

## THE ADDED VALUE OF MAKING MUSIC ACCESSIBLE. FROM SERVICE TO PRODUCT AND BACK

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**Abstract.** *Technology is rapidly changing business models in the cultural-creative sectors, challenging the way availability, marketing and revenues work. From a business innovation perspective, the history of music distribution has always followed the trend of making it accessible but also profitable. Creative breakthroughs in software technology have made it possible for intermediaries to distribute music to huge crowds all over the world. The emergence of on-demand streaming platforms such as Spotify or Deezer has transformed the idea of purchasing music from a pay-for-song model to a payed subscription model, causing controversies on the sensitive topic of intellectual property rights and royalty payments. However, the benefits of streaming music using these platforms translate in increased usage and therefore, higher revenues on scale. This paper offers an overview of the innovative business models of the online streaming music industry, concentrating on the unique added value new platforms offer, namely transforming unpaid consumption into payed subscription. We start with a short background of the major developments of music as an art, from an elitist attribute to a large-scale available service. A short review of the innovations in music distribution in the last centuries is performed in order to make it possible to differentiate between the major services existing today. For the applied section of this paper, we look at the increased usage of interactive streaming platforms such as Sirius XM, Pandora and Spotify, and correlate the data with their global revenues. Authors also look at the data regarding music piracy in order to assess if there is a negative impact of the on-demand streaming platforms on piracy practices. Conclusions are drawn regarding the impact of on-demand streaming platforms on overall usage, with a focus on the need to further develop business models that make the music industry both profitable and sustainable in the long run while simultaneously allowing for world-wide accessibility.*

**Keywords:** *creative sectors; music industry; Spotify; Deezer; business innovation.*

## Introduction

The history of music and especially music distribution is maybe one of the most fascinating stories there are. With historians estimating its appearance 35,000 years ago (Wilford, 2009), music has become an essential part of people's major life events in ancient Greece, and its primitive recording using reproduction instructions dates back to 1200 B.C in the Babylonian era (West, 1994). The so-called "modern tradition" of listening to live music has its origins in the European Middle Ages, where pipe organs were first used in Churches for Gregorian chants, and where later classical music developed (Zantal-Wiener, 2017). The idea of consuming music independently from an event and without somebody live-playing it appeared with Thomas Edison's 1877 invention of the phonograph, which made it possible to record music (Edison, 1878). This is when the original transformation of music from service to product first took place. Around 1890, once phonograph parlours appear, wealthy people could pay money to listen to a recorded-song, using a primitive juke box-like machine. Once the first record shops appear in the UK so did the practice of signing artists to record label companies, and thus, in 1909 the idea that royalties from record sales should be paid not to the performer, but to the music writer and publisher of the song (United States Congress, 1909), a practice used until today in the music distribution industry. Between 1914-1921 record sales had witnessed a 100% increase only to then fall dramatically once radio broadcasting of music had started (Morton, 1964). Radio already meant the return of music to the state of service, while continuing to be a product as well, once the vinyl became popular, followed by cassettes and compact discs. Radio never went extinct although it has gone through periods of decline in popularity. Radio kept coming back by leveraging the desire of consumers to discover and distribute new music, at first in analogue format, then digitally, giving people the advantage of not having to deal with storage issues, either in physical form for traditional media or in digital form for downloaded content. Pandora was born, combining the benefits of traditional radio with the personalisation features enabled by digital software technologies. The most innovative feature of internet radio was surely personalization and the possibility to use smart algorithms to figure out what each customer might enjoy listening to (Zantal-Wiener, 2017). Monetizing this "free" business model was easy, as ads were introduced in-between songs which led to the development of a customer base paying for premium ad-free accounts. What Pandora lacked, and it was mostly due to its marketing as a for-discovery platform, was the possibility to look and browse for a specific song. And this is what made room for the innovations brought forth firstly by the likes of iTunes or Google Play Music which offered the possibility to quickly look for songs and listen to them in exchange for money. The bigger innovation however came from Spotify, a platform released in 2008 which outranked most its competitors including Pandora (Geddes, 2016).

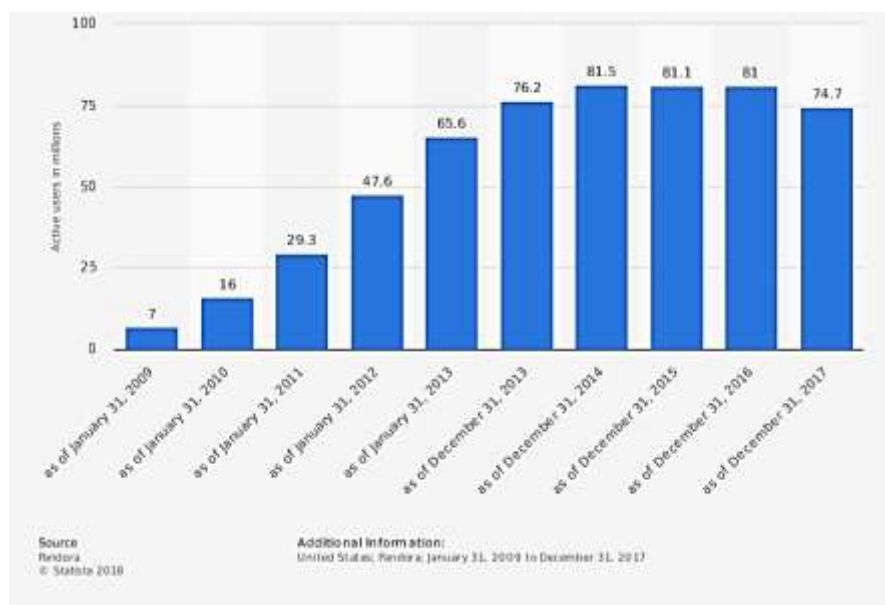
Based on this condensed history of music distribution we can identify a few major patterns. The first one is that music started as a service only to later transform into a product, as a result of the advancement of recording technology. Later on, new technologies have made it possible to stream music and develop new business models based on the sale of a service or an experience and not necessarily a music product. However, music as a product came back in the shape of iTunes to again switch to be distributed as a service using Spotify or Deezer. Most of these changes happened simultaneously and they did not exclude each other. Since old-fashioned vinyls have never gone extinct because they are still produced and bought by collectors and fans,

there is no hint that music's future is based on a service-type model. The other important aspect to be acknowledged is that the major breakthroughs in the music distribution industry were accompanied by innovative business models. We've started from paying the performer of the live music to paying music publishing houses for distributing song sheets (Voice, 2014), followed by decades of paying royalties to song writers and publishers either through national societies of composers, authors and publishers in the radio era or, paying directly to the music rights holders in the Spotify era.

### Understanding the business models behind streaming services

Before discussing the strengths, benefits and weaknesses of the different business models that are used in today's music distribution industry, one should look at the rationale behind the most used services within the field. The most popular streaming services can be divided in three main categories (Marshall, 2015): webcasting or streaming radio, locker services and on-demand.

The first category ranges from traditional radio services that have moved to the virtual space to online-designated less personalized stations that can offer the possibility to choose specific genres or artists - such as SiriusXM - (What is SiriusXm?, 2018) to finely and thoroughly personalized content - such as Pandora, a platform available in the US only, which uses the Music Genome Project adding up to 450 musical attributes to each song (About The Music Genome Project®, 2018). As mentioned earlier in this paper, Pandora does not allow users to choose a specific song, which means it's non-interactive (Marshall, 2015).



**Figure 1. Number of Pandora's active users from 2009 to 2017 (in millions)**

Figure 1 shows the evolution in the number of active users on Pandora. Although a 6 million decrease in active users has been recorded between 2015 and 2017, the continuous increase in revenues in the same period (Figure 2) suggests a growing interest in their paid services and an impressive transformation of free riders into

paying subscribers. Financing Pandora is mostly done through advertising – for the free accounts – and through paid subscriptions of \$9.99/month/user.

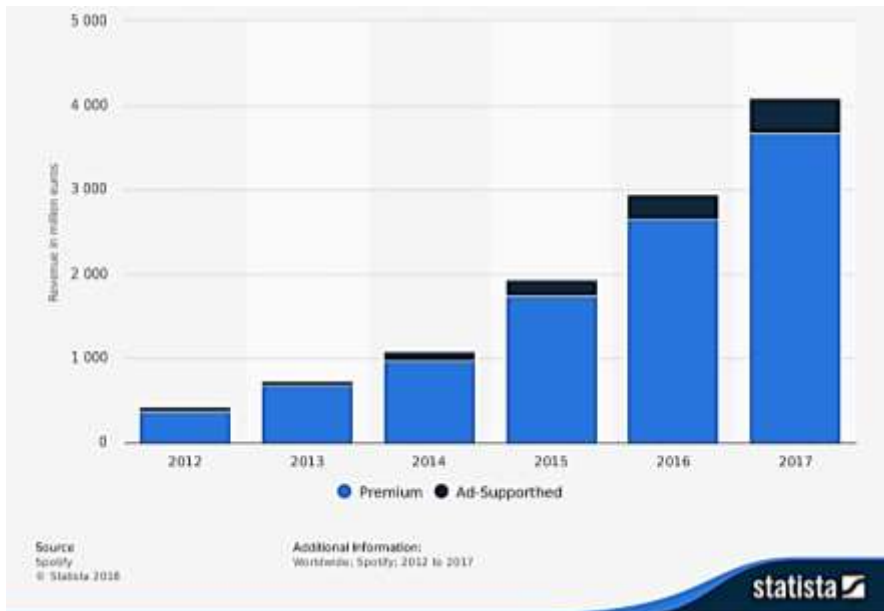


Figure 2. Pandora's revenue from 2006 to 2017, by source (in million U.S. dollars)

The latest announcement regarding the acquisition of Pandora by SiriusXM (SiriusXM, 2018) for \$3.5 billion could create the biggest audio entertainment company, outranking YouTube and competing with owned music in the share of audio time that American adults spend on different sources (Figure 3).

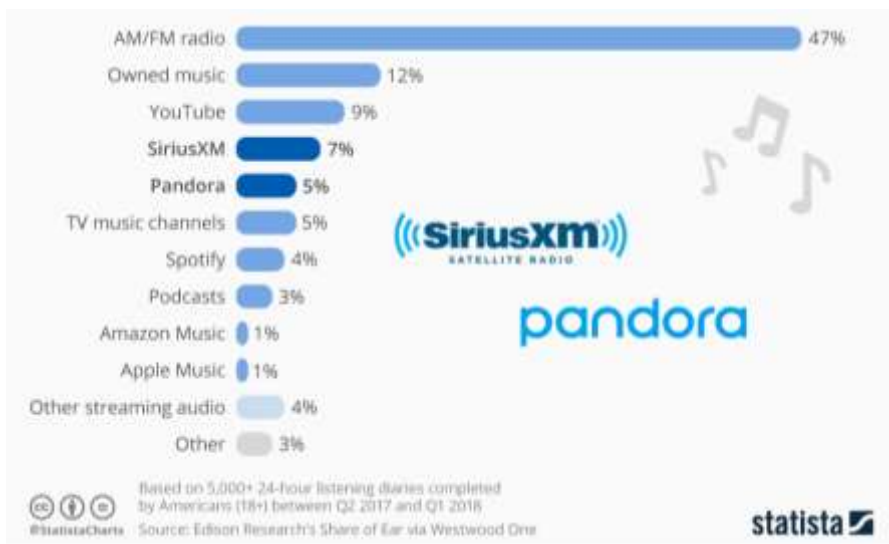
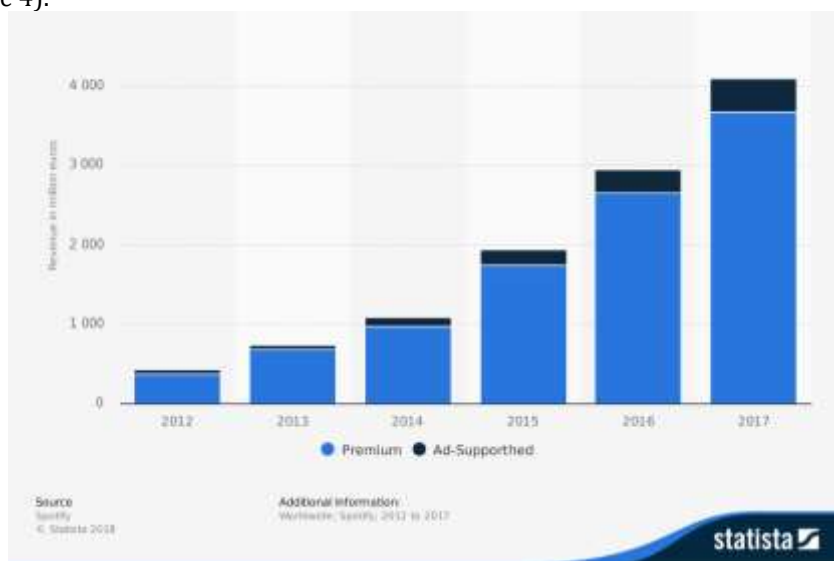


Figure 3. Share of audio time American adults spend with different content sources

The second type of streaming services described by Marshall (2015) are the so-called locker services provided by either iTunes, Google Play Music, Amazon etc. Although the

main innovation provided by these platforms is ease of access, as suggested in Figure 3, their share in time and usage is relatively small. This can be explained by the average costs of downloading a song which in 2011 was around \$1.29/song (Dediu, 2011). The third category, and the main focus of our paper, is made up of on-demand streaming services. Similarly to Pandora, they offer personalised content but also the possibility to choose what music gets played. Interactive platforms such as Spotify or Deezer have gained a lot of popularity especially because they have entered the global market, while Pandora and SiriusXM remained US-only. Spotify is funded through both advertising and premium accounts/subscriptions and the latter surprisingly outweighs the former (Figure 4).



**Figure 4. Spotify's revenues from 2012 to 2017, by segment (in million euros)**

One of the smart business decisions undertaken by Spotify has been to establish different subscription prices for countries worldwide. Although available in 65 countries on all continents (Spotify, 2018), prices differ and are most-likely adjusted to the purchasing power of the individuals. Hence, prices for premium subscriptions range from \$2.42 in Indonesia to \$3.44 in the Philippines and from \$5.78 in Romania to \$11.18 in Sweden and \$9.99 in the USA (Peoples, 2018; Singers, 2014). Furthermore, for some countries such as Thailand a 1-day subscription can also be purchased (Peoples, 2018). As features, Spotify builds on existing technology, combining both the attributes of personalized for-discovery Pandora-like webcasting services through its song radio function, with the iTunes ease of access for specific artists and songs, all at reduced prices.

### Literature review

One of the most discussed topics in the field of streaming research relates to the impact new streaming platforms have on sales. Derouzos' (2004) study demonstrates that radio airplay has a positive effect on music sales. Aguiar and Waldogel's (2015) study suggests that the Spotify and Pandora business models resemble terrestrial airplay stations as a result of their musical discovery feature. However, we would note that while terrestrial radio stations might determine the consumer's desire to buy an album after hearing it

on the radio, a digital app such as Spotify might influence the consumer to replay the song, which is something that changes the entire logic of their argument. Kretschmer and Peukert (2014) are arguing that the presence of an artist or band on YouTube increases the sales of their music, while McBride (2015) finds that sales decrease in areas where certain songs are not played. This can be explained using the marketing factor. If the majority of consumers listen to their music using a certain distributing source, then, the absence of an artist – especially a debutant – from that platform translates to lower reach and thus, lower sales.

Moving on to the impact of streaming on revenue, Aguiar and Waldfogel (2015, p.7) argue that:

*„While sales stimulation is sufficient to demonstrate a positive impact of streaming on revenue, a negative impact of streaming on permanent sales - sales displacement - is not sufficient to demonstrate that streaming reduces revenue. Because Internet radio services pay rights holders for streams, the effect of streaming on revenue depends on the rate of sales displacement.“*

From this perspective, streaming platforms that are appealing legal alternatives to piracy can incentivise consumers to pay the subscription and therefore, contribute to the artist's compensation. However, their conclusion is that while Spotify decreases piracy and increases revenues, the results are in fact offset through the decreases of sale-acquired revenues (Aguiar & Waldfogel, 2015). In our opinion, the results of the study don't imply a correlation between the two, as there are other factors affecting the sale of permanent downloads, such as the existence of more cost-effective alternatives that also allow for the discovery of less-known artists.

The controversy regarding on-demand platforms revolves around the problem of royalties and it involves the argument of decreased sales of records. Spotify's response to the controversy was that the royalties artists receive from Spotify are in accordance with the contract they have signed with their respective record labels (Marshall, 2015). Similarly to radio stations, Spotify pays distributors and not artists (Stahl, 2013). The problem in this case is not the relationship between the artist and Spotify but between the artist and their distributor/producer.

### **A model for understanding revenue streams**

A great deal of data is available, in particular to service providers like Spotify, Deezer, Apple or Google which can be used to assess the transfer of customers, and revenue, between companies and distribution channels in general. The following is a description of a model used to determine potential revenues within the music industry more accurately. While our model is still susceptible to errors generated by overly-inflated estimates regarding losses to piracy that are usually circulated by recording industry associations, artists, and record labels alike, due to its usability at the level of individual artists we hope it will generate valuable results for business decision makers in the field. On an industry-wide level it has the potential to shed some light on whether or not actors in the music industry are behaving efficiently and intelligently by pursuing their best interests.

## Methodology

The foundation of our model was a price differentiation mechanism aimed at maximising revenue on the global market. One such model is already employed in practice by Spotify, as mentioned previously, by charging different amounts for the same service depending on the country of residence of the customer. Rather than attempting to apply price optimisation to the prices of a music distribution service that already uses differential pricing, we looked at price differentiation and optimisation from the point of view of the music creators themselves. Doing this meant that we could not treat music as a homogeneous product, as Spotify does, instead we would also have to account for product differentiation. A similar model covering some of the aspects required for this kind of differentiation has already been developed by Gallego and Wang (2014) in their work on multiproduct price optimization and product-differentiated price sensitivities.

For the purpose of our study we assume that the quantity of music ( $Q_M$ ) purchased globally is the result of a function of price and convenience, where convenience is not a coefficient but a score that can be used for ranking sales channels.

$$Q_M = f(\text{price}, \text{convenience})$$

By using a very simple function based on supply and demand we chose to express this function as:

$$Q_M = (1 - NRP) \times C \div p$$

where:

$NRP$  - natural rate of piracy

$C$  - convenience score

$p$  - price

The music revenues generated by a particular artist are the sum of revenues obtained through the various distribution channels.

$$R_M = \sum_{i=1}^n Q_{C_i} \times p_{C_i}$$

where:

$Q_{C_i}$  = quantity sold through channel  $i$

$p_{C_i}$  = price for channel  $i$

By substituting quantity from the first formula into the second we can single out the convenience score as the determining factor for revenues across sales channels.

$$R_M = (1 - NRP) \times \sum_{i=1}^n C_i$$

As a corollary of the above we can also deduce that the convenience score should be computed as the amount of revenues generated by an artist from a particular channel weighted against the natural rate of piracy ( $NRP$ ). The resulting formula can be used bidirectionally, to compute potential revenues and convenience scores based on actual revenues, depending on which data we have at our disposal first.

$$C_C = \frac{R_C}{(1 - NRP)}$$

where:

$$C_c = \text{Channel Convenience Score}$$
$$R_c = \text{Channel Revenues}$$

The formula in this form is only applicable to the sales of an individual artist due to product differentiation constraints.

The key component of our model, one whose computation proved to be extremely problematic, is the natural rate of piracy (NRP). We initially tried to determine the NRP based on a behavioural model (Gopal et al., 2009). This approach did not yield reliable results due to the lack of data on the matter and the high level of uncertainty with regards to the accuracy of the available data. People are simply inclined to misrepresent their behaviour when they are polled with regards to their potential illegal activities. The NRP was computed as a global coefficient based on data from the IFPI (2000, 2016) and RIAA (2015, 2016, 2017, 2018). To counter potential bias, the data was adjusted based on observations detailed in Smith and Telang (2012), and, in particular, in Andersen and Frenz (2010) and Hammond (2014).

The final NRP computation was done by using data points regarding global sales volume (GSV), average song price across all formats (ASP), and piracy rates (according to RIAA and IFPI) between 1999 and 2018. Our linear model provided us with a marginal rate of increase in sales, in relation to decreases in price, of 1.225. As part of our preliminary simulations we chose to estimate NRP for an ASP of \$0.00001, where NRP was 9.75%, and for an ASP of \$0.000001, in which case NRP was 8.91%. The minimum value of the rate of piracy was 8.9% which is the NRP we have used for the remainder of this research.

Finally, all components of the model benefit from increased accuracy when applied to a multitude of artists, as some factors, like the natural rate of piracy (NRP), are expected to fall within a set range, close to the one estimated for the entire industry above, even when they are computed for individuals.

## Results and discussion

Through the development process of our methodology we were able to conclude that any determination of global revenue potential is highly dependent on the natural rate of piracy (NRP), or, in other words, how much music piracy would still occur if all music could be obtained for a price approaching \$0.

According to the IFPI Music Consumer Insight Report (2016) 35% of Internet users access unlicensed music content while 71% of Internet users actively consume licensed music other than radio. These figures are particularly interesting if we compare the percentages to the IFPI Music Piracy Report (2000) in which it was stated that “one in three recordings worldwide is pirate”. Although the language used by the IFPI is still strong and the percentages in the two studies set 15 years apart are similar it is important to realise that they show a completely different situation. Music piracy these days is declining continuously due to the proliferation of on demand streaming services. 35% of Internet users accessing unlicensed music translates to as little as 6% and no more than 18% of all music globally being pirated. That is a 50% decrease in piracy compared to the year 2000 even under the worst-case scenario.



To eliminate alternative explanations for these incredible developments in the music industry we hypothesised that they might be caused by an increase in global purchasing power or a decrease in the average price of music. Both of these hypotheses were quickly laid to rest. While global purchasing power has experienced significant variations, both up and down, during the timeframe, these variations were much smaller in amplitude and did not correlate with the decrease in music piracy over the same period. The average price of music has actually increased by a factor of 3 (Oxenford, 2009). We found the overall data, and a few high-variance subsamples, to confirm the relationship between music consumption and convenience.

We were able to obtain channel-segmented revenue data from 5 song writing artists whose music is available on Youtube, iTunes, Spotify, Soundcloud, Deezer, in stores, and through radio, TV and cinema deals, brokered by the relevant composer representative bodies in their respective countries. Not all 5 artists were present on all 6 channels. Based on these we were able to compute convenience scores as follows:

**Table 1. Singer / Song Writer – Distribution channel convenience scores (Source: authors' own research, 2018)**

Convenience Convenience							
Artist	YouTube	iTunes	Spotify	Sound Cloud	Deezer	In Store	Radio & TV
A1	289394	7388	167489	1239	2455	4638	
A2	288300		147723	2394			141244
A3	290001	8929	163992	1445	3499	12927	34099
R1	278002	3776	99212			281	673
R2	283734	8877					721

All the artists that took part in our research have music on YouTube, which makes sense as YouTube is by far the most convenient distribution platform, bringing the most revenues to artists showcasing their work. The convenience scores for YouTube were also the most homogeneous, which is probably explained by the YouTube monetization mechanism. Spotify comes in second in terms of convenience for the artists, with relatively homogeneous results for 3 of the 4 artists using it. The significant difference in the case of the fourth is probably due to geographical / market reasons. The three artists with higher convenience scores for Spotify are from the same country in Western Europe whereas the other two are from the same country in Eastern Europe. One artist had a very high convenience score for the Radio, TV, and Cinema distribution channel. This outlying result is due to the use of one of their songs in a motion picture.

A surprising discovery was that the convenience scores of iTunes were far inferior to those of YouTube and Spotify while being relatively homogeneous. In addition to that, based on information from the artists, we identified a link between the availability of an artist's music in stores and its availability on iTunes, where in store distribution appears to be a precondition of the music being listed on iTunes.

Sound Cloud and Deezer, although in the same "on demand" category as Spotify, are far less interesting in terms of convenience scores, most likely due to the platform's monetisation scheme. This shows in the more limited adoption of these platforms by artists, although another important take away from our results is that artists do not optimise their use of distribution channel based on objective criteria.

## Conclusions

Wide-spread, fast internet connections and the latest developments in music streaming software have challenged the status quo within the processes of music creation and distribution. Streaming services such as Pandora or Spotify have adapted to the consumer's preferences, inventing a business model that is both sustainable, accessible and profitable. However, controversies and resistance did not hesitate to appear, bringing into the public eye the issue of funding the artist, an old problem that becomes more prominent when the revenue structure changes as a result of new human behaviour combined with innovative technologies.

A system that makes it appealing for individuals to buy access to an incredibly extensive song database makes it less effective to pirate copyrighted content. Convenience is key when it comes to reducing piracy to a minimum, but it is a mix of convenience for the customers and convenience for the artists themselves that pushes the business models and the industry in the right direction.

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