Giants with feet of clay: the sustainability of the business models in music streaming services

Alberto Arenal; **Cristina Armuña**; **Sergio Ramos**; **Claudio Feijoo**; **Juan-Miguel Aguado**

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Alberto Arenal ✉
https://orcid.org/0000-0003-0891-4088

Universidad Nacional de Educación a Distancia (*UNED*)
Paseo de la Senda del Rey, 11
28040 Madrid, Spain
albertoarenal@gmail.com

Cristina Armuña
https://orcid.org/0000-0002-3650-2702

Universidad Nacional de Educación a Distancia (*UNED*)
Paseo de la Senda del Rey, 11
28040 Madrid, Spain
cristinaag@alumnos.upm.es

Sergio Ramos
https://orcid.org/0000-0001-5771-116X

Universidad Nacional de Educación a Distancia (*UNED*)
Paseo de la Senda del Rey, 11
28040 Madrid, Spain
sramos@cee.uned.es

Claudio Feijoo
https://orcid.org/0000-0002-9499-7790

Universidad Politécnica de Madrid, *CAIT*
Parque Científico y Tecnológico
Campus de Montegancedo, s/n
28223 Pozuelo de Alarcón (Madrid), Spain
claudio.feijoo@upm.es

Juan-Miguel Aguado
https://orcid.org/0000-0002-8922-3299

Universidad de Murcia, *Facultad de Comunicación y Documentación*
Campus de Espinardo, Edif. 3
30107 Espinardo (Murcia), Spain
jmaguado@um.es

Abstract

This paper examines the sustainability of the recorded music industry from the perspective of music performers. Music streaming platforms, or digital music service providers (DMSPs), have changed the recorded music industry paradigm since the middle of the 2010s. Business models for performers have evolved from royalty agreements based on sales to more complex remuneration systems based on revenues from a combination of (ad-based) free and paid subscriptions. Previous research has mainly focused on the examination of the business models of streaming services from the point of view of the innovation players (digital platforms) and/or the traditional dominant intermediaries (record labels and publishers). However, not all innovation-driven transformations are sustainable. In this paper, we argue that the sustainability of the main business models in the music industry demands the consideration of the performers' perspective. We combine a qualitative approach with primary and secondary data sources to investigate the sustainability of existing trends of business models and business practices for different categories of performers, including both monetary values

and a description of how revenues are shared. We conclude that DMSPs foster an asymmetric value chain in which the creative players barely capture value while technology-based innovations increase the capability of DMSPs to generate and capture value. Finally, we outline some alternative business models looking for the long-term sustainability of the digital music marketplace.

Keywords

Digital music; Streaming platforms; Business models; Featured performers; Non-featured performers; Pro rata distribution model; User-centric distribution model; Sustainability; Value chain; Commoditization; Audio communication.

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1. Introduction

While the popularity of streaming to distribute music exploded in the early 2010s, the economics of music streaming has become a very controversial issue since the middle of the decade, especially related to the remuneration of the different agents in the music streaming value chain (**Arditi**, 2015; 2019). Now, streaming has displaced the traditional physical sales and even other categories of digital music, representing more than 50% of the whole business in the case of recorded music, and accounting for more than 75% of recorded music revenue in relevant markets such as the USA and UK (*IFPI*, 2021).

Since streaming has become a prevalent distribution model for every form of digital content –from digital video to videogames– (**Benghozi** *et al.*, 2021), its impact in the music industry is not an exclusive phenomenon. However, digital music service providers (DMSPs) or music streaming services present some singularities worth noting, especially if one considers that streaming platforms constitute the prevalent form by means of which creative industries enter the platform economy (**Kenney**; **Zysman**, 2016), radically changing the processes of creation, distribution, and consumption of culture. Precisely because of its peculiarities, the case of music streaming platforms concentrates some relevant defining aspects about the shape of creative industries in the digital era of data-driven ubiquitous connectedness (**Prey**, 2020). These aspects revolve mainly, it will be argued, around the sustainability of their business model (i.e., the configuration of actors and processes that create and transfer value) (**Lüdeke-Freund** *et al.*, 2018).

The main observable difference for the case of music streaming services is the size and homogeneity of content inventories. Unlike the case of digital video or videogame streaming services, competing music streaming services barely differ in the size and diversity of their catalogues. This involves transferring the core of user retention strategies to other technology-driven aspects (such as personalization and recommendation) in a much more intense fashion than other digital content streaming services (**Castle**; **Feijoo**, 2021).

Technology-driven innovation has played a core role in how DMSPs, also known as music streaming platforms or music streaming services, are transforming current music industry business models –not only by creating new distribution dynamics, but also by integrating Artificial Intelligence (AI) data processing of users' consumption behaviour into value creation processes: personalization; recommendation systems; editorial curation; community creation; and targeted advertising. However, not all are good news.

Music streaming services are engaged in an intense competition with one another for end users, which weakens their bargaining power in negotiations with record companies, especially the three major labels: *Sony Music*, *Universal Music*, and *Warner Music*. For instance, the substitutability of *Spotify* and *Apple Music* (and the rest of music streaming services), and thus the likelihood that a user unsatisfied with one service could simply switch to the other, make it imperative that the services continue to offer the core functionality of on-demand access to all major content and maintain the monthly fee while offering discounted plans (**Ingham**, 2021a).

At the same time, there is a growing list of performers who have publicly shown their concern (*DCMS Committee*, 2020) regarding how the digital music market works and the reduced amount and unstable conditions of their remuneration from the consumption of their music through the DMSPs. According to a recent survey of 5,800 performers in Europe, while record companies' digital revenues have skyrocketed, 90% of performers indicate that the streaming market has given them no meaningful return in income (*Payperformers.Eu*, 2021).

The difficult situation caused by the pandemic has triggered the debate in both public and policymaking spheres (**Butler**, 2021; **Castle**; **Feijoo**, 2021). As the COVID-19 crisis has practically erased live performance and revenue from public communication, many performers are now forced to consider leaving their occupations. On the other hand, the side of the music industry represented by rights-holders, and the incumbent streaming platforms have continued increasing revenues fuelled by the growth in audio streaming (**Friedlander**, 2021).

These and other evidence make it advisable to ponder the sustainability of such technology-driven innovation within the digital music industry. According to **Schaltegger** *et al.* (2016), sustainability in terms of business model innovation refers not only to climate change sensibility, but also to factors of social and economic viability. **Geissdoerfer** *et al.* (2018, p. 404) define sustainable business models as 'business models that incorporate pro-active multi-stakeholder management, the creation of monetary and non-monetary value for a broad range

of stakeholders, and hold a long-term perspective'. This definition of business models' sustainability is also conceptually attached to the current debate about technology driven sustainable innovation (**Boons**; **McMeekin**, 2019) and social innovation (**Van-Wiick** *et al.*, 2019), which again emphasizes the need to overcome the traditional conception focused solely on lucrativeness and functional efficiency. In our view, thus, the focus on business model innovation sustainability may contribute to bring a new light to the necessary critique of the platformization of the media ecosystem.

Consequently, this paper investigates the sustainability of business models and business practices in the digital music ecosystem, focusing on the perspective of performers. Their perspective is crucial for the sustainability of digital music business models because their contribution to the industry conforms a necessary precondition for any creation of value, and yet they are in the epicentre of a process that shows two clear threats to sustainability: the unequal share of revenue distribution and the commoditization of creative processes (**Antal** *et al.*, 2021; **Arditi**, 2019; **Barnett**, 2018).

Key aspects and challenges related to the value chain of rights and licensing practices are identified, explicitly including the effect of streaming and whether alternative models could result in different long-term outcomes. To do so, the methodology combines a qualitative approach with primary and secondary data sources. First, the authors investigate how the different exploitation models offered by DMSPs impact on performers' rights remuneration. From here, the research gathers insights from a semi-structured survey with a broad sample of 38 performers.

As a result, this paper provides a description of the two main existing business models of music streaming services and the impact and implications of streaming in the structure of the music industry, and its challenges, in particular on rights-holders, such as performers. Results provide a valuable insight into current business model sustainability in the digital music marketplace and outline some alternatives for a long-term viable digital transformation of the industry. The results also contribute to widen the debate –and critique- about the platformisation of creative industries (**Benghozi** *et al.*, 2021) from an economic point of view with a stress on sustainability.

2. Methodology

The combination of a qualitative approach with primary and secondary data sources is used to assess the foundations and key features that shape the main business models in music streaming services, as well as their relationship with sustainability from the perspective of the artists and performers. Although the interest of academia in the discipline of sustainable business models (SBMs) is recent, a range of authors and works has contributed to build a research field around it (**Lüdeke-Freund** *et al.*, 2018; **Massa** *et al.*, 2017).

In addition, the research addresses the core royalty accounting models of *Spotify*, *Apple Music*, *Amazon Music* and *YouTube Music* (formerly *Google Play*), among others. As of early 2022, all major DMSPs use a nuanced version of the 'market-centric' model for payments to performers, authors and rights-holders, including the two market leaders, *Spotify* and *Apple Music* (see Figure 1) and it is used in each country where they operate. The market-centric model is also known as 'big pool' or 'pro-rata' (**Antal** *et al.*, 2021).

2.1. Data collection

In order to address the perspective of performers on the current status of the music digital market, the authors have prepared and launched a survey with representatives from different categories of performers to evaluate their current situation, including monetary figures and a description of how revenues are shared, and the main challenges ahead. To this aim, a semi-structured survey format is adopted allowing open, multiple choice and closed-ended answers to enable comparability and at the same time explore which issues are relevant to the interviewee, and to uncover specific information.

The survey includes the following set of questions:

1) performer background, to make sense of the survey statistics;

2) performers' relationships with other agents (labels, DMSPs);

3) intellectual property rights in the digital market and income aspects; and

4) privacy issues. The full questionnaire can be found in the Appendix A.

By default, all responses in the survey are treated with confidentiality and are anonymously included in the paper, unless the interviewee gave explicit permission to mention his/her name as a participant and/or associate them with their answers. The survey was distributed through online invitation by email using the survey service *Typeform* between January and May 2021.

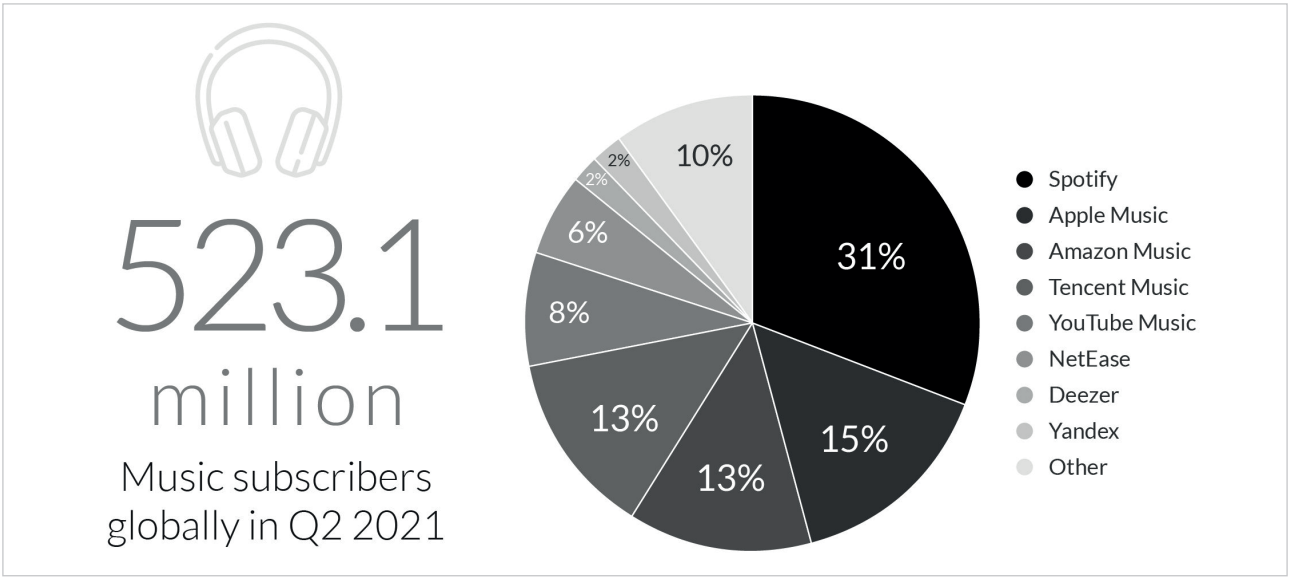

Figure 1. Music subscribers globally in Q2 2021. Data from *MIDiA Research*.

2.2. Sampling and analysis

First, a taxonomy of six categories of performers in the digital music ecosystem was proposed considering their role (featured performers, non-featured performers) and their market performance (global performers, niche performers, national performers, independent performers) and cultural/language and aspects related with the development of the digital streaming market. From the authors' professional experience in the music industry, these categories permit a proper sample to be addressed in terms of representativity of various sensibilities and contractual circumstances worldwide.

The sample under study gathers performers representing the different categories of the taxonomy, taking into account both the representativeness of the sample and a purposive criterion.

Performers for the survey were selected from the available contacts in the music industry, through direct contact and/or thanks to the collaboration with representative performers' collective management organizations, independent labels and other music organizations related with performers. The original sample was approximately equally distributed among the different categories. At the time of writing, 92 performers have been contacted and 38 (N = 38) of them have participated, as indicated in the corresponding Table 1, covering the main typologies of artists and jurisdictions. Featured performers have been defined as having been in the top-10 position at least five times in their home country official charts (*Billboard*, *UK's Official Charts*, etc.), spanning at least five years, plus at least three other countries' official charts. In the case of non-featured performers, they play for global performers or global emerging performers.

Table 1. Categorization of performers surveyed during the analysis (N=38). By default, the survey guaranteed confidentiality and anonymity

	Africa, Asia, Latin America	EU	Australia, Canada, UK, US
Global performers	Global artist#2 - Latin	Global artist#1 – electronic	Right Said Fred
Niche – pop, rock, electronic	Los Andes – rock	Allova Niche artist#4 – rock Rufus T. Firefly	Niche artist#2 – indie Scanner
Niche – classical, folk, jazz, instrumental, …	Edith WeUtonga Guillermo Bazzola	Buika Cuarteto Casals Niche artistt#1 – classical Niche artist#5 – post-classical Pipo Romero	Niche artist#3 - classical
National performers	Keko Yunge National artist#2 – pop	Chenoa David Otero National artist#1 – pop	Tom Gray
Non-featured international	JKEscorcia Mauricio Clavería Non-featured artist#1 – percussionist Non-featured artist#4 - flautist	Non-featured artistl#2 - session musician Non-featured artist#5 – organ / choir conductor	Doug Emery Non-featured artist#3 – background vocalist
Independent performers	Independent artist#4 – Latin Independent artist#5 – dance	Ainara LeGardon Independent artist#3 – indie electronic Nude	Independent artist#1 Independent artist#2

Finally, the data analysis is developed by using the framework proposed by **Miles** and **Huberman** (1994). The analysis is the result of an iterative process, including the performers' answers and the continuous review of the relevant literature on the topic, from both academic and industry sources. Evidence from the performers' contributions is used in highlighted text across the paper in addition to background for the analysis and discussion. Once a survey is completed, the answers are sent to the participant to permit edits to be made if necessary.

3. The digital music streaming platforms' business model

As a typical case for re-intermediation processes in other digital markets, DMSPs have primarily and initially opted for the massive recruitment of consumers (**Aguiar**, 2017) , typically in some version of a free mode with advertising as a business model or introductory discounts, and hence, they have carried out different strategies to convert free users to paying consumers. Some labels may require certain levels of free-to-paid subscriber conversion under licence agreements. After gaining a wide active user base, user retention and loyalty become the core objective for DMSPs: capturing and maintaining the consumer's attention for as long as possible allows DMSPs both to increase the possibility of using the consumer as an asset for advertisers in the advertising-based business model, and to learn enough about them to retain customers who have switched to the subscription payment model (**Towse**, 2020). For the latter, the strategy followed by practically all Internet service providers, not just the music-related ones, is to build personalized offers based on user tastes, preferences and behaviour (**Webster**, 2020). All supported by business smart systems capable of analysing the data generated by the consumers themselves in their interaction with the platform and extracting information by creating consumer profiles, later used to customize the service offer. DMSPs' recommendation system, thus, is based on the preferences and history of music listened to and the consumption pattern of the consumer (and similar consumers) together with proposals from the platform prepared ad hoc by a specialized team and / or related to commercial agreements with third parties, like record companies that generate playlists and content to guide users to a certain genre of music, artist or playlist (**Butler**, 2021).

To meet these business requirements, any DMSP has two main elements from a technical point of view: the consumer interface, which allows the consumer to access and play music in its different modes; and the supporting infrastructure, which is made up of the computer, storage and communication equipment that are in practice responsible for administering, managing and sending the music that the consumer listens to.

The DMSP is configured as a showcase for access to music provided by the platform, based on the tastes and interests identified by the system, ad hoc proposals (which depend on the DMSP's commercial agreements with third parties, such as record companies) and / or user choices, trying to achieve the highest degree of alignment (customization) possible with the real preferences of each consumer. Together with the customization capacity, digital music platforms conduct promotions of certain musical styles, performers, or themes that allow the platform to become an access point to discover new content with which to maintain the user's interest and build loyalty. To achieve this result and offer recommendations tailored to the tastes of each consumer and better musical selections, the leading digital music platforms have considerably invested in music experts and intelligent data analysis systems (**Webster**, 2020) .

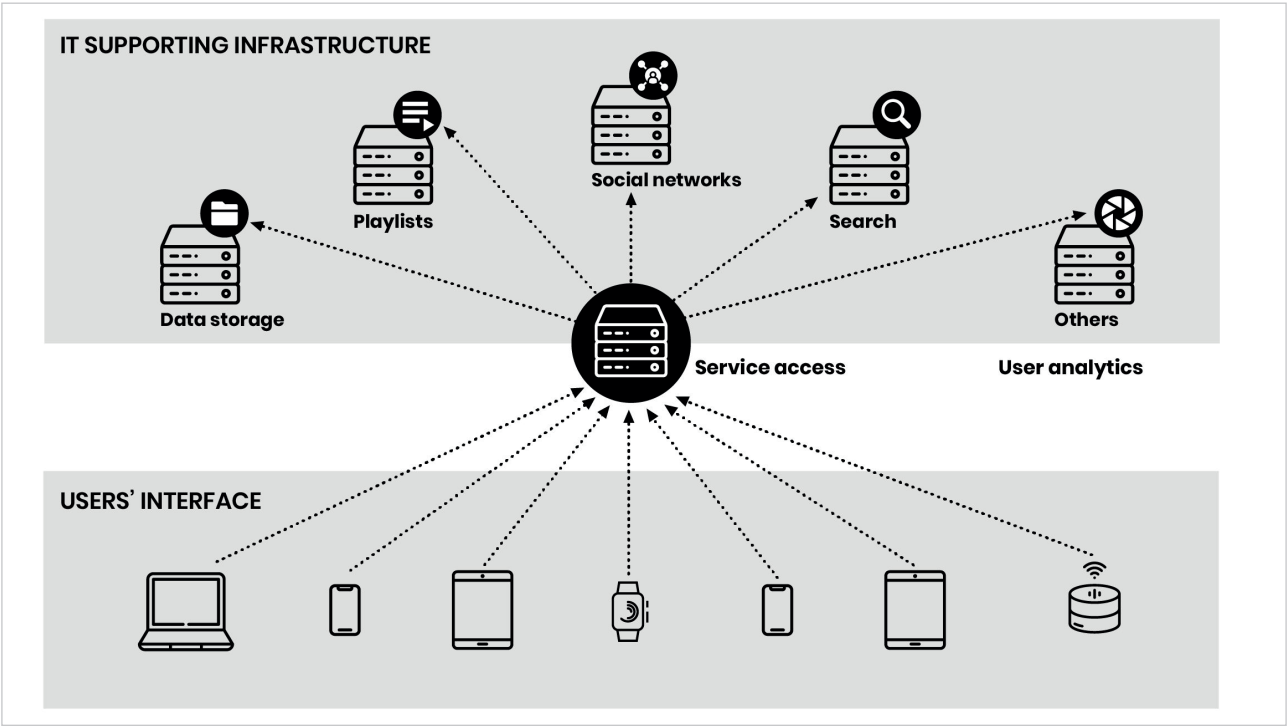

Figure 2. Supporting infrastructure of a digital music platform. Source: adapted from **Gustavsson** (2012) and *Apple Music* (n.d.)

Other relevant aspect of the DMSPs model is how consumers interact with the musical content. The different modes of exploitation of online music are distinguished by the degree of interactivity that users have on the musical content that is hosted on the corresponding platform. In other words, different uses of music consumption involve different degrees of interactivity. And this is important because interactivity and use mean engagement, and hence, a significant contribution of behavioural data to the customization process (**Negus**, 2018).

The interactivity with the musical content on the digital platform ranges from the situation corresponding to an online channel or programme that links musical themes regardless of the user's tastes and preferences, in a similar way to a conventional broadcasting radio service, up to the maximum degree of interactivity that would occur when the user intentionally chooses a specific musical theme to listen to at a certain time and place –in a similar way to the situation corresponding to the acquisition of a musical recording that the user consumes on his/her own device.

While the operation of the DMSP relies on a persistent loyalty and engagement addressed by a recommendation model (**O'Dair**; **Fry**, 2020), the impact of recommendation tools on the distribution of income in streaming business models is an area still to be fully assessed. This automatic or human-managed editorialization of services, the composition of playlists, the algorithms that decide the next title obviously play a major role in the creation of value and the possible royalties attached to it (**Aguiar**; **Waldfogel**, 2021).

According to available studies, fears have been expressed by some representatives of rights-holders as to the opaque functioning of these services (*Centre National de la Musique*, 2021). The quantitative analysis of the distribution of value between recommended and autonomous listening is complex and requires a common and shared definition that is still lacking. In addition, the creation of platforms' own playlists and own tracks might distort the fairness of remuneration to labels and independent performers. For specific rights-holders in categories such as jazz or classical, the competition from tracks created by platforms themselves using their knowledge of user profiles and their influence on playlists might seem particularly unfair (**Ingham**, 2016).

As a an example, **Mariuzzo** and **Ormosi** (2020) have shown that the overall effect of homogenizing the DMSP inventory, due to the above factors, is that major labels' recorded music has a greater share of the most popular playlists, which really drive streams, than they do in the less popular playlists. If the total share of independent labels in the total UK recorded music market is around 30%, the percentage of independent music in the top 100 playlists in *Spotify* (which drive most of the listening streams and are basically curated by *Spotify*) is just 19%. Besides, this lack of access is likely to have a direct impact on revenues for independent labels and their artists today, and an indirect impact on the sustainability of this important segment of the market in the future (**Antal** *et al.*, 2021).

Personalization, interactivity, editorial curation and recommendations, together with the remuneration and distribution framework, are shaping the value creation dynamics in the digital music market. However, beyond some individual protests and recent campaigns launched by performers' organizations, less is known about how this configuration affects their sustainability from the point of view of the performers. From a research perspective, the fact that most contracts are not publicly available because of non-disclosure agreements is a barrier. However, considering that the legal framework in the digital market is under review in different countries, there is room for further clarification on how this industry configuration will impact on future sustainability in the case of creative agents, as is the case of performers.

4. Findings and discussion

4.1. Interactivity, editorial curation and personalization: a performer's view

As explained in the previous sections, a central issue to evaluating the main business models in the digital market is the assessment of the degree and type of interaction of the consumer with the musical content that a DMSP hosts.

The issue at stake is whether interactivity is a relevant component in the differences in remuneration rights for performers across digital music services or whether the degree of interactivity is just a technical feature that, in fact, changes over time, is adapted to the preferred business model of the DMSP and is combined across services in the practical offer of a DMSP.

However, in practice, all the main DMSPs offer a set of modes of exploitation of online music that coexist on the same level as the commercial proposal to the consumer (**Castle**; **Feijoo**, 2021).

The surveyed performers were also in agreement that DMSPs offer a range of exploitation modes, beyond the mere interactivity, as is the case of the editorial curation. In this respect, various performers emphasized the relevance of playlists on discoverability and how they play a pivotal role within the streaming business model that affects the future sustainability of the creative process.

In this respect the issue of 'discovery mode' or similar features that allow performers to opt into a promotional (and less than standard) royalty rate for specific songs is highlighted by non-featured artist #2 as a most controversial issue (**Bloom**, 2021):

> "The playlist inclusion process [in streaming services] should be based on listening merits and not any payola from interested parties". (Non-featured performer#2)

The economic consequence of this not pure interactivity, the remuneration model of streaming, similar to the physical sales model in the case of performers, should be reviewed, as Tom Gray said:

> "Equitable remuneration should apply to streaming because streaming is not only replacing the dominant sales model but also replacing the dominant broadcasting model." (Tom Gray)

In fact, the business model for interactive streaming that has evolved since the *WIPO* Performances and Phonograms (WPP) Treaties combines rights properly compensated under the making available right with the enterprise playlist model that is easily analogized to broadcast radio (WIPO, 1996). While consumers may always be able to use interactive functionality in addition to music discovery enterprise playlists, many users simultaneously take advantage of 'music discovery' or 'lean back' playlists (*Spotify*, 2020).

Because streaming transaction agreements typically sweep all rights under one royalty payment, it is difficult to separately value these functionalities (e.g., one agreement might cover non-interactive Internet radio as a direct licence outside of any statutory framework as well as interactive streaming subject to customary direct licences). Accordingly, responsible copyright policy should recognize that equitable remuneration should consider both simple interactivity and complex algorithmic enterprise playlists.

4.2. Lack of information and reporting transparency and reliability

As a central part of the value creation process, it was important to understand how performers perceive this model and the information on how royalties are distributed. Some performers recognized that they receive some pieces of information and data from DMSPs and/or labels, but they were all in agreement that more transparency is required:

> "I appreciate the information I do receive, but I don't understand the breakdown of where the money is coming from. I do think there should be more transparency." (NA 2-Classical)

Lack of homogenization is an additional relevant issue when talking about transparency, in the words of Keko Yunge:

> "The format of the reports of the different platforms should be unified and they should be obliged to send a report to each artist. That way we could compare the amounts reported by the platforms. We have no way of knowing if the reported executions and amounts are correct!" (Keko Yunge)

In addition, performers noted additional difficulties not only in understanding the information, but also in terms of communication with DMSPs, especially in the case of non-featured artists, as noted by Doug Emery (DE) and non-featured artist #2:

> "No. What's missing is a clear understanding of who to talk to when there is a question." (Doug Emery)
>
> "Direct contact with the platform. Clarity in total volume. There is no API of any store that tells you directly the number of streams –how do we know if the aggregator or label figures are true?" (Non-featured performer#2, 2021)

The consequence is a general imbalance of the business model in the case of performers with respect to DMSPs and even the record companies and/or aggregators.

> "The information is opaque and unintelligible. I miss that there is transparency in the agreements reached by the platforms with the management entities and with the record companies or aggregators themselves. Transparency is also necessary between artists and record companies, since sometimes they do not pay the corresponding royalties correctly." (Ainara Legardon)

These performers' statements are coherent with available studies on data availability, uniformity and reliability provided by DMSPs and record labels (*Centre National de la Musique*, 2021) . Beyond general concerns about the general situation derived from streaming, the majority of surveyed performers do not understand how DMSP distribution models work and what the per-stream rates are in each case. An important part of the value distribution system is opaque to them. The general concern is summarized by Scanner in the statement below.

> "Never. It's impossible to gauge what I actually receive per play or per 100 or 1000 plays. It's not transparent at all." (Scanner)

This is a very common complaint in the case of performers that could be extended beyond the sample under analysis (*Payperformers.Eu*, 2021).

4.3. Asymmetric revenue distribution model

Perceptions of performers identify the DMSP business model as an asymmetric revenue distribution model. **Hesmondhalgh** (2020)as follows: (a refers to it as a 'market-centric' model characterized by the revenue share method of royalty calculations. Because the 'market-centric' model puts all the applicable revenue (i.e., a negotiated contractual definition of revenue that is shared with rights-holders by the service) into a hotchpot divided based on number of plays, inevitably a user will pay for music they do not listen to.

This feature is most observable in a subscription model, where the consumer's monthly subscription fee goes into the defined revenue hotchpot for performer royalties. The typical subscriber pays a fixed fee and listens to a handful of art-

ists relative to the tens of millions of tracks available on the platform. This can be either entirely interactive and without regard to discovery algorithms or enterprise playlists or guided by recommendations.

Even though the consumer only listens to certain performers, the subscription fee is divided by all the performers on the service who were played by other consumers. If the consumer were a classical music fan, she/he might never listen to the pop hits of the day. Yet in this common case, almost all her/his subscription fee would go to performers she/he never listened to and might never listen to. Because those performers typically lack the leverage to negotiate the downside protection of bigger labels, they may end up with less than they would if they received a share of their actual fans' subscription fees.

An additional problem is the relatively static pricing and the rapidly increasing number of available recordings and streams, in what has been defined as the commoditization of music in the digital markets (**Barnett**, 2018) . Those tends to cause royalties to decline over time. In fact, actual figures show that the streaming average revenue per unit (ARPU) is declining. *Spotify*'s aggregated ARPU declined 2% from 2018 to 2019, and industry sources estimate an overall decline of 8% in the streaming ARPU from 2018 to 2019 of the global music industry (**Ingham**, 2021a).

The asymmetry lies in the fact that the economic incentives of this model benefit mainstream music and dominant rights-holders. As a result, major-label superstars derive the bulk of the revenue from DMSPs, therefore directing most of the revenue to the most popular artists regardless of whether a particular fan actually listened to those artists. Together with the commoditization of music, an effect of homogenization of the music inventory is being increasingly observed: the model harms niche artists and local repertoire, given the global dominance of Anglo–American-based DMSPs. As the interviewee Guillermo Bazzola noted, there is an impact of these practices on less commercial genres.

> "The dominant digital music platforms have a tendency to depersonalize the relationship with the user and destroy any audience that is not simply a consumer. The overcrowding of music channels guided by mere commercial criteria threatens the creation of musical culture and hides all that music that is not for mass consumption, such as jazz, ethnic music or progressive rock." (Guillermo Bazzola)

As pointed out before, the core of these consequences lies in the per-stream rates and streaming royalties calculations. In its most basic configuration, the per-stream rate in a period *t* is given by the formula below. It basically depends on the DMSP monthly revenue and total number of streams in the platform, for each accounting period (*t*).

$$\frac{Monthly\ DSP\ Revenue\ (t)}{Total\ streams\ (t)} = Per\ stream\ rate\ (t)$$

It is obvious that royalties are directly proportional to the Monthly DMSP revenue from one specific period (*t*), and inversely proportional to the Total number of streams. For a generic performer (or author/ rights-holder), if the rate of increase in Monthly DMSP Revenue from one month (t_1) to the next (t_2) is less than the rate of increase in the Total streams, the value of that performer's royalty will always trend downwards over time (t_n).

$$Royalty\ (t) = Monthly\ DSP\ revenue\ (t) \times \frac{Nº\ of\ streams\ (t)}{Total\ streams\ (t)}$$

Royalty in the formula above varies from month to month depending on at least three functions:

1. Monthly DMSP Revenue: This is not the gross revenue earned by the DMSP. Any revenue earned by the service that is not defined as Monthly DMSP Revenue is excluded. This could include data-related fees or sales of user data –for example, playlist branding fees, or other revenues. In practical terms, the applicable gross revenue earned by the DMSP is reduced by approximately 50% to be included in the Monthly DMSP Revenue, meaning the service retains approximately 50% of that revenue for its own account. The revenue categories commonly included are cash or non-cash compensation for advertising payments and subscription fees from users but can also include 'non-display' uses, such as e-commerce and referral fees or bounties, a share of traffic or tariff charges, or revenue derived from the sale of data about users (including behavioural data).

2. Total streams: This is the aggregate number of plays of 30 seconds or more of all the licensed recordings on the service. The Total streams is a number that constantly increases at some rate, which likely varies directly with the number of licensed recordings on the service. In fact, Total streams tend to increase over time because of new recordings added to the service under output deals with rights-holders (**Ingham**, 2021b). Once a recording has been uploaded or made available on a service, it is rarely removed.

3. Nº of streams (of a particular performer or author/rights-holder): This is the aggregate number of plays of 30 seconds or more of sound recordings owned or distributed by the recipient of the royalty payment. While this number is also unlimited, it is unlikely to increase at a rate that is greater than the increase in Total streams. Note that the larger the catalogue, the more likely it is that Nº of streams will be a larger number, particularly if the catalogue owner is heavily marketing its artists, thus stimulating demand at the streaming service.

As an additional consideration, the 'market-centric' calculation results in a theoretical per-stream rate for the accounting period concerned. While licences between sound recording owners and streaming services are never based on a fixed per-stream rate as a negotiated deal point, it is helpful to break down royalty payments by service on at least a notional average per-stream payment in order to compare and rank services. Building on these ideas, a compilation of various per-stream rates is shown in the Appendix B. Tables 3-8 include data publicly available from industry sources and/or from performers, and detailed calculations from specific artists from the own survey carried out during the research.

The tables also display how the dominant DMSPs have decreased the theoretical per-stream rates in the last few years. For instance, *Spotify* has moved down from $0.00540 per stream in 2018, to $0.00370 in 2019 and $0.00307 in 2020. This is a reduction of 43% in the two-year period. *Apple Music* has also decreased their per stream rates by 6% in the period 2019-2020 and Amazon saw the highest decline in 2019-2020 with a decrease of 46%.

As displayed in the tables, the streaming royalty is typically very low on a per-stream basis. Even so, it is important to note that this is the gross payment to the label and that it does not typically include any payment to songwriters or music publishers who are paid in addition to and separately from the sound recording royalty. In this respect, there is an increasing concern on how the relationship with record companies impacts on this situation, especially in the case of major labels.

> "The change [in digital music markets] should be that major labels pay a higher percentage to the artists, producers and songwriters." (Independent artist#4, 2021)

As stated, DMSPs pay the royalty to the owners of the master/record. After that, for those cases of signed performers, the record company shares this royalty with the performer according to their agreement. How this royalty is shared by the label with their artists is of some controversy, but it is typically no lower than a 70/30 split between label and artist and is often higher, but not greater than 50/50. Deep catalogue performers may have less favourable arrangements depending on how their contract is interpreted. Independents are typically paid 100% of the streaming royalty as they act as their own label and own their own sound recordings.

Table 2 summarizes the different possible situations, combining featured and non-featured performers with their relationship with record companies –signed or independent artists– and their possible roles beyond merely performing, such as songwriter, creative producer or record label.

Table 2. Performer scenarios of payout in current digital music services

Performer scenarios	From net present value of consumer data profiles	From consumer revenue (reduced from off the top costs)	From total per-stream rate (paid to label or digital aggregator)
Featured independent performers + songwriter	20.31%	57.28%	81.83%
Featured independent performers	17.79%	50.17%	71.67%
Featured performers + songwriter	4.87%	13.74%	19.63%
Featured performer	2.35%	6.63%	9.47%
Non-featured performer	0%	0%	0%

Source: Publicly available Internet information (*Digital Media Association*, 2020) and own survey.

In any of the cases above, non-featured performers are usually paid a one-time buyout fee for their recording services and, in general, they do not receive any remuneration from DMSPs, with some minor exceptions, as commented on by the Non-featured artist #1 and JK Escorcia.

> "The only royalties I receive from platforms such as *Spotify* come through *AIE* [Society of Artists and Performers in Spain]. I do not receive any other royalties from any other country." (Non-featured artist #1)
>
> "Neighbouring rights [in the digital music marketplace] should be worldwide and allowed for all performers." (JK Escorcia)

4.4. The user-centric model

While the asymmetric revenue distribution model is the dominant model amongst the major DMSPs, such as *Spotify* or *Apple Music*, other players apply different approaches to revenue distribution. During 2021, players such as *Tidal* or *SoundCloud* announced they were starting to apply what we may call a 'user-centric' model (**Dredge**, 2021; **Singleton**, 2021). The 'user-centric' model is the clearest alternative to 'market-centric' asymmetric revenue distribution model. It seeks to compensate featured performers on a per-user basis for interactive streaming in order to eliminate the 'market centric' allocation of revenue across all streams.

At the time of writing, none of the proposed user-centric models compensate non-featured performers at all. With respect to featured performers, 'user-centric' offers some benefits, such as ensuring users do not pay for music they do not listen to. For a service to completely change from a 'market-centric' to a 'user-centric' model, the service would have

to renegotiate each of its licences, and the licensor (often a producer) would necessarily have to agree to the change. Because the 'market-centric' distribution is at the core of the licence, producers probably would not agree to the change if it made them worse off. As *Sony Music* has declared:

> "It is extremely important to understand that a shift in reporting methodology [to a user-centric model] will not increase the amount of money artists are paid in the aggregate. It will just shift money from some artists to other artists" (**Stassen**, 2021).

The logic of the two models is very different: the 'user-centric' tracks the user's consumption and matches revenue from the user to the titles he or she listens to; the 'market-centric' is paid into a hotchpot distributed among rights-holders, according to the overall audience of the titles by market. In the first the amount of a consumer monthly subscription, discounted from off the top charges, will be paid to the owner of that recording. However, in the 'market-centric' model, this one stream will be pooled against the total number of streams on the service during the accounting period, generating an income typically less than one half-cent of a euro or dollar. The difference between the two models blurs when the number of plays per user per month increases and when it is averaged across artists.

Mathematically, both systems have a logical impact on the value of every play. Generally, in an asymmetric revenue distribution model, each play tends to have the same value, while in the user-centric model, the value of a stream depends on the number of tracks the subscriber has played. In user-centric, the lower the volume of titles played, the more the value of the plays increases on a per-stream basis as to a particular subscriber. Of course, the actual royalty paid to the artist will still be subject to the existing artist's agreement with the label or directly –through a digital aggregator– if he/she is an independent artist.

From a performer's perspective, total revenue distribution through this model is obviously a direct consequence to consumers' choices, as pointed out in the survey by niche artist #5-postclassical and Tom Gray:

> "I think artists should be paid more for each stream and that fans should pay if they listen to me and not pay bigger artists if they don't listen to them." (Niche artist#5 – post-classical)

> "User-centric payment is the intuitively correct way to distribute income because revenue share fails to reward based upon having built a loyal audience. In fact, it rewards the opposite and is unhealthy for culture. One in five listeners are distributing 80% of revenues. This means the musical taste of four out of five members of our society is actively defunded. Revenue share also takes away the moral rights of the consumer. Presently their subscriptions can go to funding material they may dislike or even find politically and morally wrong." (Tom Gray)

Another relevant effect of the 'user-centric' model is the fight against fraud. This model may reduce the impact of one of the existing click-fraud schemes, which consists of artificially increasing the plays of targeted titles and artists, for example by 'click farms' (**Groves**, 2020) or the use of white noise or undefined sounds to monetize the 30-second inventory pool access (**Davie**, 2021). With the establishment of the user-centric model, fraud could evolve towards the targeting of low-intensity or inactive users or even the hacking of sub-accounts within bundles. The fight against fraud is one of the main governance challenges of music streaming platforms.

One of the most relevant studies on the topic has been developed by the *Centre National de la Musique* in France. It took place in 2020 using data from *Spotify* and *Deezer* and concluded that an eventual switch to a 'user-centric' model would make it possible to make the distribution of income consistent with the respective weight of the different types of music consumers (*Centre National de la Musique*, 2021) . In particular, the study found that the move to a 'user-centric' model could promote a redistribution of income for the benefit of artists, titles and aesthetics to smaller audiences. In this very sense, the 'user centric' model is closer to a symmetric revenue distribution model. According to the study, the shift to a user-centric model would have the effect of greatly reducing the royalties received by the Top 10 artists (-17.2%), stabilizing the middle of the ranking with a small increase in royalties received, and allowing the artists the least listened to (>10,000th rank) to benefit from an increase in their royalties (+ 5.2%). In terms of musical genres, classical music (+24%), hard rock (+22%), blues (+18%), pop rock (+17%), disco (+17%) and jazz (+ 10%) would benefit from significant increases in percentage, while rap (-21%), hip hop (-19%) and, to a lesser degree, Afrobeat (-9%) and New Age (-7%) would see their royalties drop. Back catalogue would see a modest increase in royalties (+3.2%). In addition, the switch to the 'user-centric' model could encourage a strengthening of the back catalogue market share (current policy being released prior to 18 months).

According to that same study, the development of the 'user-centric' model would be the responsibility of the platforms. It is anticipated that the royalty accounting for 'user-centric' would be much more complex than the current model, plus the services have years of operational costs amortized in the current system. These operational costs may be too expensive to be absorbed by smaller platforms and could be passed on throughout the value chain, potentially resulting in lower royalties, resulting in further asymmetries. The beneficiaries (distributors, producers, collective management organizations) should in that case also bear the costs of verifying the reports submitted by the platforms –that is, the operational costs linked to the weightings carried out at user level for the user-centric model calculations.

As a final remark, it must be said that none of the user-centric models currently on offer expressly compensate non-featured performers, since they just involve a different way of distributing income from the consumers' subscription, but not a different framework.

5. Conclusions

The main aim of the paper is the examination of the sustainability of the current business models in the incumbent music streaming platform services. To do this we have identified the revenue distribution logics of the dominant existing models and assess them from the perspective of the performers, understood as key players in the value creation process. Findings highlight performers' insights from a purposive and representative survey on their current situation and complemented with desk research from industry sources.

In this respect, performers' concerns can be summarized as involving three main issues:

(i) the lack of transparency from DMSPs and/or rights-holders;

(ii) the 'market centric' royalty allocation; and

(iii) the general imbalance within the current music industry, especially regarding the received remuneration in the digital sphere. These concerns and difficulties are especially marked in the case of non-featured performers.

The research conducted shows that the main DMSPs combine consumption modes considered not fully interactive, that is, they require a limited degree of interaction by the consumer, together with modes of full interactivity, in which the consumer decisively intervenes to reproduce a certain musical theme. There are overlapping modes of consumption based on recommendation engines and automatic or human-managed editorialization of services. In practical terms, performers emphasized the relevance of this type of editorial curation on their discoverability within the platforms. A new form of intermediation emerges: a few DMSPs concentrate significant market power while they have an increasing influence on the consumers' behaviour, and they are even launching new features that allow performers to opt into a promotional –minor– royalty rate for specific songs to gain visibility (**Aguiar**; **Waldfogel**, 2021).

From a business model perspective, the research conducted for this study shows that the most asymmetric revenue distribution model, the 'market centric' model of royalty payment, is used by all dominant DMSPs, with the result that, even though the consumer only listened to certain performers, his/her subscription fee is divided with all the artists on the service who were played by other consumers, benefiting mainstream music and dominant rights-holders over niche artists and local repertoire (**Aguiar**; **Waldfogel**, 2021; **Antal** *et al.*, 2021). The main alternative model, named the 'user-centric' model, has been recently adopted by *Tidal* and *SoundCloud*, two second-tier DMSPs in terms of subscribers and revenues. Although this is more capable of revenue distribution symmetry, it should be taken into consideration that there is no one-fits-all solution.

These findings allow several factors determining the non-sustainability of current DMSP business models to be identified, the most relevant of them being the exclusion of featured performers and, even more dramatically, non-featured performers from the revenue distribution dynamics.

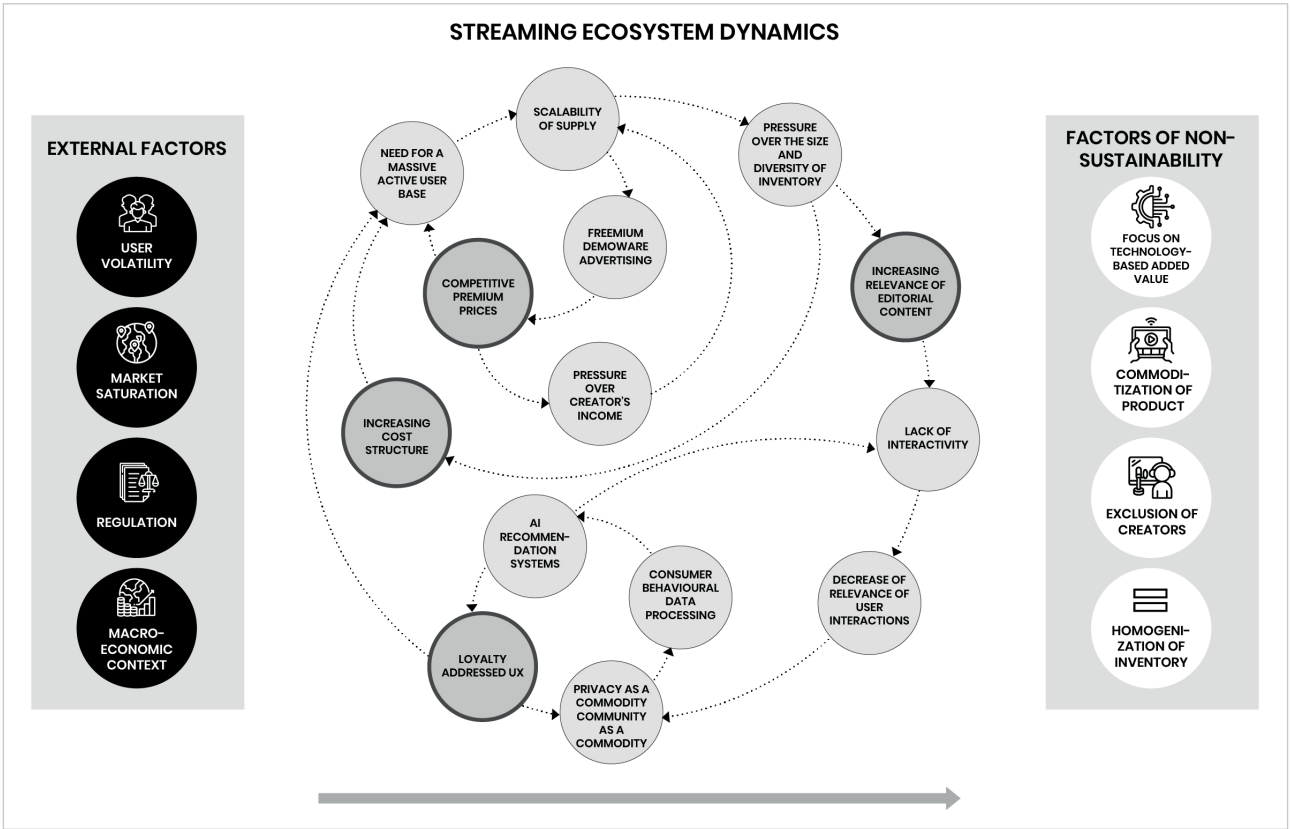

Figure 3. Streaming ecosystem dynamics and factors of non-sustainability

Connections amongst external key factors typical to digital economies (mainly volatility of users, specific regulation and market saturation), streaming ecosystem dynamics and factors of non-sustainability in DMSP current business models are summarized in Figure 3.

Identified non-sustainability factors result from characteristic circularities within the value creation process: for instance, the exclusion of creators (performers) appears to be the result of the pressure over the performer's income triggered by a loyalty-addressed system in which the scalability of supply determines the need to the unlimited enlarging of the size and diversity of inventory (**Ingham**, 2021b).

Another example is the focus on technology that plays a key role in the DMSP business model innovation. AI-based recommendation systems allow the matching of supply and consumers' preferences and profile, and in so doing the creation of value is displaced from creative diversity to customization at the distribution level. The confluence of a loyalty-addressed user experience and an unlimited growing inventory results in an additional pressure to generate value through the exploitation of users' behavioural data. A consequence of that, as has been said, is the lack of interactivity in the content experience and the increasing relevance of editorial content.

Finally, the way in which value is calculated and distributed in the DMSP ecosystem brings forth two additional non-sustainability factors: the homogenization of inventory is a direct consequence of the 'market-centric' model that puts gross revenue into a hotchpot distributed among rights-holders, according to the overall audience of the titles by market. Paradoxically, under the logics of the current digital music business model, the size and diversity of the inventory are not functions of value. In addition, with performers excluded from the value creation process, and revenue calculation dissociated from the actual interaction between performer and customer, music content becomes progressively commoditized. The relevance of different forms of fraud in the DMSP current environment is an observable symptom of that commoditization process (**Leight**, 2019).

All in all, results and conclusions in the paper are framed as a synopsis of the fast-moving economic and technological landscape in the music industry. As main contributions, the paper provides a theoretical explanation on how royalties are distributed by DMSPs. It also gathers a relevant sample of real 'per-stream' rate calculations and their evolution over time and explains how this relates to business model non-sustainability. We believe this could be used as actionable knowledge for artists and performers and other stakeholders. As this kind of information is not publicly available so the paper also contributes to the transparency of the music industry. The results also suggest some interest in applying this kind of creator-oriented research to the sphere of video streaming platforms, contributing to the assessment of business model sustainability in other digital platforms and its relation to the place culture creators have in the ecosystem.

The main limitations are due to the nature of the sample, in this case limited to recording artists and performers. The controversies around the sustainability of the current business models in music streaming also concerns other rights-holders such as authors and/or composers, so further research could include their perspective in the analysis. In addition, the paper studies the dominant business models considering the incumbent DMSPs according to their current market relevance. Future works could include other already existing alternative models / DMSPs, as in the non-exclusive examples of micropayments (e.g., *SoundCloud*), digital sales/downloading (e.g. *Bandcamp*) or even the new wave of decentralized streaming models (e.g. *Audius*). From the point of view of the performers, these models could potentially involve more control and empowerment, monetizing their artist–fan relationships more directly, making them less dependent on the intermediaries (DMSPs and/or the rightsholders) at the expense of bearing a higher degree of risk. Whether and how these experiences may conform more sustainable business models for digital music and, particularly, for creators, remains yet to be explored.

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7. Appendix

A. Questionnaire for performers

1. Could you share with us your artistic name?

We need to know who is answering in order for us to make sense of the survey statistics. There will be no mention of your (artistic) name in our final report unless you give us permission at the end of the survey. We guarantee the confidentiality of your answers.

2. Could you provide us with an email address?

We will send you your answers after you complete the survey, so you can check and/or modify them.
You will also receive a copy of the report when finished.

3. How would you describe your activity in music? Out of all the recordings you have been part of, which is/are the most recognized?

Examples of music profiles (non-exclusive): solo artist, featured artist, session musician, producer, songwriter, arranger, composer, teacher…

4. What music genre(s)/style(s) would best fit your music career?

We are aware it is difficult to accurately describe your music. We can give you examples of some of the main genres/styles, as categorized by *Allmusic*: African, Asian, Caribbean, hip-hop, classical, electronic, jazz, blues, pop, rock, other.

5. In which continents and countries have you mainly worked in the last ten years?

Examples: Africa, Asia, Europe, South America, USA, Oceania // United Kingdom, Nigeria, Australia, Argentina, China…

6. How has streaming affected your income over the last five years?

A. Increase in income
B. Decrease in income
C. Income has remained constant

7. How has the pandemic affected your music-related income over the last twelve months?

A. Increase in income
B. Decrease in income
C. Income has remained constant

8. What type of relationships have you with record labels?

a. Currently signed with a record label
b. Currently an independent artist
c. Session musician, usually I do not sign a contract with a record label
d. Other

9. Who do you receive your payments –in the digital market– from? (record labels, digital aggregators, collective management organizations, digital platforms, other)

10. Do you know from which digital music platforms do you receive payments from? (*Spotify*, *Apple Music*, *Amazon Music*, *QQ Music*, *YouTube*…). Please rank them in order of relevance if possible.

If so, please specify which are the most relevant platforms.

11. Do you know how many times are your songs played annually and the last year's income you have received at those digital platforms?

For example:

Total number of plays at *Spotify* during 2020: 1 million

Total income received from *Spotify* during 2020: XX €/$ (or local currency)

12. Do you think you receive enough information (transparent, clear and understandable) about the amount of money you get paid from digital music platforms? What do you think is missing?

13. Do you know how long does it take for you to receive payment once your music is played in a digital music platform?

14. Do you think streaming platforms pay main artists fairly?

A. Yes
B. No

15. Do you think streaming platforms pay musicians and performers fairly?

A. Yes
B. No

16. What do you think should change in the digital music market so that artists and performers receive fair compensation for their music's consumption?

17. Do you give us permission to include your artistic name in the report and associate it with your answers?

Unless with your permission, your answers will be treated with confidentiality and presented anonymously.

18. Do you give us permission to mention your artistic name in the report as one of the artists/performers that has taken the survey?

Unless with your permission, there will be no mention of your name on the list of artists/performers that have taken the survey, included in the report.

Thank you for your contribution.

You will receive an email with your answers and our contact information, in case you have any enquires.

B. Per-stream rates

Table 3. Total average artist per stream rates (2017-2020). Source: Publicly available Internet information (**Sánchez**, 2018; *The Trichordist*, 2020) and own survey.

Total average per stream rates	2017	2018	2019	2020
Xbox			$0.02730	
Napster / Rhapsody			$0.01682	$0.01900
Tidal			$0.01284	$0.01250
Apple Music	$0.00640		$0.00783	$0.00735
Google Play Music			$0.00611	$0.00676
Deezer		$0.00560	$0.00624	$0.00640
Amazon			$0.00740	$0.00402
Spotify		$0.00540	$0.00370	$0.00307
Pandora Premium		$0.00110	$0.00134	$0.00133
YouTube	$0.00060		$0.00074	$0.00069

Table 4. Average no. of streams to make 1$ (2017-2020). Source: Publicly available Internet information (**Sánchez**, 2018; *The Trichordist*, 2020) and own survey.

No of streams to make 1$	2017	2018	2019	2020
Xbox			36.63	
Napster / Rhapsody			59.45	52.63
Tidal			77.88	80.00
Apple Music	156.25		127.71	136.05
Google Play Music			163.67	147.93
Deezer		178.57	160.26	156.25
Amazon			135.14	248.76
Spotify		185.19	270.27	325.73
Pandora Premium		909.09	746.27	751.88
YouTube	1666.67		1351.35	1449.28

Table 5. The maths of artists' royalties' calculation. Source: Publicly available Internet information (**Sánchez**, 2018; **Escribano**, 2020) and own survey.

Cases	Rufus T. Firefly - Magnolia	Zoe Keating	Independent artist	Independent artist	Independent artist	Artist	Artist
Platform	*Spotify*	*Spotify*	*Amazon Unlimited*	*Amazon Cloud*	*Pandora*	*Spotify*	*Napster*
Collection year	2017	2019	2019	2019	2019	2019	2019
Time span (years / months)	3	1	1	1	1	1	1
Country of origin	Spain	US	US	US	US	US	US
Number of plays	8,000,000	206,011	112,353	103,792	15,783		
Total payout	€20,000.00	$753.00	$1,351.77	$414.31	$41.15		
Total per stream rate	€0.00250	$0.00366	$0.01203	$0.00399	$0.00261		
Distribution/aggregator company share	30%						
Total artist per stream rate	€0.00175	$0.00366	$0.01203	$0.00399	$0.00261	$0.00235	$0.00850
Total artist yearly payout	€4,667	$753.00	$1,351.77	$414.31	$41.15		

Table 6. (cont.). The maths of artists' royalties' calculation. Source: Publicly available Internet information (**Escribano**, 2020; How would you fix music streaming? (2021); **Jones**, 2021; *UK Parliament* (2021a; 2021b) and own survey

Cases	Olivia Rodrigo – Drivers License	*Allova*	*Sony*	*Sony*	*Sony*	Artist
Platform	*YouTube*	*Spotify*	*Spotify Premium*	*YouTube*	*QQ Music*	*Spotify*
Collection year	2021	2020	2020	2020	2020	2020
Time span (years / months)	1	1	1	1	1	1
Country of origin	US	Spain	UK	UK	China	Latin America
Number of plays	581,000,000	4,000	1,000	5,479	13,333	2,750,000
Total payout						
Total per stream rate						
Distribution/aggregator company / share						30%
Artist royalties deal with record label			25%	25%	25%	
Total artist per stream rate	€0.00058	€0.00375	€0.00117	€0.00021	€0.00009	€0.00305
Total artist yearly payout	€341,501	€15	€1.17	€1.17	€1.17	€8,399.5

Table 7. (cont.). The maths of artists' royalties' calculation. Source: Publicly available Internet information (**Dredge**, 2021) and own survey

Cases	Independent artist	Keko Yunge	Beggars Group	WMG / UMG	JKEscorcia	Independent artist	Independent artist
Platform	*Spotify*	*Spotify*	Several platforms	Several platforms	*Spotify*	*Spotify*	*Apple*, *Spotify*, *Amazon*, *Deezer*, *Sound Mouse*
Collection year	2020	2020	2020	2020	2020	2020	2020
Time span (years / months)	1	1	1	1	1	1	1
Country of origin	Colombia	Chile	UK	UK	US / Colombia	Asia	UK
Number of plays	1,000,000	800,000	1,000,000	1,000,000	100,000	500,000	50,000,000
Total payout							
Total per stream rate							
Distribution/aggregator company / share	30%						
Artist royalties deal with record label	Independent	Independent	25%	20%	Independent	Independent	Independent
Total artist per stream rate	€0.00384	€0.00433	€0.00232	€0.00116	€0.00340	€0.00340	€0.00092
Total artist yearly payout	€3,384	€3,467	€2,322	€1,161	€339.5	€1,701	€46,017

Table 8. (cont.). The maths of artists' royalties' calculation. Source: Publicly available Internet information and own survey

Cases	Independent artist
Platform	*Spotify*
Collection year	2020
Time span (years / months)	1
Country of origin	Europe
Number of plays	1,200,000
Total payout	
Total per stream rate	
Distribution/aggregator company / share	30%
Artist royalties deal with record label	Independent
Total artist per stream rate	€0.00336
Total artist yearly payout	€4,030