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Platformed! How Streaming, Algorithms and Artificial Intelligence are Shaping Music Cultures

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CHAPTER 1

Introduction: How Digital Platforms are Changing Music

“Your Wrapped 2022 is finally here.”
(Subject of an email from Spotify, Dec. 2, 2022)

On December 2, 2022, we, like millions of other users around the world, received an email from Spotify. It was just a few days before Christmas, and the popular music streaming platform—once a small Stockholm start-up and now a publicly traded multinational corporation with a market value close to \$70 billion in 2021—supposedly wanted to give us a gift to reward our loyalty: to reveal a small but significant amount of data about our music consumption over the last year. Thus, we discovered, for example, that we listened to 70 different genres, 850 artists, spent more time on Spotify than 85 percent of Italian users (for a total of 19,377 minutes), and fell within the 2 percent of the most passionate listeners of Franco Battiato. Besides the Sicilian singer-songwriter, our most listened-to artists were Nick Cave, Khruangbin, Violent Femmes, and Cosmo Sheldrake.

Many Spotify users who, like us, received their Wrapped 2022 shared this data on social media profiles or with Facebook, TikTok, and Instagram stories, happy to be able to tell others something about their cultural identities through the music they listened during the year. The data provided by Spotify, in practice, was used by many listeners to tell their friends how

refined, alternative, cutting-edge, or nostalgic their musical tastes were. They used the data not only to say something about themselves but also in some way to socially *distinguish* themselves, to be identified with a specific cultural milieu. Even in a profoundly changed technological landscape, the phenomenon is by no means a new one: as French cultural sociologist Pierre Bourdieu (1987) showed several decades ago, we quite commonly flaunt our cultural tastes to communicate to others who we are, using them as hallmarks of the class or social group we belong (or hope to belong) to. Music in the age of platforms is thus a new iteration of a dynamic (Webster, 2020) already well entrenched in our society: we listen to something not just because we like it but because it also communicates to others our place in the world, like the clothes we choose to wear or the places we tend to frequent.

Yet Spotify's Wrapped 2022 data opens a small window onto how our relationship with music has profoundly changed as a result of the rise of music streaming platforms, revealing the outlines of a new technical, economic, and relational model embodied by these increasingly ubiquitous digital technologies (Van Dijck et al., 2018). In fact, Wrapped 2022 is thus an example of the process of *datafication* (a concept we will explore more in the course of this book), to which we are all exposed whenever we use any digital platform (Mayer-Schönberger & Cukier, 2013). In essence, music datafication means that Spotify tracks users' every action on its platform, turning it into valuable data: from the title and genre of the song we listen to, where this happens, down to the second we stop listening. Then, based on this constant surveillance of our behavior, the platform builds a detailed profile of our tastes to predict with increasing certainty our future consumption choices.

Wrapped 2022 has been received by millions of users in a good-natured acquiescence or even appreciation. But what about the fact that Spotify exercises constant surveillance on us, 365 days a year, including Christmas and New Year's Eve, incessantly extracting data from our behaviors, which it then analyzes with huge computational power in order to know our musical tastes better than we do ourselves and thus improve its marketing strategies? As we will see in the course of the book, it is precisely freely *extracted* user behavior data that constitutes the most valuable form of capital for platforms like Spotify (Zuboff, 2019). This data is what allows them to go public, raise new funding, and thrive in digital capitalism (Srnicsek, 2016). Against this backdrop, the fact that once a year Spotify reveals a handful of data (about *us*) to us, just a tiny fraction of what it has

gleaned from our actions throughout the year, should curb the enthusiasm with which we unwrapped our Wrapped 2022. Some might argue that these data, because they belong to us, should not be conceded as a gift, selectively, once a year, out of courtesy, but rather that the law should guarantee our right to access them or that they should constitute a commons—a distinctive kind of digital commons, which could also be potentially accessed and analyzed by citizens, public entities, and nonprofit institutions. Some will rightly reply that Spotify is a private company with the right to do whatever it wants with the data we ourselves agreed to provide it when we signed off on the platform’s terms of service. However, in an age when digital data are increasingly crucial in every aspect of public life, the debate is far from being that easily solved.

In any case, we see that a simple email containing data on our music consumption opens a window onto an extraordinarily important debate, one that begins with our musical tastes but extends to encompass broader issues: the financial strategies of platforms, the role of algorithms in our lives, the crisis of citizens’ rights in a society in which surveillance of behavior is increasingly widespread, and—ultimately—how digital technologies are shaping society as they become increasingly central to people’s lives. The goal of this book is to tell the story of how music has changed with the rise of digital platforms, while at the same time trying to place this change within the broader context of technological transformations taking place in an ever-more digital society.

So our departing question is: how is music changing in the age of digital platforms?

Music-loving adults often complain that the younger generation’s music experience has been profoundly worsened by platforms and other digital technologies. How can we not agree that music used to be so much more gratifying and meaningful, listening to a vinyl record or owning a compilation on audiocassette recorded for us by a close friend, compared to what a platform like Spotify offers us—content as infinite and accessible as it is immaterial and impersonal? But it would be a mistake to fall headlong into such a negative, one-sided interpretation, laden with nostalgia for a bygone era. As emphasized by David Hesmondhalgh (2021), one of the leading scholars of cultural industries and popular music, most of the common criticisms of platform music are hardly justified. These include, for example, the idea that algorithm-driven streaming discourages the discovery of new music; that it facilitates a “functional” rather than “authentic” and meaningful musical experience; that it pushes musicians to

compose shorter songs, which are more likely to be recommended by algorithms; that it promotes mostly bland and uninspiring music; and that, overall, it facilitates passive, distracted, background listening.

According to these critiques, *platformed music* (as opposed to *music*) has lost its experiential value and centrality for new generations because it has become something liquid, ubiquitous, and relevant only until the platform offers up its next recommendation. From this perspective, the enormous quantity of available music and the ability to listen to it wherever we can connect to the Internet make listening a habit we take for granted, like water coming out of the tap: water in itself is a most valuable resource, especially in desert areas where a well can change the life of a village, but when we get it from a tap with virtually no effort and at almost no cost, it becomes a worthless commodity we can easily squander. And the same could be said of platformed music: it has lost its value, since it flows effortlessly out of the digital taps of our smartphones, while we no longer have to invest money to buy records or CDs or spend time combing through increasingly rare and understocked record stores.

But is this really the case? Are digital technologies and the rise of the Internet, social media, and platforms actually the cause of such a negative alteration in our relationship with music? Has our musical experience really changed for the worse? Certainly, the circulation of music has been profoundly modified with the advent of platforms, but as always, reality is far more complex than the simplifications with which we often tend to reason around the “impacts” of technologies on people’s lives. What this book proposes to the reader is a complex and articulate answer to the question of how music changes in the age of platforms, an answer that does not settle for shortcuts or simplistic solutions. The analysis is steeped in what we will refer to throughout the book as *technological determinism* (Wyatt, 2008) that embraces neither the indiscriminating euphoria of those who extol the benefits of the “digital revolution” nor the ideological condemnation that views new digital systems as a deleterious novelty to be denounced without appeal.

The problem of both the euphoric exaltations and the ideological critiques is the *dichotomous* view they share, identifying in digital platforms a magical solution to the restrictions of previous forms of musical mediation or, on the contrary, an evil influence that threatens the very basis of a truly authentic musical experience. As we will see in this book, the reality is much more complex; the actors who participate in the construction of musical experience through digital technologies are many and diverse, and

the needs of listeners simply do not correspond to a one-size-fits-all approach.

In short, while it is true that the circulation of music is profoundly changing in the age of digital platforms, the blame or responsibility for this cannot be strictly or solely attributed to the platforms, seen as autonomous entities. For example, take the idea that platforms are turning music listening into a distracted activity and music into a background decoration that serves only to optimize listeners' moods, to the detriment of more attentive and concentrated listening. This accusation has several limitations, first of all because it assumes that "concentrated" listening, with music in the foreground of our thoughts, is a more aesthetically valid or morally superior activity than distracted listening, with music in the background. However, foreground and background forms of listening should not be considered a strict dichotomy, but rather a continuum of nuances and overlaps. And moreover, throughout its entire history, from the earliest forms of ritual chanting to the songs circulating on TikTok, music has mostly been used as a background or as something instrumental for other daily activities or purposes. As music psychologist John Sloboda pointed out two decades ago (Sloboda et al., 2001, p. 18), well before the rise of streaming platforms, attentive and concentrated listening accounted for only 2% of all forms of music listening, a figure replicated ten years later in a study by Greasley and Lamont (2011), in an era dominated by MP3 files and iPods. This tells us that some of the criticisms about how music is changing in the age of platforms are often fueled by bias and oversimplification.

To understand how music changes in the digital age, it is important to take a less romantic, less assumption-loaded perspective and instead adopt a different view that recognizes music not only as an aesthetic object to be contemplated but as a *social practice* (Reckwitz, 2002; Schatzki et al., 2001) fully embedded in a particular historical, political, economic, and technological context. Looking at it this way, we begin to realize that the entire history of twentieth-century music is punctuated by the widespread use of music as a background for individual and collective activities, private and public events, mundane and exceptional situations. As sociologist Tia Denora (2000) made clear more than twenty years ago, music is in fact part of the fabric of our daily lives, and we use it to enrich our sociality, to choreograph our relationships with the world, using a range of technologies and tools that help to channel our passion for music but do not create or determine its meanings.

To provide the reader with a multidimensional answer to the question of how music is changing in the age of digital platforms, this book proposes a comprehensive view that includes a historical reconstruction of the evolution of digital music, a detailed analysis of how digital platforms work, an in-depth examination of the mechanisms behind the technologies that make them function, a thoughtful consideration of music listeners' experiences, and a glimpse of the further transformations that await us in the near future. Specifically, the book is structured as follows.

In the second chapter we begin by tracing the social history of music digitization over the past half century. Starting from the earliest forms of sound digitization in the 1970s, we will look at different stages that characterized the evolution of digital music, including the arrival of the compact disc, the emergence of the MP3 standard and the iPod, and the first forms of online streaming, initially adopted by radio amateurs. This historical perspective makes it clear that the digital platforms that have become so popular in recent years did not suddenly spring out of some conjurer's hat but instead constitute the latest step in a long evolution of digital tools for music circulation and listening (Sterne, 2003, 2012). This historical review also highlights that the evolution of music technologies did not take place along a linear trajectory and does not follow any single, coherent logic but develops by responding to different pressures and needs over time, thus emerging from a process of reciprocal shaping involving the social, economic, and cultural forces in which music technologies themselves are embedded. In other words—as the science and technology studies approach has pointed out since the 1980s (Bijker et al., 1987; Latour, 1987)—while on the one hand, new technologies produce consequences on society, at the same time, they incorporate the very social, cultural, and economic conditions that lead to their creation.

Once we have made our theoretical approach explicit and laid the historical foundations of the rise of digital music, in the third chapter we more directly address the functioning of today's music streaming platforms. To do this, we start with a more general reflection on the role of platforms in contemporary society, describing some of the main mechanisms of operation that distinguish what has been defined as a *platform society* (Van Dijck et al., 2018). We then move on to describe some of the implications of the rise of platforms in the cultural industries sector, highlighting shifts that occurred in power relations within the music industry. We also trace the origins and history of one of the major music platforms, Spotify, with its hegemonic place in today's music industry. The central

theme of this chapter is thus the political economy of platforms, foregrounding the question of the symbolic and economic power that these platforms are assuming within cultural industries.

In the fourth chapter we bring the reader inside the *black box* of the mechanisms that characterize music platforms. This chapter answers the question of who chooses music for us. We start with a description of these companies' workspaces, where the playlists we listen to every day are produced by algorithms and human curators, the new *gatekeepers* of today's music industry. The gatekeeping process also involves mechanisms of *datafication* by algorithms and the role of music experts, who in turn rely on technological tools to create playlists targeting listeners. The music that reaches our ears is no longer just the result of our personal research or our friends' suggestions but is increasingly selected automatically by algorithms developed by the platforms or recommended by music experts working for these digital companies. In this chapter, we devote special attention to the analysis of personalized playlists, a format that is gradually replacing listening to individual artists' albums, thus bringing the streaming listening experience increasingly closer to that of radio. Drawing on interviews conducted with professionals from music platforms as well, the chapter explores in-depth the complex intertwining between the role of algorithms and human intervention in the creation of playlists.

While Chap. 4 focuses on how platforms exert their power over our musical tastes through playlist recommendation, Chap. 5 turns its gaze to listeners' everyday experience. In this chapter we investigate how the practice of music listening in the age of digital platforms takes shape. The power of platforms in selecting and recommending music to listen to, described in the previous chapter, might lead us to believe that listeners are a passive mass of individualized users who inertly accept music choices made by algorithms. In the chapter we question this view and the claims of many observers who see today's listeners as a victim of platforms, deconstructing a definition adopted by the recording industry itself: *lean-back listeners*, i.e., passive listeners waiting to be spoon-fed music by platforms. Our interviews with a number of young music fans demonstrate they are by no means passive about the platforms' recommendations nor are they completely absorbed in the logic of automated selection. On the contrary, most of them have developed listening practices that do not play out exclusively on platforms; rather, they are integrated selectively within the rhythms of their daily lives in very different and sometimes creative ways. We can even identify forms of resistance by listeners, who put in

practice tactics to for contrasting platforms' strategies. In other words, we show that although platforms hold great power in shaping our musical experiences, listeners still retain a degree of autonomy to make their musical experience personal and meaningful.

Chapters 4 and 5 together aim to sketch out an articulate but ambivalent picture of the relationship between streaming platforms and listeners in which power, although not equally distributed, is not solely in the hands of the platforms. We argue that it is reductive, simplistic, and perhaps even a bit snobbish to attribute responsibility for recent transformations of music only to digital technologies and platforms: while platforms have contributed significantly to transforming the role of music, this new technological scenario for the experience of music arises from a complex interaction between technologies, gatekeepers, and listeners embedded in a particular social, cultural, and economic context.

After analyzing the present-day role of platforms, in Chap. 6 we try to cast our gaze forward, looking at the future of digital music and what we can realistically expect from the digital technologies that will supplement or maybe replace the digital platforms we know today. Indeed, in this chapter we ask about the role that artificial intelligence and other emerging technologies like the blockchain could play in music production and circulation in the near future. If algorithms today play a major role in selecting the personalized playlists we listen to on Spotify, will artificial intelligence one day also be able to autonomously create the music we listen to, with no more need for flesh-and-blood artists, musicians, and singers? As is the case in our discussion regarding platforms, here again, the most accurate answer is not the easiest one. Through a survey of the main developments in automated music composition, production, and distribution, we will in fact see that the early outcomes and consequences of these systems are ambivalent: on the one hand they appear to replace human activity in some aspects of music production, but on the other hand, new AI-based technologies are only one small link within a complex chain of interactions between humans and technologies, as they can also stimulate new forms of creativity and collaboration.

In the conclusion of the book, we propose an overall analysis of the transformations of music in the age of platforms, ultimately asking whether and how the value of music and listening has changed in today's society. We address how complicated and multifaceted the relationship between music and listeners is in a historical moment of deep technological transformation but one in which the musical experience still holds great

importance in people's lives and thus music is still at the center of people practices. In the end, the book outlines how our contemporary musical experience is not only the product of technological innovation but the result of entangled networks of relationships between companies and listeners, technologies and social needs, financial strategies and musical cultures: ultimately it is the interaction between all of these elements that is shaping music, its production, and consumption in the age of digital platforms.

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Algorithms: Who Selects Music for Us

4.1 HOW PLATFORMS CHOOSE THE MUSIC FOR US

We are on the 11th floor of a building on Eighth Avenue in New York City. The room is an open space, filled with computers, water dispensers, and young people under 30 with headphones. These are the headquarters of Google Play Music (as of October 2020, it became YouTube Music), one of the global streaming services that replaced traditional music listening media.

New York is also home to one of the headquarters of Spotify, the current global leader in this sector. In this case, we are at the 62nd floor of the 4 World Trade Center, in the heart of New York's financial district, at 150 Greenwich Street. Spotify building is accessed by walking through a green revolving door, which acts as an interface between the traffic noise of a typical Manhattan Street and the techno music blaring from tiny speakers inside the hyper-minimalist room that serves as the reception desk. Once inside, a huge open space opens up in front of us, with young men and women in their twenties, each in front of their screens, again each with headphones on. They are the curators of Spotify's playlists, those who select and filter the new music releases that will be highlighted on the platform. Spotify's headquarters strikingly resemble the stereotypical image of a start-up, as it has been popularized by the press, movies, and

novels: kids whizzing around on skateboards, playful spaces, open bars with free food and drinks *on demand*, graffiti on the walls, immaculate white Apple screens, colorful sofas, huge lettering on the walls in *Helvetica* font, and terraces where you can lie out in the sun and drink orange soda.

This is the scene shown in a video shot by a *Buzzfeed* journalist (Allen, 2017)—*I create Spotify playlists for a living*—and it is the only video available showing the inside of the headquarters of one of the most important companies that choose the music for us. The young people interviewed by the journalist are enthusiastic about their work; they are portrayed as children in Toyland. The account reflects a common rhetoric surrounding how is working in start-ups, which is presented as a game without the flaws of traditional office work, as if the colorful walls and a ping-pong table could mask the reality and convince inhabitants and visitors that the space is not an office. Apart from this video, what goes on behind the walls of these open spaces is completely invisible to listeners as well as to musicians and record companies.

Yet these open spaces are exactly the places where decisions about the music we will listen to are made. Have you ever wondered why a certain type of music ends up in your headphones and not another? What are the places and the people that decide what we should listen to in the coming months? Not so long ago it used to be that these decisions were made in the offices of record companies, in the rooms of big national radio stations, or in the editorial offices of magazines where some expert would write an album review. Today, the role played by these traditional places in the circulation of music is being increasingly replaced by the open spaces of music streaming companies we described so far. The cycle of music circulation and discovery is changing, as are the key players involved in it. In the following sections we will unveil the main changes that affected music circulation in the platform era, offering an understanding of what factors influence the selection of music that goes into our ears.

4.2 HOW MUSIC SELECTION IS CHANGING: FROM OLD TO NEW GATEKEEPERS

In the early 1900s, philosopher Walter Benjamin (1969) described the new century ahead as the age of *technical reproducibility* of cultural products like music. Over the past century, the technologies of radio, vinyl, tape, and finally the compact disc (CD) have certainly contributed to the

circulation of music and the standardization of the musical tastes among large sectors of the population. Yet if we compare the availability of music in the twentieth century and today, the rise of the Web, first, and social media, more recently, have contributed to making music even more available and accessible than ever before.

A teenager growing up in the 1980s could easily copy music onto an audiocassette, but it was a time-consuming and tedious activity; in order to obtain the desired album—if he did not have the financial means to purchase the original vinyl, audiocassette, or CD—he still had to wait for someone in his nearest network of friends to come into possession of it, so that he could then copy it physically. Listening to their *owned* music was not an activity easily accessible to all teenagers: those who did not belong to wealthy or affluent families could not afford to buy expensive vinyl or CDs nor could they adhere to the fashion of making trips to London or other capitals to buy the latest record trends. Most teenagers could only afford very few purchases, on special occasions, such as those connected to the classic rites of passage of school promotion, birthday, and Christmas.

Until the advent of home computers and the Internet, listening to the radio was thus a very popular substitute to individual music ownership, but of course it did not allow to listen to one's favorite record at will, and the recording process was quite complicated: one had to wait for that song to be aired on the radio, so that he/she could record it on cassette, being careful to exclude the deejay's voice or commercials from the resulting recording. Like all valuable commodities, precisely because not everyone could afford to buy an expensive music collection, cassettes, vinyls, and CDs possessed a high symbolic and emotional value and were jealously guarded sources for the construction and maintenance of identity: every teenager had in her bedroom a more or less substantial and orderly collection of music, consisting of some original albums and many illegal copies.

Since the mid-1990s, the mass spread of computers, even before the Internet, encouraged the illegal reproduction of CDs and their exchange among friends, but until the arrival of Napster and the rise of peer-to-peer (P2P) exchange of MP3s we addressed in Chap. 2, it remained very rare for the average teenager to accumulate a music collection of thousands of albums. The popularity of new standards for digitizing music—like the MP3s (1995) and the first file-sharing network Napster (1999)—transformed forever the scale of music access and ownership, making music a commodity far more available than it had ever been in the entire previous century. However, up to that point the circulation of music produced was

more or less controlled by the same filters—called *gatekeepers*—which remained a consistent feature in the sector since the origins of the record industry’s development. Hence, let’s see in more detail what this gate-keeping system is, how it worked in the pre-platforms age, and in which ways it has evolved in the most recent years.

Gatekeeping, according to Pamela Shoemaker and Tim Vos, is that “process of selecting, writing, editing, positioning, programming, repeating, and ‘massaging’ information to make it into news” (2008, p. 73). Originally this term described the different types of actors who influenced the news selection process within newspaper newsrooms. Since its introduction in media theory (Lewin, 1947; White, 1950), its scope has gradually been extended to include also all those key figures within cultural industries who influence the processes of production and distribution of cultural artifacts.

Until the late twentieth century, traditional *gatekeepers* in the music industry were represented by a network of different actors: record companies (who chose which artists were worth producing and which were not), music promoters (who chose which artists were worth promoting), journalists and music critics (who decided which artists deserved attention and which did not), radio disc jockeys (who decided which artists deserved more exposure on the radio, which ones had less visibility, and which ones had none), music club owners (who decided who to play and who not), music festival organizers (who chose which artists to invite to a festival and which ones not), and music stores (who chose which artists to order and which ones not to buy). To a lesser extent, local and community radio stations, fanzines, and fan groups also exerted an influence on music fans’ listening choices. In any case, the discovery and the acquisition of new music by listeners have long been an activity dependent on the choices of a heterogeneous array of cultural gatekeepers.

The historical period between the arrival of Napster (1999) and the arrival of Spotify (2008) triggered a transition from a system centered on the traditional *gatekeepers* we mentioned above to the emergence of a new class of *gatekeepers*, who very quickly flanked, and in part replaced, the work of those who were conventionally in charge of selecting and enhancing music products, converting them into objects “worth” listening to. In the first decade of this century, music lovers around the world were able to discover and listen to music without necessarily going through the “bottleneck” constituted by a radio station or the advice of music journalists. Music lovers also began to inquire about music from blogs and to discover

songs through peer-to-peer (P2P) exchange networks like Napster. For a short period of time, the Internet—as had been the case with pirate and free radio stations in the 1960s and 1980s (Johns, 2010)—was indeed the driver of a *disintermediation* of music consumption, removing this activity from the mediation and control of the music industry’s key players. File-sharing networks enabled the reproduction and exchange of music that already existed in the audiocassette era on a scale no longer confined to local social circles but scaled up music circulation on a suddenly global dimension. The disintermediation of audiences brought about by the mass adoption of the Internet affected the music sector as well as all traditional cultural industries, who have been severely challenged by the progressive rise of digital media. Broadcasting media were affected especially in their weaker possibility to “situate” audiences, that is, to measure their consumption with certainty and make their purchasing desires predictable (Arvidsson & Bonini, 2015; Napoli, 2011). This situation can be considered a period of marked empowerment for music listener, although it was doomed to end relatively soon.

Indeed, in the following decade, the rise of tech companies such as Apple, Google, Amazon, and Spotify marked the end of this transitional period, ushering in a new step of the music commodification and corporate control over listeners’ choices. Those music audiences that had partially escaped the control efforts from previous intermediaries (radio stations, record labels, music critics, etc.) ended up being *enclosed* and captured again thanks to the emergence of key actors within digital music platforms, which have been called *platform gatekeepers*, that is, new intermediaries capable of filtering access to music through the use of both music experts and algorithms (Bonini & Gandini, 2019). Although millions of people around the world still use P2P music networks such as BitTorrent and eMule, these channels of music exchange typical of the first decade of the twenty-first century have been now in steady decline, which has been accentuated by the parallel rise of music streaming platforms. Whereas in 2011 P2P file-sharing services together accounted for about one-third of internal Internet traffic in the United States and Canada, by 2014 the proportion of data circulating through P2P networks had already dropped to 8 percent; at the same time, streaming went from about 30 percent of Internet traffic in 2011 to more than half of all circulating data in 2014 (Fiegerman, 2014). At the same time more traditional music media started to decrease in popularity too, like in the case of radio listening, notably among young people: according to EBU data

(2020), between 2015 and 2019 radio listening by young Europeans went from an average of 1 hour 44 minutes to 1 hour 25 minutes. These numbers tell us how over the past decade the sources for discovering and listening to music have changed profoundly and that the landscape of sources used to listen to music has been deeply transformed together with the main *gatekeepers* involved in choosing and selecting music content.

4.3 THE DIFFERENCES BETWEEN OLD AND NEW GATEKEEPERS

The dependence on platforms for music consumption is very different from the dependence on traditional gatekeepers that music listeners have experienced in the past: the relationship between what Bonini and Gandini (2019) called *platform gatekeepers* and their audiences is much more asymmetrical than that between music listeners and traditional *gatekeepers* like music labels, critics, journalists, music promoters, radio deejays, and radio music programmers. Let's focus on what used to happen with pre-digital gatekeepers. Through listening to a radio deejay or reading a music review of a record on a magazine, it was possible to infer something about the inner logic of their music selection, that is, the personal tastes that guided it. As a music fan continued to read a particular music critic or listen to a deejay, he/she gradually developed his/her musical skills to the point where he/she was able to operate a kind of *reverse engineering* on the operated selection. This process of reconstruction of the logic underlying the choices of the deejay or critic allowed the music fan to deduce that, for example, Sir John Peel—one of the most popular radio deejays in the history of BBC¹—had selected a song by *New Order* because the band had a sound typical of the so-called British New Wave, and he/she, the music fan, having listened to John Peel for a long time, could correctly decode John Peel's selection choice as the clear result of his/her personal love for New Wave's music bands. Even if the fan was not able to deduce Sir John

¹ John Robert Parker Ravenscroft, known publicly as John Peel, was an English disc jockey, radio presenter, record producer, and journalist. He was the longest-running of BBC Radio 1's original deejays, broadcasting regularly from 1967 until his death in 2004. He began his radio career as a pirate radio station deejay, only to be asked to work on the new channel the BBC was planning to respond to competition from pirate radio stations, BBC Radio 1. He was among the first deejays to broadcast psychedelic and progressive rock on British public radio. At the BBC, his "Peel sessions," which began as a radio program in which he invited young, not-yet-established British bands to play live, became famous.

Peel's selection logic, there were journalists and commentators who could help to decode that for him. In other words, traditional gatekeepers were not totally opaque *black boxes* as platforms are today: the logics that guided the selection of a deejay or a music critic were somewhat traceable back to their personal tastes or to the editorial line of the radio station or magazine they worked for.

In today's platform society, however, the situation is quite different. The transition of music consumption to commercial digital platforms has generated an unprecedented information asymmetry between music gatekeepers and listeners: it had never happened in the history of cultural industries that a bunch of multinational companies held such a vast amount of data, information, and knowledge about their customers' tastes and behaviors as what is happening today with Apple, Google, Amazon, and Spotify. At the same time, it had never happened that cultural consumers had so little information and knew so few things about the processes of music selection and distribution of the contents they are proposed with. Back in 2014, media technology scholar Tarleton Gillespie, already mentioned in the previous chapter, argued that we trust algorithms in the same way once we trusted experts, despite the fact that we know nothing about the mechanisms that govern their operation. If owning data means owning power, then there has never been in the history of cultural industries such a deep gap between the power of content providers and those who consume it as in the current era characterized by platforms. This is a danger that communication scholar Nicholas Diakopoulos warned us against by pointing out that "what we generally lack as a public is clarity about how algorithms exercise their power over us" (2014, p. 2, cited in Kitchin, 2017, p. 15).

Let's now consider how the power of Spotify actually operates. This platform knows the precise moment of the day when we listen to a song, the place where this happens, the duration of our listening, the very moment where we stop listening, the number of times we listened to it in the previous days, and whether we saved it as a favorite or included it in one of our playlists. According to Seaver, "recommender systems model taste as a pattern of interactions between users and items" (2022, p. 96).

With this data, Spotify can compare the behavior and taste of each individual user with all others, looking for similar consumption patterns on which to base subsequent recommendations to different categories of its users. Instead of grouping users according to traditional sociodemographic parameters (age, gender, education level, purchasing power),

digital platforms categorize users according to the similarities of their consumption patterns and assign them fluid identities that change together with the type of music consumed. Everyone's music consumption behavior is fragmented, analyzed, and broken down into numerous parameters (location, duration, device used, "dwell time,"² type of listening, etc.) and compared with other behaviors grouped under the same label, producing clusters such as "music for runners," "music to sing in the shower," "music to start the week," or "music for the gym." Moreover, in relation to these parameters, Spotify's algorithms can identify a user as a "runner" and the next day as a "parent," generating a dynamic *algorithmic identity*.

As US media scholar John Cheney-Lippold (2017) points out that this algorithmic identity—the identity ascribed to us by the algorithms that analyze our online consumption—is in a state of constant evolution. In the digital world, traditional sociodemographic categories of age, ethnic group, and gender are not stable over time but are *performed*, that is, actualized by users, from moment to moment, based on their online activities. A website visitor might be identified as a man of Caucasian origin with a 79 percent probability, but this probability might increase or decrease based on a subsequent online purchase (Cheney-Lippold, 2017, p. 34). From this perspective, again according to Cheney-Lippold, our algorithmic identity does not correspond exactly to who we are offline but changes over time, depending on how our online behavior changes and on the data we thus produce. If, for example, we started listening on Spotify, just out of curiosity, to pop music by a young Korean band, after a short time Spotify's algorithm would assimilate us into the category of "teenage Korean pop fan," and we would begin to receive suggestions appropriate to our emerging algorithmic identity. For Spotify's algorithms, our identity would become that of a Korean pop fan but only until the moment we start listening to something else, when, therefore, we start assuming another different identity. Similarly, when we go for a run, we are recommended music that the algorithms deem most suitable for that situation, based on the tastes expressed by users similar to us while they too were running. However, half an hour after our morning run, we may perform a different identity and receive suggestions based on different associations. "One listener is really many listeners," a software engineer working at a music streaming platform recounted (Seaver, 2022, p. 87). In short, the music listener is conceived by platforms as having multiple identities as

² Dwell time measures the length of individual user sessions (Seaver, 2022).

platforms' profile users according to their lifestyle and taste, instead of categorizing them by sociodemographic macro-categories, as was the case in the market segmentation operated by traditional gatekeepers. According to Marit de Jong and Robert Prey (2022), this approach to the analysis of music listeners' behavior is based on a form of behaviorism that they call the "behavioral code," an approach that promotes "an impoverished view of what it means to be human" (2022, p. 143).

To manage this complexity, Spotify has developed a tool called *Taste Profile*. Every interaction a listener has with a musical content is captured and recorded in real time. Actions like *following* an artist/album/playlist, clicking and skipping a song, and saving a favorite hit are *datafied*.

A software engineer working at a streaming music platform told to media anthropologist Nick Seaver that "when listeners change the volume, when they skip songs, when they search or stop listening, they tell us about their taste. Any number of signals, not only the choice of what to play, might be considered evidence of taste" (Seaver, 2022, p. 89). Each Spotify user is then profiled in real time according to his or her tastes. As Robert Prey put it, "the Taste Profile is thus a dynamic record of one's musical identity and the foundation of personalization at Spotify" (Prey, 2018a, p. 1091).

This is the translation into musical terms of what we defined in the previous chapter as the process of *datafication*: the transformation operated by platforms of any human behavior into data that can be analyzed either manually or automatically (Prey, 2018a). Of course, this is not an entirely new phenomenon, because, even in the age of traditional broadcasting, radio stations and music labels already produced a lot of data on their users (radio listening time, purchasing behaviors, sociodemographic profiles, sales rankings by regions and cities); however, this data was not available in real time and was not as fine-grained as what platforms possess today. Hence, while datafication of listening is not a recent process and has a long history behind it, which can be traced back to the 1930s in the United States (Webster et al., 2013), in another respect this process of "data mining" from music consumers' behavior has never generated either the detail, volume, or speed of data collection typical of the mining model developed by digital platforms.

Moreover, in addition to being used to target users with a specific advertising message, data collected by platforms are adopted in several ways to optimize the user experience. According to Pedersen (2020, p. 77), music streaming platforms employ data in three distinctive ways:

(1) as a basis for generating automated playlists, (2) as a knowledge base for the work of platforms' music experts, and (3) for strategic purposes, that is, as a basis for interface design decisions. With the rise of digital datafication, we have entered what the Dutch digital media scholar Richard Rogers (2009) calls the "post-demographic" era in analyzing media audiences: the volume of data collected by platforms gives platforms access to a set of crucial post-demographic characteristics, like interests, tastes, lifestyles, and consumption patterns. In his groundbreaking ethnography of developers of music recommendation systems, Nick Seaver argues that "since the origins of algorithmic recommendation, developers have pitched their systems as post demographic—as tools that allow users to transcend dominant social categories and enter into new, emergent communities" (2022, p. 74).

In short, the new gatekeepers of digital platforms know their users differently than what was happening with the gatekeepers of the past: instead of periodically accessing their behaviors through traditional surveys and focus groups, they are constantly surveilling them and immediately intercepting any change, however minor, in their consumption habits: "more log data provides new opportunities to profile users according to their interaction styles; more sensor data from devices provides a way to model a listener's 'context'" (Seaver, 2022, p. 74).

But the fact that recommender systems do not use explicitly demographic data to know their users does not mean that they are not influenced by social and cultural categories. Even if software developers at music streaming platforms brand themselves as neutral intermediaries that give people "what they want" (Seaver, 2022, p. 82), they are predominantly white, music geek males, young, and English-speaking men/women with a socially constructed imagination of the music listener wired in their heads. They say that they are not "taste-makers," they don't believe they are shaping music consumption, but they do, or, at least, the algorithms that they developed do so on their behalf. Daniel Ek, the founder of Spotify, implicitly acknowledged that the platform had become a new gatekeeper in the music industry when he argued that "the old model favored certain *gatekeepers*. Artists had to belong to a record company. They needed access to a recording studio and had to be played on radio stations to achieve success. Today they no longer need that" (Ingham, 2018a). Ek also noted that "over 30 percent of consumption on Spotify is now a direct result of recommendations made by the platform's own algorithms and editorial teams"—something that, Ek continued,

“puts Spotify in a position to control the demand curve” (Ingham, 2018b). When Spotify’s founder says he wants to control the demand curve of listening, becoming a new player in the process of brokering music for his hundreds of million users, this is the proof that platform gatekeepers like Spotify are playing an increasingly central role in the processes of music dissemination and consumption.

This ongoing transition in the music world is also confirmed by the words of a former employee of the Universal record company, whom we interviewed for a previous study:

I think the way people discovered music 10 years ago was very different from today: it was a combination of editorial-type suggestions that came from online blogs, newspaper articles, radio selections, discoveries on web radio, and recommendations from friends. It was a mix of many things. It was a richer tapestry [...] Whereas now it seems that ... if we take into account the music selection criteria of 6,000 radio stations (and globally there are many more), there are 6,000 people behind them making decisions, whereas Spotify’s 6,000 playlists are curated by up to a hundred people and this creates a bottleneck. (Former Universal worker)³

If algorithmic recommendation systems represent the new gatekeepers of the cultural industries, as we suggest in this book, then scholars of platforms and the music industry are required to devote the same attention to them as hitherto given to the *gatekeepers* of the past like print, radio, and television. Hence, research on media industries should focus not only on the newsrooms of newspapers and television, or the places of film production, but also on start-ups and large technology companies, which are in charge to design the instructions and features of automated recommendation systems. We need to look inside these black boxes or to look—as British sociologist David Beer (2017, p. 10)—“inside the algorithmic workings of *black box society*,” following Kitchin’s suggestion to “unpack the full socio-technical assemblage of algorithms” (2017, p. 25), that is, the complex interweaving of human and nonhuman actors, individuals, institutions, and technologies behind the design and operation of recommendation algorithms. We took Kitchin and Beer’s advice and tried to approach the companies that produce music streaming platforms to

³ Interview conducted in November 2018 with a former Universal worker who had held senior roles within the company, as part of research that one of the authors of this book conducted with Alessandro Gandini (Bonini & Gandini, 2019).

understand more in detail how they work. In the second part of this chapter, we will present the results of this approach.

4.4 PLAYLISTS, ALGORITHMS, AND CURATORS

Music streaming platforms began as online catalogs of music, like huge warehouses within which millions of albums and individual tracks are collected. Since the second decade of the twenty-first century, however, platforms have evolved, radically changing the way they interact with their users, focusing on the goal of providing them with personalized music through different channels and filters to access music. For a listener in the current age of abundance, having at disposal a catalog of 50 million songs also means having to invest time and cognitive resources in searching for a song to listen to. The overabundance of music has as a side effect, an increase in the complexity involved in discovering and selecting music to listen to: in practice, there is a risk of being overwhelmed by the “burden of choice” (Cohn, 2019) or the “tyranny of choice” (Barna, 2017). To better manage this abundance and alleviate this burden, music streaming platforms have begun to develop a range of innovative technologies able to reduce the complexity of choice.

Although each platform enables listening to whole albums by individual artists, the interfaces of these services are designed to channel listeners toward the consumption of individual tracks contained in playlists generated by the platforms themselves. The practice of listening to whole albums is in fact declining, while listening to playlists is increasing, thus music streaming platforms resemble more and more radio stations that choose a sequence of songs by different artists for us. The transition of listening practices centered on albums toward the consumption of individual tracks organized into playlists is confirmed by Hogan (2015), who—based on data from a survey of 1500 British, French, and US music listeners—quantified this change: out of the total sample, 29 percent of listeners said that they mainly listened to albums, while 31 percent mainly listened to playlists. Among the youngest participants in the sample, the percentage who mainly listened to playlists rose to 45 percent, while among subscribers to music streaming services this percentage rose up to 68 percent. This means that users who actively search for a specific song seem to become a minority compared to those who base their listening on playlist recommendations from platforms.

The decline in the importance of the format of the album in favor of individual songs or playlists is not something new associated with the advent of platforms, as O'Dair and Fry (2020) remind us, as the process of “unbundling” albums into individual songs had already begun at least with the launch of iTunes in 2003, which incentivized the purchase of individual songs. However, the novelty represented by the platforms is that individual songs are now “pushed” to listeners by algorithmically generated playlists, rather than having to be actively searched by them. This trend translates into practice, in the music field, the more general idea that algorithms have become “a key logic governing the flows of information on which we depend” (Gillespie, 2014, p. 167).

The rise of playlists results in a shift in online music listening practice so that, as noted again by Prey (2018b), playlists become “a device for reformatting music according to the native language of streaming platforms.” Playlists provide a packaged music product for all kinds of moods (playlists for “broken hearts”) or situations (playlists for “Sunday mornings”). The so-called mood-situated listening is indeed becoming increasingly popular, on a larger scale, than listening driven by music genre preference, as Airolidi et al. (2016) demonstrated in research on music genres on the YouTube platform. The growing habit of the majority of platform users to follow playlists recommended by platforms transforms the discovery of new music into an experience similar to the “flow” that sociologist Raymond Williams (1974) associated with broadcasting. In this sense, radio and music streaming services are not so much different in their overall logic: both, in fact, provide a sequence of songs to accompany daily activities, whose content is not chosen by listeners but by a music programmer (in the case of traditional radio) or by an algorithm or a human curator (for platforms). When people listen to playlists on music streaming platforms, they experience music as a *flow* and not as a single *text* (the song or album), that is, they consume music with an approach which is similar to the way they consumed it on the radio, delegating the activity of selection to someone else, with the main difference being that they can browse among different proposals and can also choose when to listen to it.

From some perspectives the playlists of digital platforms have done nothing but make this habit more personalized, multiplying the range of genres and listening paths in an effort to offer each individual user with a soundtrack for every type of daily life situation and mood. Spotify and other streaming platforms have industrialized on a large scale the process of producing playlists, using algorithms and human curators to tailor them

to every moment and mood of the day. In other words, the goal of Spotify is to be able to provide to their listeners an *on-demand* response to each emotional state they experience.

This industrial supply of playlists tailored to the emotions and tastes of individuals lends itself perfectly to the critique advanced by Adorno (1941), in which the German critical thinker argued that the listener of industrially produced pop music “rhythmically” obeys to pop music logics, passively adapting to the standardized and repetitive formats of pop song (a critique we will also explore in the next chapter). While Adorno’s critique is useful to understand the similarities between the industrial logic that animated cultural intermediaries in the twentieth century and the similar logic that animates the new platform gatekeepers, this same critique is nevertheless deficient, insofar it does not admit the possibility that users do not passively and homogeneously surrender to this pressure at standardization. While it is true that a large percentage of people passively follows the playlists recommended by platforms, it is also true that a still substantial number of users continue to autonomously search for music in digital catalogs and still *perform* the role of *bricoleurs*, through different practices (Hagen, 2015), such as the compilation of personal playlists tailored to individual needs and specific emotional states, as well as new consumption rituals such as public events and parties, and personalize the definition of distinctive emotional states (as with playlists to get over a breakup). Indeed, in 2018 Spotify users autonomously crafted more than 3 billion playlists, and their listening accounted for about 36 percent of the total content listened monthly on the platform (United States Securities and Exchange Commission, 2018, p. 108).

However, among the several billion playlists existing on streaming platforms, not all of them receive the same attention, since the playlists with the highest number of followers are those produced by the platforms themselves. Let’s take the case of Spotify as a prime example. The playlists curated by Spotify correspond to Netflix’s original series: they are their trademark, the brand through which the platform communicates its difference from their competitors. While Netflix can boast the exclusive presence of original titles in its catalog, Spotify, not being a music production company (perhaps only for the moment, as we will also see in Chap. 6), differentiates itself from the other platforms by providing a series of exclusive playlists, based on a recommendation system that allows to present its content as substantially different from the competitors.

The investment made by platforms like Spotify in the creation of playlists, and their intense promotion on their social media (Prey, 2020), is most easily understood in the context of the political economy of music streaming platforms: playlists represent a new form of “enclosing” music audience, that is, to organize listeners, once freely dispersed among free P2P exchange platforms, into new “herds” of audiences. Just as the industrial revolution began with the enclosure of the commonly owned country lands, the revolution of industrial digital platforms began with the enclosure of another kind of commons: audience attention. Continuing with this rural metaphor, we could say that just as shepherds fence off their herds so as not to disperse them, playlists are the tools for channeling audiences toward specific content, as indeed radio broadcasting once did. Nick Seaver uses another metaphor, very similar to that of the enclosures we proposed earlier. Seaver compares music recommendation systems to traps that captivate the user. These traps, he says, are persuasive technologies, intentionally conceived to capture the prey, to retain it. Seaver defines music recommender systems as “devices for anticipating, attracting and retaining users that embody theories about how their prey behave and that provide knowledge about behavior to the people who set them” (2022, p. 52).

The goal here is not only to provide audiences with a more meaningful experience so that they will return and spend more time on the platform but also, and more importantly, to make the extraction of value from listening activity more efficient—that is, to produce more and more accurate data about their tastes and behaviors. By organizing and re-intermediating listening around specific playlists, platforms are able to better profile individual users, learn more details about them, and create new associations between different behavioral clusters. Not least, the ability of platforms to push millions of users to become followers of their playlists allows them to exert a greater political and economic power over record companies, because the latter know that if their artists want to be popular, they should go through the “entry selection” operated by the platforms’ own playlists.

Platforms and record companies depend on each other: record companies rely on platforms to monetize the music they produce, while platforms need record companies to obtain licenses to stream music (Prey, 2020). However, their reciprocal interests need to be carefully balanced. On the one hand, record companies would like to make more money by raising the licensing fees for their music, but if they raise them too much, platforms risk going out of business, losing crucial revenue to invest in

their gatekeeping assets. On the other hand, platforms replaced radio stations as central *hubs* or *gatekeepers* in the circulation of music by channeling most users to their playlists, gaining bargaining power over record companies about licensing fees. Playlists, therefore, in addition to facilitating users' navigation within platforms' endless catalogs, should be understood as strategic devices in the struggle for hegemony within the music industry market: they are positioned at the center of a sort of tug-of-war between platforms and recording companies, being located exactly at the point of tension shaping the power relationship between music industry new and old gatekeepers.

In this regard, Robert Prey (2020) argues that Spotify's curated playlists are a key mechanism through which a platform like Spotify signals to its financial investors its "revolutionary" potential within the music industry. The ability to produce new customized tools to control its audience enables Spotify to maintain the confidence of its investors, despite the platform continuing to lose money year after year (see Fig. 3.1 in Chap. 3). This confidence allows Spotify to continue receiving investments, in the hope that one day it will be able to reduce its dependence on record labels and finally dominate the music market. In sum, playlists are the prism through which to understand the deep changes taking place at the very heart of the music industry; thus studying them and their mechanisms is part of the work of unveiling the structural dynamics taking place more in general in this cultural sector.

This is also why all the major streaming platforms, from Apple Music to Spotify, have abandoned the search engine model as their main mode of music promotion, to adopt recommendation algorithms that can automate music suggestions for millions of users, especially through playlists. In this sense, the adoption of algorithms for music selection is part of a longer and wider history of automation processes in industrial capitalism, which has always been committed to reducing production costs and maximizing profits. The task of music curation and selection, once the preserve of deejays and radio programmers, is being transformed by platforms into a task automated by algorithms, something that US music industry scholar Jeremy Wade Morris (2015) defined as "curation by code": a series of instructions that follow the logic of *if...then* are coded into an algorithm that take charge of the task of choosing what to listen to. In other words, algorithms and their design are taking the place of other kinds of experts, becoming the new crucial gatekeepers of the cultural industries.

However, we should always remember that these algorithms are the result of the work of many different groups of humans, who decide, often arbitrarily, what kind of data the algorithms should take into account and how they should be processed. Behind these automated gatekeepers, there are always complex networks of human actors, who often import into the algorithms' code their assumptions, prejudices, and stereotypes, feeding old imbalances with their choices and helping to create new ones (O'Neil, 2016). At this regard, a team of Hungarian media scholars (Tófalvy & Koltai, 2021) investigated the circulation of international and local Hungarian metal music on Spotify. The study showed how the playlists recommended by Spotify to Hungarian metal music listeners tend to reproduce those geographic inequalities that already exist in the music industry, because Spotify's algorithms tend to suggest more international artists belonging to global major record companies while limiting the recommendations of independent local metal artists.

Other scholars who had access to Spotify's user consumption data (Anderson et al., 2020) were able to show that, in fact, Spotify's algorithm-based recommendation system tends to favor the selection of popular artists at the expense of less popular ones, and that this selection would have, in the long run, a negative impact on the diversity of songs that users encounter. They also found that algorithm-driven music consumption on Spotify is less differentiated than that of music-savvy users who independently search for songs, albums, and artists via the platform's search bar. Moreover, there is considerable diversity in consumption patterns among Spotify users: for example, as users get older, they tend to search for music less and less independently, increasingly relying on recommendations made by algorithms. As we will observe in more detail in the next chapter, another major difference is between premium and free service subscribers. The former enacts much more diverse listening patterns than the latter, that is, they have a music "diet" that involves the consumption of much more varied "foods" than those who access Spotify without a subscription. This is due to differences in the platform's *affordances*: the free version of Spotify's interface allows users to listen to songs without paying for a subscription, but this poses limits on their choices and behaviors (e.g., the number of song *skips* per hour), which in turn affects the overall differentiation of their listening patterns (Anderson et al., 2020, pp. 2159–2160).

The consequences of algorithms on music consumption and user choices are not the same for all platforms. For example, a group of French researchers who studied the music consumption patterns of 9000 users on

the French platform Deezer came to partially opposite conclusions to those of Anderson et al. (2020). Indeed, Villermet et al. (2021) found that Deezer's algorithmic recommendations favored the consumption of unpopular music content and independent music, as opposed to playlists produced by human curators, which suggested a greater proportion of popular artists to users. This also confirmed that users defined in the research as "organic" (those who actively search for music rejecting the help of algorithmic or editorial recommendations) exhibit consumption patterns that maximize the diversity and variety of music. These studies show that the effects of recommendation systems on users' music consumption not only vary according to how the platforms and their algorithms are designed but also change on the basis of the type of listeners who uses them: more "experienced" users, with musical knowledge or a major personal investment in music, are much less likely to be influenced in their consumption choices than "non-experienced" users.

4.5 THE ROLE OF HUMAN CURATORS IN MUSIC SELECTION

Starting in 2014, platforms began hiring a new kind of employees: *music editors* and *playlist curators*. The first to hire this new kind of professionals was again Spotify. Eriksson et al. (2019, p. 62) called this shift in the platform's business strategy a *curatorial turn*, whereby Spotify changed its mind about the nature of its core product. Indeed, the company decided from 2014 onward that its goal was no longer to provide the listener with *more* music (by then all competing companies were providing more or less the same music catalogs) but with the *best* music possible. To improve its music offerings, Spotify then decided to hire music experts, human curators who would work on producing playlists based on genres, situations, and moods. These playlists would be visible in the same way for everyone, unlike algorithm-generated playlists, which would instead be personalized. In other words, after initially focusing on music distribution technology as the core of its business, Spotify decided to shift its strategic focus increasingly toward providing unique music experiences.

Since that time, not only Spotify but also all other platforms have changed their business strategy, moving their focus toward the creation of thousands of playlists, both automated and manually generated by editorial teams, making music enjoyment an activity increasingly channeled and

facilitated by the choices of the companies themselves. This curatorial shift is evident in the changes made over time to platforms' user interfaces. The design of these interfaces has started to increasingly downplay users' own autonomous search, favoring the visibility of algorithmically or editorially curated content. The *affordances* (Davis, 2020) of the platforms place precise limits on users' free choice, as a result of their desire to guide and channel the listening experience as much as possible within a strictly controlled spectrum of actions.

The music curators of Apple Music, Spotify, Google Play Music, Amazon Music, Deezer, or Tidal are the ones who decide which music bands, from those who recently released music, are legitimized to enter their playlists, to be canonized as “new-music-not-yet-popular-but-will-become-so,” something that can be associated to what the French sociologist Pierre Bourdieu (1987), referring to the role of traditional *gatekeepers* (or “intermediaries,” in his jargon), had defined as a process of “canonization of the not-legitimate.” As we noted previously in the chapter, *platform gatekeepers* are all those workers within music streaming platforms who are able to decide, filter, and select what to expose to listeners and to which songs to channel their attention. Among these figures, we are going to focus now in particular on the role of the *music curator*, as it did not exist in music streaming platforms before 2014–2015. As we mentioned earlier, Eriksson et al. (2019, p. 61) place Spotify's *curatorial turn* around 2014, eight years after the company was founded. Google Play Music also began employing human curators in late 2014, three years after its inception, while Apple Music hired its first human curators in 2015. Estimates suggests that in 2018 Spotify employed around 150 curators, while Google Play in the same period had 20 full-time curators, plus more freelancers and Apple Music included as staff “more than 12 in-house curators,” plus more freelancers (Ugwu, 2016). Deezer started to resort to music editors in 2016, revealing to *The Guardian* to have hired 50 experienced music editors (Dredge, 2016), while no data is available for other platforms, such as Tidal and Amazon Music, as none of these companies has ever made the number of its music editors public. These numbers are not up to date and are rough estimates made by journalists and researchers based on a disparate set of information; however, it seems plausible to estimate that there are currently several hundred of these curators working globally, mostly distributed between New York (You Tube Music, Spotify, Tidal, and Amazon Music), Los Angeles (Apple Music), and London (Spotify, Deezer, You Tube Music, and Apple Music). These new

gatekeepers or cultural intermediaries could be seen as a global elite of music specialists, who decide whether to exclude or include music tracks in hit playlists. As *Wall Street Journal* music reporter Neil Shah (2017) pointed out, the weight exerted by this new group of *tastemakers* on music selection is now so central that the top 40 commercial radio programmers today often play what they find on Spotify and Apple Music, rather than discovering new songs themselves.

Music curators are divided into senior and junior professionals. Seniors are responsible for the company's strategy for a specific music genre (e.g., Global Head for Latin music or Global Head of Latin music playlists) and work on creating and managing the most popular playlists. Each curator is an expert in a specific genre or subgenre, and their daily work mostly consists of assembling playlists. They usually belong to a specific curatorial team with whom they discuss their editorial choices. A former curator at Google Play Music (now YouTube Music), interviewed by us claimed that:

On average, I was creating about 30 new playlists per month. The playlists I would create were intended to supplement the playlist offerings of specific music genres, historical ages, moods, events, and holidays (like the Christmas vacation playlist). Each week we would also update about fifty existing playlists.

Most of the curators, as Shah (2017) revealed, had previous experience in the music industry, including, for instance, former music journalists, former radio deejays (such as Sara Sesardic, a Spotify UK curator who worked at BBC Radio 2), radio music programmers, and former music executives and managers. Some of them have previously worked as journalists for online music magazines or have been amateur musicians, such as Athena Koumis (who held the role of "Fresh Finds" playlist editor for Spotify in 2017). Other curators have been simultaneously music journalists and musicians, such as Sam Lee, curator for the Deezer platform (Dredge, 2016). Several professionals we interviewed in researching music platforms confirmed the same thing that has been made explicit by one of our informants at Apple Music, who told that they have "a very large staff of *humans* who come from industry backgrounds, essentially, radio or music labels." Curators' role is very important, as their decisions influence the fate of artists and music songs, and yet, in turn, they are also influenced by the industry and the music press, as they hone their musical taste

by reading music blogs and critics' reviews as well as attending clubs, festivals, and concerts.

The activity of compiling playlists, whether for a radio station or a music streaming platform, is performed at the intersection between human activity and technological delegation: it is at the same time strongly influenced by the availability of data and automated algorithmic recommendations and by the musical knowledge of the individual curator. In radio, playlists are generated with the support of the so-called Selector and other similar software, as the music programmer sets the software by entering certain rules (e.g., insert one international song for every two Italian songs or never insert songs with too high a tempo in the nighttime slots of the schedule), and the software generates a playlist automatically, based on the preset rules. However, the programmer can intervene manually and replace a song chosen by the software with another song to his or her liking. Similarly, music streaming platforms also have their own software for generating playlists, and each company has developed its own proprietary tools for data analysis. As described in a *BuzzFeed* article on Google Play Music:

data are compiled in a Google spreadsheet. Each song in the playlist has its own score: it is ranked by "Song Score," a metric that, like Spotify's PUMA, takes into account things like average listening duration, the number of times the song has been *skipped*, and the number of likes and negative ratings received. Curators typically access this data through a Google-designed content management system called Jamza, which, among other things, can recommend songs to add to a playlist based on those already chosen, or by doing a keyword search. (Ugwu 2016)

Just as newspaper journalists increasingly rely on data analytics software suites such as Chartbeat, Homegrown, and Parse.ly for their gatekeeping activities related to news (Petre, 2015), music gatekeeping within streaming platforms is also supported by proprietary data analytics tools. For example, software created by Spotify called *Playlist Usage Monitoring and Analysis* (PUMA) evaluates each song in a playlist based on factors such as number of plays, number of "skips," or how much it has been saved by users among their favorite songs. Moreover, PUMA is also able to track "the performance of the playlist as a whole, with colorful graphs illustrating listeners' age group, gender, geographic region, time of day, subscription type, and more" (Pelly, 2017). In any case, human-based editorial

decisions still matter a great deal. When we asked one of our informants to roughly assess the extent to which personal tastes, editorial choices, and algorithmic suggestions influenced his curatorial work, he told us that his choices were “10 percent influenced by his own personal taste, 40 percent oriented by editorial reasons, and 50 percent dependent on algorithmic recommendations”: the weight of one’s personal “gut” in guiding music curators’ choices has not disappeared, but it has been significantly reduced, in favor of the assistance provided by data analyzed by software.

4.6 PLAYLISTS BETWEEN EDITORIAL AND ALGORITHMIC SELECTION

As revealed by one of Spotify’s content editors, Austin Daboh, “we have three different types of playlists at Spotify [...]: we have 100% hand-curated playlists, [...] *algotorial* playlists, [...] and then we have 100% completely algorithm-based playlists” (Ramirez, 2017). Examples of “100% algorithm-generated playlists” are Spotify’s “Release Radar” or “Discover Weekly,” which are personalized song selections generated by algorithms without human intervention. “100% handmade” playlists are instead those like the hip-hop-focused “RapCaviar” (Spotify’s most popular playlist) that are based on the experience, instinct, and knowledge of Spotify’s top music curators. But this distinction given by this Spotify editor is naïve, to say the least, because every playlist, whether called “100 percent handmade” or “100 percent algorithm-based,” contains both logics—editorial and algorithmic ones—which are intertwined in inextricable ways: every playlist is indeed the hybrid fruit of editorial and algorithmic choices, that is, what Bonini and Gandini (2019) define as an *algotorial* logic.

In fact, on the one hand, the creation of playlists that present a main human intervention is also strongly supported by the knowledge based on data and its elaboration through algorithms, while customized playlists such as “Daily Mix,” “Release Radar,” and “Discover Weekly” that are explicitly generated by algorithms are, however, constantly monitored by curators and software developers, who manage and improve them constantly. In particular, “Discover Weekly,” a crucial playlist for many Spotify listeners, is the product of various factors that indirectly incorporate editorial logic. Let us therefore dwell in more detail on this particular playlist.

Spotify significantly improved its music data analytics capabilities when in 2014 it acquired The Echo Nest, a Boston-based data analytics start-up. “Discover Weekly” was launched by Spotify precisely because of the improvement in analyzing the data at its disposal following this acquisition, offering to every listener, every Monday, a list of 30 songs they’ve never heard before. The generation of this playlist is the result of the interaction between three different algorithms: the first is a *collaborative filtering* algorithm that analyzes the consumption of listening profiles similar to that of the individual user, recommending to him/her the music listened to by users who are very similar. The second algorithm—*content-based filtering*—performs an acoustic analysis of the musical structure of a song and recommends to a user those songs that have a similar structure to those that he/she has already enjoyed in the past, for example, songs with guitars or with bass of a certain type. The third algorithm conducts a semantic analysis of online conversations about music that take place every day, all over the world—millions of blog posts, music reviews, tweets, and discussions on social media—looking for new music trends that journalists and fans are talking about online. This means that the selection made automatically by Discover Weekly’s algorithms is also indirectly influenced by the selections of hundreds of bloggers and journalists who talk about music online as they are “listened to” and “scanned” by the algorithm (Popper, 2015; Prey, 2018a). In other words, although produced by algorithms, “Discover Weekly” is only partly the product of an automated process, because it also incorporates the editorial choices of music journalists and the most influential bloggers in the music industry. According to Spotify’s own presentation, Discover Weekly “combines your personal taste in music with analysis of what others are listening to in other playlists that resembles the songs you listen to” (Popper, 2015). In other words, Discover Weekly has subsumed and incorporated into its code the social influences generated collectively by traditional *gatekeepers* and other cultural intermediaries, without compensating them for their indirect advisory “work.”

This example help has shown how music curating work on music streaming platforms consists of the combination of human activities *supported* (or we might better say *augmented*) by algorithms and nonhuman activities, which are anyway designed, monitored, and curated by humans. Machines’ influence neither replace nor can be distinguished from the work of human curators, and, in fact, Spotify continued to hire music curators while investing in “music intelligence technology” (Eriksson

et al., 2019, p. 65). The machines (the algorithms) at the same time automate the creation of playlists, making their production more efficient, and improve the skills of human curators, making them faster in their choices and speeding up the time it takes to produce playlists. We could metaphorize their role considering algorithms are a kind of “exoskeleton” that increases the efficiency of human curators’ intellectual work but does not replace it entirely (at least for now).

Both the curators working for digital platforms and their listeners are highly dependent on the choices made by recommendation systems. The selection of music made by platforms is thus the consequence of a complex mix of *algorithmic* and *editorial* logic, which Spotify workers themselves call, contracting the two terms, *algo-torial*. This algo-torial logic was described to us by a music promoter in London, who is in contact with the curators of several platforms, to whom he sends the new releases of artists managed by his company in order to promote them. This informant, who wished to remain anonymous, told us that in many Spotify playlists, editorial logic is very important in the first week of release of a new playlist, when it is created: curators compile a playlist based on their tastes, suggestions from the software, and their experience of that particular genre of music. After the first week, algorithms come into play, analyzing the performance of the playlist, and begin to modify it to increase its consumption and diffusion. This intertwining of human and algorithm work is the key to understanding how gatekeeping works in these new cultural industries.

This complex blend of editorial and algorithmic logics can be better understood if we analyze the position in which a song is placed within a playlist and how it can change during time. In the first week, the song x appears in playlist y , and its position depends on the curator’s choices. In the meantime, the algorithm starts evaluating the song’s performance based on a number of parameters, such as the number of plays, the number of *skips* received, the number of plays completed and those interrupted prematurely, the average length of listening, the amount of users who have included the song among their favorites, the number of active searches for that song, etc. As a Google Play Music curator revealed to us, the most relevant data for deciding where to place a song in a playlist are the level of *engagement*, *impressions*, length of listening, and *skip* rates. This curator also added that he has received specific training within the company to learn how to “make sense of the data.” Google Play curators periodically attend strategic planning meetings, where key performance indicators

(KPIs) are established. In these meetings, curators are instructed to place the highest value on the engagement data for each individual playlist and to keep it under constant review:

I have a *dashboard* for analyzing and monitoring, day by day, the overall performance of my playlists. Each week I export data to analyze the behavior of each individual playlist, then implement adjustments for those that are underperforming.⁴

As result, the position of a song within a playlist is not fixed, as it once was in physical album tracklists, but is constantly changing, either by adjustments made by the curator or by automatic adjustments made by algorithms. Editorial logic and algorithms logic act together in real time on playlist generation and curation: a week after the release, playlists no longer have the same shape. In this sense, a song's position is *contingent*, as understood by Nieborg and Poell (2018, p. 1; see also Chap. 3). A song's position alone can determine the success or failure of a playlist and, indirectly, even influencing the popularity of an artist. In order to gain visibility, an artist must not only hope to get on one of the most followed playlists but should hope also to be included among the top positions, usually those that generate the most listens.

Several curators have confirmed this: "location matters, completely. We're obsessed with it," as one Spotify curator told Allen (2017). Another curator said that "when I create playlists, I probably spend more time on the order than the rest. The data might tell you that people are skipping or stopping listening music, but an algorithm wouldn't necessarily know why, or how to fix it" (Dredge, 2016). The awareness of the mutual modeling of the two logics—editorial and algorithmic—can be also identified in the words of another music expert we interviewed: "I think actually, these two things [human curation and algorithmic curation] are mutually dependent on each other, because you need the algorithm to do the heavy lifting. It's a symbiosis, right?" And indeed, the *symbiosis* metaphor seems to well represent the relationships between human curational choices and automated algorithmic ones: a situation in which two different entities are living closely, collaborating to the advantage of both.

⁴Interview with a Google Play curator, conducted on November 18, 2017, in London, as part of the research completed by Bonini and Gandini (2019).

4.7 “THE WINNER TAKES IT ALL”: NEW ECONOMIC INEQUALITIES IN THE AGE OF PLATFORMS

The position of a song resulting from the intersection between an algorithmic and an editorial logic affects not only an artist’s visibility but also her economic revenue, since, as we saw in the previous chapter, streaming revenues now represents the most significant market share in the music industry. Aguiar and Waldfogel (2018, p. 22) calculated the net benefit that an artist can receive, in monetary terms, from being placed at the top of the *New Music Friday* playlist: “estimating that each artist receives from Spotify about \$3.97 per thousand plays of his or her song, the benefit of being placed at the top of the ‘New Music Friday’ playlist is worth \$55,315.” Aguiar and Waldfogel’s estimate touches on a fundamental question, that of the sustainability of this model of music consumption for the artists who provide the raw material—music—that allows platforms to work. Thus, let’s now dwell more carefully on how musicians’ careers change under the growing hegemony of platforms in the music sector.

A European Commission report (Aguiar & Waldfogel, 2018) analyzed Spotify playlists and noted that, although there are millions of playlists available to users, only a few of them are followed by a large number of users. In 2017, the most successful playlist was *Today’s Top Hits*, produced by Spotify curators, with 18.5 million followers, while the second most followed was *Global Top 50*, generated by an algorithm, with 11.5 million followers. Then, we could find *RapCaviar* with 8.6 million, *Viva Latino* with 6.9 million, followed by *Baila Reggaeton* with 6.3 million. There are several considerations we can make around these playlists and the concentration of listening on few very visible playlists. First, all the top 25 most-followed playlists are produced by Spotify, thus leaving no room for alternative suggestions to the platform’s strategies; moreover, all but one (*Global Top 50*) were produced by human curators. Second, the number of followers of these playlists decreases quite rapidly going further down the list, particularly after the 25 most followed playlists: just to have an idea, in 2018 the 200th playlist had 166,000 followers, while the 500th had just 43,000. In short, we can observe once again that although contemporary listeners have an apparent infinite choice of music content at their disposal, the power of the record industry is certainly no less relevant than in the pre-digital era. At this regard, it is also noteworthy to mention that—as it has been calculated by a Swedish newspaper (The Local, 2018)—87 percent of Spotify’s catalog is represented by music owned by

the world's three largest record companies (the so-called *majors* Sony, Universal, Warner), a share even higher than that held by the same three majors over the entire global music market in the same year (70 percent; see Mulligan, 2019) and by the way very similar to the levels of concentration of the music industry before the spread of MP3s and file sharing, at the time in which the constraints of physical music were favoring an oligopolistic market (Hesmondhalgh, 1997).

In practice, it is as if, among thousands of available radio stations, the ones most listened to by everyone on Earth were a few dozen. Indeed, just a few dozen playlists share the majority of the attention of followers and listeners and, thus, are able to influence the popularity of a handful of artists, to the detriment of a large majority of artists, who therefore can earn very little from their music work. The result is the reproduction and exacerbation of an already existing great disparity in visibility and earnings between a few international artists and a *long tail* of artists who get only the crumbs of the overall billionaire industry based on digital music.

In March 2018, Spotify's founder Daniel Ek, during the Investor Day in New York, shortly before going public with his company's IPO, stated that his mission was to enable 1 million artists to be able to make a living from their work (Ingham, 2018b). At the same conference he also proudly stated that by the end of 2017, the number of artists considered by Spotify to be *top tier*—that is, the set of artists who alone attract 90 percent of the platform's total traffic—had risen to 22,000. Considering that at the time Spotify claimed to have 3 million active artists on its platform, it is quite easy to calculate that *top tiers* represented only 0.733 percent of the total number of artists then on the platform, a figure quite far from the million promised by Ek.

Things did not improve much in the following years. In 2018, the *top tier* increased to 30,000, and in 2019 there were 43,000, but in the same timeframe the number of artists on the platform increased at a much higher rate, and in 2020, the share of musicians accumulating 90 percent of plays on Spotify still accounted for less than 1 percent of total artists. On the basis of this data, Tim Ingham (2020), a well-known music journalist, made an estimate of the earnings to be expected by the most popular artists and those who generate, all together, only 10 percent of traffic. Ingham calculated that if 43,000 artists alone collect 90 percent of the royalties paid by Spotify, it means that these *top-tier artists* got \$963 million out of \$1.07 billion (the amount paid by Spotify in royalties in the first quarter of 2019), which corresponds to an average of \$22,395 per

artist per quarter, for an annual take of about \$90,000. So, on the one hand, we have a sizeable number of artists—43,000—earning fairly high figures (not considering revenues from other platforms, physical media sales, radio and concert rights, etc.), but, on the other, we have more than 3 million artists who, according to Ingham’s (2020) calculations, earn on average \$12 per month or \$144 per year. At this rate, to fulfill the promise made by Daniel Elk in March 2018 in New York to economically support 1 million artists on a global scale will take 74 years. By that time, many of the artists hoping to make a living by uploading their music to the platforms will be of course long dead.

As has similarly happened in other cultural industry markets reshaped in recent years by the rise of digital platforms, in the music sector these platforms tend to amplify the polarization and inequalities that already existed, causing the “middle class” of cultural producers to disappear or to not find a fair and sustainable income in the long run. The promise that platforms would liberate listeners from the dictatorship of the “Top 40”—the 40 most played tracks on commercial radio—seems to have been largely betrayed by the setup of a technological infrastructure put in service with the main aim of maximizing consumption and establishing a monopoly into the market, thanks to the oxymoron of a *standardization of personalization*. Users have only the impression of receiving music tailored to their tastes while receiving slightly different versions of the same song sequences, which contribute to multiplying the earnings of an elite of global artists.

According to a successful idea put forward in the era immediately preceding the development of digital platforms by techno-optimist Chris Anderson (2004), digital media would uphold the principle of the “long tail” in the distribution of cultural goods online. The reduced costs of production determined by the rise of digital media would enable us to satisfy a wide variety of niche needs, thus expanding the possibilities of small cultural producers. According to his optimistic view, the mere increase in the availability of cultural goods on the Internet would, in short, have increased the cultural diversity of our cultural landscape and spelled the end of the “tyranny of hits.” Based on recorded music revenue data, Mark Mulligan (2014) argued that, contrary to Chris Anderson’s (2004) predictions, what has emerged is instead a “superstar artist economy,” a market increasingly concentrated in the hands of the richest 1 percent of artists.

As also addressed by Barna (2017), the abundance of music available on digital platforms strongly masks the concentration in the music

industry while at the same time is helping to increase it. Hesmondhalgh and Meier (2015) argued that the rise of digital platforms has not only reinforced old forms of artist dependency through the retention of key positions by traditional players, such as major record companies, but also generated new ones, making musicians dependent on both record companies and digital platforms. As a result, musicians are increasingly directing their music composition strategies toward sounds and styles that they believe are best suited for inclusion in one of these playlists (Prey, 2020). A confirmation comes also from a producer working for an independent label, who revealed in an interview how the key role assumed by platforms' playlists also affects what artists decide to compose and music labels to produce. Indeed, several musicians have begun to change the way they write songs:

now artists put choruses at the beginning of songs, instead of at the end of a verse. And they do this because in the first five seconds, if listeners hear a chorus, they are more likely to continue listening. The reason they do this is because this lowers the skip rate, the rate at which they abandon playback, and increases the likelihood of being included in a popular playlist, because the algorithms take this data into account.⁵

Thus, musical composition itself is “optimized” to better fit the *affordances* of platforms (Morris, 2020), in the same way that composers adapted their songwriting by reducing song lengths to fit the radio medium in the ages of traditional broadcasting.

The data and research reported so far paints a bleak picture, in which platforms, beyond the optimistic rhetoric used by their founders, are far from helping to democratize the world of the music creation and distribution. On the contrary, we can argue that they are rather generating new inequalities, helping to exacerbate existing differences between a global elite of international artists who benefit from the promotional investments of major record labels and a large majority of less popular artists, including everything falling in the bucket of “independent music,” who are increasingly struggling to find a profitable way in the music sector and to make a living from their work.

⁵ Interview conducted on February 11, 2018, as part of the research that one of the authors of this book conducted with Alessandro Gandini (Bonini & Gandini, 2019).

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