arena. Its legal and unlimited access to music prompted some commentators to claim that Spotify is "exactly what music fans had been waiting for, fulfilling the long-sought dream of a 'celestial jukebox' — a service that makes every song always available,

freely and legally" (Pollack 2011).

The Celestial Jukebox is depicted as an ideal form of musical experience where consumers can access an "immeasurable scope of the (music) heavens" (Harvey 2014), and artists are compensated for each transaction of music consumption. Professor Paul Goldstein (2003) praised this idea as a Holy Grail that could perfect the primary idea of Intellectual Property Law. The underlining presumption is that removing the barriers to music access, combined with peer review and viral impact on the Internet, could help fans to discover lesser-known or unknown music, therefore contributing to the achievement of the beloved cultural attribute where a diversity of music choices would flourish (Mann 2000; Pasquale III, Weatherall, and Fagin 2002) As more than 100 million digital music users have come on board with streaming music services, however, it is becoming clear that the majority of music consumers need and want their choices to be dictated to them by established tastemakers and media. This dilemma has brought back the industry's long-established practice: filtering. At the dawn of this new change, a plethora of intermediaries are trying to influence consumers' choices. Drawing upon this change, this paper investigates the underlying dynamics involved in digital music discovery and demonstrates how the untrammeled garden of music choices is, paradoxically, bringing about a resurgence of market control.

A Brief History of Music Discovery

Listening to music was, for a long time, "a temporal, fleeting experience – and a rare treat…most often heard in church and perhaps at home, if someone had talent, not to mention a piano" (Coleman 2004, 1). This changed with the invention of the phonograph in 1877: sounds were recorded and fixed on a product to be multiplied and distributed to the public. Soon, the making of the record industry began when the Columbia Phonograph Corporation recognised the commercial value of phonography by

developing a “nickel-in-the-slot” machine (Frith 1987) This first pay-per-play-based music streaming technology, introduced in 1899, allowed people to listen to a recording of their choice on the machine for a nickel.

A series of technological developments in recording, reproducing and listening to music facilitated the structuring of the music industry to distribute and sell music embedded in physical artefacts. This system required extensive skills and costs to produce and distribute physical products of music. It therefore produced a brick-and-mortar infrastructure in which large-scale production, physical logistics, and shelf-space made the system highly capital-intensive. In the process of music distribution, which involved manufacturing, the mass production of physical products, storing products in warehouses, and finally delivering products to retailers, “each of these technologies was initially expensive, specialized, and not accessible to individuals” (Kernfeld 2011, 14).

Besides the substantial financial investment required to produce music, consumers’ fickle and unpredictable musical tastes rendered the music business particularly uncertain and risky (Hirsch 1969, 64). To the extent that the process of creative production entails uncertainty and high risk, it became crucial to exercise control over consumers’ access to music choices in order to ensure a sufficient return on investment. Hence, the music industry developed strategies to ensure the maximisation of profits and the minimisation of risk (Burnett 1992, 755). These strategies included negotiating different terms with artists depending on their previous success – long-term contracts for successful artists, and short-term ones for the rest – so that the industry could hedge its bets through a wide range of products and oversupply in order to make sure that at least some artists were commercially successful enough to cover the cost of all of the unsuccessful records (Burnett 1992, 755).

The industry also developed a structure to control the creative process through which the exposure of the selected products could be maximised (Burnett 1996, 73). To that end, it created an artificial scarcity as a rival good by developing a pre-filtering system. In this way, the music industry overcame the problem of the limited space needed to store the goods, as well as controlling distribution and consumer prices. In this system of pre-selected music discovery, radio played an essential role. The following section discusses these two important aspects of music discovery in more detail: (1) Pre-selection; and (2) Radio.

(1) Pre-selection

In an effort to maximise the exposure of their products and in turn increase the possibility of recouping their investment, the music industry structured a network of complex organisations in which discovery and filtering was processed at each level of the network (Hirsch 1972). The filtering process meant that the final cultural item that consumers could access was an outcome of the pre-selection process, which often involved negotiations over conflicting interests and unbalanced power relations (Turow 1992). In other words, consumers' choices became highly contingent on market availability. The consequence of this was that musical taste was flattened by the market structure. As DiMaggio (1977, 92) succintly stated,

> "Taste is first levelled, then homogenized. Significant innovation becomes rare and the thematic range of popular culture narrows as the search for a mass audience forces corporate producers to transcend "the peculiar interests and preoccupations of the special and segmented organized groups and direct their appeal to the mass."

A prominent contribution to understanding this pre-selection process was made by Hirsch (1969), who investigated the industrial mechanism behind the filtering

process. Drawing upon the way in which certain songs became popular, he drew up the framework, “The Organization of the Pop Music Industry”. In this hierarchical filtering process, he identified four important agents that played a crucial role in a song’s popularity: the A&R agent, the record company, the promoter/distributor, and the radio station/media outlet. This process highlighted that “each object must be ‘discovered’, sponsored, and brought to public attention by entrepreneurial organisations or non-profit agencies before the originating artist or writer can be linked successfully to the intended audience” (Hirsch 1972, 640). Wikström (2013, 53) later summarised the extensive process of filtering involved in each stage of the pre-selection system:

> “Only a small fraction of all artists are ever able even to meet an A&R agent, and only very few out of all the acts that an A&R agent ever listens to attract the attention of the record executive. Eventually, only one artist ‘in a million’ will be heard by the mainstream audience on commercial radio stations.”

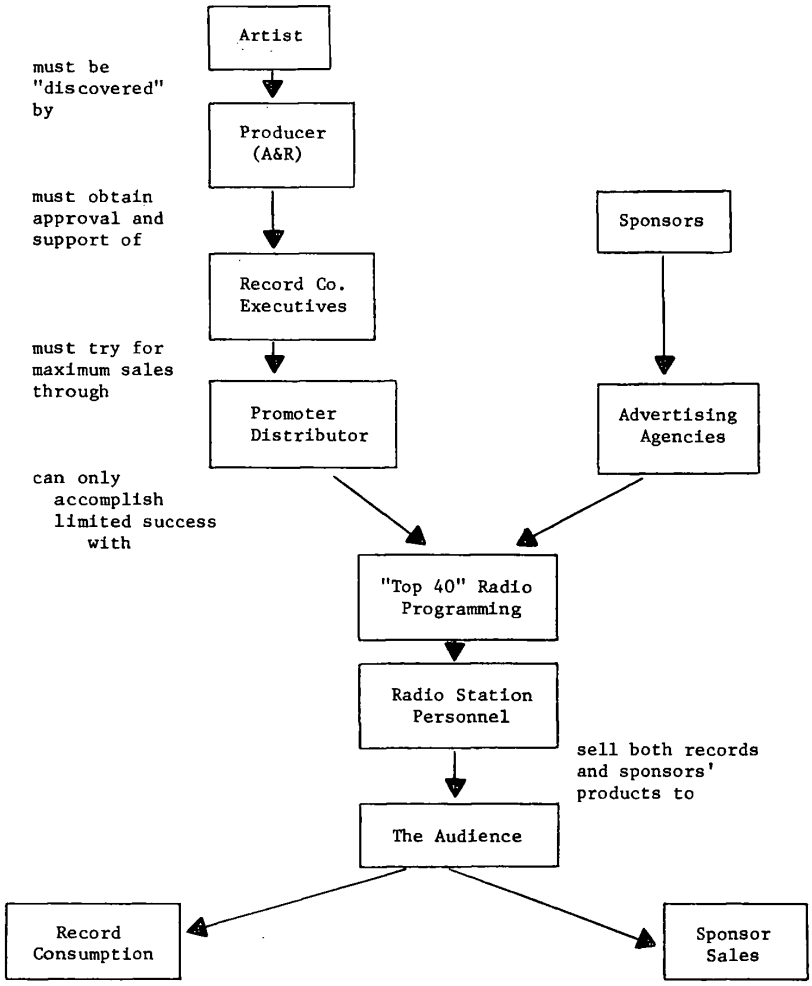

Figure 1. The Organization of the Pop Music Industry (Hirsch 1969)

(2) Radio

Of the four agents involved in Hirsch's (1969) model, radio played a particularly vital role in influencing consumers' music discovery and choice. Before radio became a popular medium for music listening in the 1950s, the main way to discover music was to go to a music venue, be that a street or a proper concert hall. As radio became a basic home appliance used in almost every household, it brought "a feeling of connectedness" through everyone listening to the same tune on the radio (Taylor, Katz, and Grajeda 2012, 4). Radio, therefore, became an important outlet for songs' discovery. The

interdependent relationship between record companies and commercial radio stations built over time was so great that Hirsch called the recording industry, “The Top 40 Music Industry” (Hirsch 1969, 9). Emphasising the crucial role that radio played in the success of the record business, he described radio airplay as the “lifeline” of a record company (Hirsch 1969, 32). Frith (2002, 201) also called it “the most significant twentieth-century mass medium” and stressed that “radio is still the most important source of popular musical discourse, defining genres and genre communities, shaping music history and nostalgia, determining what we mean by ‘popular’ music in the first place.”

In the beginning, however, radio was not conceived of as a popular medium for music listening. Fearing that free play would displace album sales, many artists and producers resisted the idea of their music being played on the radio. At the height of his career, Bing Crosby put the label “Not licensed for radio airplay” on his records (Peterson 1990, 105). Likewise, radio stations preferred to play lucrative forms of programming such as live music and showed a great disdain for playing records, calling them “canned music” (Peterson 1990, 105). However, these stations began to experience financial constraints, as, with the advent of television in the 1940s, advertising income drifted away from them. They turned to recordings as an inexpensive programming strategy. Soon, the record companies realised that radio airplay directly correlated with an increase in the sales of a record: only the records that received airplay were stocked by the record stores, and the frequency of radio airplay determined the sales of the records (Hirsch 1969, 66). What followed was an attempt to find a way to keep listeners tuned in in order to increase record sales. Radio stations realised that people tended to stay tuned in to listen to familiar music, rather than new songs (Frith 2002, 202). From this came the Top 40 playlist; this “ever-narrowing chart

based play-list" kept listeners loyal to stations (Frith 1987, 131). A symbiotic relationship between radio stations and the record industry was forged. As radio became an increasingly important gatekeeper that dictated which songs would grab consumers' attention, record companies became keen to get their artists on the airwaves in order to sell more units (Burnett 1996). It was not long before radio became the dominant music consumption medium, and the royalties resulting from this phenomenon became a significant source of profit for the industry (Frith 1987).

As the significance of the airwaves increased, so did the importance of disc jockeys, who had the power to choose what to play. To ensure that their songs got airplay, record companies bribed disk jockeys to play their recordings. This practice, known as "payola", has since been forbidden, but the significance of radio play remains due to the essential ripple effect throughout media, which can ultimately lead to success in terms of record sales. If a radio station's playlist is strongly linked to sales, an important question that should be asked is how radio stations choose their playlists. The way in which stations choose their playlists is determined by multiple factors; not all radio stations are commercial broadcasting stations, so it is fair to say that not all stations are driven by commercial interests. As far as commercial radio stations are concerned, however, the principal aim is to generate revenue from advertisements. Radio stations, therefore, are inclined to broadcast popular music that caters to segmented group of audiences by providing formatted playlists (Fornatale and Mills 1980, 80). The consequence is that in order to ensure that people stay tuned in, radio stations choose to play familiar music rather than experimental tunes (Frith 2002). Coupled with the labels' commercial interest in increased sales, this tendency has led to a practice that of "settl[ing] for what is easy and familiar" (Crisell 2002, 132) and a popular music culture determined by the lowest common denominator (Burnett 1993).

Market Control in the Conventional Music Business

The uncertainty of not knowing what song will be commercially successful forced the music industry to obtain a tighter grip by controlling the market (Negus 1992, 152). The music industry, therefore, built a structure in which economic power could be maintained by preventing competitors from entering the market (Hirsch 1972; DiMaggio 1977). This was achieved through market concentration. By 2000, after a series of acquisitions and mergers in which smaller labels were absorbed by powerful entertainment conglomerates, a tight oligopoly had been firmly established (Hull 2004, 124). The four major labels at that time, Universal, Sony BMG, Warner, and EMI, controlled the distribution of over 80% of the world's music (Burnett 1996). With the extent to which the market was concentrated, control was determined by the firms who had a larger market share and ultimately influenced the production of music (Frith 1981, 90).

At the centre of the consolidation of the recording industry lay copyright, through which multinational firms' rights-based business was structured (Bakker 2012). That means the more repertoire a label owns, the more products the label could use to capitalise on. Henceforth, expanding market share became a key strategy for record companies (Bakker 2012, 310). As a result, many independent labels built links with major labels (Negus 1992; Burnett 1996).

Distribution was another essential part of market control, as it eliminated – or at least reduced – the uncertainty entailed in investment (Hirsch 2006). This control has long been in the hands of the major labels in the form of an oligopoly (Negus 1992). The major labels distributed large quantities of records, and their operations incurred large overheads. In a vertically integrated system where publishing, record labels, manufacturing and distribution units were integrated into their own business structure,

they achieved economies of scale to reap profits from their own labels (Bakker 2012). The system also allowed the major labels to control "the distribution of marginally differentiated products" by enabling them to "link available input to reliable and established distribution channels" (Hirsch 1972, 646). This meant that multinational companies could intensify their control by increasing their exposure among various media outlets such as radio, TV and film (Jones 2002, 218).

Digital Revolution and the Dream of Celestial Jukebox

The duplication of perfect copies at a cost close to zero enabled by digital technology disrupted the conventional music business system, structured around physical artefacts. A seismic shift in the music industry was predicted. One of the predictions was that ubiquitous access to an unlimited music supply known as the "Celestial Jukebox", where music fans could enjoy an immeasurable scope of music choices, combined with peer review and viral impact on the Internet, would help music fans discover lesser-known or unknown music. This would contribute to achieving the beloved cultural attribute whereby a diversity of music choices would flourish (Mann 2000; Pasquale III, Weatherall, and Fagin 2002)

The ubiquity of the music listening experience received significant attention, with Goldstein (2003, 22) using the term "Celestial Jukebox". He described it as:

> "A technology-packed satellite orbiting thousands of miles above the Earth, awaiting a subscriber's order – like a nickel in the old jukebox, and the punch of a button – to connect him to any number of selections from a vast storehouse via a home or office receiver that combines the power of a television set, radio, CD player, VCR, telephone, fax, and personal computer."

The elevation of this practice to a heavenly cultural form was twofold: it was "perfecting the law's early aim of connecting authors to their audiences, free from

interference" and it had the potential to monetise every use of the sound, which relates to Goldstein (2003)'s assertion that "the best prescription for connecting authors to their audiences is to extend rights into every corner" (216).

This view of the Celestial Jukebox, which was celebrated as a "utopian garden of cultural abundance", however, was highly criticised by Burkart and McCourt (2006), who maintained that the digitalisation of music would serve to tighten global recording companies' grip on the digital music distribution platform and thereby reinforce the oligopoly through existing market strategies and copyright enforcement. As long as the fundamental power structure persisted in the music industry, they argued, the Jukebox system would not be "a gateway onto a garden of cultural abundance" but instead would "become a tollbooth into a web of privately owned and operated networks where traffic in intellectual property is carefully monitored and controlled, a walled garden of closed networks with restricted access and tightly circumscribed activities" (Burkart and McCourt 2006, 4).

As digital music streaming services enabled unlimited access to music, Burkart (2014) later probed whether they had contributed to a market structure change through diversified music consumption. Drawing upon the legal system in the music industry, which is structured to preserve the traditional revenue model, he argued that the utopian idea of a celestial jukebox is "the false promise of the experience of the digital sublime, fashioned as a seamless and elegant digital enclosure" (Burkart 2014, 405). The reality of the jukebox, he contended, is manifested in the back-end technical infrastructure designed to stimulate the consumption and outmoded legal infrastructure favoured by established media companies.

Recent studies have drawn to the implications of the curation process taking place on streaming services. Morris and Powers (2015), for example, examined four

music streaming services based on their interfaces, the quality of the curatorial service, the identity projected for users, and the level of control users had. They argued that streaming services are in fact creating branded musical experiences by creating circumscribed tiers of content access, which the authors called a digital enclosure. A similar view was expressed by Kjus (2016), who affirmed the service providers' surmountable role embedded in the curation process in the Norwegian market context. Consumers who are predisposed to follow the suggestions, he discovered, particularly reveal the power that the curated playlist can exert. Service providers, however, are only one of the many players involved in the curation process. Morris (2015) provides a valuable insight into the role that intermediaries play in the digital music selection process. Whilst tastemakers have long played a role in 'shaping' music taste, they relied simply on their knowledge. The new breed of intermediaries, entitled as 'informediaries', have an enhanced ability to drive music choice, empowered by personalised music suggestions backed up by a massive database (Morris 2015). This new body of research on the control that playlists exert over consumers' choice attests to the need for a more detailed exploration. However, the underlying market mechanism involved in digital music discovery has seldom been clearly investigated. In order to fill this gap, this paper draws insights from Hirsch's (1969) framework on the organisation of the pop music industry (Figure 1) and provides an updated view of digital music discovery.

Digital Music Discovery Networks

Prior to the arrival of digital technology, music discovery networks were structured to overcome the substantial costs and risk incurred by the bets the record companies hedged on to produce a few big hits. The recording industry was composed of a network of complex organisations in which discovery and filtering was processed at each level

of the network (Hirsch 1972). In this system, consumers' access to cultural products was subject to the selections filtered through negotiations of conflicting interests and unbalanced power relations.

The decentralised network enabled by digital technology diversified the avenues through which people could discover music. Radiohead's experiment of "pay-what-you-want" for their *In Rainbows* album (Byrne and Yorke 2007) and Nine Inch Nails' voluntary file-sharing of their *Ghosts I-IV* album are well-known examples of this (Rose 2007). The arrival of so-called Web 2.0 technologies accelerated the connectivity between artists and audiences. The expanded friendship networks enabled by Web 2.0 social networking sites indicated a reconfiguration of musical tastes and preferences (Beer 2008). Famously, YouTube facilitated user participation in contributing to the improved exposure of diverse music.[1]

In regard to this change, Wikström (2013, 92) remarked, "The connectivity of the network is radically improved. The barriers that previously stopped everyone, except for a few resource-rich players, from distributing information to members of the network have almost completely disappeared." Significantly, this increased connectivity has blurred the distinction between distribution and promotion and the weak link between exposure and sales (Wikström 2013). Faced with the potential problem of an increased marketing budget with an uncertain sales return, record labels are striving to maximise their audience reach.

When it comes to consumers' access to musical choices, Spotify, with its close-to-unlimited access, has changed the playing field entirely. The subscription-and-

[1] With the exception of a few high profile cases, however, this "free" music business has mostly proven to be beneficial only for artists who have already established fanbases (Rutter 2011, 172).

advertising model that affords users unlimited access has achieved remarkable success and enabled almost everything to be available online with less friction in terms of legality. This legal and unlimited access to music has caused Spotify to be acclaimed as "exactly what music fans had been waiting for, fulfilling the long-sought dream of a 'Celestial Jukebox' – a service that makes every song always available, freely and legally" (Pollack 2011).

Long tail and Attention Economy

One argument closely related to the notion of the Celestial Jukebox is what was once a widely popularised notion, the Long Tail economy (Anderson 2006). The lowered cost of production and distribution of cultural products was predicted to remove the constraints of physical shelf space and distribution and therefore bring about a shift in the cultural economy where aggregate demand for marginal taste would constitute an attractive economy for competing with hit-driven business. The reality, however, is far from this prediction. Denoting the intensified superstar economy in which the top 1% of works account for 77% of recorded music income, Mark Mulligan, a music industry analyst, proclaimed the end of the long tail (Mulligan 2014). Distinct from the idea that music consumers would enjoy the immeasurable scope of musical choices, to the majority of consumers, unlimited access to music is just an abundance of choice. Defining it as a "Tyranny of Choice", Mulligan states, "30 million tracks (and counting) is a meaningless quantity of music. It would take three lifetimes to listen to every track once. There is so much choice that there is effectively no choice at all" (Mulligan 2014).

Underpinning the mismatch between the prediction and what has actually happened is an unexpected challenge that arose in the process of technological development (Sørensen 1996; Williams, Stewart, and Slack 2005). The presumption that limitless access would lead to cultural diversity was predicated on the idea that peer

recommendation, sharing and reviews would enable digital music users to find and appreciate lesser or unknown music. Benkler (2006, 426), for example, predicted that this social sharing "could entirely supplant the role of the recording industry", because "Jane's friends and friends of her friends are more likely to know exactly what music would make her happy than are recording executives trying to predict which song to place, on which station and which shelf, to expose her to exactly the music she is most likely to buy in a context where she would buy it." As an increasing number of consumers began to enjoy unprecedented access to music, however, this presumption proved to have missed a crucial aspect of music consumption. While people's music taste is complicated and immensely diverse, the majority of people who listen to music need guidance on which music they should be listening. In fact, the majority of music consumers tend to be "uncritical" and "occasional" purchasers of popular hits, which has a significant effect on hit-making and hence major labels' sustainability (Rogers 2013, 174).

Another crucial missing point is the new dynamics that arose in the process of technological development. Although the barrier to making an album available on the shelf has been removed, a new barrier has surfaced for artists. Rich Bengloff, a former President at A2IM, affirms that artists in the digital era struggle to rise above the crowd.

> "Traditionally the only way to monetize was to get into the physical retail and that's how it worked. You had to buy a corporative advertisement into retail. Whether it's promotion or monetisation, we had no access. Things moved forward and the good news is now everybody has an access, especially direct access to fans which we never had before. The bad news is everybody has access, so how do you get noticed?" (Rich Bengloff, Former President at A2IM, Interview)

The point at issue is ascertaining how to grab audiences' attention. In contrast to what is commonly believed, the digital music sphere does have competition for limited

space. The limitation imposed by physical space in the conventional setting is replaced by the limitation of virtual space – attention. This is what economist Herbert Simon predicted at the dawn of the electronic age:[2]

> "When we speak of an information-rich world, we may expect, analogically, that the wealth of information means a dearth of something else – a scarcity of whatever it is that information consumes. What information consumes is rather obvious: it consumes the attention of its recipients. Hence a wealth of information creates a poverty of attention, and a need to allocate that attention efficiently among the overabundance of information sources that might consume it" (Simon 1971, 40–41).

In the case of the digital music industry, the plenitude is the catalogues and the scarcity is people's attention. In the midst of the geometric increase in music catalogues, the way in which people's attention is allocated is a matter of cultural creativity and diversity.

The Organisation of the Digital Music Industry

In the fast-changing digital music discovery networks, what we are witnessing is a strong convergence of old and new media. This means that the importance of conventional gatekeepers as a trusted source of information remains paramount, while new promotion channels that have emerged in the digital era are becoming an important source for music discovery. Figure 2 illustrates this change. The linear process of music discovery from artist to record companies has been modified from Hirsch (1969)'s framework on the organisation of the pop music industry. While this structure continues to exist, new discovery channels are creating new digital music discovery dynamics. Amongst the diverse avenues through which digital music users are discovering music,

[2] Benkler (2006) termed this "the Babel objection" to describe the conventional editorial power that can continue to exist in order to control the visibility of digital content.

this article looks at three major sources: radio, online music blogs, and streaming music playlists.[3]

(1) Radio

Radio has traditionally played a central role in songs' popularity. Amidst the fast growth of streaming services, radio remains the number one destination for people's music discovery, followed by friends/ relatives, online music services and social media (Nielsen 2017). A radio industry expert thinks that radio is important for two main reasons: (1) the ripple effect through which radio influences other media; and (2) the wide variety of listeners.

> "Radios are still the number one sort of discovery mechanism for new music and have been for some time and I think more than ever. At the moment, stations like Radio 1, for example in the UK, are really, really important because it has a ripple effect throughout the rest of the industry and that could help with life, it can help with TV, it can help with press, it can help with all sorts of other areas of the business. So, it's really important. Also, the reach of radio is huge. Radio listening actually went up in the last couple of years. We reached the vast majority of the UK population through radio. So, it's a really, really important part of the overall." (Interview)

[3] According to a recent report, smart speakers' use is on the rise, particularly replacing radio listening (Music Ally 2018).

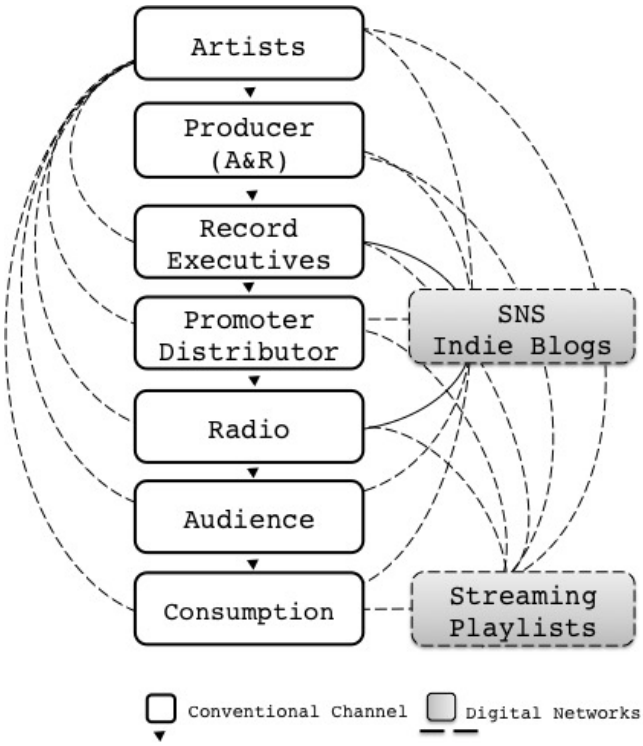

Figure 2. Digital Music Discovery Networks

Radio's continued significance means that airplay adds great weight to songs' popularity. In conventional recording business settings, radio airplay followed a Top 40 pre-selection filtering structure. As the increasing adoption of streaming services (Nielson 2018, Ofcom 2018) is rapidly bringing about changes in music listening behaviours (Datta, Knox, and Bronnenberg 2017), the way which the dynamics between radio and streaming services will change remains to be seen.[4]

(2) Independent music blogs

One particular change is an emergence of new media in the publicity sphere that reflects the voices of music enthusiasts and consumers. These tools include independent music blogs such as Pitchfork, Brooklyn Vegan, Stereogum, Drowned in Sound, and Line of

[4] Streaming services' playlist is increasingly perceived to replace radio's role. More discussion on this is found at below section 3).

Best Fit. By leveraging the abundance of content enabled in the digital age, these independent music blogs have emerged to provide a rich archive of music commentaries. Although most of them were prompted by Napster's sudden oversupply of music, their significance has become heightened in the streaming age.

Pitchfork is currently the most influential arbiter out of all of the indie rock music critic websites. The site began in 1995, when Ryan Schreiber, a 19-year-old high school graduate, set up a website to post reviews of indie music and interviews with bands he had persuaded to contribute. Its significant role lies in discovering new acts. Clap Your Hands Say Yeah, a Brooklyn unsigned band, was an example of a Pitchfork-picked breakout artist. Pitchfork is one of the chief music reference points for independent music lovers, with 2.5 million monthly unique visitors and 400,000 daily visits (Lindvall 2010). The role of tastemakers in the digital age remains crucial (Rogers 2013). Scott Cohen, co-founder of The Orchard, acknowledged that their importance is augmented by the increasing growth of the streaming business, especially because of the abundance of content.

> "Pitchfork media, it's just a great website/blog that if they give you an amazing review – probably the most important medium for indie rock." (Scott Cohen, co-founder of The Orchard, Interview)

As the significance of blogs has increased, their role has also been deeply integrated into the entire system of music promotion. Paul Bridgewater, an editor at Line of Best Fit, thinks that the role of independent music blogs is equivalent to the test bed of new talent, which was the traditional role of A&R. In this way, independent music blogs are an essential part of the entire system of promotion. Bridgewater says:

> "Outside we're known as a natural vehicle for publicising content and bands. We have to try and test a formula for three or four bands for the last few years that

> have gone through really good things. So it was low risk for them. That is how the labels see us, potentially not as a quicker voice but almost like a partner, in developing bands. And we are brought to the confidence of PR of labels and managers at very early stages. Managers would come to us and say, 'I've got a band I've been developing. I want to know what you guys think, what you think is the commercial viability or indie viability or is it someone you would cover?' It's like a whole kind of network, an organic network that has been developing outside of the rim of labels. Where blogs and sites feed into these things and labels kind of see what rises at the top." (Paul Bridgewater, Editor at Line of Best Fit, Interview)

However, concerns have also been raised regarding the authenticity of finding real gems. For example, it is argued that broadened editorial coverage and the insurmountable power it can have has obscured its appeal for finding up-and-coming aspirants, which is chiefly achieved through defiance of the mainstream (Carter and Rogers 2014).

(3) Streaming playlists

In the untrammelled garden of digital music choices enabled by streaming services, streaming playlists are increasingly becoming an essential route for songs' discovery and popularity. At the outset of the streaming business, however, playlists were not something that the service providers had in mind. Rather, they arose in the process through which Spotify configured users' demands through the reiterative processes of appropriating users' changing needs known as "learning-by-doing" (Arrow 1962; Rosenberg 1982) and "learning-by-interacting" (Lundvall and Johnson 1994; Sørensen 1996).

In the case of Spotify, its music discovery began with a basic keyword search, under the assumption that digital music users would know what they wanted. The expanded user base and exponential music library prompted Spotify to devise an algorithm-based music discovery tool. Based on collaborative filtering, this tool offered personalised

recommendations based on the users' previous listening history and the peers who share similar taste (Bendz 2008). No matter how well-contextualised its mechanism might have been, however, it soon became evident that algorithm-based music recommendation hardly suffices when fathoming people's complicated taste in music. As the streaming market crossed further into mainstream adoption, Spotify realised that the majority of its users, in fact, wanted their music choices to be presented to them.[5] Hence came the curated playlist.

As it transpired that playlists on streaming services can ensure songs' popularity, the criticism was made that streaming playlists were increasingly morphing into "playola": "[S]treaming playlists will become like radio playlists: reachable only by labels and artists with the resources to afford robust promotion" (Peoples 2015). Of particular relevance to this concern are the underlying dynamics that determine the ways in which market control impinges upon music choices. The next section will explore this in more detail.

Resurgence of Market Control

The new dynamics in the recording industry are exhibiting structural differences that diverge considerably from previous settings. A hallmark of these differences is loosened control over distribution, which has ultimately led to difficulty in exercising power over the music to which music consumers will listen. Contrary to the prediction that the

[5] Around the same time in 2014, a competing service Beats Music arose to provide a solution to "a problem that most music fans may not realize they have: deciding what to listen to" (Sisario 2014). As a response, Spotify developed a music curation and editorial team, as well as acquiring The Echo Nest, a music discovery technology company (Spotify 2014). More detailed discussion on how Spotify's music discovery features have evolved, see Sun (2019a).

dispersed control would enable consumers to discover diverse music and hence contribute to cultural diversity, the abundance of choices has intensified the attention economy. In the midst of this change, a resurgence of major labels' market control is looming, particularly over streaming playlists, as their prominence is increasing in terms of songs' discovery and popularity. What has occurred as a result is a revival of the pre-selection process through streaming playlists. The following section discusses four major factors that serve to the market control: (1) marketing budgets and investment; (2) top-selling catalogues; (3) pre-selection by distributors; and (4) partnerships.

(1) Marketing budgets and investment

While the significance of marketing budgets still prevails in the digital era (Wikström 2013), it is making inroads to the playlist in diverse ways. First, marketing budgets are played out as part of licensing deals so major labels can bargain for exclusive advertising space (Pelly 2017). In addition, certain advertising spaces can be purchased and this financial barrier allows major labels to be better positioned to obtain certain spaces and to put forward their tracks to be included on playlists (Cook 2017).

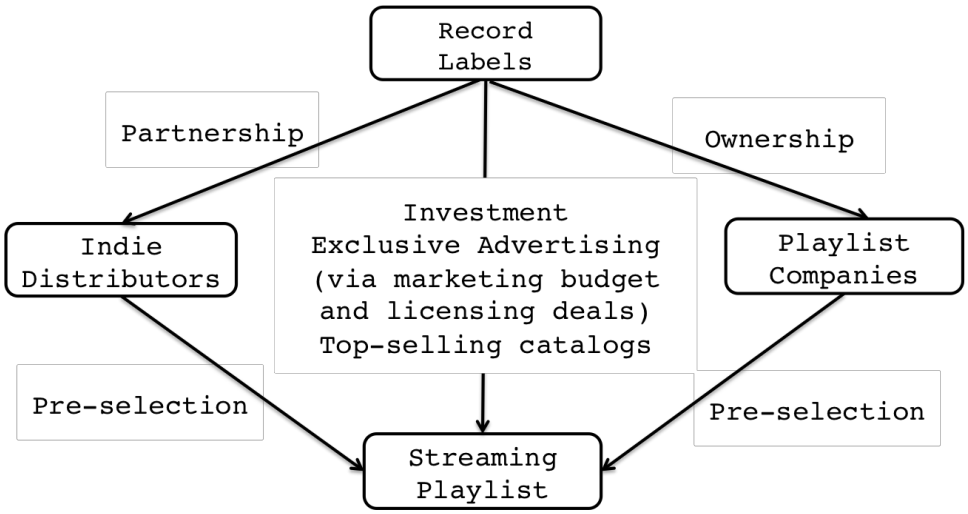

Figure 3. Resurgence of market control through digital playola

Some of the less obvious, but potentially significant factors include major labels' investment in streaming service providers. For example, before the launch of its service in Sweden, Spotify gave major labels equity stakes as part of the licensing deal (Jerräng 2009),[6] raising concerns over major labels' control over Spotify's business (Teague 2012; Barr 2013). As Spotify became public in early 2018, major labels are expected to benefit for their equity stakes in Spotify (Knopper 2018). This closer relationship between the major labels and Spotify could potentially worsen the 'winner takes it all' situation (Forde 2018).[7]

(2) Top-selling catalogues

When deciding the range of products to be prioritised in terms of music exposure, the power of top-selling catalogues remains unchanged. The increased number of catalogues accessible to the public has not eclipsed the significance of the value embodied in catalogues of repertoire. This has allowed major labels' market position to persist in the digital era. Scott Cohen shared his views on the way in which catalogues serve as an important tool for bargaining.

> "They (major labels) have the shit people want. It gives you power and leverage. I don't think it's strange. It's not fair, but it's life. It's not fair. You might have a better song but Universal gets to have the conversation, because they have Justin Bieber and Lady Gaga and all the things that people want. So they can walk in and take any medium they want."

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[6] In the US, major labels received $500 million advances for licensing deals (Byrne 2013).

[7] As of this writing, Spotify announced a new feature to allow artists and labels to pitch their tracks to its curation team (Cooke 2018). It remains questionable, how much change this can bring to the industrial practice built around the playlist.

(Scott Cohen, co-founder of The Orchard, Interview, 7 August 2013)

Not only do major labels have superiority in terms of increasing publicity for the most successful artists, they are also better positioned to gear up new talent. Simon Wheeler, Director of Digital at Beggars Group, explained how major labels leverage their top-selling catalogues for market control.

> "The major labels have some incredibly big, successful acts that all media want. So if someone is saying I want to get to interview One Direction, then someone of that company would go and say, 'Sure, you can get an interview with One Direction but you need to feature these bands first.' It's sort of like you rub my back and I will rub yours." (Simon Wheeler, Director of Digital at Beggars Group, Interview)

(3) Pre-selection by distributors

While the barrier to the pre-filtering of selections has been abolished, streaming service providers still feel the need to manage the quality of their content. In the process of digital music business valorisation, independent distributors have arisen as a new breed of intermediaries between labels/artists and digital music service providers (Galuszka 2015; Sun 2019b). They began as a simple aggregator, but later, as the digital music business grew, evolved as distributors by expanding their roles in the music business. One of the roles they took up was providing weekly marketing updates to streaming services by filtering a few tracks out of thousands of new releases a week. Combining the information they obtain through diverse marketing materials with their relations with the labels and artists, distributors flag up a few highlights to streaming music service providers.

(4) Partnerships

Having stakes in other parts of the industry has been widely used as a way to read

market trends and prepare for potential risks or changes. In an era where direct control over consumers' final product has become complicated, this old tactic is resurfacing as a tool to manoeuvre consumers' access. Besides the stakes major labels own in streaming services, they also built partnerships on two levels, one for independent digital music distributors and one for the streaming playlist companies.

All three of the major indie labels, INgrooves, The Orchard, and the Alternative Distribution Association, have partnered with major labels, and all three of the major labels, Universal, Sony, and Warner, distribute their own indie labels' catalogues through their own indie label distribution partners.

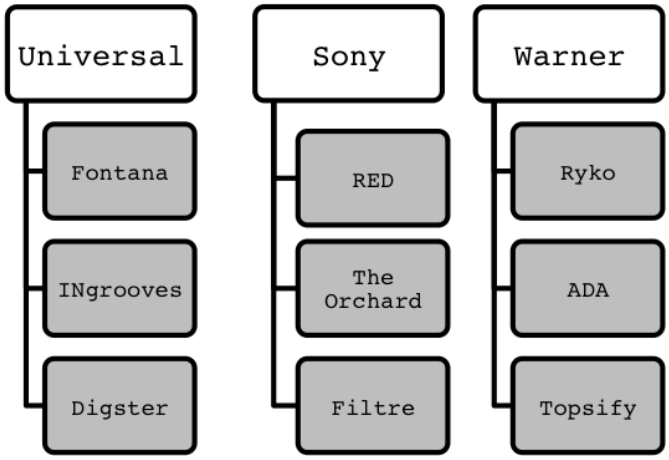

Figure 4. Digital Music Discovery Networks by Ownership

What does this mean for market control? In the wake of the changing dynamics in which the attention economy has intensified but control over the distribution system has significantly weakened, major labels make use of their stakes in independent music distributors for maximum exposure of their catalogues. Simon Wheeler affirmed this:

> "For getting that amount of shop window space… If you look at the iTunes front page, getting featured on the front page, iTunes isn't a problem because they treat everyone very fairly but some other companies I have had to make deals where Universal said I have got 40% market share so I am 40% of your front pages for their artists. And Sony would say the same and Warner would say the same, and

> when you add up their market shares you will probably get to 150%. Because everybody exaggerates their market shares so it means that there is no space left for other people and they're surely quite aware of those top mechanics. It could be quite tricky, and some people are very pleasantly aware and transparent and very honest and some people aren't." (Simon Wheeler, Director of Digital at Beggars Group, Interview)

In addition, three major labels, Warner, Sony, and Universal, also own the three most streamed playlist companies, Topsify, Filtre, and Digster. It cannot be too far-fetched to suggest that by way of the ownership of these companies, the playlists created by these firms would encourage the musical choices of the repertoire within their walled garden.

Discussion

This article demonstrates that the vision of the Celestial Jukebox has not materialised, but has in fact brought about a resurgence of market control. This is an issue that digital music discovery was supposed to counter. At the centre of this paradox, this paper identifies the missing link between the prediction and what has actually happened. Contrary to the belief that digital networks would serve to create a greater range of choices for consumers and enhanced cultural diversity, the sheer abundance of music choices afforded by streaming music services has revealed that what consumers actually want is to be directed to what music they should listen to. Underlying the estranged development of digital music discovery is the new dynamics emerged in innovation processes. The barrier of entry that was lifted has instead been replaced by a new barrier: attention. Faced with new challenges of loosened control in the diffused digital music discovery networks, the music industry has adopted the old strategy of market control, adjusted in a new way: market consolidation and distribution in the form of partnerships with the new digital platforms and the power of copyright to maximise

exposure of popular repertoire. As a result, a breed of new intermediaries emerged and positioned themselves to promote and push certain songs in the guise of a genuine music suggestion. The major labels' strong appetite for manipulating people's music choices has brought back pre-selection process and digital playola which serves the resurgence of market control.

The crux of this is that musical choices and discovery are deeply interlinked with cultural creativity and diversity, a culture we envisioned the heavenly musical experience would bring about. Despite the much anticipated change, we are actually experiencing an encroaching commercial interest, whereby lean back listening is encouraged to keep users tuned in for as long as possible. This mirrors Radio's Top 40 playlist practice, which led to a popular music culture largely dictated by the lowest common denominator (Burnett 1993). Resuming this mode of curating culture might bring in more cash in the short term, but could come at the expense of cultivating greater diversity in musical culture that all parties have the potential to benefit from in the long term. Ultimately, users' aptitude to enjoy diverse music is intimately linked to the cultural asset (Tepper and Hargittai 2009) that will facilitate the long-term sustainability of the music industry as a whole. Allowing the market control to continue, therefore, carries the risk of the industry's hard-won digital music listening platform becoming a "tollbooth" through which copyright meticulously monetises every instance of music listening (Burkart and McCourt 2006), but does not, in turn, foster innovation. Future research on the relationship amongst digital music discovery, fandom and cultural capital, particularly, the impact on artists' earnings could further illuminate the implications of market control impinging upon digital music choices and cultural diversity.

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