

Before the
UNITED STATES COPYRIGHT ROYALTY JUDGES
The Library of Congress

In the Matter of

DETERMINATION OF RATES AND TERMS FOR
MAKING AND DISTRIBUTING PHONORECORDS
(PHONORECORDS III)

Docket No. 16-CRB-0003-PR (2018-2022)

**EXPERT REPORT OF JUI RAMAPRASAD (REPLACEMENT COPY)
NOVEMBER 1, 2016**

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I. Assignment

1. My name is Jui Ramaprasad. I have been asked by counsel for Apple Inc. (“Apple”) to analyze the digital music industry, in particular the appropriate rates for permanent downloads, ringtones, interactive streams, and locker services, relevant to the proceeding before the Copyright Royalty Board (“CRB”) to determine reasonable rates and terms for making and distributing phonorecords for the period beginning January 1, 2018, and ending on December 31, 2022 (“Phonorecords III Proceeding”). Specifically, I have been asked by counsel for Apple to opine on the reasonableness of Apple’s rate proposal, namely (a) a rate of \$0.091 or \$0.0175 per minute of playing time (whichever is larger) for permanent digital downloads; (b) a rate of \$0.24 for ringtones; (c) an all-in per-play rate of \$0.00091 for non-fraudulent interactive streams that are 30 seconds or longer (with a mechanical royalty rate equal to this all-in rate minus any royalties paid for the right to publicly perform the musical compositions); (d) a per-subscriber rate of \$0.17 for paid locker services minus royalties for the public performance of musical compositions; and (e) a royalty rate of zero for purchased content locker services.

2. I have been asked to consider the following four objectives set forth in Section 801(b) of the U.S. Copyright Act in my analysis:

- a. To maximize the availability of creative works to the public.
- b. To afford the copyright owner a fair return for his or her creative work and the copyright user a fair income under existing conditions.
- c. To reflect the relative roles of the copyright owner and the copyright user in the product made available to the public with respect to relative creative contribution, technological contribution, capital investment, cost, risk, and contribution to the opening of new markets for creative expression and media for their communication.
- d. To minimize any disruptive impact on the structure of the industries involved and on generally prevailing industry practices.

II. Summary of Opinions

3. Apple proposes no change to the royalty rates for permanent downloads and ringtones, which were set by the Copyright Royalty Board in 2008. I agree that there is no need to change the royalty rates that were set by the Copyright Royalty Board in keeping with the Section 801(b) objectives. Apple's proposal is reasonable. **RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) (Phonorecords III)**

4. A per-play rate structure for interactive streaming is appropriate because it is simple and transparent. It also is intuitive for publishers and songwriters, and avoids the confusion inherent in the current royalty rates and the alternative rates proposed by the participants in this proceeding. Apple's proposed per-play rate structure would remove the variability in the per-stream rate across services and from month-to-month for the same service that likely causes confusion for songwriters.

5. Apple's proposed per-play rate structure for interactive streaming would fairly compensate songwriters. The current royalty structure was adopted in 2008 as part of a settlement. At the time, the streaming market was still in its infancy. Since then, the industry has shifted as it has grown. The sales of digital downloads are decreasing and interactive streaming is becoming an increasingly prevalent mode of music consumption. The interactive streaming industry has demonstrated its viability and it is no longer a nascent industry with uncertain future. As interactive streaming replaces digital downloads, songwriters expect fair compensation for interactive streaming commensurate with their compensation for digital downloads. Apple's proposed rate would provide such a fair compensation to songwriters.

6. Apple's proposed per-play rate structure also would fairly compensate interactive streaming services. Interactive streaming services are welfare-enhancing for musicians (through wider market access) and increase musicians' incentive to create music. Interactive streaming services also are welfare-enhancing for consumers (through increased music variety and features that enhance the consumption experience). Apple's proposed rate would provide proper economic return to interactive streaming services that reflects the enhancement in value created by interactive streaming services for both musicians and consumers. Under Apple's proposed per-play rate structure, interactive streaming services would pay a flat per-stream rate for the

songs, and any incremental revenues earned because of features and tools they develop to enhance the consumers' experience would accrue to the interactive streaming services.

7. Apple's proposed all-in per-play rate is reasonable because it is consistent with industry and academic benchmarks. Based on the methodologies used in the music industry and academic research, the estimated per-play royalty rate for songwriters ranges between \$0.00061 and \$0.00091. Apple's proposal of an all-in per-play royalty rate of \$0.00091 is at the upper-end of this range.

8. Apple's proposal of a per-subscriber rate for paid locker services is fair and reasonable because it is simple and transparent. Apple's proposal of a zero-royalty rate for purchased content locker services is appropriate because publishers and songwriters do not need to be paid again when users access music that they have already purchased.

III. Qualifications

9. I am an Associate Professor in Information Systems at the Desautels Faculty of Management at McGill University. I completed my Ph.D. in Management, with a focus on Information Systems from the Paul Merage School of Business at the University of California, Irvine in 2009, and my Bachelor's degree in Information Systems and Finance from the University of Southern California in 2001.

10. My primary area of research and teaching is in the impact of Information Technology in digital goods industries, with a specific focus on online music. My professional expertise in online music includes more than ten years of academic research on the topic, courses I have designed and taught, and my speaking engagements, including invited lectures based on my research. Within online music, my research focus has been the impact of social media on online music consumption, the design of online music sites, motivating payment for music, and the impact of interactive music streaming on traditional forms of music consumption. I have published several papers on the topic of online music in some of the most respected journals in Information Systems—*Information Systems Research and Management Information Systems Quarterly*. I also have won a "best paper" award for my research at the American Marketing Association Conference, a noted conference in marketing.

11. I have taught a variety of classes to undergraduate and Master's level students, each of which focuses on or has a component that focuses on digital goods, including music. In short courses or guest lectures for the Faculty of Management, Faculty of Music, faculty-wide events, and university-wide events, I have examined the evolution of the music industry and the impact of technology on the industry over time. For the past five years I have taught a course called "The Treble Cliff: The Business of Music" at McGill. This is a semester-long interdisciplinary course that allows students from the Law, Music, and Management departments to gain a holistic understanding of the music industry. I invite prominent members of the music industry such as entertainment lawyers, artists, online music marketing companies, record labels, talent management companies, major online streaming sites, and music licensing/rights management organizations, as guest speakers for this course and interact extensively with them.

12. In addition to my academic activities, I regularly engage with music industry professionals at industry events such as Canadian Music Week. I frequently am asked to speak or provide insights on issues related to the music industry by media outlets such as National Public Radio and MacLean's, Canada's national weekly current affairs magazine.

13. A copy of my CV is provided as Appendix A to this expert report. A list of materials I have relied upon in preparation of this expert report is provided as Appendix B.

14. I am being compensated at my standard billing rate of \$700 per hour. I have been assisted in this matter by staff of Cornerstone Research, who worked under my direction. My compensation in this matter is not in any way contingent or based on the content of my opinion or the outcome of this or any other matter.

IV. Background on Digital Music Services Industry

A. Types of Digital Music Services

15. Digital downloads (and ringtones), interactive streaming services, and locker services are the three main digital music services that are relevant to the Phonorecords III Proceeding.

1. Digital Downloads and Ringtones

16. A digital download is an electronic transmission of a sound recording to a consumer that allows the consumer to digitally transfer the sound recording to a personal device for the

consumer's personal, non-commercial use at a later time. Digital downloads that are permanent downloads may be retained by the user and do not have restrictions on the number of times the recording can be played or the time period over which the sound recording can be played.¹ In contrast, downloads that are limited downloads (also known as tethered, or conditional, downloads) are only available so long as a user's subscription is current.² Ringtones are a type of permanent digital download. In particular, a ringtone is an excerpt of a sound recording (usually 30 seconds) whose purpose is to replace a traditional mobile phone ring.³

17. There currently are approximately 26 sites available in the US for digital downloads.⁴ These include Apple iTunes, Amazon Prime Music, and Google Play Music, which are described in **Table 1** below.

¹ In the Code of Federal Regulations, a "permanent digital download" is defined as a "digital phonorecord delivery that is distributed in the form of a download that may be retained and played on a permanent basis." See 37 C.F.R. § 385.2.

² In the Code of Federal Regulations, a "limited download" is defined as a "digital transmission of a sound recording of a musical work to an end user, other than a stream, that results in a specifically identifiable reproduction of that sound recording that is only accessible for listening for:

(1) An amount of time not to exceed 1 month from the time of the transmission (unless the service provider, in lieu of retransmitting the same sound recording as another limited download, separately and upon specific request of the end user made through a live network connection, reauthorizes use for another time period not to exceed 1 month), or in the case of a subscription transmission, a period of time following the end of the applicable subscription no longer than a subscription renewal period or 3 months, whichever is shorter; or

(2) A specified number of times not to exceed 12 (unless the service provider, in lieu of retransmitting the same sound recording as another limited download, separately and upon specific request of the end user made through a live network connection, reauthorizes use of another series of 12 or fewer plays), or in the case of a subscription transmission, 12 times after the end of the applicable subscription." See 37 C.F.R. § 385.11; "What are Downloads and Streams?," *TuneCore*, July 18, 2016, http://help.tunecore.com/app/answers/detail/a_id/104/~what-are-downloads-and-streams%3F, a true and correct copy of which is attached hereto as **APL-115**.

³ In the Code of Federal Regulations, a "ringtone" is defined as a "phonorecord of a partial musical work distributed as a digital phonorecord delivery in a format to be made resident on a telecommunications device for use to announce the reception of an incoming telephone call or other communication or message or to alert the receiver to the fact that there is a communication or message." See 37 C.F.R. § 385.2.

⁴ Pro Music is IFPI's global track of digital music sites. See "Legal Music Services," *Pro Music*, <http://www.pro-music.org/legal-music-services-north-america.php>, a true and correct copy of which is attached hereto as **APL-164**.

Table 1: Digital Download Sites (US)

Service	Permanent Downloads (PD)/ Ringtones (R)	Business Model	Price Per Download
Apple iTunes	PD & R	Revenues from sales of digital downloads (songs/albums/ringtones).	PD: \$0.69, \$0.99, \$1.29 R: \$1.29 ⁵
Amazon Prime Music	PD & R	Prime Membership (\$99/year); Revenues from sales of digital downloads (songs/albums). ⁶	PD: \$0.69, \$0.89, \$0.99, \$1.29, with other price points. Some with Amazon Prime (\$99/year). R: \$0.00, \$0.99, \$1.99 ⁷
Google Play Music ⁸	PD & R	Revenues from sales of digital downloads (songs/albums/ringtones).	PD: \$0.69, \$0.99, \$1.29 R: \$1.29 ⁹

18. These sites generate revenues from the sale of permanent downloads of a song/album and/or ringtones. Note that all three services listed above also operate interactive streaming services (see Table 2) from which they generate revenues.

2. Interactive Streaming Services

19. Interactive music streaming services, or streaming-on-demand services, are services that provide digital transmissions of sound recordings, which allows the user of such services to listen to any song in the service's catalogue when requested by the user.¹⁰ In contrast with

⁵ See, for example, "iTunes," *Apple*, <http://www.apple.com/itunes/music/>, a true and correct copy of which is attached hereto as **APL-027**.

⁶ "Amazon Prime," *Amazon*, https://www.amazon.com/gp/prime/pipeline/prime_gifting_landing?ref=PrimeDP, a true and correct copy of which is attached hereto as **APL-026**.

⁷ "Amazon Digital Music Store," *Amazon*, <https://www.amazon.com/MP3-Music-Download/b?ie=UTF8&node=163856011>, a true and correct copy of which is attached hereto as **APL-026**; "Prime Music," *Amazon*, <https://www.amazon.com/gp/feature.html?docId=1002557791>; "Deals," *Amazon*, https://www.amazon.com/MP3-Deals/b/ref=dmm_hp_bbx_mr?ie=UTF8&node=678551011&pf_rd_m=ATVPDKIKX0DER&pf_rd_s=merchandise-d-search-left-3&pf_rd_r=AEQ8F6KW7AFACTEE0KR8&pf_rd_t=101&pf_rd_p=2573946502&pf_rd_i=163856011, a true and correct copy of which is attached hereto as **APL-026**; "Digital Music: \$0.69-\$1.29," *Amazon*, https://www.amazon.com/s/ref=sr_st?rh=n%3A163856011%2Cp_36%3A69-129%2Cp_n_feature_browser-bin%3A625151011&qid=1477349398&bbn=163856011&sort=price-desc-rank, a true and correct copy of which is attached hereto as **APL-026**; "Apps & Games: Ringtones," *Amazon*, https://www.amazon.com/s/ref=sr_ex_p_36_0?rh=n%3A2350149011%2Cn%3A%212445993011%2Cn%3A%219433446011%2Cn%3A%212350150011%2Cn%3A2478863011&bbn=2478863011&ie=UTF8&qid=1477236913&ajr=0, a true and correct copy of which is attached hereto as **APL-026**.

⁸ "Music on Google Play," *Google*, <https://play.google.com/store/music?hl=en>, a true and correct copy of which is attached hereto as **APL-030**.

⁹ "Top Songs," *Google Play*, https://play.google.com/store/music/collection/topselling_paid_track?hl=en, a true and correct copy of which is attached hereto as **APL-030**.

¹⁰ "Digital Definitions," *Harry Fox Agency*, <https://secure.harryfox.com/public/DigitalDefinitions.jsp>. ("Interactive streaming is when a digital file is transmitted electronically to a computer or other device at the specific request of

permanent digital downloads, interactive music streaming services do not allow users of the service to maintain a copy of the digital music file permanently.¹¹ Many services do allow for offline streaming, however, which allows users to access the digital music file offline as long as the user maintains a subscription to the service.¹²

20. Some of the players in the interactive music streaming space are outlined in Table 2. There are two main business models that interactive streaming services employ: ad-supported and subscription-based.¹³ Ad-supported models, which allow users to stream for free, generate revenue through advertisements inter-woven between songs, i.e., “in-stream audio” advertisements.¹⁴ Some also use display advertising, which may include clickable images that are displayed for short periods (typically less than one minute).¹⁵ Subscription-based models allow users to stream without advertisements and with additional features (such as the ability to stream on mobile devices), in exchange for which users pay a monthly fee.¹⁶

21. Some services offer a combination of the ad-supported and subscription-based models, called a freemium model, where there is a free ad-supported tier combined with a paid tier.¹⁷ Often, the goal of the free tier is to introduce users to the service and ultimately convert them to

the end user in order to allow the end user to listen to a recording or a playlist contemporaneously with the user’s request.”), a true and correct copy of which is attached hereto as **APL-081**.

¹¹ “Learn About Digital Music,” *Music Matters*, <http://whymusicmatters.com/pages/about-digital-music>, a true and correct copy of which is attached hereto as **APL-135**.

¹² Madi Alexander and Ben Sisario, “Apple Music, Spotify and a Guide to Music Streaming Services,” *The New York Times*, April 5, 2016, <http://www.nytimes.com/interactive/2015/06/30/business/media/music-streaming-guide.html>, a true and correct copy of which is attached hereto as **APL-140**; **APL-081**, “Digital Definitions,” *Harry Fox Agency*, <https://secure.harryfox.com/public/DigitalDefinitions.jsp>.

¹³ Glenn Peoples, “The Battle of Subscription Business Models: A Look at Their Strengths and Weaknesses,” *Billboard*, January 29, 2016, <http://www.billboard.com/articles/business/6859192/battle-subscription-business-models-strengths-weaknesses>, a true and correct copy of which is attached hereto as **APL-098**.

¹⁴ **APL-098**, Glenn Peoples, “The Battle of Subscription Business Models: A Look at Their Strengths and Weaknesses,” *Billboard*, January 29, 2016, <http://www.billboard.com/articles/business/6859192/battle-subscription-business-models-strengths-weaknesses>.

¹⁵ “Display,” *Spotify*, <https://www.spotify.com/us/brands/formats/display/>, a true and correct copy of which is attached hereto as **APL-031**.

¹⁶ **APL-098**, Glenn Peoples, “The Battle of Subscription Business Models: A Look at Their Strengths and Weaknesses,” *Billboard*, January 29, 2016, <http://www.billboard.com/articles/business/6859192/battle-subscription-business-models-strengths-weaknesses>.

¹⁷ **APL-098**, Glenn Peoples, “The Battle of Subscription Business Models: A Look at Their Strengths and Weaknesses,” *Billboard*, January 29, 2016, <http://www.billboard.com/articles/business/6859192/battle-subscription-business-models-strengths-weaknesses>.

premium subscribers.¹⁸ An alternate strategy that some subscription-only services use (e.g., Apple Music) is to offer users a free trial for a limited time.¹⁹

22. See Table 2 for a summary of some of the interactive streaming sites, their business models, and the subscription fee, if applicable.

¹⁸ **APL-098**, Glenn Peoples, “The Battle of Subscription Business Models: A Look at Their Strengths and Weaknesses,” *Billboard*, January 29, 2016, <http://www.billboard.com/articles/business/6859192/battle-subscription-business-models-strengths-weaknesses>.

¹⁹ **APL-098**, Glenn Peoples, “The Battle of Subscription Business Models: A Look at Their Strengths and Weaknesses,” *Billboard*, January 29, 2016, <http://www.billboard.com/articles/business/6859192/battle-subscription-business-models-strengths-weaknesses>.

Table 2: Interactive Streaming Sites

Service	Business Model	Tiers + Subscription Fees	Features	Number of Users
Apple Music	Subscription *free 3-month trial	\$9.99/month; \$14.99/month (family account); \$4.99/month (student account)	On-demand streaming of any song in catalogue; offline playback; radio stations; locker services; recommendations and playlists	RESTRICTED — Subject to P t ti
Spotify	Freemium ²¹	Spotify Free; Spotify Premium: \$9.99/month, \$14.99/month (family account), \$4.99/month (student account)	<u>Spotify Free</u> : Radio stations, on-demand streaming on desktop, playlists on mobile <u>Spotify Premium</u> : Ad-free on-demand streaming of any song in catalogue on any device; offline playback	>100 million; 40 million subscribers (Sep. 2016)
Amazon Prime Music	Bundled with Amazon Prime Membership (\$99/year or \$10.99/month)	Cloud Player Premium: \$24.99/year (see Table 3)	<u>Amazon Prime Members</u> : Ad-free on-demand streaming of any song in catalogue, customizable radio stations/playlists, offline playback on mobile device	63 million subscribers to Amazon Prime (July 2016)
Google Play Music ²²	Freemium: Free tier, Unlimited Tier	Free tier; Unlimited Tier: \$9.99/month, \$14.99 /month (family account)	<u>Free</u> : Customizable radio stations, use of locker (see Table 3). <u>Unlimited/All Access</u> : Ad-free on-demand streaming on Google Play and any video on YouTube; customizable radio stations; offline playback	RESTRICTED — Subject to P t ti

²⁰ RESTRICTED — Subject to Protective Order in Docket No. 16 CRB 0001 PR (2018 2022). See “Take Apple Music For a Spin,” *Apple*, APL-PHONO_00009141, a true and correct copy of which is attached hereto as APL-011; RESTRICTED — Subject to Protective Order in Docket No. 16 CRB 0001 PR (2018 2022), APL-PHONO_00009168, a true and correct copy of which is attached hereto as APL-015.

²¹ APL-098, Glenn Peoples, “The Battle of Subscription Business Models: A Look at Their Strengths and Weaknesses,” *Billboard*, January 29, 2016, <http://www.billboard.com/articles/business/6859192/battle-subscription-business-models-strengths-weaknesses>.

²² Note that a free Google Play subscription is included in a YouTube Red subscription (YouTube’s premium service for videos), and vice versa. See “Global Music Report: Music Consumption Exploding Worldwide,” International Federation of the Phonographic Industry Report, 2016, SPOTCRB0000803–46 at 21, a true and correct copy of which is attached hereto as APL-021; “YouTube Red,” *YouTube*, <https://www.youtube.com/red>, a true and correct copy of which is attached hereto as APL-072.

²³ GOOG-PHONOIII-00003330.xlsx, RESTRICTED Subject to Protective Order in Docket No. 16 CRB 0001 PR (2018 2022), a true and correct copy of which is attached hereto as APL-172.

Tidal	Subscription	Tidal Premium: \$9.99/month; Tidal Hi-Fi: \$19.99/month; family plans, student plans, military plans, and pre-paid plans also available	<u>Both Premium and Hi-Fi</u> : Ad-free, on-demand streaming of music and videos; Access to Tidal X (platform to connect artists and fans); offline playback <u>Hi-Fi</u> : Superior Quality Audio Files (Lossless)	3 million subscribers (March 2016)
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Sources:

International Federation of the Phonographic Industry, "Global Music Report: Music Consumption Exploding Worldwide," 2016, SPOTCRB0000803-46, a true and correct copy of which is attached hereto as APL-021.

APL-140, Madi Alexander and Ben Sisario, "Apple Music, Spotify and a Guide to Music Streaming Services," The New York Times, April 5, 2016, <http://www.nytimes.com/interactive/2015/06/30/business/media/music-streaming-guide.html>.

Hugh McIntyre, "Is Amazon Prime Music Technically the Most Popular Streaming Service?," Forbes, February 12, 2016, <http://www.forbes.com/sites/hughmcintyre/2016/02/12/is-amazon-music-technically-the-most-popular-streaming-service/#68d7f3eb2052/>, a true and correct copy of which is attached hereto as APL-114.

Matt Brian, "Spotify Now Has 40 Million Paid Subscribers," *Engadget*, September 14, 2016, <https://www.engadget.com/2016/09/14/spotify-40-million-paid-subscribers/>, a true and correct copy of which is attached hereto as APL-173.

Audrey Shi, "Amazon Prime Members Now Outnumber Non-Prime Customers," *Fortune*, July 11, 2016, <http://fortune.com/2016/07/11/amazon-prime-customers/>, a true and correct copy of which is attached hereto as APL-044.

"Membership," Apple Music, <http://www.apple.com/apple-music/membership/>, a true and correct copy of which is attached hereto as APL-011.

"iCloud Music Library: Understanding differences between Apple Music and iTunes Match," Apple, October 11, 2016, <https://support.apple.com/en-us/HT204962>, a true and correct copy of which is attached hereto as APL-028.

"Apple Music," Apple, <http://www.apple.com/apple-music/>, a true and correct copy of which is attached hereto as APL-012.

"Premium for Family," Spotify, <https://www.spotify.com/us/family/>, a true and correct copy of which is attached hereto as APL-031.

"Enjoy Safe and Secure Storage for Your Entire Music Collection," Amazon, <https://www.amazon.com/gp/feature.html?ie=UTF8&docId=1001432841>, a true and correct copy of which is attached hereto as APL-026.

"Spotify Premium. Only \$4.99 for Students," Spotify, <https://www.spotify.com/us/student/>, a true and correct copy of which is attached hereto as APL-031.

"About the Amazon Prime Membership Charge," Amazon, https://www.amazon.com/gp/help/customer/display.html/ref=hp_left_v4_sib?ie=UTF8&nodeId=200966690, a true and correct copy of which is attached hereto as APL-026.

GOOG-PHONOIII-00003191.xlsx, **RESTRICTED — Subject to** a true and correct copy of which is attached hereto as APL-016.

"Tidal - High Fidelity Music Streaming," *Tidal*, <http://tidal.com/us/try-now>, a true and correct copy of which is attached hereto as APL-039.

3. Locker Services

23. A locker service allows users to store music on a server and to subsequently stream or download it.²⁴ The music that is stored can be either music that the user already owned (digital downloads, ringtones, and physical records that have been uploaded to a device), music that the user purchased from the locker service provider, or a combination of the two.²⁵ Lockers may provide a “scan and match” service, which scans a user’s device for music files and matches these files to those already on the server.²⁶ Once a song is matched, the user can access a cloud-based version of the file anytime he uses a device that is connected to the Internet.

24. There are two main types of locker services:

- a. Paid locker service: a locker service that is a subscription service.²⁷
- b. Purchased content locker: a locker service that offers free cloud storage for digital music purchased by the user as a permanent digital download, ringtone, or CD.²⁸

25. These lockers also may be bundled with other services: e.g., an interactive streaming/digital download service, such as Google Play,²⁹ or the Amazon Prime subscription for Amazon Prime Music.³⁰

26. Currently, the players in the locker service space include Apple, Amazon, and Google Play. Their services are described in Table 3 below.³¹

²⁴ Michael Walker Jr., “A Better Public Performance Analysis for Digital Music Locker Storage,” *St. John’s Law Review* 87, no. 629, 2013, pp. 629–668 at pp. 629–630, a true and correct copy of which is attached hereto as **APL-149**.

²⁵ Dan Graziano, “Comparing Music Storage Services from Apple, Amazon, Google,” *CNET*, March 10, 2015, <https://www.cnet.com/how-to/itunes-match-vs-google-play-vs-amazon-music/>, a true and correct copy of which is attached hereto as **APL-070**.

²⁶ **APL-070**, Dan Graziano, “Comparing Music Storage Services from Apple, Amazon, Google,” *CNET*, March 10, 2015, <https://www.cnet.com/how-to/itunes-match-vs-google-play-vs-amazon-music/>.

²⁷ 37 C.F.R. § 385.21.

²⁸ 37 C.F.R. § 385.21.

²⁹ **APL-070**, Dan Graziano, “Comparing Music Storage Services from Apple, Amazon, Google,” *CNET*, March 10, 2015, <https://www.cnet.com/how-to/itunes-match-vs-google-play-vs-amazon-music/>.

³⁰ Joel Lee, “Why You Should Give Amazon Prime Music a Second Chance,” *MakeUseOf*, February 17, 2016, <http://www.makeuseof.com/tag/give-amazon-prime-music-second-chance/>, a true and correct copy of which is attached hereto as **APL-122**.

³¹ Lexy Savvides, “Organize and Listen to Your Own Music on the Cloud,” *CNET*, December 18, 2014, <https://www.cnet.com/how-to/how-to-keep-your-music-library-organized-with-the-cloud/>, a true and correct copy of which is attached hereto as **APL-136**.

Table 3 Cloud Locker Services

Services	Business Model	Features
Apple iTunes Match ³²	Combination of Purchased Content Locker & Paid Locker Services. Paid locker subscription: \$24.99/year. ³³	“Scan and match” of personal library; storage for up to 100,000 songs. ³⁴
Amazon Prime Music	Combination of Purchased Content Locker & Paid Locker Services. Bundled: Amazon Prime Membership (\$99/year). ³⁵ Paid locker subscription (Cloud Player Premium): \$24.99/year (increased cloud storage). ³⁶	<u>Amazon Prime Membership</u> : Includes “scan and match” and free storage of 250 songs from a personal library. ³⁷ <u>Cloud Player Premium</u> : Increased storage for an additional 250,000 songs. ³⁸
Google Play Music ³⁹	Purchased Content Locker. Bundled: Google Play Music (online music store & streaming site).	<u>Google Play</u> : Includes “scan and match” and storage of up to 50,000 songs ⁴⁰ from personal library.

Notes: For each of these three services, the songs purchased from each of the respective services do not count towards the allocated storage mentioned under “features,” and thus they are all purchased content lockers.

³² Apple also has the iCloud, a locker that stores photos, videos, documents, apps, as well as music. See “iCloud,” *Apple*, <http://www.apple.com/icloud/>.

³³ “Subscribe to iTunes Match,” *Apple*, <https://support.apple.com/en-us/HT204146>, a true and correct copy of which is attached hereto as **APL-028**.

³⁴ **APL-028**, “Subscribe to iTunes Match,” *Apple*, <https://support.apple.com/en-us/HT204146>.

³⁵ “About Amazon Prime,” *Amazon*, <https://www.amazon.com/gp/help/customer/display.html?nodeId=200444160>, a true and correct copy of which is attached hereto as **APL-026**.

³⁶ “Your Amazon Music Settings,” *Amazon*, https://www.amazon.com/gp/dmusic/player/settings?ie=UTF8&ref=dp_amp_settings_yasettings_click&, a true and correct copy of which is attached hereto as **APL-184**.

³⁷ “About File Formats,” *Amazon*, <https://www.amazon.com/gp/help/customer/display.html?nodeId=201379270>, a true and correct copy of which is attached hereto as **APL-026**; “Your Amazon Music Settings,” *Amazon*, https://www.amazon.com/gp/dmusic/player/settings?ie=UTF8&ref=dp_amp_settings_yasettings_click&, a true and correct copy of which is attached hereto as **APL-184**.

³⁸ “About Amazon Music Storage Subscriptions,” *Amazon*, <https://www.amazon.com/gp/help/customer/display.html?nodeId=201379330>, a true and correct copy of which is attached hereto as **APL-026**.

³⁹ Google also has Google Drive, a locker that stores photos, designs, recordings, and videos. See “A Safe Place for All Your Files,” *Google*, <https://www.google.com/drive/#start> a true and correct copy of which is attached hereto as **APL-030**.

⁴⁰ Darrell Etherington, “Google Play Music Increases Cloud Storage Limit to 50,000 Songs,” *TechCrunch*, February 25, 2015, <https://techcrunch.com/2015/02/25/google-play-music-increases-cloud-storage-limit-to-50000-songs/> a true and correct copy of which is attached hereto as **APL-076**.

B. Current and Proposed Royalty Rates in the Digital Music Industry in the United States

27. Under Title 37 “Patents, Trademarks, and Copyrights of the Code of Federal Regulations,” digital downloads, interactive streaming sites, and locker services are subject to royalty payments.⁴¹ Every musical work embodies two copyrights: the copyright in the musical composition and the copyright in the sound recording.⁴² Songwriters or publishers own the copyright in the musical composition, whereas recording labels or artists own the copyright in the sound recording.⁴³

28. Services providing copyrighted works to consumers pay songwriters or publishers two types of royalties: mechanical royalties for the right to reproduce and distribute a musical composition, and performance royalties for the right to publicly perform the musical composition.⁴⁴

- a. For *digital downloads* and *ringtones*, only mechanical royalties are paid to the publisher and songwriter.⁴⁵ Public performance royalties are not required.⁴⁶
- b. For *interactive streaming*, both mechanical and performance royalties are paid to the publisher and songwriter.⁴⁷
- c. *Locker services* pay both mechanical and performance royalties to the publisher and songwriter.⁴⁸

⁴¹ 37 C.F.R. § 385.

⁴² “Artist Revenue Streams,” *Future of Music Coalition*, <http://money.futureofmusic.org/40-revenue-streams/#record>, a true and correct copy of which is attached hereto as **APL-033**.

⁴³ Brian T. Yeh, “Copyright Licensing in Music Distribution, Reproduction, and Public Performance,” Congressional Research Service Report RL33631, September 22, 2015, pp. 6–7, a true and correct copy of which is attached hereto as **APL-144**.

⁴⁴ Dana A. Scherer, “Money for Something: Music Licensing in the 21st Century,” Congressional Research Service Report R43984, January 19, 2016, p. 3, a true and correct copy of which is attached hereto as **APL-159**. Record labels or artists are paid royalties for the rights to their sound recordings, but those royalties are not at issue in this proceeding.

⁴⁵ Todd Brabec and Jeffrey Brabec, “Online Music Licensing: From PROs, AOL and MobiTv to SoundExchange, and the CRB,” *American Bar Association Forum on the Entertainment and Sports Industries*, undated, p. 4, a true and correct copy of which is attached hereto as **APL-059**.

⁴⁶ **APL-059**, Todd Brabec and Jeffrey Brabec, “Online Music Licensing: From PROs, AOL and MobiTv to SoundExchange, and the CRB,” *American Bar Association Forum on the Entertainment and Sports Industries*, undated, p. 4.

⁴⁷ **APL-159**, Dana A. Scherer, “Money for Something: Music Licensing in the 21st Century,” Congressional Research Service Report R43984, January 19, 2016, pp. 9–10, 17.

⁴⁸ 37 C.F.R. §§ 385.21–385.22.

29. Mechanical royalties are paid either a) directly to the publisher, who then shares the royalties with the songwriter or b) to an agency that handles mechanical licenses, such as the Harry Fox Agency.⁴⁹ The distribution of public performance royalties usually is handled by performing rights organizations (PROs) such as ASCAP, BMI, and SESAC.⁵⁰

1. Current Royalty Rates for Permanent Downloads and Ringtones and the Participants' Proposals in the Phonorecords III Proceeding

30. As discussed above, only mechanical royalties, not performance royalties, are collected for digital downloads.⁵¹ There is a compulsory license for such mechanical royalties, with a rate set by the Copyright Royalty Board. For digital downloads, this rate currently is 9.1 cents for a song that is less than five minutes and 1.75 cents per minute for songs that are longer than five minutes.⁵² That is, if a song is anywhere from a bit over five minutes to six minutes, the royalty rate is 10.5 cents (i.e., 1.75 cents*6). The mechanical royalty rate for ringtones currently is 24 cents.⁵³ The Copyright Royalty Board set these rates in the prior Section 115 proceeding in 2008.⁵⁴

31. For permanent downloads and ringtones, **RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022)**
The NMPA, NSAI, and other copyright owners

⁴⁹ United States Copyright Office, "Copyright and the Music Marketplace: A Report of the Register of Copyrights," February 2015, NMPA00001047–1291 at 1076, a true and correct copy of which is attached hereto as **APL-025**.

⁵⁰ Public performance royalties for the musical composition are normally split 50/50 between the publisher and the songwriter. See **APL-159**, Dana A. Scherer, "Money for Something: Music Licensing in the 21st Century," Congressional Research Service Report R43984, January 19, 2016, pp. 4, 5, 12; Testimony of Rob Wheeler, ¶ 13. In cases where the songwriter is her own publisher, she collects all of the public performance royalties. See Paul Resnikoff, "Now You Know Everything About Music Publishing...," *Digital Music News*, February 28, 2014, <http://www.digitalmusicnews.com/2014/02/28/understandpublishing/>, a true and correct copy of which is attached hereto as **APL-154**; **APL-025**, United States Copyright Office, "Copyright and the Music Marketplace: A Report of the Register of Copyrights," February 2015, NMPA00001047–1291 at 1075.

⁵¹ Christopher Norton, "2nd Circ. Maintains Music Files Aren't Performances," *Law360*, September 28, 2010, <http://www.law360.com/articles/197268/2nd-circ-maintains-music-files-aren-t-performances/>, a true and correct copy of which is attached hereto as **APL-152**.

⁵² 37 C.F.R. § 385.3(a).

⁵³ 37 C.F.R. § 385.3(b).

⁵⁴ **APL-071**, Final Determination of Rates and Terms, *In the Matter of Mechanical and Digital Phonorecord Delivery Rate Determination Proceeding*, November 24, 2008, pp. 1, 72.

⁵⁵ **RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022)**
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p. 3; Apple Inc. Proposed Rates and Terms, *In the Matter of Determination of Rates and Terms for Making and Distributing Phonorecords* (Phonorecords III), November 1, 2016 ("Apple Inc. Proposed Rates and Terms"), p. 1; **RESTRICTED — Subject to Protective**

entered into a settlement (the “Subpart A Settlement”) with several music industry participants in which they agreed to extend the existing royalty rates for downloads and ringtones.⁵⁶

2. Current Royalty Rates for Interactive Streaming and the Participants’ Proposals in the Phonorecords III Proceeding

32. The interactive streaming of a song generates both mechanical and performance royalties. The mechanical royalty rates were adopted as part of a settlement in 2008 and cover the period from March 2009 through 2017.⁵⁷ The mechanical royalty that an interactive streaming service pays for the use of compositions is calculated by first determining the “all-in” royalty pool (i.e., inclusive of mechanical and performance royalty), which is the greater of:⁵⁸

- a. 10.5% of the music service revenue (subscription fees and/or advertising revenues); and
- b. the lesser of:
 - i. Between 50 and 80 cents per subscriber per month (colloquially known as “subscriber-based floor fees”),⁵⁹ and

⁵⁶ The NMPA, NSAI, and other copyright owners (including the Church Music Publishers Association, the Songwriters of North America, and the Harry Fox Agency) reached a settlement (the “Subpart A Settlement”) with Universal Music Group and Warner Music Group regarding rates and terms for physical phonorecords, permanent digital downloads, and ringtones as currently presented in 37 C.F.R. § 385(a). In a June 15, 2016, Motion to Adopt Settlement, the parties requested that the Judges adopt the settlement. As of the July 15, 2016, Preliminary Disclosure of Proposed Rates and Terms submitted by the NMPA and **RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) (Phonorecords III)**

pp. 2–3. On October 28, 2016, Sony Music Entertainment also agreed to the settlement with the NMPA and NSAI and urged the Judges to adopt the settlement industry-wide. Motion to Adopt Settlement Industry-Wide, *In re Determination of Rates and Terms for Making and Distributing Phonorecords (Phonorecords III)*, October 28, 2016. George Johnson is the one participant who proposed a change to the existing Subpart A rates. It is my understanding that George Johnson does not represent the music industry or the songwriters/publishers. George Johnson’s (GEO) Preliminary Disclosures, *In the Matter of Determination of Royalty Rates for Making and Distributing Phonorecords (Phonorecords III)*, July 17, 2016 (“George Johnson’s (GEO) Preliminary Disclosures”).

⁵⁷ **APL-071**, Final Determination of Rates and Terms, *In the Matter of Mechanical and Digital Phonorecord Delivery Rate Determination Proceeding*, November 24, 2008, pp. 17–20.

⁵⁸ **APL-159**, Dana A. Scherer, “Money for Something: Music Licensing in the 21st Century,” Congressional Research Service Report R43984, January 19, 2016, p. 11; 37 C.F.R. § 385.12.

⁵⁹ This per-subscriber minimum depends on the type of service: 1) For standalone non-portable subscriptions with streaming only the minimum is 50 cents; 2) For standalone non-portable subscriptions (mixed use) the minimum is 50 cents; 3) For standalone portable subscriptions (mixed use) the minimum is 80 cents. Note that, for services that

- ii. 21% of the service payment to the record companies for sound recordings (if the streaming service pays the publisher) OR 17.36% of the service payment to the record companies for the sound recordings (if the record company pays the publisher).⁶⁰

33. The mechanical royalty payments for the interactive streaming services is the greater of (a) the all-in royalty pool less the public performance royalties for performance of the composition, or (b) a per subscriber minimum per month, which ranges from 15-50 cents, depending on the type of service.⁶¹

34. A hypothetical example illustrates how the above scheme works. Consider a subscription-based interactive streaming service that charges each user \$10 per month in subscription fees. Suppose it has 1 million subscribers with non-portable subscriptions (mixed-use), resulting in \$10 million in monthly revenue. Suppose further that the interactive streaming service pays \$7 million to record companies for performance royalties relating to the use of sound recordings. In order to calculate the “all-in” royalty pool, the streaming services needs to calculate three numbers: (a) 10.5% of service revenue, which is \$1.05 million; (b) subscriber-based floor fees of 50 cents per subscriber, which is \$500,000; and (c) 21% of the performance royalty payment to the record companies for the use of sound recordings, which is \$1.47 million. The applicable “all-in” royalty pool under the current approach is determined to be \$1.05 million, because \$1.05 million is greater than the lesser of \$500,000 and \$1.47 million.

35. In contrast, Apple proposes to eliminate the different categories that currently apply to the interactive streaming services and instead implement an “all-in” royalty rate of \$0.00091 per interactive stream for non-fraudulent streams that are longer than 30 seconds. This would be much simpler to understand than the current approach. Under Apple’s proposal, using the same numbers as those in the above example, if each subscriber listens to 1,500 streams that are longer

are only ad-supported or otherwise don’t have a subscription, and for bundled subscription services, there is no per-subscriber minimum. *See* 37 C.F.R. § 385.13(a); 37 C.F.R. § 385.12(c).

⁶⁰ For “standalone non-portable subscriptions – streaming only” and “free nonsubscription/ad-supported services,” these rates are 22% and 18% respectively. *See* 37 C.F.R. §§ 385.13(a)–385.13(c).

⁶¹ For “standalone non-portable subscriptions – streaming only,” the minimum is 15 cents; for “standalone non-portable subscriptions – mixed use,” the minimum is 30 cents; for “standalone portable subscription services,” the minimum is 50 cents; for “bundled subscription services,” the minimum is 25 cents. *See* 37 C.F.R. § 385.13(a).

than 30 seconds, the “all-in” royalty payment would be \$0.00091 multiplied by the total number of streams (1 million subscribers times 1500 streams), which would be \$1.365 million.

36. The royalty rates for interactive streaming proposed by other participants in their preliminary disclosures are **RESTRICTED —** . They can be summarized as follows:

Subject to

- a. **RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) (Phonorecords III)**

⁶² **RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR** p. 3.

⁶³ **RESTRICTED — Subject to Protective Order in Docket No.** pp. 1–3.

⁶⁴ **RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) (Phonorecords III)**

- d. RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) (Phonorecords III)

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- g. George Johnson proposes a per-play rate for interactive streaming.⁶⁹

⁶⁵ RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) (Phonorecords III) Exhibit A.

⁶⁶ RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) (Phonorecords III)

⁶⁷ RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) (Phonorecords III) p. 3.

⁶⁸ RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) (Phonorecords III) p. 3., pp. 3–4.

3. Current Royalty Rates for Locker Services and the Participants' Proposals in the Phonorecords III Proceeding

37. Locker services pay both performance and mechanical royalties. The all-in royalty pool for *paid locker services*, which is ultimately split between performance and mechanical royalties, currently is calculated as the greater of:⁷⁰

- a. 12% of service revenue;
- b. 20.65% of service payment to the record companies for sound recordings (if the locker service pays the publisher) OR 17.11% of service payment to the record companies for the sound recordings (if the record company pays the publisher); and
- c. 17 cents per subscriber per month.

38. The all-in royalty pool for *purchased content services*, which is ultimately split between performance and mechanical royalties, currently is calculated as the greater of:⁷¹

- a. 12% of incremental service revenue; and
- b. 22% of the incremental service payment to the record companies for sound recordings (if the streaming service pays the publisher) OR 18% of the incremental service payment to the record companies for the sound recordings (if the record company pays the publisher).

39. Apple proposes eliminating the current royalty rates for locker services and moving to an all-in royalty rate of \$0.17 per subscriber for paid locker services and a royalty rate of zero for purchased content locker services.⁷²

40. The royalty rates proposed by the other participants are more complicated and can be summarized as follows:

⁶⁹ George Johnson's (GEO) Preliminary Disclosures, *In the Matter of Determination of Royalty Rates for Making and Distributing Phonorecords (Phonorecords III)*, July 17, 2016 ("George Johnson's (GEO) Preliminary Disclosures"), pp. 3–4. George Johnson is "an individual singer, songwriter, self-publisher, investor and sound recording copyright creator d/b/a as George Johnson Music Publishing ("GJMP") (formerly BMI) and Geo Music Group ("GMG")." George Johnson's (GEO) Preliminary Disclosures, p. 6. It is my understanding that George Johnson does not represent the music industry or the songwriters/publishers.

⁷⁰ 37 CFR. § 385.23(a)(4).

⁷¹ 37 CFR. § 385.23(a)(5).

⁷² Apple Inc. Proposed Rates and Terms, p. 3.

- a. RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) (Phonorecords III)

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RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) (Phonorecords III)

⁷³ RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR , p. 3.

⁷⁴R pp. 1–2.

⁷⁵I RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) pp. 1–2. (Ph d III)

- d. **RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) (Phonorecords III)**
- e. George Johnson suggests a one-time fee plus a per-play rate for locker services.⁷⁶

V. **Apple’s Proposed Rates for Permanent Downloads and Ringtones are Reasonable**

41. As discussed earlier in Section IV.B, Apple proposes no change to the royalty rates for permanent downloads and ringtones that the Copyright Royalty Board set in the 2008 proceeding. The existing royalty rates are in keeping with the Section 801(b) objectives, and I do not believe there is a reason to depart from the Copyright Royalty Board’s 2008 assessment. Further, there is near universal agreement on these royalty rates.

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and copyright owners have entered into a settlement with several music industry participants to extend the existing royalty rates for permanent downloads and ringtones. Therefore, Apple’s proposal for royalty rates for permanent downloads and ringtones is reasonable.

VI. **Apple’s Proposed Rate for Interactive Streaming is Intuitive for Publishers/Songwriters, Avoids the Confusion Inherent in Some Alternative Proposals, and Will Simplify How Royalties Are Calculated**

42. Under a percent-of-revenue royalty structure, all-in royalties to publishers and songwriters from interactive streaming services may depend, among other things, on the total number of streams by users of a service, the number of streams of songs by individual songwriters, relevant revenues for the service (from paid subscriptions or advertising or both). The current royalty structure not only includes a percent-of-revenue component, but also a component that depends on other factors such as the number of subscribers of the interactive streaming service and the royalty payments made by the interactive streaming service for performance royalties with respect to sound recordings. All these factors could vary across services, and from month-to-month for the same service.

43. Because some of these factors may not be visible to songwriters, and/or may depend on assumptions made by interactive streaming services, songwriters are unable to reconcile the number of times their songs have been streamed with the ultimate compensation they receive for

⁷⁶ George Johnson’s (GEO) Preliminary Disclosures, pp. 3–4.

mechanical royalties. Luke McMaster, a songwriter for Rihanna, has commented, “I’ll get a cheque in the mail for \$20 for a million streams, and that just makes absolutely no sense to me.”⁷⁷ Similarly, Michelle Lewis was perplexed after receiving \$17.72 for nearly 3 million streams of the song “Wings” (written for British girl group Little Mix).⁷⁸ Another example is that of songwriter Kevin Kadish who received merely \$5,679 for 178 million streams of the song *All About That Bass*, which he co-wrote.⁷⁹ One band even shared a spreadsheet tallying streams from Spotify with Digital Music News, highlighting the variability in payouts across time periods and across songs.⁸⁰ In this spreadsheet, there are (at least) two entries for songs streamed in the US in October 2013. One song was played five times, and resulted in a royalty payment of \$0.001 per stream. The other song was played 12 times, and resulted in a royalty payment of \$0.007 per stream.⁸¹ This variability and the lack of clarity can be highly confusing for songwriters.

44. Some of the confusion stems from the fact that many streams are played through ad-supported services. Because they currently receive little revenue from ads (especially in comparison with the revenues received from subscriptions), this can lead to lower per-stream rates relative to subscription-based services.

45. In contrast to the confusion caused by the current royalty system or **RESTRICTED — Subject to Protective Order in Docket No.**

Apple’s per-play rate for interactive streaming would make royalty payments to songwriters simpler, less variable, and more predictable (for a given number of streams). Furthermore,

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⁷⁷ Deana Sumanac-Johnson. “Songwriters Get Pitiful Amounts as Streaming Offers Tiny Royalties,” *CBC News*, May 6, 2016, <http://www.cbc.ca/news/arts/songwriters-royalties-streaming-1.3567947>, a true and correct copy of which is attached hereto as **APL-078**.

⁷⁸ John Seabrook, “Will Streaming Music Kill Songwriting?,” *The New Yorker*, February 8, 2016, <http://newyorker.com/business/currency/will-streaming-music-kill-songwriting>, a true and correct copy of which is attached hereto as **APL-125**.

⁷⁹ **APL-078**, Deana Sumanac-Johnson. “Songwriters Get Pitiful Amounts as Streaming Offers Tiny Royalties,” *CBC News*, May 6, 2016, <http://www.cbc.ca/news/arts/songwriters-royalties-streaming-1.3567947>.

⁸⁰ **APL-154**, Paul Resnikoff, “My Band Has 1,000,000 Spotify Streams. Want to See Our Royalties?,” *Digital Music News*, May 26, 2016, <http://www.digitalmusicnews.com/2016/05/26/band-1-million-spotify-streams-royalties/>.

⁸¹ See lines 14 and 15 of the spreadsheet embedded in the article: Paul Resnikoff, “My Band Has 1,000,000 Spotify Streams. Want to See Our Royalties?,” *Digital Music News*, May 26, 2016, <http://www.digitalmusicnews.com/2016/05/26/band-1-million-spotify-streams-royalties/>, a true and correct copy of which is attached hereto as **APL-156**.

RESTRICTED — Subject to Protective Order in Docket No. 16 CRB 0001 PR⁸² Therefore, adopting a per-play rate structure will not impose any additional burden on streaming services.

VII. Apple’s Proposed Rate for Interactive Streaming Accounts for the Evolving Nature of the Music Industry and Properly Compensates Songwriters and Streaming Service Providers

46. The music industry has evolved significantly as technology has progressed. Over the decades, new formats for music distribution and consumption have emerged (from gramophone records to cassette tapes to compact discs to digital downloads) that have become playable on increasingly portable devices (from record players to tape decks to smartphones). The Internet has facilitated the use of and increased the popularity of digital downloads, while increases in buffering speed have made music streaming viable. Interactive streaming is becoming an increasingly prevalent mode of consumption, replacing digital downloads.⁸³

47. The interactive streaming industry today is markedly different than it was in the mid-2000s, when the current royalty rates were adopted. At that time, interactive music streaming was a nascent industry that had not demonstrated its viability. Since then, concerns about the survival of the interactive streaming industry largely have disappeared.⁸⁴ The number of streaming services, the volume of music available for interactive streaming, interactive streaming services’ revenues, and the number of paid subscribers all have increased substantially in recent years. Yet, as the use of interactive streaming increases, songwriters are increasingly disenchanted with their royalty payments.⁸⁵ These developments necessitate a reassessment of how royalties for publishers/songwriters are determined.

⁸² See, for example, RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) (Phonorecords III) True

and correct copies of excerpts from the RESTRICTED are attached hereto as **APL-019** and **APL-024**.

⁸³ “IFPI Digital Music Report 2015,” International Federation of the Phonographic Industry Report, 2015, NMPA00000751–94 at 56–57, a true and correct copy of which is attached hereto as **APL-017**.

⁸⁴ As I report below, both the revenue from interactive and the number of users subscribing to such service has been steadily growing. See Eric Blattberg, “4 Things We Learned About the Music-Streaming Industry,” *Digiday*, March 30, 2015, <http://digiday.com/platforms/4-things-learned-music-streaming-industry/>, a true and correct copy of which is attached hereto as **APL-090**. Also, note that investors valued Spotify at more than \$8 billion based in its latest round of funding. See Julia Greenberg, “Spotify Is Worth \$8 Billion? It’s Not as Crazy as It Sounds,” *Wired*, April 15, 2015, <https://www.wired.com/2015/04/spotify-worth-8-billion-not-crazy-sounds/>, a true and correct copy of which is attached hereto as **APL-101**.

⁸⁵ Kelsey McKinney, “1 Million Streams = \$90? NeYo Reveals the Truth About How Songwriters Get Paid,” *Fusion*, June 9, 2015, <http://fusion.net/story/139678/songwriters-equity-act/> (Kelsey McKinney quotes Rhymefest, “I’m in D.C. today to talk to the lawmakers to make it feel even so that we can still have music. If I’m not able to

48. With ever-growing catalogs and increasingly innovative features and tools, interactive streaming services are driving consumption and innovation in the music industry.⁸⁶

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⁸⁷ This has resulted in an increase in the volume, variety, and accessibility of music consumed, thereby increasing consumer welfare. This also has enabled musicians to reach larger audiences. Given these benefits and the innovations introduced by interactive streaming services, it is important that music service providers (e.g., interactive streaming service providers) are compensated appropriately for their contributions.

49. Apple’s proposed rate for interactive streaming appropriately compensates both songwriters and interactive streaming service providers for their contributions given the recent developments in the music industry.

A. The Rapid Shift to Music Streaming Necessitates a Reassessment of How Publishers/Songwriters are Paid

1. Streaming is an Increasingly Prevalent Mode of Music Consumption

50. The introduction of the phonograph in 1887, the first technology to record and play back music, revolutionized the way households consumed music.⁸⁸ Since then, various music formats have emerged. The first dominant phonograph format, gramophone or 78 rpm records, was replaced by the development of the 12" Long Playing Vinyl (LP) format in 1948, which enabled longer playback time.⁸⁹ Vinyl declined in popularity in the 1970s with the rise in demand for cassette tapes, which afforded consumers greater portability and even longer playback time;

there’s certain songs that just won’t be made and certain movements that won’t be had.”), a true and correct copy of which is attached hereto as **APL-032**; Aloe Blacc, “Aloe Blacc: Streaming Services Need to Pay Songwriters Fairly,” *Wired*, November 5, 2014, <http://www.wired.com/2014/11/aloe-blacc-pay-songwriters/>, a true and correct copy of which is attached hereto as **APL-043**.

⁸⁶ **APL-017**, “IFPI Digital Music Report 2015,” International Federation of the Phonographic Industry Report, 2015, NMPA00000751–94 at 56.

⁸⁷ **RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022)**, a true and correct copy of which is attached hereto as **APL-022d III**

⁸⁸ “Inventing Entertainment: The Early Motion Pictures and Sound Recordings of the Edison Companies,” *Library of Congress*, <https://www.loc.gov/collections/edison-company-motion-pictures-and-sound-recordings/articles-and-essays/history-of-edison-sound-recordings/history-of-the-cylinder-phonograph/>, a true and correct copy of which is attached hereto as **APL-178**.

⁸⁹ Steve Schoenherr, “Recording Technology History,” Audio Engineering Society, [http://www.aes.org/aeshc/docs/recording.technology history/notes.html#origins](http://www.aes.org/aeshc/docs/recording.technology%20history/notes.html#origins), a true and correct copy of which is attached hereto as **APL-179**.

cassette tapes were then succeeded by the compact disc (CD) as the dominant medium format in the late 1980s.⁹⁰

51. While each format changed the way households consumed music, it did not fundamentally alter the distribution of music. For all these music formats, music was physically distributed either directly to the consumer or through record stores. In addition, with the exception of a select few tracks commonly known as singles, music was typically distributed in the form of a bundle of songs (an album).⁹¹

52. By the early 2000s, compression format files—files that were small enough to be easily distributed over the Internet, such as the MP3 audio format—drastically altered the distribution and consumption of music, as music services began to offer individual tracks or songs online in the form of “digital downloads.”

53. Digital downloads gained tremendous popularity in 2003 when Apple introduced the iTunes Music Store (the “iTunes Store”).⁹² Described as a “juggernaut,” a “savior” of a music sector “ravaged by Napster,” and a “hub of a powerhouse media / tech ecosystem,” the iTunes Store transformed the music distribution industry.⁹³ The iTunes Store provided a convenient way (and, the most significant way) for iTunes users to purchase a song or an entire album, legally, with a single click.⁹⁴ The iTunes Store also afforded users of Apple’s iPod device (a portable music player) the additional convenience of syncing songs directly to the device: in this way,

⁹⁰ Dann Albright, “The Evolution of Music Consumption: How We Got Here,” *MakeUseOf*, April 30, 2015, <http://www.makeuseof.com/tag/the-evolution-of-music-consumption-how-we-got-here/>, a true and correct copy of which is attached hereto as **APL-074**.

⁹¹ Bundling the songs as albums lowered the transaction cost inherent in physical distribution, such as shipping costs. See Anita Elberse, “Bye Bye Bundles: The Unbundling of Music in Digital Channels,” *Journal of Marketing* 74, no. 3, 2010, pp. 107-123 at p. 107, a true and correct copy of which is attached hereto as **APL-088**.

⁹² Apple Press Release, “iTunes Music Store Sells Over One Million Songs in First Week,” May 5, 2003, <http://www.apple.com/pr/library/2003/05/05iTunes-Music-Store-Sells-Over-One-Million-Songs-in-First-Week.html>, a true and correct copy of which is attached hereto as **APL-027**.

⁹³ See, for example, Nathan Ingraham and Greg Sandoval, “iTunes Store at 10: How Apple Built a Digital Media Juggernaut,” *The Verge*, April 26, 2013, <http://www.theverge.com/2013/4/26/4265172/itunes-store-at-10-how-apple-built-a-digital-media-juggernaut>, a true and correct copy of which is attached hereto as **APL-102**; Brad Hill, “The iTunes Influence, Part One: How Apple Changed the Face of the Music Marketplace,” *Engadget*, April 29, 2013, <https://www.engadget.com/2013/04/29/the-itunes-influence-part-one/>, a true and correct copy of which is attached hereto as **APL-060**; Steve Knopper, “iTunes’ 10th Anniversary: How Steve Jobs Turned the Industry Upside Down,” *RollingStone*, April 26, 2013, <http://www.rollingstone.com/music/news/itunes-10th-anniversary-how-steve-jobs-turned-the-industry-upside-down-20130426>, a true and correct copy of which is attached hereto as **APL-127**.

⁹⁴ **APL-102**, Nathan Ingraham and Greg Sandoval, “iTunes Store at 10: How Apple Built a Digital Media Juggernaut,” *The Verge*, April 26, 2013, <http://www.theverge.com/2013/4/26/4265172/itunes-store-at-10-how-apple-built-a-digital-media-juggernaut>.

digital music became “ubiquitous.”⁹⁵ These conveniences, paired with the popularity of the iPod, led to the success of iTunes and increased digital music sales.⁹⁶ Despite a backdrop in which web piracy was ballooning,⁹⁷ revenue from legal digital music sales increased annually after 2003 and peaked in 2012 with approximately \$2.8 billion in revenue, with the iTunes Store responsible for much of the sales during these years (see Figure 1).⁹⁸ Demonstrating a preference for digital ownership over physical ownership, digital downloads revenue as a percentage of total revenue from ownership (digital and physical) increased from less than 2% in 2004 to 54% in 2015.⁹⁹

54. Though not initially as popular as digital downloads, streaming services (both non-interactive and interactive) also experienced substantial growth after the mid-2000s. According to the Recording Industry Association of America (“RIAA”) Year-End Revenue and Shipment Reports, total revenue from non-interactive streaming services grew from approximately \$7 million dollars in 2004 to approximately \$803 million in 2015.¹⁰⁰ Much of this growth occurred after 2008, with total revenues nearly doubling every two years. Lagging non-interactive services by a few years, total revenue from interactive streaming ranged between approximately

⁹⁵ Alex Pham and Glenn Peoples, “Seven Ways iTunes Changed the Music Industry,” *Billboard*, April 25, 2013, <http://www.billboard.com/biz/articles/news/1559622/seven-ways-itunes-changed-the-music-industry>, a true and correct copy of which is attached hereto as **APL-040**.

⁹⁶ **APL-040**, Alex Pham and Glenn Peoples, “Seven Ways iTunes Changed the Music Industry,” *Billboard*, April 25, 2013, <http://www.billboard.com/biz/articles/news/1559622/seven-ways-itunes-changed-the-music-industry>.

⁹⁷ **APL-102**, Nathan Ingraham and Greg Sandoval, “iTunes Store at 10: How Apple Built a Digital Media Juggernaut,” *The Verge*, April 26, 2013, <http://www.theverge.com/2013/4/26/4265172/itunes-store-at-10-how-apple-built-a-digital-media-juggernaut>.

⁹⁸ NPD Press Release, “The NPD Group-After 10 Years Apple Continues Music Download Dominance in the U.S.,” April 16, 2013, a true and correct copy of which is attached hereto as **APL-155**.

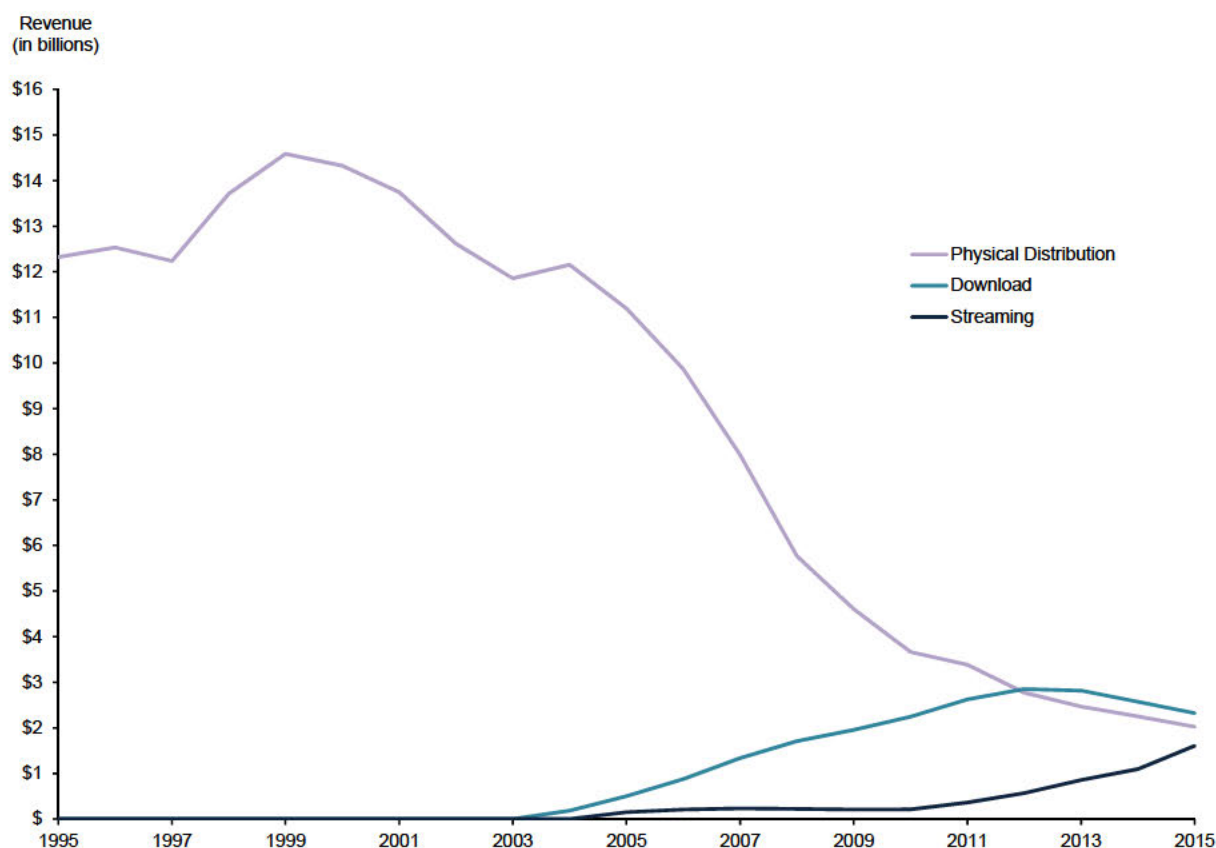
⁹⁹ In 2004, revenues from digital downloads was \$183.5 million, while revenues from physical distribution and digital downloads was \$12.3 billion. In 2015, revenues from digital downloads was \$2.3 billion while revenues from physical distribution and digital downloads was \$4.3 billion. Revenues from physical distribution include sales of LP/EPs, Vinyl Singles, 8-Tracks, Cassettes, Cassette Singles, Other Tapes, CDs, CD Singles, DVD Audio, SACDs, and Music Videos; revenues from digital downloads include sales of Download Singles, Download Albums, and Download Music Videos. See “U.S. Sales Database,” *RIAA*, <https://www.riaa.com/u-s-sales-database/>, a true and correct copy of which is attached hereto as **APL-165**.

¹⁰⁰ The figures reported in this paragraph are rounded to the nearest million and are based on RIAA Year-End Revenue and Shipment Reports. Revenues for non-interactive streaming are reported by RIAA as revenue from SoundExchange. SoundExchange collects and distributes royalties for the featured artist and the sound recording copyright owner when content is played on a non-interactive digital source. See **APL-165**, “U.S. Sales Database,” *RIAA*, <https://www.riaa.com/u-s-sales-database/>; “About Digital Royalties,” <http://www.soundexchange.com/artist-copyright-owner/digital-royalties/>, a true and correct copy of which is attached hereto as **APL-180**.

\$150 million to \$212 million from 2005 to 2010, after which annual revenues grew just as rapidly, reaching approximately \$1.6 billion by 2015.¹⁰¹

55. Notably, the increase in revenues from digital downloads and interactive streaming coincided with a decline in global music sales through physical distribution. Figure 1 shows the decline in revenue from physically distributed music formats (LP/EP, Vinyl Single, 8-track, Cassette, Other Tapes, CD, CD Single, Music Video and DVD Audio) based on the RIAA Revenue Statistics. Revenue from physically distributed music formats began to decline in 1999 from a peak of over \$14 billion. By 2015, annual revenue from physically distributed music formats reached an all-time low of approximately \$2.0 billion, according to industry data from the RIAA (See Figure 1).

¹⁰¹ **APL-165**, “U.S. Sales Database,” RIAA, <https://www.riaa.com/u-s-sales-database/>; Joshua P. Friedlander, “News and Notes on 2015 RIAA Shipment and Revenue Statistics,” RIAA Report, undated, <http://www.riaa.com/wp-content/uploads/2016/03/RIAA-2015-Year-End-shipments-memo.pdf>, a true and correct copy of which is attached hereto as **APL-095**. Note that total revenue from interactive streaming is the sum of revenue from “Paid Subscription” and “On-Demand Ad-Supported” streaming services.

FIGURE 1: Recorded Music Revenues by Distribution Format in the U.S., 1995 – 2015

Source: Recording Industry Association of America Year-End Revenue and Shipment Reports

Notes: The Physical Distribution category includes LP/EP, Vinyl Single, 8-Track, Cassette, Cassette Single, Other Tapes, CD, CD Single, DVD Audio, and SACD; the Download category includes Download Single, Download Album, and Download Music Video; and the Streaming category includes revenue from interactive streaming services, which is reported as revenue from Paid Subscriptions and On-Demand (Ad-Supported) streaming. The Streaming category excludes non-interactive streaming revenue, which is separately reported by the RIAA as “Revenues from SoundExchange distribution.” The Physical Distribution category data include three instances of negative annual revenue.

56. Revenues from digital downloads have been declining since 2013. Revenues from interactive streaming have been increasing dramatically since 2013, however, which suggests that interactive streaming services could be considered a substitute for digital downloads. The idea that downloads and interactive streaming are substitutes is supported by academic research.¹⁰² As more music is consumed using interactive streaming, the decline in digital

¹⁰² Luis Aguiar and Joel Waldfogel, “Streaming Reaches Flood Stage: Does Spotify Stimulate or Depress Music Sales?,” Institute for Prospective Technological Studies Digital Economy Working Paper 2015/05, 2015, pp. 1–37 at pp. 2–3, 6, 15, a true and correct copy of which is attached hereto as **APL-038**.

downloads likely will continue. Projections strongly indicate that interactive streaming use is far from plateauing: according to industry analysts, global subscriber numbers are expected to increase from 68 million in 2015 (12.5 million in the U.S.) to 220 million in 2021 (30.9 million in the U.S.).¹⁰³

57. Given this shift in music consumption from digital downloading to interactive streaming, songwriters need predictable and fair compensation for interactive streaming commensurate with their compensation for digital downloads.

2. The Streaming Industry Is No Longer a Nascent Industry with an Uncertain Future and Royalty Payments Made by Streaming Services to Songwriters Should Reflect That

58. When MusicNet, a streaming service, launched in 2001, it never gained much momentum.¹⁰⁴ In the last five years, however, at least five interactive streaming services besides Spotify have launched in the U.S. (and have remained operational).¹⁰⁵ The number of users of such services has grown quickly. As shown in Figure 2, the number of subscription service users has been increasing steadily, and hovered between 10.8 million and 12 million in 2015.

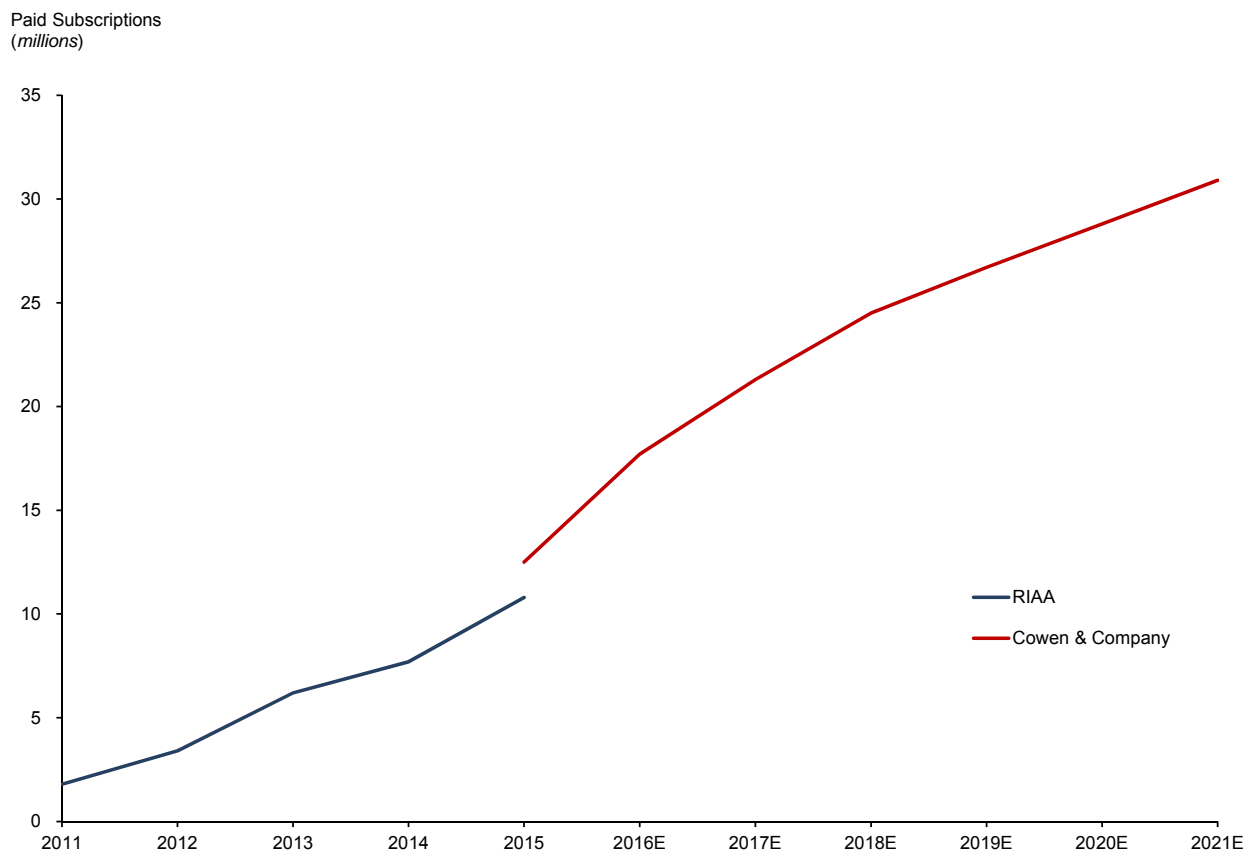
¹⁰³ John Blackledge et al., “Spotify: A Global Streaming Leader,” *Cowen and Company*, June 29, 2016, p. 10, a true and correct copy of which is attached hereto as **APL-124**.

¹⁰⁴ Tony Smith, “Major Labels Sell Off MusicNet: No Longer Interested in Doing Digital Distribution Themselves?,” *The Register*, April 13, 2005, http://www.theregister.co.uk/2005/04/13/labels_sell_musicnet/, a true and correct copy of which is attached hereto as **APL-069**; Amy Harmon, “Congress to Preview Digital Music Service,” *The New York Times*, May 17, 2001, <http://www.nytimes.com/2001/05/17/technology/17MUSI.html>, a true and correct copy of which is attached hereto as **APL-047**.

¹⁰⁵ Google Play and Spotify (in the U.S.) were launched in 2011. See “Google Music is Open for Business,” Google Official Blog, November 16, 2011, <https://googleblog.blogspot.com/2011/11/google-music-is-open-for-business.html>, a true and correct copy of which is attached hereto as **APL-100**; Daniel Ek, “Hello America. Spotify Here.,” Spotify, July 14, 2011, <https://news.spotify.com/us/2011/07/14/hello-america-spotify-here/>, a true and correct copy of which is attached hereto as **APL-031**; Groove was launched in 2012 as Xbox. See Ross Miller, “Xbox Music Launches Tuesday on Xbox 360, Will Come Pre-Installed on Windows 8 and Windows Phone 8,” *The Verge*, October 15, 2012, <http://www.theverge.com/2012/10/15/3504532/xbox-music-pricing-availability-microsoft-xbox-360-windows-phone-8-windows-8>, a true and correct copy of which is attached hereto as **APL-150**; Xbox Music was rebranded as “Groove” in July 2015. See Tom Warren, “Microsoft Rebrands Xbox Music to Groove,” *The Verge*, July 6, 2015, <http://www.theverge.com/2015/7/6/8902079/microsoft-groove-music-features>, a true and correct copy of which is attached hereto as **APL-153**; Tidal was launched in 2014. See Matthew Sparkes, “Tidal Launches Lossless Music Streaming in UK and US,” *The Telegraph*, October 28, 2014, <http://www.telegraph.co.uk/technology/news/11192375/Tidal-launches-lossless-music-streaming-in-UK-and-US.html>, a true and correct copy of which is attached hereto as **APL-146**; Apple Music was launched in 2015. See **APL-001**, Apple Press Release, “Introducing Apple Music – All The Ways You Love Music,” June 8, 2015, <https://www.apple.com/pr/library/2015/06/08Introducing-Apple-Music-All-The-Ways-You-Love-Music-All-in-One-Place-.html>; Rhapsody was rebranded as “Napster” in 2011. See Ben Popper, “Rhapsody rebrands itself as Napster,” *The Verge*, June 14, 2016, <http://www.theverge.com/2016/6/14/11936974/rhapsody-rebrands-as-napster>, a true and correct copy of which is attached hereto as **APL-054**.

Projections indicate that paid interactive streaming subscriptions and interactive streaming revenue will only continue to increase.¹⁰⁶

FIGURE 2: Paid Subscriptions to Streaming Music Services in the U.S., 2011 – 2021



Source: **APL-094**, “News and Notes on 2014 RIAA Music Industry Shipment and Revenue Statistics,” RIAA; **APL-095**, “News and Notes on 2015 RIAA Shipment and Revenue Statistics,” RIAA; **APL-124**, John Blackledge et al., “Spotify: A Global Streaming Leader,” *Cowen and Company*, June 29, 2016.

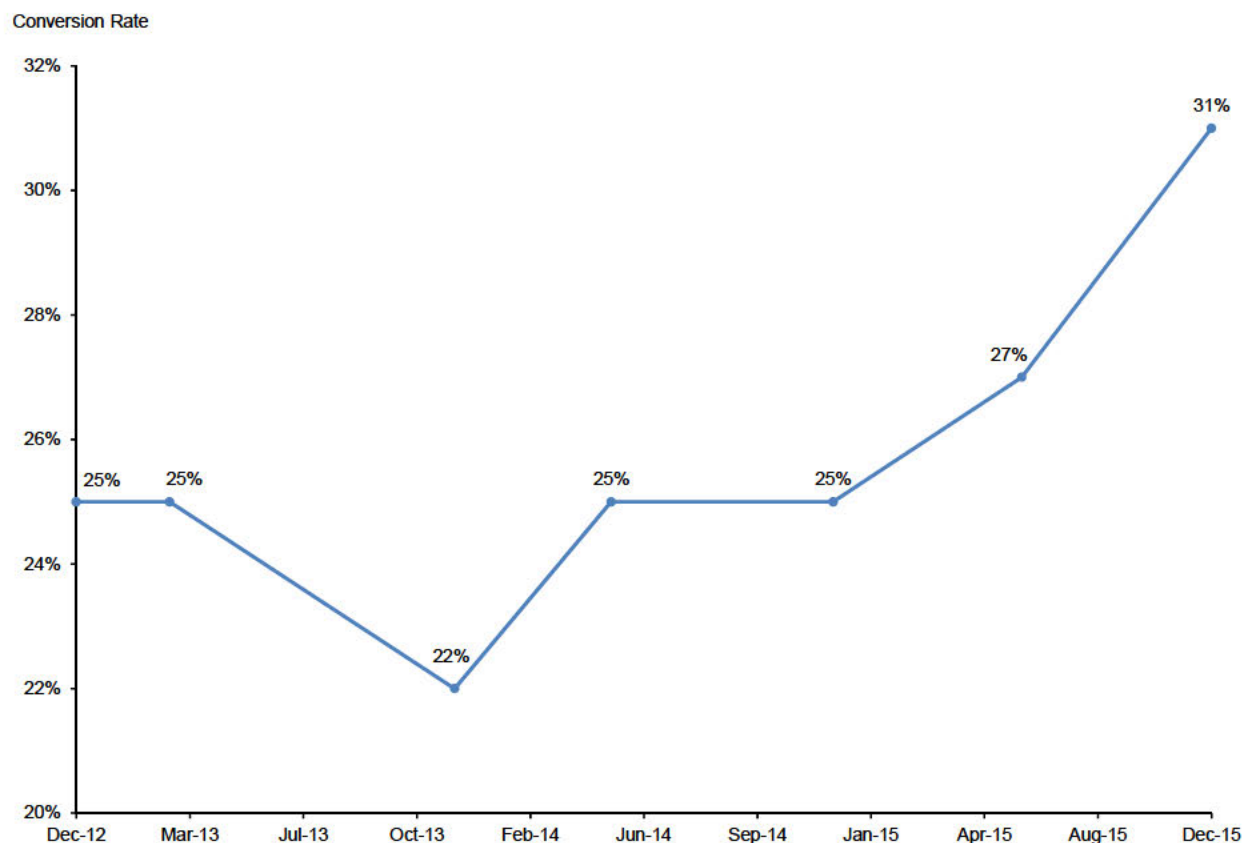
Note: These numbers are U.S.-only across all platforms, and are projections for 2016 – 2021. RIAA numbers show annual averages of the number of paid subscription streaming users. Cowen and Company numbers show end-of-period numbers of paid subscription streaming service users in 2015, and projected end-of-period numbers of paid subscription streaming service users for 2016 – 2021.

59. Though some of the interactive streaming services also offer a free, ad-supported component, many users who initially join the free version ultimately choose to upgrade and purchase subscriptions. For Spotify, the conversion rate of free users into paid users is shown in

¹⁰⁶ **APL-124**, John Blackledge et al., “Spotify: A Global Streaming Leader,” *Cowen and Company*, June 29, 2016, p.10; MediA Report, Mark Mulligan, “Global Music Forecasts 2014–2019: The Shift to the Consumption Era,” July 2014, SPOTCRB0005152–175 at 162–163, a true and correct copy of which is attached hereto as **APL-023**.

Figure 3. The conversion rate has been slowly increasing since December 2013, and was approximately 31% in December 2015. Approximately 80% of free users who upgrade do so within the first six months.¹⁰⁷

FIGURE 3: Conversion Rates of Ad-Supported Users into Premium Subscribers
Spotify: December 2012 – December 2015



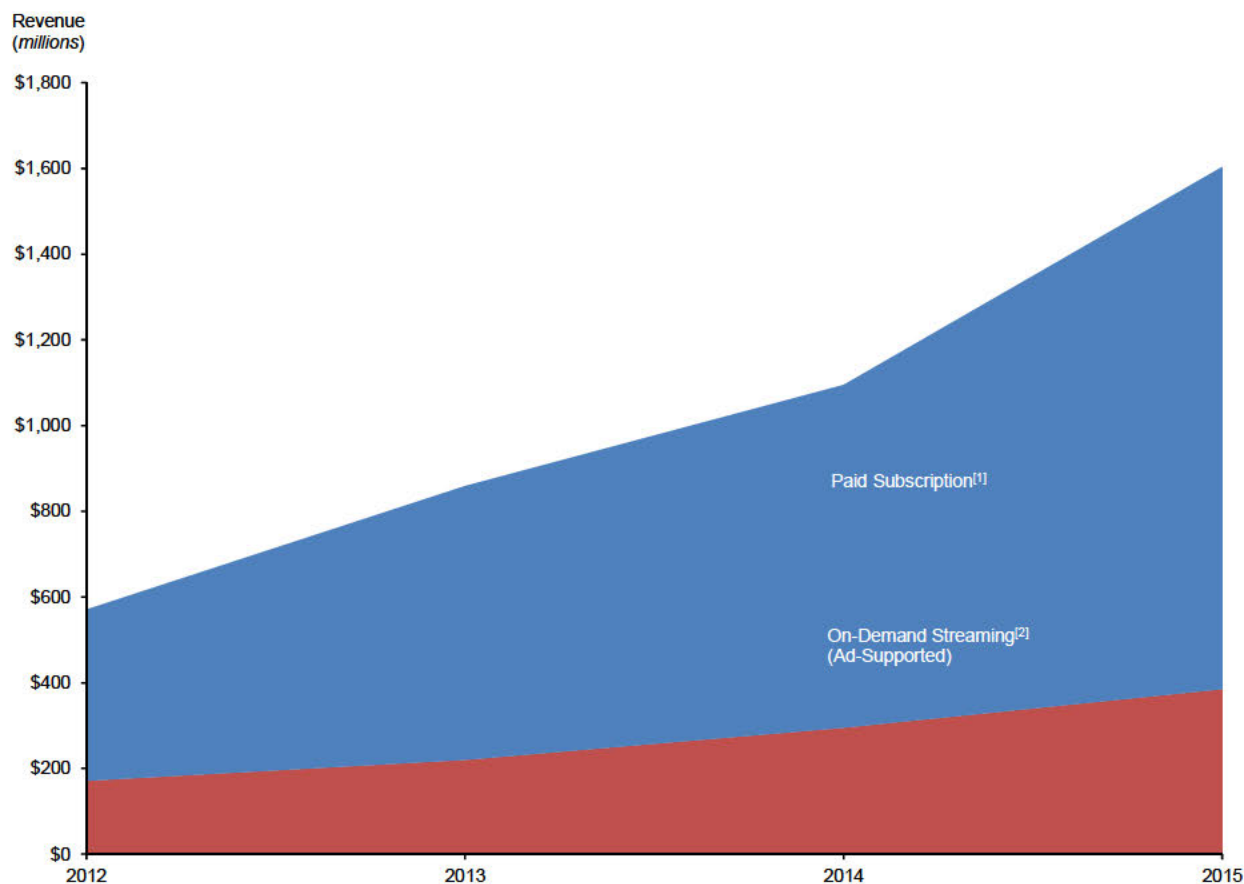
Source: **APL-124**, John Blackledge et al., “Spotify: A Global Streaming Leader,” *Cowen and Company*, June 29, 2016.

60. This growth in the number of subscribers and the conversion rate from free users to subscribers has demonstrated that consumers are increasingly willing to pay for interactive music streaming. Correspondingly, interactive streaming service revenues have been increasing. Figure 4 shows the growth in service revenues since 2012. Ad revenues (from the free, ad-

¹⁰⁷ **APL-124**, John Blackledge et al., “Spotify: A Global Streaming Leader,” *Cowen and Company*, June 29, 2016, p. 9.

supported components of interactive streaming services) have been steadily increasing, but revenues from subscriptions have more than tripled from 2012 to 2015.

FIGURE 4: Interactive Streaming Service Revenues in the U.S., 2012 – 2015



Source: “News and Notes on 2013 RIAA Music Industry Shipment and Revenue Statistics,” RIAA; “News and Notes on 2014 RIAA Music Industry Shipment and Revenue Statistics,” RIAA; “News and Notes on 2015 RIAA Shipment and Revenue Statistics,” RIAA, true and correct copies of which are attached hereto as **APL-018**, **APL-094**, and **APL-095**, respectively.

Note:

[1] In this category, the RIAA includes streaming, tethered, and other paid subscription services not operating under statutory licenses, such as paid versions of Spotify, TIDAL, and Apple Music.

[2] In this category, the RIAA includes ad-supported audio and music video services not operating under statutory licenses, such as YouTube, Vevo, and ad-supported Spotify.

61. RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022)
(Phonorecords III)

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RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) (Phonorecords III)

Source: **APL-015**, APL-PHONO_00009168–69.

Note: Apple Music was launched on June 30, 2015. Numbers are U.S.-only. Active Paying Subscribers and Total Subscribers values represent the count of respective subscribers on the last day of each month.

62. The interactive streaming service industry has grown substantially since its early days, in terms of number of users, number of paying users, revenues, and number of services available. All indications are that it will continue to grow.¹⁰⁹ The major record labels reportedly own

¹⁰⁸ Testimony of David Dorn, ¶ 24.

¹⁰⁹ Note that despite the growth in users and revenues, Spotify does not have positive profits, which it attributes to “substantial investments in product development, expansion and new personnel.” See Mia Shanley and Sven Nordenstam, “Spotify Subscriptions Pump Up Revenue, but Operating Loss Widens,” *Reuters*, May 24, 2016, <http://www.reuters.com/article/us-sweden-spotify-idUSKCN0YF0TD>, a true and correct copy of which is attached hereto as **APL-147**; Charlotte Hassan, “Tidal Is Growing Faster Than Apple and Spotify Combined,” *Digital Music News*, May 16, 2016, <http://www.digitalmusicnews.com/2016/05/16/tidal-become-major-competitor-spotify-apple->

approximately 20% of Spotify's equity, and equity analysts believe that interactive streaming will be the main driver of music revenue growth.¹¹⁰ In fact, Warner Music's largest source of revenue is currently from interactive streaming royalties.¹¹¹ There has also been some discussion in the press about Spotify contemplating an IPO in 2017.¹¹²

63. It is noteworthy that today's market is significantly different from the music industry of the early-2000s when there was little use of interactive streaming services.¹¹³ During that time, the press surrounding the launch of interactive streaming services highlighted concerns as to the quality of interactive streaming services and the business model itself.¹¹⁴ In fact, though several interactive streaming services were already in existence during this period (Rhapsody being prominent among these, as early as 2001),¹¹⁵ the IFPI indicated that it would begin publishing official statistics only on digital music sales (but ignored streaming services) in 2005.¹¹⁶ This began to change at the beginning of the current decade with an improvement in issues related to buffering (fortuitously at a time that coincided with an increase in network speeds), the

music, a true and correct copy of which is attached hereto as **APL-065**; Kris Carlon, "Amazon Reports 20% Sales Growth: Prime, Prime Video and Prime Music All Booming," *Android Authority*, January 29, 2016, <http://www.androidauthority.com/amazon-reports-20-sales-growth-2015-670302/>, a true and correct copy of which is attached hereto as **APL-045**; Josh Constine, "Google Music Download Sales Miraculously Growing Despite Their Death Everywhere Else," *TechCrunch*, November 11, 2014, <https://techcrunch.com/2014/11/11/google-music-sales-and-subscribers-up/>, a true and correct copy of which is attached hereto as **APL-126**.

¹¹⁰ **APL-124**, John Blackledge et al., "Spotify: A Global Streaming Leader," *Cowen and Company*, June 29, 2016, p. 14.

¹¹¹ **APL-124**, John Blackledge et al., "Spotify: A Global Streaming Leader," *Cowen and Company*, June 29, 2016, p. 14.

¹¹² Hannah Karp, "Spotify Seeks to Fine-Tune Music Rights as it Gears Up for IPO: Streaming Service is in Talks with Record Labels to Negotiate New Contracts," *The Wall Street Journal*, August 23, 2016, <http://www.wsj.com/articles/spotify-seeks-to-fine-tune-music-rights-as-it-gears-up-for-ipo-1471983753>, a true and correct copy of which is attached hereto as **APL-105**.

¹¹³ See, for example, Figure 1.

¹¹⁴ Walter S. Mossberg, "Apple's New Service Beats Illegal Free Sites," *The Wall Street Journal*, April 30, 2003, <http://www.wsj.com/articles/SB105165524028176000>, a true and correct copy of which is attached hereto as **APL-050**; "Getting the Best Out of Net Music," *BBC News*, December 19, 2001, <http://news.bbc.co.uk/2/hi/entertainment/1719779.stm>, a true and correct copy of which is attached hereto as **APL-053**; David Gussow, "MusicNet Casts for Subscribers, But Holes Still Remain," *St. Petersburg Times*, March 17, 2003, http://www.sptimes.com/2003/03/17/Technology/MusicNet_casts_for_su.shtml, a true and correct copy of which is attached hereto as **APL-130**; Jim Hu, "Labels Defend MusicNet, Pressplay," *CNET*, August 3, 2002, <https://www.cnet.com/news/labels-defend-musicnet-pressplay/>, a true and correct copy of which is attached hereto as **APL-111**; John Borland, "Pressplay Music Service Loses CEO," *CNET*, August 3, 2002, <https://www.cnet.com/news/pressplay-music-service-loses-ceo/>, a true and correct copy of which is attached hereto as **APL-058**.

¹¹⁵ Benny Evangelista, "Music Firms Open Online Services, but Will Fans Pay?," *SFGate*, December 3, 2001, <http://www.sfgate.com/business/article/Music-firms-open-online-services-but-will-fans-2845907.php>, a true and correct copy of which is attached hereto as **APL-055**.

¹¹⁶ "The Recording Industry: World Sales 2003," *International Federation of the Phonographic Industry Report*, April 4, 2004, p. 3, <http://www.ifpi.org/content/library/worldsales2003.pdf>, a true and correct copy of which is attached hereto as **APL-068**.

development of other wireless technologies, the rise of internet-connected devices such as the tablet and the smartphone, and an increase in consumers' acceptance of the subscription model.¹¹⁷ Still, Billboard, the UK's Official Singles Chart, and the RIAA did not even consider including music streams in their analyses of top hits until 2013 or later.¹¹⁸

64. The evolution of the interactive streaming industry over the last few years, and the fact that interactive streaming services are attracting an increasing number of paying subscribers, indicates that the streaming industry has outgrown its nascent stage and is showing the sort of sustained growth consistent with a robust, strong industry. Therefore, the royalty rate and the royalty structure for payments to songwriters by interactive streaming services should be consistent with a robust industry and similar to the royalty structures of other major forms of music delivery.

3. Songwriters are Increasingly Disenchanted with Royalty Payments as Streaming Services Gain Popularity

65. Under the current rate structure, which is based in some form on the revenues earned by interactive streaming services, the royalties paid to publishers and songwriters have left songwriters dissatisfied even as interactive streaming services have gained popularity. This trend is particularly problematic because the value of songs to consumers has not changed, nor has the “cost” to songwriters of creating them. In the past, the “remarkable worldwide popularity of American music” has been attributed both to the “talent and diversity” of American songwriters, but also to the copyright royalty system, which has “allowed songwriters to devote themselves full time to their craft,” “rewarded proven talents,” and “let promising novices secure

¹¹⁷ **APL-124**, John Blackledge et al., “Spotify: A Global Streaming Leader,” *Cowen and Company*, June 29, 2016, pp. 10–11; **APL-023**, MediA Report, “Global Music Forecasts 2014–2019: The Shift to the Consumption Era,” July 2014, SPOTCRB0005152–75 at 57–58; Charlotte Hassan, “68% of Smartphone Owners Stream Music Daily, Study Finds,” *Digital Music News*, March 11, 2016, <http://www.digitalmusicnews.com/2016/03/11/parks-associates-68-of-u-s-smartphone-owners-listen-to-streaming-music-daily/>, a true and correct copy of which is attached hereto as **APL-034**.

¹¹⁸ “Billboard 200 Makeover: Album Chart to Incorporate Streams & Track Sales,” *Billboard*, November 19, 2014, <http://www.billboard.com/articles/columns/chart-beat/6320099/billboard-200-makeover-streams-digital-tracks> (quoting Silvio Pietroluongo), APL-PHONO_00009156, a true and correct copy of which is attached hereto as **APL-013**.

Lauren Kreisler, “UK Official Singles Chart to Include Streaming Data for the First Time,” *Official Charts*, June 22, 2014, http://www.officialcharts.com/chart-news/uks-official-singles-chart-to-include-streaming-data-for-first-time_4245/, APL-PHONO_00009160, a true and correct copy of which is attached hereto as **APL-014**;

Andy Malt, “RIAA Adds Streaming to Digital Gold and Platinum Certification,” *Complete Music Update*, May 10, 2013, <http://www.completemusicupdate.com/article/riaa-adds-streaming-to-digital-gold-and-platinum-certification/>, a true and correct copy of which is attached hereto as **APL-048**.

advances against future earnings, allowing them the time to learn their craft gradually.”¹¹⁹ “[I]n the album era, even a throwaway track on a best-selling LP earned as much for a songwriter as the hits that made people purchase the album in the first place.”¹²⁰

66. Publishers and songwriters have publicly expressed dissatisfaction with the royalty structure for streaming services. Aloe Blacc, a famous songwriter known for hits such as “I Need a Dollar,” “I’m the Man,” and Avicii’s “Wake Me Up!”, wrote in a November 2014 op-ed that “[t]he abhorrently low rates songwriters are paid by streaming services – enabled by outdated federal regulations – are yet another indication our work is being devalued in today’s marketplace.”¹²¹ An article published the same month cited Rodney Clawson, songwriter for famous country singers such as Luke Bryan, Blake Shelton, and Tim McGraw, describing his income from music streaming as “an absolute joke.”¹²² NeYo, a multiple Grammy award winner and writer for the likes of Beyoncé, Mary J. Blige, Jennifer Hudson, and Rihanna, expressed similar sentiments in mid-2015: “Even though demand for music is greater than ever, it’s harder and harder for songwriters to make a living.”¹²³ Similarly, Michelle Lewis was “surprised” after receiving merely \$17.72 for nearly 3 million streams of her co-written song “Wings” (performed by the British girl group Little Mix).¹²⁴ These sentiments, among others, are the driving force behind the 2014 introduction and 2015 re-introduction before Congress of the Songwriter Equity Act with a bipartisan group arguing for better rates for songwriters.¹²⁵

67. Considerable effort and creativity are required to compose a song. While it is true that many songwriters write songs for the sake of art, and may not be motivated purely by financial gains, they would expect to be paid appropriately for their creations. Without appropriate

¹¹⁹ **APL-125**, John Seabrook, “Will Streaming Music Kill Songwriting?,” *The New Yorker*, February 8, 2016, <http://newyorker.com/business/currency/will-streaming-music-kill-songwriting>.

¹²⁰ **APL-125**, John Seabrook, “Will Streaming Music Kill Songwriting?,” *The New Yorker*, February 8, 2016, <http://newyorker.com/business/currency/will-streaming-music-kill-songwriting>.

¹²¹ **APL-043**, Aloe Blacc, “Aloe Blacc: Streaming Services Need to Pay Songwriters Fairly,” *Wired*, November 5, 2014, <http://www.wired.com/2014/11/aloe-blacc-pay-songwriters/>.

¹²² Kristin M. Hall, “In Wake of Spotify Pullout, Music Industry Debates Streaming,” *The Seattle Times*, November 25, 2014, <http://www.seattletimes.com/business/in-wake-of-spotify-pullout-music-industry-debates-streaming/>, a true and correct copy of which is attached hereto as **APL-132**.

¹²³ **APL-032**, Kelsey McKinney, “1 Million Streams = \$90? NeYo Reveals the Truth about How Songwriters Get Paid,” *Fusion*, June 9, 2015, <http://fusion.net/story/139678/songwriters-equity-act/>.

¹²⁴ **APL-125**, John Seabrook, “Will Streaming Music Kill Songwriting?,” *The New Yorker*, February 8, 2016, <http://newyorker.com/business/currency/will-streaming-music-kill-songwriting>.

¹²⁵ Ed Christman, “Songwriter Equity Act Re-Introduced to Congress,” *Billboard*, March 4, 2015, <http://www.billboard.com/articles/business/6487798/songwriter-equity-act-introduced-to-congress>, a true and correct copy of which is attached hereto as **APL-087**.

compensation, they may divert their talent and creativity from songwriting to other fields, resulting in a decrease in the availability of music for consumers.

B. Interactive Streaming Services Have Been Welfare Enhancing for Both Musicians (Through Wider Market Access) and Consumers (Through Increased Music Variety), and the Economic Return to Streaming Service Providers Should Reflect this Enhancement in Value

1. Interactive Streaming Services Offer Consumers More Music Variety, Which Enables Music Discovery and Enhances the Music Consumption Experience

68. Table 4 below outlines the catalogue size and the music discovery features of the main players in this space. Apple, Spotify, Google Play, and Tidal all have catalogues of over 30 million songs¹²⁶ and libraries that are far larger than what most individuals could have in a personal library prior to the availability of streaming services (for comparison, a 128 GB smartphone has a capacity of approximately 25,000 songs).¹²⁷ It is clear that interactive streaming services have increased consumer access to a larger catalogue and, therefore, a greater variety of music.

69. Indeed, **RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) (Phonorecords III)**

¹²⁹ Further, the

Nielsen Music US 2015 report indicates that interactive music streaming numbers are skewed

¹²⁶ See Table 4.

¹²⁷ This calculation was made assuming an average song size of 5 MB. See “About Media Formats,” Amazon, <https://www.amazon.com/gp/help/customer/display.html?nodeId=201379550>, a true and correct copy of which is attached hereto as **APL-026**.

¹²⁸ **RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) (Phonorecords III)**

¹²⁹ **RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) (Phonorecords III)**

towards “catalog” music, while sales reflect users purchasing more “current” content.¹³⁰

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.¹³¹ In addition to Spotify,
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whose purchase of EchoNest demonstrated their investment in music recommendations, the other main interactive streaming sites are investing in improving their “intelligent” recommendation systems: Google purchased Songza and Apple acquired Semetric.¹³²

Table 4: Catalogue Size & Music Discovery Features of Main Players in Interactive Streaming

Service	Catalogue Size	Music Discovery Features
Apple Music	> 30 million songs and videos ¹³³	For You: recommendations based on stated preferences and listening behavior, recommendations and playlists from music experts; Browse feature: curated playlists and access to new releases, chart toppers, and feature content; Beats 1: radio station with shows hosted by artists and DJs; Connect: access to and ability to interact with posts by artists. ¹³⁴
Spotify	>30 million songs ¹³⁵	Discover Weekly (weekly curated playlist), other curated playlists (mood, tastes, context, genre), recommendations based on listening behavior, user-created playlists, artist radio, “share/recommend” playlists with friends, Facebook integration. ¹³⁶
Amazon Prime Music	>1 million songs ¹³⁷	Recommendations based on user feedback, curated playlists (mood, context, genre). ¹³⁸

¹³⁰ Nielsen Presentation, “Nielsen Music U.S. Report,” April 2015, SPOTCRB0000365–417 at 392, a true and correct copy of which is attached hereto as **APL-020**.

¹³¹ **APL-022**, RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) (Phonorecords III)

¹³² **APL-017**, IFPI Digital Music Report 2015: Charting the Path to Sustainable Growth,” International Federation of the Phonographic Industry Report, 2015, NMPA00000751–94 at 70.

¹³³ “Use Apple Music in the Music App,” *Apple*, <https://support.apple.com/en-us/HT204951>, a true and correct copy of which is attached hereto as **APL-028**.

¹³⁴ My New Music Mix was originally launched as “Discovery Mix.” See **APL-012**, “Apple Music,” *Apple*, <http://www.apple.com/apple-music/>, APL-PHONO_00009149–55; “Apple Music Connect: Frequently Asked Questions,” *Apple*, <http://www.apple.com/itunes/working-itunes/connect/faq>, a true and correct copy of which is attached hereto as **APL-027**; Testimony of David Dorn, ¶¶ 49–57.

¹³⁵ **APL-140**, Madi Alexander and Ben Sisario, “Apple Music, Spotify and a Guide to Music Streaming Services,” *The New York Times*, April 5, 2016, <http://www.nytimes.com/interactive/2015/06/30/business/media/music-streaming-guide.html>.

¹³⁶ “Discover,” *Spotify*, <https://support.spotify.com/us/using-spotify/discover-music/discover/>, a true and correct copy of which is attached hereto as **APL-031**; “Link Spotify with Facebook,” *Spotify*, https://support.spotify.com/is/account_payment_help/account_settings/using-spotify-with-facebook/, a true and correct copy of which is attached hereto as **APL-031**.

¹³⁷ “What is Prime Music?,” *Amazon*, <https://www.amazon.com/gp/help/customer/display.html?nodeId=201530920>, a true and correct copy of which is attached hereto as **APL-181**.

¹³⁸ “Learn More about Prime Music,” *Amazon*, <https://www.amazon.com/gp/feature.html?docId=1002557791>, a true and correct copy of which is attached hereto as **APL-026**.

Google Play	30 million songs and music videos ¹³⁹	Listen Now: contextual/themed playlists; Recommended for You: contextual recommendations and artist-led radio stations, featured playlists, user-created playlists, recommended albums/playlists based on listening history; “I’m feeling lucky radio.” ¹⁴⁰
Tidal	>40 million songs/130,000 videos ¹⁴¹	Discovery: for unsigned artists to release their music through the site; Rising: features up-and-coming artists; expert curated playlists, interviews with artists. ¹⁴²

70. Access to a larger catalogue of music and music discovery features, such as those listed in Table 4, has enabled users to be exposed to or to sample a larger variety of music than before. While many people still discover music through traditional terrestrial radio, the number of unique songs played on terrestrial radio is low compared to the number of songs available on interactive streaming sites.¹⁴³ An early study of an online music blog aggregator, which aggregated songs from blogs and allowed site users to stream those songs, demonstrated that there was a much larger diversity of songs played on the music site than on the radio.¹⁴⁴ Similarly, a more recent study has found that “[c]onsumer adoption of streaming leads to substantial increases in quantity and variety of consumption, and in discovery of new music.”¹⁴⁵

¹³⁹ “How to Use Google Play Music,” *Google*, <https://support.google.com/googleplay/answer/4515411?hl=en>, a true and correct copy of which is attached hereto as **APL-030**; “About Google Play Music Subscriptions,” *Google*, https://support.google.com/googleplay/answer/3140180?hl=en&ref_topic=6230728, a true and correct copy of which is attached hereto as **APL-030**.

¹⁴⁰ “Listen Now,” *Google*, <https://play.google.com/music/listen?authuser#/now>, a true and correct copy of which is attached hereto as **APL-030**; “How to Use Google Play Music,” *Google*, <https://support.google.com/googleplay/answer/4515411?hl=en>, a true and correct copy of which is attached hereto as **APL-182**; “About Google Play Music Subscriptions,” *Google*, https://support.google.com/googleplay/answer/3140180?hl=en&ref_topic=6230728, a true and correct copy of which is attached hereto as **APL-030**.

¹⁴¹ “How Much Music Is Available In TIDAL?,” *TIDAL*, <https://support.tidal.com/hc/en-us/articles/201167102-How-much-music-is-available-in-TIDAL->, a true and correct copy of which is attached hereto as **APL-109**.

¹⁴² “The 10 Things You Need To Know About TIDAL,” *TIDAL*, <https://support.tidal.com/hc/en-us/articles/203023142-The-10-Things-You-Need-to-Know-about-TIDAL>, a true and correct copy of which is attached hereto as **APL-084**.

¹⁴³ Jeff Leeds, “Radio’s Newest Strategy: Play a Hit, Again and Again,” *The New York Times*, December 1, 2007, http://www.nytimes.com/2007/12/01/arts/music/01one.html?_r=0, a true and correct copy of which is attached hereto as **APL-121**; Hanna Karp, “Radio’s Answer to Spotify? Less Variety: Stations Create More Repetition, Fearing Listeners Will Tune Out Unfamiliar Tunes,” *The Wall Street Journal*, January 16, 2014, <http://www.wsj.com/articles/SB10001424052702303754404579313150485141672>, a true and correct copy of which is attached hereto as **APL-103**.

¹⁴⁴ Sanjeev Dewan and Jui Ramaprasad, “Music Blogging, Online Sampling, and the Long Tail,” *Information Systems Research* 23, no. 3, 2012, pp. 1056–1067 at p. 1061, a true and correct copy of which is attached hereto as **APL-080**.

¹⁴⁵ Hannes Datta et al., “Changing Their Tune: How Consumers’ Adoption of Online Streaming Affects Music Consumption and Discovery,” Working Paper, October 19, 2016, p. 2, a true and correct copy of which is attached hereto as **APL-106**.

According to one estimate, a typical Spotify user discovers 27 new artists each month.¹⁴⁶ Together, it is clear that due to the size and variety of the catalogue available, interactive streaming services provide enhanced opportunities for music discovery.

71. Academic research has found that interactive streaming leads to a 43% increase in overall music consumption, and the benefits offered by interactive streaming services, including the increased variety of music and the reduced search costs to discover new music, increase consumer welfare.¹⁴⁷

2. Interactive Streaming Services Enable Musicians to Obtain Wider Market Access

72. Research has shown that because of music discovery and the enhanced experience enabled by interactive streaming services, smaller, or more “niche” artists are more likely to be discovered and sampled. Early research in this domain showed that the availability of (a) a larger variety of products online (even physical products) on online retail sites, combined with (b) search and discovery tools (i.e., search engines and recommendation systems) increased the consumption of “niche” products.¹⁴⁸ Such tools reduce search costs, making it easier for users to discover products that are out of the mainstream, i.e., products that they would not have been able to access offline. Further research in the music domain supported the finding that technology-enabled tools that reduce search costs persuade consumers to sample more “niche” music.

73. The music discovery features offered by interactive streaming services enable otherwise unknown, “niche” artists to reach audiences that they could not reach through the traditional outlets. The challenges that niche artists, and more broadly, independent musicians, face in getting their music discovered have been “greatly alleviated through the Internet and digital

¹⁴⁶ Chris Kissel, “Spotify Listeners Discover Roughly 27 New Artists a Month,” *Diffuser*, July 23, 2015, <http://diffuser.fm/spotify-listeners-discover-roughly-27-new-artists-a-month/>, a true and correct copy of which is attached hereto as **APL-131**.

¹⁴⁷ **APL-106**, Hannes Datta et al., “Changing Their Tune: How Consumers’ Adoption of Online Streaming Affects Music Consumption and Discovery,” Working Paper, October 19, 2016, p. 29.

¹⁴⁸ Erik Brynjolfsson et al., “Goodbye Pareto Principle, Hello Long Tail: The Effect of Search Costs on the Concentration of Product Sales,” Working Paper, January 2011, pp. 1–2, a true and correct copy of which is attached hereto as **APL-062**.

distribution.”¹⁴⁹ Academic research has also found that expansion in listening variety could ultimately increase competition, such that niche artists would have an opportunity to compete with the mainstream artists.¹⁵⁰

74. As outlined in Table 4, the main players in the interactive streaming space offer a variety of features that reduce search costs and enable users to discover new music and enhance music consumption experiences. Evidence indicates that within the first ten months after the launch of Spotify’s Discover Weekly, 40 million of its users utilized the feature to stream five billion tracks.¹⁵¹ Further, Spotify suggests that half of its users “stream from other users’ playlists at least monthly.”¹⁵² Interactive streaming services also lower “the international barriers to music discovery” (e.g., country music from the U.S. is popular on interactive streaming services in Scandinavia).¹⁵³

75. Advances in technology have opened up opportunities for music production and distribution. Technology – “cheap, powerful computers and a concomitant rise in musical production software” – has democratized the creation of music.¹⁵⁴ At the same time, the ability of artists to generate online “buzz” and exploit online word-of-mouth through user-generated content, without relying on the traditional sources of marketing, has resulted in the success of artists through a less traditional path. The band Arcade Fire is such an example, as its initial popularity is attributed largely to buzz in the blogosphere. A more recent case is the song “Cheerleader” by OMI, as highlighted in the IFPI 2016 Digital Music Report. The report

¹⁴⁹ Michael Gaffney and Pauline Rafferty, “Making the Long Tail Visible: Social Networking Sites and Independent Music Discovery,” *Program* 43, no. 4, 2009, pp. 375–391 at p. 376, a true and correct copy of which is attached hereto as **APL-096**.

¹⁵⁰ **APL-106**, Hannes Datta et al., “Changing Their Tune: How Consumers’ Adoption of Online Streaming Affects Music Consumption and Discovery,” Working Paper, October 19, 2016, p. 4.

¹⁵¹ Janko Roettgers, “Spotify Gets Yet Another Weekly Personalized Playlist,” *Variety*, August 5, 2016, <http://variety.com/2016/digital/news/spotify-release-radar-1201831401/>, a true and correct copy of which is attached hereto as **APL-171**.

¹⁵² Marc Hogan, “Up Next: How Playlists are Curating the Future of Music,” *Pitchfork*, July 16, 2015, <http://pitchfork.com/features/article/9686-up-next-how-playlists-are-curating-the-future-of-music/>, a true and correct copy of which is attached hereto as **APL-108**.

¹⁵³ “Investing In Music,” International Federation of the Phonographic Industry Report, 2014, p. 32, http://www.ifpi.org/content/library/Investing_In_Music.pdf, a true and correct copy of which is attached hereto as **APL-113**.

¹⁵⁴ Jamie Sexton, “Digital Music: Production, Distribution and Consumption” in *Digital Culture: Understanding New Media*, ed. Glen Creeber and Royston Martin (Maidenhead, UK: Open University Press, 2009), p. 94, a true and correct copy of which is attached hereto as **APL-183**.

suggests the song “became a global hit after being featured on streaming playlists in Sweden ... [after it] ... did not initially attract interest from radio in Sweden.”¹⁵⁵

76. The technology-driven trends discussed above have facilitated musicians’ ability to distribute their music to their audiences. These trends also have increased the potential size of the audience. The decrease in costs of certain means of promoting music (in particular, the costs of creating and spreading content independently) together with the ability to leverage consumer-generated content online, creates greater incentives for musicians to create music in the presence of interactive streaming.

77. Thus, interactive streaming services have played, and will continue to play, an important role in enabling consumers to discover music and enabling musicians to reach larger and more diverse audiences. Interactive streaming services have had to incur costs to test and create a product that would offer these benefits to consumers and musicians.¹⁵⁶ Therefore, they would expect to earn a fair economic return for their contributions, without which their incentive to innovate would decrease.

C. Apple’s Proposed Per-Play Rate Structure for Interactive Streaming Accounts for Recent Developments in the Digital Music Industry and Beliefs About How the Industry Is Likely to Evolve

78. The royalty payments to songwriters for digital downloads have been, and likely will continue to be, set at a predictable rate of \$0.091 per download (or 1.75 cents per minute of playing time or fraction thereof, whichever is greater).¹⁵⁷ **RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) (Phonorecords III)**

¹⁵⁸ It is, therefore, reasonable to conclude that this rate provides a fair income to both songwriters and music services.

¹⁵⁵ International Federation of the Phonographic Industry, “Global Music Report: Music Consumption Exploding Worldwide,” 2016, SPOTCRB0000803–46 at 22, a true and correct copy of which is attached hereto as **APL-021**.

¹⁵⁶ Marty Swant, “Even Spotify is Surprised by the Huge Success of Its Discover Weekly Playlists,” *Ad Week*, August 28, 2016, <http://www.adweek.com/news/technology/even-spotify-surprised-huge-success-its-discover-weekly-playlists-173129>, a true and correct copy of which is attached hereto as **APL-143**.

¹⁵⁷ 37 C.F.R. § 385.3(a).

¹⁵⁸The initial rate proposals submitted by Amazon, Apple, Google, Pandora, and Sony Music recommend maintaining the existing rates under 37 C.F.R. § 385.3(a). Some of the other submissions like that of NMPI and NSAI propose a different flat rate but a flat rate nonetheless. See Julie Zeveloff, “Board Adds Ringtone Royalty Fee, Keeps Other Rates,” *Law360*, October 3, 2008, <http://www.law360.com/articles/71467/board-adds-ringtone-royalty-fee-keeps-other-rates>, a true and correct copy of which is attached hereto as **APL-129**.

79. As discussed earlier, over the last few years there has been and continues to be a shift in music consumption from digital downloads to interactive streaming. Because of the substitution between digital downloads and interactive streaming, a fair rate for interactive streaming would provide songwriters with royalty payments that are consistent with royalty payments for digital downloads. As I discuss below, Apple's proposed rate of \$0.00091 per stream is consistent with benchmarks used by the industry to equate digital downloads and streams. Apple's proposed per-play rate would, therefore, provide a fair return to songwriters.

80. A per-play rate structure also would provide a fair return to interactive streaming services. As discussed earlier, interactive streaming services are growing and all indications are that they will continue to grow. Therefore, interactive streaming services do not need to be "protected." At the same time, interactive streaming services incur substantial costs in developing new features and tools that enable consumers to discover music and enhance their music consumption experience. To encourage interactive streaming services to continually develop such features and tools, they need to be appropriately compensated for their contributions. A per-play rate structure, such as that proposed by Apple, would do just that. Under a per-play rate structure, interactive streaming services would pay a flat per-stream rate for the songs. The royalty payments would not depend on interactive streaming services' revenues. If interactive streaming services develop innovative features and tools to enhance consumers' experience and earn incremental revenues as a result, all those new earnings would accrue to the streaming services only, rather than to both the streaming services and the songwriters (who played no role in the streaming services' innovations).

81. It is noteworthy that similar rate structures that do not depend on the revenue of the service also exist for other forms of music distribution. For example, royalties for the public performance rights for webcasting are paid on a per-play basis.¹⁵⁹ Royalties for a mechanical license for physical phonorecord deliveries, such as CDs and cassettes, are paid on a per unit basis.¹⁶⁰

¹⁵⁹ Determination, *In re Determination of Royalty Rates and Terms for Ephemeral Recording and Webcasting Digital Performance of Sounds Recordings (Web IV)*, December 16, 2015, p. 1, a true and correct copy of which is attached hereto as **APL-036**.

¹⁶⁰ 37 C.F.R. § 385.3(a).

VIII. Apple’s Proposed Per-Play Rate for Interactive Streaming is Wholly Consistent with Benchmarks Used for Streaming Music

82. Historically, the music industry has assessed music consumption using measures such as number of albums sold.¹⁶¹ However, the increasing popularity of downloads and interactive streaming services has forced the music industry to devise better barometers of music consumption that include digital downloads and interactive streaming.¹⁶² The measurement of consumption of digital downloads is similar to the measurement of consumption of albums because consumers pay for ownership in both cases. The difference, however, is that digital downloads allow consumers to purchase and own individual songs rather than entire albums. For the purposes of measuring consumption of downloads, a “common industry yardstick” of 10 downloads to equal one album is used.¹⁶³ The measurement of interactive streaming consumption, and in particular, its comparison with the consumption of downloads and albums, is more complicated because consumers do not pay for ownership of a particular song or album, but instead pay for access to a catalogue of songs.

83. The music industry has devised certain methodologies to convert streams into download or album equivalents in order to measure total music consumption across various forms of music. Three such methodologies—one used by Billboard in the U.S., one used by Official Charts Company in the U.K., and one found in academic research—are discussed below.

A. Billboard Benchmark

84. Billboard, the entertainment media company known for its music charts, uses Stream Equivalent Albums (SEA) to equate a certain number of streams to one album. In order to determine this equivalence, Billboard finds the number of streams for which the total royalty payments to a record label (i.e., the revenue to the label from interactive streaming) would equal

¹⁶¹ Ben Sisario, “Billboard, Changing the Charts, Will Count Streaming Services,” *The New York Times*, November 19, 2014, <http://www.nytimes.com/2014/11/20/business/media/billboard-changing-the-charts-will-count-streaming-services- html>, a true and correct copy of which is attached hereto as **APL-158**.

¹⁶² Andy Malt, “RIAA Adds Streaming to Digital Gold and Platinum Certification,” *Complete Music Update*, May 10, 2013, <http://www.completemusicupdate.com/article/riaa-adds-streaming-to-digital-gold-and-platinum-certification/>, a true and correct copy of which is attached hereto as **APL-048**; **APL-158**, Ben Sisario, “Billboard, Changing the Charts, Will Count Streaming Services,” *The New York Times*, November 19, 2014, <http://www.nytimes.com/2014/11/20/business/media/billboard-changing-the-charts-will-count-streaming-services- html>.

¹⁶³ **APL-158**, Ben Sisario, “Billboard, Changing the Charts, Will Count Streaming Services,” *The New York Times*, November 19, 2014, <http://www.nytimes.com/2014/11/20/business/media/billboard-changing-the-charts-will-count-streaming-services-.html/>.

the revenue generated from one album sale. Therefore, one unit of SEA corresponds to the number of streams that, multiplied by the existing per-stream pay rate, will equal the average blended wholesale revenue to record labels from an album sale (\$7.50). The average blended per-stream rate for audio and music video streams in 2014 was \$0.005. Thus, $\$7.50/\$0.005=1,500$ streams were equivalent to one album unit (i.e., SEA). Billboard further assumes that an album is equivalent to 10 tracks. Hence, 10 tracks are equivalent to 1,500 streams, which creates the benchmark of 1 track = 150 streams.¹⁶⁴ Note, however, that Billboard's benchmark uses the average blended *audio* and *music video* per-stream rate in its calculations. Because a music video stream generates smaller royalties to the copyright owner,¹⁶⁵ the per-stream rate for *audio* streams was likely higher than \$0.005 in 2014. Therefore, for audio only streams, this would result in one track being equivalent to fewer than 150 streams.¹⁶⁶

85. This SEA benchmark was incorporated in the Top 200 Albums chart created by Billboard in 2014, to ensure that “the chart (is) a better representation of music consumption activity.”¹⁶⁷ RIAA uses the same benchmark to account for music interactive streaming in its calculations of “gold” and “platinum” awards given to albums.¹⁶⁸ In 2013, however, Billboard used the

¹⁶⁴ Ed Christman, “SoundScan Mid-Year: Albums Down, Stream Equivalents Nearly Double, Vinyl Continues Gain,” *Billboard*, July 3, 2014, <http://www.billboard.com/biz/articles/news/record-labels/6150181/soundscan-mid-year-albums-down-stream-equivalents-nearly/>, a true and correct copy of which is attached hereto as **APL-085**.

¹⁶⁵ “The Streaming Price Bible – Spotify, YouTube and What 1 Million Plays Means to You!,” *The Trichordist*, November 12, 2014, <https://thetrichordist.com/2014/11/12/the-streaming-price-bible-spotify-youtube-and-what-1-million-plays-means-to-you/>, a true and correct copy of which is attached hereto as **APL-066**; Charlotte Hassan, “Surprise! YouTube Slashed Its Royalty Rate by 50% Last Year,” *Digital Music News*, July 12, 2016, <http://www.digitalmusicnews.com/2016/07/12/youtube-per-stream-royalty-rate-halved/>, a true and correct copy of which is attached hereto as **APL-086**.

¹⁶⁶ Note that, in 2013, Billboard used the equivalence of 1 track and 200 streams because the average per stream rate for audio and music video streams was \$0.00375. See **APL-085**, Ed Christman, “SoundScan Mid-Year: Albums Down, Stream Equivalents Nearly Double, Vinyl Continues Gain,” *Billboard*, July 3, 2014, <http://www.billboard.com/biz/articles/news/record-labels/6150181/soundscan-mid-year-albums-down-stream-equivalents-nearly/>.

¹⁶⁷ Silvio Pietroluongo quoted in “Billboard 200 Makeover: Album Chart to Incorporate Streams & Track Sales,” *Billboard*, November 19, 2014, <http://www.billboard.com/articles/columns/chart-beat/6320099/billboard-200-makeover-streams-digital-tracks/>, APL-PHONO_00009156, a true and correct copy of which is attached hereto as **APL-013**.

¹⁶⁸ Andy Malt, “RIAA Adds Streaming to Digital Gold and Platinum Certification,” *Complete Music Update*, May 10, 2013, <http://www.completemusicupdate.com/article/riaa-adds-streaming-to-digital-gold-and-platinum-certification/>, a true and correct copy of which is attached hereto as **APL-048**.

equivalence of 1 track and 200 streams because the average per stream rate for audio and music video streams was \$0.00375.¹⁶⁹

86. The total royalty rate to songwriters for the permanent digital download of a song/track is 9.1 cents or 1.75 cents per minute of playing time or fraction thereof, whichever amount is larger. As discussed earlier, there appears to be a consensus among the vast majority of participants in this proceeding to continue with the current rate for downloads.¹⁷⁰ Applying Billboard's equivalence of 1 track and 150 streams to the royalty rate for permanent digital downloads results in a royalty rate to songwriters of $9.1 \text{ cents} / 150 = 0.061 \text{ cents} = \0.00061 , which is lower than the per-stream rate of \$0.00091 proposed by Apple.

B. U.K. Official Charts Company Benchmarks

87. Similar to Billboard in the U.S., the U.K. Official Singles Chart (created by Official Charts Company, which is regarded "as the authoritative measure of UK musical popularity")¹⁷¹ started to include the number of audio streams in its calculations from July 2014. The Official Charts Company wanted to combine the number of times a track is streamed with the sales for the track to have one combined measure of the track's popularity. This combined measure was used to determine the UK Singles Chart Top 100.¹⁷² The Official Charts Company counted 100 streams to be equivalent to 1 single (download or physical single) "to reflect the difference in weights between streaming and purchasing."¹⁷³ This conversion was "agreed (upon) following extensive investigation of royalty rates paid and sense-checked in consultation with independent and major labels, digital retailers and streaming services."¹⁷⁴ It also had "broad support from

¹⁶⁹ **APL-085**, Ed Christman, "SoundScan Mid-Year: Albums Down, Stream Equivalents Nearly Double, Vinyl Continues Gain," *Billboard*, July 3, 2014, <http://www.billboard.com/biz/articles/news/record-labels/6150181/soundscan-mid-year-albums-down-stream-equivalents-nearly/>.

¹⁷⁰ See Section IV.B.1.

¹⁷¹ Geoff Taylor, Chief Executive of the UK record labels association the BPI, quoted in Lauren Kreisler, **APL-014**, "UK's Official Singles Chart to Include Streaming Data for the First Time," *Official Charts*, June 22, 2014, http://www.officialcharts.com/chart-news/uks-official-singles-chart-to-include-streaming-data-for-first-time__4245/.

¹⁷² For instance, Official Charts lists the top 100 tracks based on this measure for the previous week. See "Official Singles Chart Top 100," *Official Charts*, October 20, 2016, <http://www.officialcharts.com/charts/singles-chart/>, a true and correct copy of which is attached hereto as **APL-157**.

¹⁷³ **APL-014**, Lauren Kreisler, "UK's Official Singles Chart to Include Streaming Data for the First Time," *Official Charts*, June 22, 2014, http://www.officialcharts.com/chart-news/uks-official-singles-chart-to-include-streaming-data-for-first-time__4245/.

¹⁷⁴ Dan Lane, "Streaming and the Official Singles Chart: Everything You Need to Know!," *Official Charts*, June 23, 2014, http://www.officialcharts.com/chart-news/streaming-and-the-official-singles-chart-everything-you-need-to-know__4253/, a true and correct copy of which is attached hereto as **APL-073**.

across the industry, spanning independent and major labels, physical and digital retailers, managers, artists, as well as ... key media partners such as BBC Radio 1, MTV, Music Week and many more.”¹⁷⁵

88. The U.K. Official Singles Chart benchmark for converting streams into singles can be used to determine the total per-stream royalty rate for songwriters. The total royalty rate to songwriters for permanent downloads is 9.1 cents per digital download. Using the equivalence between 100 streams and 1 single leads to a total royalty rate of $\$0.091/100 = \0.00091 per-stream, which is identical to the per-stream rate of $\$0.00091$ proposed by Apple.

C. Benchmark Based on Academic Research

89. Academic research on the impact of interactive streaming on the sales of recorded music also has found equivalence between streams and downloads, and is consistent with the benchmarks discussed above.¹⁷⁶ Specifically, academic research has investigated how the sales of singles or CDs change with an increase in interactive streaming, i.e., whether and to what extent consumers consider interactive streaming and singles/CDs as substitutes. Using data from the top 50 streams available on Spotify and Nielsen data for music sales for the period of 2013-2015, this research has found that for every increase of 137 streams, there is a decrease of 1 song purchased, i.e., 137 streams are equivalent to one single.¹⁷⁷ This research provides another benchmark that can be used to determine the per-stream rate for interactive streaming. While the benchmarks used by Billboard and Official Charts Company are based on the perspective of the industry participants (e.g., record labels), the benchmark from academic research is based on actual music consumption patterns of consumers.

90. Using the equivalence between 137 streams and one single, and applying it to the total royalty rate for downloads, results in a total royalty rate for songwriters of 9.1 cents / 137 =

¹⁷⁵ **APL-073**, Dan Lane, “Streaming and the Official Singles Chart: Everything You Need to Know!,” *Official Charts*, June 23, 2014, http://www.officialcharts.com/chart-news/streaming-and-the-official-singles-chart-everything-you-need-to-know-__4253/.

¹⁷⁶ **APL-038**, Luis Aguiar and Joel Waldfoegel, “Streaming Reaches Flood Stage: Does Spotify Stimulate or Depress Music Sales?,” Institute for Prospective Technological Studies Digital Economy Working Paper 2015/05, 2015, pp. 1–37.

¹⁷⁷ **APL-038**, Luis Aguiar and Joel Waldfoegel, “Streaming Reaches Flood Stage: Does Spotify Stimulate or Depress Music Sales?,” Institute for Prospective Technological Studies Digital Economy Working Paper 2015/05, 2015, pp. 1–37 at p. 4.

0.066 cents = \$0.00066 per-stream for interactive streaming, which is lower than the per-stream rate of \$0.00091 proposed by Apple.

91. Based on the methodologies used in the music industry and academic research to find the equivalence between streams and individual songs/albums, I estimated a per-stream royalty rate for songwriters ranging between \$0.00061 and \$0.00091. Apple's proposal of a per-stream royalty rate of \$0.00091 is at the upper end of this range, and is consistent with the benchmarks used in the industry. Therefore, Apple's proposal of a per-stream rate of \$0.00091 for interactive streaming is reasonable.

IX. Apple's Proposed Rates for Locker Services are Intuitive, Avoid Unnecessary Complexity, and Are Wholly Reasonable

A. Apple's Per-Subscriber Rate for Paid Locker Services Will Simplify the Royalty Payments to Publishers/Songwriters

92. Similar to the royalty rate for interactive streaming, the current royalty rate for paid locker services is complex. It is based on a combination of revenues of the locker service, payments made to record companies for sound recordings, and the number of subscribers.¹⁷⁸ Because some of these factors may not be visible to songwriters, and/or may depend on assumptions made by locker services, songwriters may be unable to determine exactly how their royalty payments are calculated. Apple's proposal of paying publishers and songwriters a flat rate of \$0.17 per subscriber per month simplifies this rate structure tremendously.

B. Apple's Proposed Rate for Purchased Content Locker Services is Reasonable and Appropriate

93. Apple has proposed a royalty rate of zero for purchased content locker services. Purchased content locker services allow users to store or access music that they have already purchased from the locker service provider. Copyright owners are paid royalties when the initial purchase is made by the user, and do not need to be paid royalties again when users access music that they already purchased. Therefore, in my opinion, Apple's proposal of a zero royalty on purchased content lockers services is reasonable and appropriate.

¹⁷⁸ 37 CFR § 385.23.

X. Conclusion

94. In my opinion, Apple's proposed rates for permanent downloads and ringtones are reasonable. **RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) (Phonorecords III)**

95. Apple's proposed rate for interactive streaming is intuitive for publishers and songwriters, and avoids the confusion inherent in both the current royalty rates and the alternative rates proposed by the participants in this proceeding. Apple's proposed rate would remove the variability in the per-stream rate across services and from month-to-month for the same service that likely causes confusion for songwriters.

96. Apple's proposed rate for interactive streaming also would fairly compensate both songwriters and interactive streaming services for their contributions. Sales of digital downloads are decreasing and interactive streaming is becoming an increasingly prevalent mode of music consumption. The interactive streaming industry has demonstrated its viability and no longer is a nascent industry with an uncertain future. As interactive streaming replaces digital downloads, songwriters expect fair compensation for interactive streaming commensurate with their compensation for digital downloads. Apple's proposed rate, which is consistent with the benchmarks used for the equivalence between digital downloads and streams, would provide such a fair compensation to songwriters.

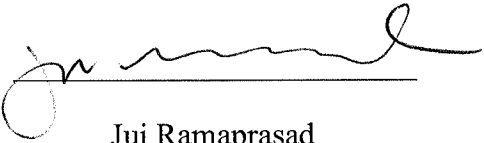
97. Interactive streaming services are welfare enhancing for musicians (through wider market access) and increase musicians' incentive to create music. Interactive streaming services are also welfare enhancing for consumers (through increased music variety and features that enhance the consumption experience). Apple's proposed rate would provide proper economic return to interactive streaming services that reflects the enhancement in value created by interactive streaming services for both musicians and consumers. Under Apple's proposed per-play rate structure, interactive streaming services would pay a flat per-stream rate for the songs, and any revenues earned because of features and tools developed by them that enhance the consumers' experience would accrue to the interactive streaming services.

98. Apple's proposed rates for locker services similarly are appropriate. Apple's per-subscriber rate for paid locker services, which also is consistent with benchmarks in the music industry, would simplify the royalty payments to publishers and songwriters. Apple's proposal

of a zero royalty rate for purchased content lockers services is also appropriate because publishers and songwriters do not need to be paid again when users access music that they already purchased (for which royalty payments were made when the music was initially purchased).

99. Based on my analysis, it is my opinion that Apple's proposed rates are consistent with and achieve the policy objectives laid out in Section 801(b) of the U.S. Copyright Act.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge, information and belief.



Jui Ramaprasad

November 1, 2016

Date

JUI RAMAPRASAD

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Education

University of California, Irvine
 Paul Merage School of Business
 PhD in Management, Information Systems

Irvine, CA
 June 2009

University of Southern California
 Marshall School of Business,
 BS in Business Administration, Information Systems and Finance

Los Angeles, CA
 May 2001

Relevant Work Experience

Associate Professor of Information Systems, Desautels Faculty of
 Management, McGill University, Montreal, QC

June 2016 –

Assistant Professor of Information Systems, Desautels Faculty of
 Management, McGill University, Montreal, QC

July 2009 – May 2016

Research and Teaching Assistant, Paul Merage School of Business,
 University of California, Irvine, California

2003-2009

Research Interests

The increase in online social interaction and consumption coupled with the increased digitization of products and processes is having an impact on individual behavior and consumption decisions. My research program broadly examines how digital innovations that enable social interactions impact product choice, user engagement, and user choice in the context of music and dating. More specifically, my research in the context of the music industry examines the relationship between social media and consumption. In both music and dating, I look at how IT-enabled features impact contribution and engagement. In music, I also look at the impact on consumption, and in dating I look at the impact on matching outcomes.

Research

Accepted/Published Journal Articles:

1. Dewan, S., J. Ramaprasad. 2012. Music Blogging, Online Sampling, and the Long Tail. *Information Systems Research*. (23:3), September, pp. 1056-1067.
2. Dewan, S., J. Ramaprasad. 2014. Social Media, Traditional Media, and Music Sales. *Management Information Systems Quarterly* (38:1), January, pp. 101-121.
3. Bapna, R., J. Ramaprasad, G. Shmueli, A. Umyarov. 2016. One Way Mirrors in Online Dating: Evidence from a Randomized Field Experiment. *Management Science, Articles in Advance*: <http://dx.doi.org/10.1287/mnsc.2015.2301>
4. Dewan, S., I. Ho, J. Ramaprasad. 2015. Popularity or Proximity: Characterizing the Nature of Social Influence in an Online Community. (*Accepted, Information Systems Research*).
5. Lapointe, L., J. Ramaprasad, I. Vedel. 2014. Creating Health Awareness: A Social Media Enabled Collaboration. *Health and Technology*. (4:1) May, pp. 43-57. DOI: 0.1007/s12553-013-0068-1.

Manuscripts in preparation for re-submission:

1. Bapna, R., J. Ramaprasad, A. Umyarov. 2014. Completing the Virtuous Cycle between Payment and Social Engagement in Freemium Social Communities. (*Third Round, Minor Revision, Management Information Systems Quarterly*).
2. Rishika, R., J. Ramaprasad. 2014. The Effect of Asymmetric Social Ties on Online Contribution: The Role of Tie Strength and Homophily. (*Fourth Round, Major Revision, Management Science*).
3. Jung, J., A. Umyarov, R. Bapna, J. Ramaprasad. 2014. Love Unshackled: The Causal Effect of Mobile Application Adoption on Online Dating Behavior. (*Second Round, Major Revision, Management Information Systems Quarterly*).

Manuscripts under review:

1. Burtch, G., J. Ramaprasad. 2016. Assessing and Quantifying Network Effects in an Online Dating Site. (*First Round, Information Systems Research*)

Manuscripts in preparation for submission:

1. Lapointe, L., J. Ramaprasad, I. Vedel,. 2015. Understanding the Social Media Enactment Process: An Examination of Non-Profit Healthcare Organizations
2. Ramaprasad, J., G. Bassellier, S. Dewan. 2015. Streaming vs. Downloading of Online Music: Complements or Substitutes?
3. Bapna, R., J. Ramaprasad, A. Umyarov. 2014. Who thinks you're hot? Information Revelation in Online Dating: A Randomized Field Experiment.
4. Krastel, Z., G. Bassellier, J. Ramaprasad. 2015. Enabling Social Connectedness: The Role of Social Features on Online Music Sites.
5. Ramaprasad, J., R. Desmeules, G. Bassellier. 2015. Can Social come to the rescue? Monetizing music in the world of free.

Other Publications:

1. Ramaprasad, J. 2014. *Freemium Uncovered*. ISB Insight. (2:1), April-June 2014, pp. 9-13 (based on work with Ravi Bapna, Akhmed Umyarov, and Galit Shmueli).

Invited Talks

1. University of Illinois Chicago, Chicago, IL. February 6, 2015. Presented "*One Way Mirrors in Online Dating: Evidence from a Randomized Field Experiment*" (joint work with Ravi Bapna, Galit Shmueli, Akhmed Umyarov).
2. Purdue University, West Lafayette, IN. March 5, 2014. Presented "*One Way Mirrors in Online Dating: Evidence from a Randomized Field Experiment*" (joint work with Ravi Bapna, Galit Shmueli, Akhmed Umyarov).
3. IE Business School, Madrid, Spain, June 5, 2013. Presented "*One Way Mirrors in Online Dating: Evidence from a Randomized Field Experiment*" (joint work with Ravi Bapna, Galit Shmueli, Akhmed Umyarov).
4. Carnegie Mellon University, Heinz College, March 25, 2013. Presented "*One Way Mirrors in Online Dating: Evidence from a Randomized Field Experiment*" (joint work with Ravi Bapna, Galit Shmueli, Akhmed Umyarov).
5. Michigan State University's Eli Broad College of Business, January 11, 2013. Presented "*One Way Mirrors in Online Dating: Evidence from a Randomized Field Experiment*" (joint work with Ravi Bapna, Galit Shmueli, Akhmed Umyarov).
6. SOBACO Speaker Series, University of Minnesota, November 15, 2012. Presented "*Music, Media, and Money: Drivers of Consumption in a Digital World*" (a synthesis of my work on the music industry with various co-authors: Sanjeev Dewan, Rishika Ramkumar, Geneviève Bassellier, and Remi Desmeules).

7. Purdue University's Krannert School of Management MIS Research Workshop. April 27, 2012. Presented "*Can Social Come to the Rescue? Monetizing Music in the World of Free*" (joint work with Geneviève Bassellier and Remi Desmeules).
8. New York University's Stern School of Business IS Research Seminar Series. November 10, 2011. Presented "*Social Media, Traditional Media, and Music Sales: A PVAR Approach*" (joint work with Sanjeev Dewan).
9. University of Minnesota's Carlson School of Management MIS Workshop. April 15, 2011. Presented "*Social Media, Traditional Media, and Music Sales: A PVAR Approach*" (joint work with Sanjeev Dewan).

Conference Presentations

1. *Enhancing Weak Signaling in Online Dating: A Randomized Field Experiment* (with Ravi Bapna and Akhmed Umyarov)
 - Conference on Digital Experimentation 2016, October 14-15, 2016, Cambridge, MA
2. *Assessing and Quantifying Network Effects in an Online Dating Market* (with Gordon Burtch)
 - Platforms Symposium 2016, July 14, 2016, Boston, MA.
 - Statistical Challenges in eCommerce Research 2016, June 22-24, 2016, Naxos, Greece.
3. *Enabling Social Connectedness: The Role of Social Features on Online Music Sites* (with Zack Krastel and Geneviève Bassellier)
 - Conference on Information Systems and Technology 2015, October 31-November 1, 2015, Philadelphia, PA
4. *Music is Social: From Online Social Features to Online Social Connectedness* (with Zack Krastel and Geneviève Bassellier)
 - International Conference on Information Systems 2015, December 13-16, 2015, Ft. Worth, TX
5. *Streaming vs. Downloading of Online Music: Complements or Substitutes?* (with Geneviève Bassellier and Sanjeev Dewan)
 - Workshop on Information Systems and Economics, December 17-19, 2014, Auckland, NZ.
 - Invited talk at INFORMS Annual Meeting, October 6-9, 2013, Minneapolis, MN
 - Statistical Challenges in eCommerce Research 2013, June 28-29, 2013, Lisbon, Portugal.
6. *Who thinks you're hot? Information Revelation in Online Dating: A Randomized Field Experiment* (with Ravi Bapna and Akhmed Umyarov)
 - Conference on Information Systems and Technology, November 8-9, San Francisco, CA
 - Statistical Challenges in eCommerce Research, June 12-13, 2014, Tel Aviv, Israel
7. *Co-creation of Knowledge in Healthcare: A Study of Social Media Usage* (with Fatou Bagayogo, Liette Lapointe, and Isabelle Vedel) Hawaii International Conference on Systems Sciences, January 6-9, 2014.
8. *Love Unshackled: The Causal Effect of Mobile Application Adoption on Online Dating Behavior* (with JaeHwuen Jung, Akhmed Umyarov, and Ravi Bapna)
 - International Conference on Information Systems, December 14-17, 2014, Auckland, NZ
 - Winter Conference on Business Intelligence, February 27-March 2, 2014, Salt Lake City, UT
 - Workshop on Information Systems and Economics, December 19-20, 2013, Milan, Italy
 - Mapping Mobile @NYUStern, November 15, 2013, New York, NY
9. *Quantifying Social Influence in an Online Music Community* (with Sanjeev Dewan and Ian Ho).

- International Conference in Information Systems, December 15-18, 2013, Milan, Italy
 - Workshop on Information Technology and Systems, December 14-15, 2013, Milan Italy
 - Invited talk at INFORMS Annual Meeting, October 14-17, 2012, Phoenix, AZ.
10. *One-Way Mirrors in Online Dating* (with Ravi Bapna, Akhmed Umyarov, Galit Shmueli).
 - International Conference on Information Systems, December 15-18, 2013, Milan, Italy (*Best Paper Nominee*)
 - Conference on Information Systems and Technology, October 5-6, 2013, Minneapolis, MN
 - National Bureau of Economics Research Workshop on the Economics of IT and Digitization, June 18-19, 2013, Cambridge, MA.
 - Statistical Challenges in eCommerce Research, June 28-29, 2013, Lisbon, Portugal
 - Winter Conference on Business Intelligence, February 28-March 2, 2013, Snowbird, UT
 - International Symposium on Information Systems, January 5-6, 2013, Fort Aguada, Goa, India
 - Workshop on Information Systems and Economics, December 15-16, 2012, Orlando, FL.
 11. *Music Discovery and Music Consumption: An Individual Level Analysis* (with Geneviève Bassellier). Statistical Challenges in eCommerce Research 2013, June 28-29, 2013, Lisbon, Portugal.
 12. *Fishing for Complements: Microcredit, Entrepreneurial Opportunity, and Livelihood Diversification in Coastal India* (with Brennan Davis and Renee Rottner). DRUID 2013, June 17-19, 2013. Barcelona, Spain.
 13. *Collaborating through Social Media to Create Health Awareness*. Hawaii International Conference on Systems Sciences, January 7-11, 2013, Maui, HI. (*Best Paper Nominee*)
 14. *Can Social Media Transform the online music industry? A look at shared value and shared social responsibility*
 - Invited talk at INFORMS Annual Meeting, October 14-17, 2012, Phoenix, AZ.
 - Conference on Information Systems and Technology, October 13-14, 2012 Phoenix, AZ.
 15. *Social Media, Traditional Media and Music Sales: A PVAR Approach* (with Sanjeev Dewan)
 - Invited talk at INFORMS Annual Meeting, November 13-16, 2011, Charlotte, NC.
 - Statistical Challenges in eCommerce Research, June 9-10, 2011, Rio de Janeiro, Brazil.
 16. *Learning on the Edge with Social Media* (with John Seely Brown and Jennifer Chandler), Created and conducted a three-hour symposium on using social media for social learning, Hawaii International Conference on Systems Sciences, Kauai, HI. Winter 2011
 17. *eHealth innovation diffusion: An Integrated Service Experience* (with I. Vedel, V. Ghadi, C. Routelous, M. De Stampa, L. Lapointe). 9th IFGG, Nice, France. October 2010.
 18. *The role of IT and Social Media in older adults' empowerment* (with I. Vedel and L. Lapointe). 9th IFGG, Nice, France. October 2010.
 19. *The Impact of User Generated Content on Consumer Choice and Contribution in an Online Community: A Disaggregate Level Analysis* (with Rishika Ramkumar).
 - Statistical Challenges in eCommerce Research, June 5-6, 2010, Austin, TX.
 - Marketing Science Conference. June 17-June 19, 2010, Cologne, Germany.
 - Invited talk at INFORMS Annual Meeting, November 7-10, 2010, Austin, TX.
 20. *Consumer Choice in an Online Community: The Impact of Aggregate and Local Social Influence on Music Consumption* (with Sanjeev Dewan).
 - Invited talk at INFORMS Annual Meeting, October 11-14, 2009, San Diego, CA.
 - Conference on Information Systems and Technology, October 10-11, 2009, San Diego, CA.

Research Grants

1. Principal Applicant, NET Institute (2016) for “Assessing and Quantifying Local Network Effects in an Online Dating Market.” \$3000 (USD)
2. Collaborator, Fonds Québécois de la recherche Société et Culture (2015-2019) for “Gagner à l’aide des technologies de l’information dans l’économie numérique,” Subvention de soutien aux équipes de recherche, (PI – Alain Pinsonneault). \$313, 280.
3. Collaborator, Fonds Québécois de la recherche Société et Culture (2011-2015) for “Gère quatre défis d’implantation pour maximiser la valeur des technologies de l’information: une approche par les ressources excédentaires,” Subvention de soutien aux équipes de recherche, (PI – Alain Pinsonneault). \$482, 240.
4. Co-Principal Investigator, SOBACO Collaborative Research Grant from the University of Minnesota for “User Behavior Modeling and Randomized Experiments to Maximize Premium Subscription Adoption in Online Dating Markets” (with Ravi Bapna, Akhmed Umyarov, Jaideep Srivastava and Zoheb Borbora) 2013. \$49,000.
5. Recipient, SSHRC Aid to Research Workshops and Conferences Grant to host Statistical Challenges in eCommerce Research (SCECR) 2012 at McGill University in June 2012. \$22,650.
6. Co-Principal Investigator, McGill Collaborative Research Development Grant for “Doing Business in the Digital Economy: Leveraging Social Features for Greater Value Creation,” 2012 (with Geneviève Bassellier). \$15,000.
7. Principal Investigator, Internal SSHRC Grant for “The impact of social computing features on individual social connectedness,” 2016. \$6000.
8. Principal Investigator, Internal SSHRC Grant for “Streaming vs. Downloading: Complements vs. Substitutes,” 2014. \$6000.
9. Principal Investigator, Internal SSHRC Grant for “Information Technology and Matching: The Case of Online Dating,” 2013. \$6000.
10. Principal Investigator, Internal SSHRC Grant for “IT Enabled Social Influence through Social Media: Impact on Digital Consumption Decisions,” 2011. \$3000.
11. Recipient, Paper Presentation Grant, McGill University for travel to WISE/ICIS 2013 in Milan, Italy. \$1500.
12. Recipient, Paper Presentation Grant, McGill University for travel to Seventh Symposium on Statistical Challenges in Electronic Commerce Research 2011 in Rio de Janeiro, Brazil. \$1500.
13. Recipient, Paper Presentation Grant, McGill University for travel to CIST/INFORMS 2009 in San Diego, CA. \$1500.

Honors and Awards

1. *Information Systems Research* Best Reviewer Finalist (2014)
2. Best Paper Nominee for *One Way Mirrors in Online Dating: A Randomized Field Experiment*. International Conference on Information Systems, 2013.
3. Fellow, Marcel Desautels Institute for Integrated Management (MDIIM), McGill University, 2014-2016.
4. Fellow, Institute for the Public Life of Arts and Ideas (IPLAI), McGill University, 2013-2015
5. Best Paper Nominee for *Collaborating through Social Media to Create Health Awareness*, Hawaii International Conference on Systems Sciences, 2013.

6. Best Paper Award for *Consumer Choice in an Online Community: The Impact of Aggregate and Local Social Influence on Music Consumption*, Conference on Information Systems and Technology (CIST), 2009.

Teaching

Courses Taught

1. Managing Resources, MBA Core Course: Full-time (2010 – 2013, 2016) and Professional MBA (2011 – 2016) program.
2. Value Creation, MBA Core Course: Full-time (2010 – 2016) and Professional MBA (2011 – 2015) program.
3. Innovating on the *edge* with Technology (with Geneviève Bassellier), Winter 2016
4. IT in Business/Winning with IT, INSY 432/608, (2010-2012)
5. Youth as Cultural Producers: Rethinking Education and Entrepreneurship (with Bronwen Low, Faculty of Education) as part of a fellowship received from the Institute for the Public Life of Arts and Ideas (IPLAI), Winter 2015
6. The Treble Cliff: The Business of Music, a multi-disciplinary course for both undergraduate and graduate students (2011-2016)
7. Strategic Analysis of Information Technology, MBA Core Class, Indian School of Business – Mohali Campus (Fall 2013)
8. Strategies for the Digital Economy, MBA Elective Class, Indian School of Business – Mohali Campus (Fall 2014, Fall 2015, Fall 2016)

Related Teaching Activities

1. Wrote a “live case” around issues faced by a Montreal, QC based medical imaging company, integrating concepts from Organizational Behavior, Finance, and Information Systems, to use in MBA core module Managing Resources in Fall 2013 (with Suzanne Gagnon and Tatiana Saliba).
2. Wrote a “live case,” of a Montreal, QC based mystery shopping company, integrating concepts from Organizational Behavior, Finance, and Information Systems for students in MGCR 651 (with Sandra Cha, Jan Ericsson, Joel Kwan).
3. Course Coordinator for Value Creation (MGCR 652), Full Time MBA core, 2014-2016
4. Course Coordinator for Managing Resources (MGCR 651), Professional MBA core, 2011, 2012, 2016
5. Course Coordinator for Managing Resources (MGCR 651), Full Time MBA core, 2010, 2013, 2016

Guest Lectures

1. Guest Lecturer for MRKT 434 (Topics in Marketing 1, Global Branding International Summer Program), “Music and Media: How New Media has Transformed the Music Industry” (Summer 2014)
2. Guest Lecturer for MUPD 475 (Business Fundamentals for Musicians), “Information Technology and the Music Industry” (Winter 2012, Fall 2014).
3. Guest Lecturer for *Management Information Systems*, MGCR 331, “Information Technology and the Music Industry” (7 semesters since Winter 2010).

Advising

1. Advisor for MBA Practicum for Giovanni Dimas Comacho, Summer-Fall 2016
2. Advisor for Individual Study for Aya Schechner, Winter 2016
3. Advisor for MBA Practicum, Serge Farah & Jorge Pedraza Arias, Winter 2016

4. MBA supervisor for MBA-Law Senior Term Essay for Alyssa Wiseman (6 credits): *The Economics of Equality: Legislating for Optimal Royalty Distribution in the Music Industry*. Fall 2014 – Winter 2015.
5. MBA Research Course Supervisor for Joseph Kam (6 credits): *The Utilization of Twitter by Mental Health Organizations*. Winter – Summer 2015.
6. International Program in Practicing Management (IMPM) Major Project Advisor for Abdul Hakim: *An Analysis of Facebook likes on Sales*. Winter 2014.
7. MBA Japan Practicum for Lyal Clough: *Future Business Models for the Role-Playing Industry*. Fall 2013.
8. Advisor for Individual Study for Matthew Chisling: *A Spectrum of Listeners: Understanding differences in Consumer Behavior of Music Fans based on Genre Preferences*. Winter 2013.
9. Advisor for Individual Study for Zachary Krastel: *Aspects Affecting User Adoption of Online Music Sites*. Winter 2013.
10. Advisor for Individual Study for Guillaume Drouin-Garneau: *Understanding the Use of Social Media by Professional Amateur Artists*. Fall 2012.
11. MBA Japan Practicum for Shigenori Mizuno: *Review of NHK on Demand: Recommendations for designing a better service*. Fall 2011 – Winter 2012.
12. MBA Practicum: *Social Media Networks and Opportunities for Pharmaceutical Marketing* (Scott White). Winter 2010.
13. Advisor for MBA Practicum/Applied Research Project: *High-Speed Internet for High-Speed Trains* (Eric Lussier). Winter 2010.
14. Advisor for Individual Study: *Review and Analysis of the Business Impacts of Social Media* (Sabrina Lam). Summer 2010.

Professional Service to the Information Systems Community

Conference Involvement

1. *Conference Co-chair*
 - *Co-Chair*, Conference on Information Systems and Technology 2016, Nashville, TN, USA
 - *Co-Chair*, IT Teaching Workshop 2016, Montreal, QC, Canada
 - *Co-Chair*, Workshop on Information Systems and Economics 2014, Auckland, NZ
 - Eighth Symposium on Statistical Challenges in Electronic Commerce Research (SCECR) 2012. Montreal, QC. June 28-29, 2012.
2. *Associate Editor, International Conference on Information Systems*
 - “Economics and Value of IS” track, 2015 & 2016
 - “Economics of IS” track, 2013 & 2014
 - “Economics of IS” track, 2013
 - “Digital and Social Networks” track, 2012
3. *Session Chair*
 - *Information Systems Cluster*, Institute for Operations Research and Management Sciences (INFORMS) Annual Meeting, 2012 & 2014
 - *eBusiness Cluster*, INFORMS Annual Meeting, 2012 & 2013
4. *Track Co-Chair*, Social Media and Digital Marketing, International Conference on Electronic Commerce, 2014
5. *Track Chair/Co-chair*, Poster Session and Poster Slam

- NBER Workshop on Economics of IT and Digitization, 2012-2016
 - Workshop on Information Systems and Economics, 2010, 2011, 2013
 - International Conference on Information Systems, 2012
6. *eBusiness Cluster Co-Chair*, INFORMS Annual Meeting, 2013
 7. *Member, Program Committee*. Conference on Information Systems and Technology, 2011-2015
 8. *Conference Discussant*.
 - Workshop on Information Systems and Economics, 2008 & 2012
 - Administrative Sciences Association of Canada, 2010

Reviews/Editorial Boards

1. *Guest Associate Editor*. Management Information Systems Quarterly 2013-2016
2. *Editorial Board*. Electronic Commerce Research and Applications, 2015
3. *Grant Application Reviewer*. United States-Israel Bi-national Science Foundation Grant Application; German-Israeli Foundation for Scientific Research and Development (2014); Social Science and Humanities Research Council (2015, 2016).
4. *Journal Reviewer*. Management Science (2010-2016), Management Information Systems Quarterly (2009-2016), Information Systems Research (2009-2016), Journal of Management Information Systems (2013), European Journal of Information Systems (2010, 2011), Journal of Information Technology Management (2009), Electronic Commerce Research and Applications (2012), Journal of Organizational Computing and Electronic Commerce (2012, 2013)
5. *Conference Reviewer*. International Conference in Information Systems (2006 – 2010, 2012, 2015), Hawaiian International Conference on System Sciences (2010, 2012), Academy of Management (2009, 2010), Administrative Sciences Association of Canada (2011)

Professional Service to McGill University

1. Co-discussant with David Elmaleh (Harvard Professor, Inventor, Entrepreneur) for the Integrated Management Symposium Series. Title Innovating with Impact: Building Successful Businesses from Science-Based Discovery. September 14, 2016.
2. Invited to present at the Consumer Interest Research Workshop at the McGill Faculty of Law sponsored by the Canadian Partnership for Public Policy-Oriented Consumer Interest Research (PPOCIR), December 7, 2015. Session: "Social media and consumer empowerment: successes and new challenges." Presentation Title: "Taste-makers and taste-breakers: shaping opinions through social media."
3. Conducted two learning sessions titled "Music & Money: How New Media has Transformed the Music Industry" for McGill's "Bring a Child to Work" Day, May 10, 2013.
4. Invited "storyteller" at the Institute for the Public Life of Arts and Ideas (IPLAI) event "Ten Stories (and more) about Markets, Creativity and Transformative Possibilities." April 11, 2013. <http://www.mcgill.ca/iplai/events/ten-stories>.
5. Invited speaker at McGill Model United Nations (McMUN) World Intellectual Property Organization (WIPO) committee, January 25, 2013.
6. Panel Member on "What I wished I'd known..." panel at McGill University New Faculty Orientation, August 21, 2012.
7. Internal Examiner, Defense Committee of Amandine Pras, School of Information Studies. Defense: June 20, 2012.

8. Served as Pro-Dean:
 - Department of Neuroscience, March 27, 2012.
 - Department of Biology, January 25, 2011.
9. Faculty Representative for the Focus group for Academic Laptop Program, January 27, 2010.

Professional Service to the Faculty of Management

1. Assisted Management Librarian (Jessica Lange) to conduct a 1.5 hour workshop for the Desautels' Doctoral Students' Society (DDSS) on Scholarly Publishing, October 20, 2015
2. Business and Management Research Center
 - Academic Director, 2015 -
 - Committee Member, 2014-2015
3. Master's Program Committee, 2010-2015.
4. Student Advisory Services, Faculty Case Competition Committee, 2012-2013.
5. Panel Moderator at the MBA Next 50 (Desautels MBA 50th Anniversary Celebration Conference), Panel Title: Big Data: Big Daddy or Big Brother (two 75 minute sessions), May 23, 2015.
6. Served on "Young Faculty" panel for doctoral students at Desautels Faculty of Management to discuss time-to-completion and job market success, March 2, 2012 & March 22, 2013.
7. MBA Case Competition Practice judge, Fall 2010 & Fall 2012.
8. Case Competition Coach for the competition at the University of Southern California, Winter 2012.
9. Introduced "Clickers for the Core," to use the Student Response System in the MBA core.
10. Faculty of Management Representative for *The Treble Cliff: The Business of Music*, a multi-disciplinary course, 2010-2011.
11. Assisted with creating and served as co-chair of the ZLOG MBA exchange program between MIT-Zaragoza and the Desautels Faculty of Management at McGill.
12. Co-creator and coordinator of the *CIO Speaker Series* (Preparation commenced in Fall 2010, Inaugural Event: January 26, 2011).
13. Invited and organized a Faculty-wide seminar with Sam Yagan, Founder and CEO of okCupid.com, March 24, 2011.
14. Organized a Faculty-wide seminar with John Seely Brown, former Chief Scientist at Xerox Research PARC, April 7, 2010.

Professional Service to the Information Systems Area

1. Information Systems Area Representative for the design of the Masters of Management in Analytics, June 2016-present
2. Information Systems Area Representative on both subgroups involved in the design of an Analytics concentration/re-design of the Technology and Innovation Management Concentration at the MBA level, 2015.
3. Information Systems Speaker Series Coordinator, 2013-present.
4. PhD Committees:
 - Internal Member, Defense Committee of Marketing Doctoral Candidate Wei-Lin Wang (June 2016)
 - Member, Defense Committee of Marketing Doctoral Candidate Aida Faber (May 2015)
 - Phase II Committee of Information Systems Doctoral Student Divinus Oppong-Tawiah

- Phase II Committee of Information Systems Doctoral Student Ghazaleh Aghili
 - Phase III Committee of Information Systems Doctoral Student Youngsok Bang
 - Internal Member, Defense Committee of Information Systems Doctoral Candidate Hani Safadi
5. Served on ICIS Doctoral Consortium Selection Committee for the Information Systems Area, 2012-2014, 2016.
 6. Participated in Orientation Week activities to represent IS courses with the students including a “Speed Dating Lunch” with MBA Professors as well as the Faculty Cocktail, 2009-2015.
 7. Assisted with creating the “Information Systems Minor for Science Students,” 2009-2010.
 8. Assisted with conducting a Writing Seminar for Ph.D. students in Information Systems, 2010.
 9. Information Systems Representative:
 - B.Com. “Meet the Profs” Event, 2009-2011.
 - B.Com. Major and Concentration Fair, 2011, 2013, 2016.
 - Desautels Open House, 2009-2010, 2013.
 - B.Com. CEGEP Night, 2011.
 10. Presented the Technology and Innovation Management Concentration during MBA Concentration Week, 2010, 2013, 2015.
 11. Presented at the B.Com. MIS Awareness Week, 2010

Service to Society

Presentations

1. Invited to present on the panel “Internet of Things: Opportunities and Impacts on Logistics,” at Cargo Logistics Canada 2016, February 18, 2016.
2. Panel Moderator, “Date Night! How Data Science Leads to ‘I Do’”, February 3, 2015 (Video: <https://mediasite.csom.umn.edu/Mediasite/Play/5a15696aade44d29b9444f438fc7821d1d>).
3. Academic Feature at the Indian School of Business Digital Summit 2013 (Industry audience). “Freemium Uncovered: The Cases of Mating and Music.” August 30-31, 2013. (Video: <http://www.youtube.com/watch?v=oN59H2uK0iA>)
4. Invited panel member, “Social Media and Big Data” panel for the Information Systems Doctoral Students Association (ISDSA) PhD Project Conference, Chicago, IL, August 15, 2013.
5. Presented for the Riverview Centre High School Leadership Program, “The Evolving World of Online Music,” Winter 2012.

Press coverage:

1. Related to my online dating research:
 - Global Dating Insights: “An Insight Into Gender Differences in Online Dating Behaviour,” April 27, 2016 (<http://globaldatinginsights.com/2016/04/27/an-insight-into-gender-differences-in-modern-online-dating-behaviour/>)
 - Scientific American Mind: “Don’t Hide Your Identity on Online Dating Sites,” July 1, 2016 (<http://www.scientificamerican.com/article/don-t-hide-your-identity-on-online-dating-sites/>)
 - McGill News Alumni News Magazine: “Looking for love on a laptop,” Spring –Summer 2016 (http://publications.mcgill.ca/mcgillnews/2016/04/17/looking-for-love-on-a-laptop/?utm_source=9657&utm_medium=email&utm_campaign=MNEWS)
 - Global News Morning Show: “Dating in the Digital Era,” February 10, 2015 (<https://ca.news.yahoo.com/video/technology-affects-search-love-133503962.html>)

- McGill Tribune: "Game of Phones," April 1, 2014 (<http://mcgilltribune.com/features/game-of-phones/>).
 - MarketingDaily: "Premium Drives Dating, Music Engagement, Revs," November 20, 2013 (<http://www.mediapost.com/publications/article/213775/karl.html>)
 - Pocket-Promo.com: "Mercedes-Benz exec applauds responsive design for personalization," November 18, 2013 (<http://www.pocket-promo.com/mercedes-benz-exec-applauds-responsive-design-for-personalization/>)
2. Related to my digital music research:
- International Business Times: "One Direction Breakup Could Have A Big Impact On Global Music Sales In 2016," August 24, 2015 (<http://www.ibtimes.com/one-direction-breakup-could-have-big-impact-global-music-sales-2016-2065924>)
 - National Public Radio: "The Real Value of 7 Million Facebook Fans," March 7, 2011 (<http://www.npr.org/blogs/therecord/2011/03/07/134337572/the-real-value-of-7-million-facebook-fans>).
3. Additional Press Coverage:

Uber:

- CBC News: "Uber, Taxis, and Montreal," August 20, 2015 (<https://www.youtube.com/watch?v=ghLqZ3trzi4&feature=youtu.be>)
- CTV News: "Quebec company developing a legal alternative to Uber," August 18, 2015 (<http://montreal.ctvnews.ca/quebec-company-developing-a-legal-alternative-to-uber-1.2522183>)
- Canadian Business: "Montreal is at war with Uber: Which side will surrender?" May 22, 2015 (<http://www.canadianbusiness.com/innovation/montreal-declares-war-on-uber/>).
- Globe and Mail: "Quebec raids Uber offices in Montreal, alleges tax violations," May 14, 2015 (<http://www.theglobeandmail.com/report-on-business/international-business/tax-officials-search-ubers-montreal-office/article24435690/>)

Online Grocery Shopping

- Canadian Grocer: "Young moms using social media to find, buy products," August 12, 2015 (<http://www.canadiangrocer.com/top-stories/young-moms-using-social-media-to-find-buy-products-56561>).
- Canadian Grocer: "IGA enhances online shopping experience with Gourmet Squad," April 15, 2015 (<http://www.canadiangrocer.com/top-stories/igasobeys-enhances-online-shopping-experience-with-gourmet-squad-52292>).

"Treble Cliff: Business of Music" Course

- MacLean's: "Taking care of Business," September 21, 2014 (<http://www.macleans.ca/education/taking-care-of-business/>.)

Online Reviews

- Montreal Gazette: "The power of consumer reviews: Restaurants feasting on positive online buzz," September 19, 2014 (<http://www.montrealgazette.com/business/power+consumer+reviews/10220343/story.html>).

Closing of "Chapters" Bookstore

- CTV: "Chapters downtown bookstore to close; Victoria's Secret to replace it," July 30, 2014. (<http://montreal.ctvnews.ca/chapters-downtown-bookstore-to-close-victoria-s-secret-to-replace-it-1.1938598>)

Email Bankruptcy (Canadian Press Interview; sample of resulting stories below)

- Globe and Mail: "Tempted to 'delete all'? Try managing your emails instead" (<http://www.theglobeandmail.com/report-on-business/careers/career-advice/life-at-work/tempted-to-delete-all-try-managing-your-e-mails-instead/article16589413/>)

- Global News: “Inbox overload? How to organize and manage your email”
(<http://globalnews.ca/news/1115435/inbox-overload-how-to-organize-and-manage-your-email/>)

Professional Memberships

Association of Information Systems (AIS), Information Systems Society (ISS), The Institute for Operations Research and the Management Sciences (INFORMS)

Documents Relied Upon

<u>Document Title, Bates Numbers</u>	<u>Document Date</u>
Motions and Legal Pleadings	
RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) (Phonorecords III)	July 15, 2016
)	
Apple Inc. Proposed Rates and Terms, <i>In the Matter of Determination of Rates and Terms for Making and Distributing Phonorecords (Phonorecords III)</i>	November 1, 2016
RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022)	July 15, 2016
RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) (Phonorecords III)	
RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) (Phonorecords III)	July 15, 2016
)	
Determination, <i>In re Determination of Royalty Rates and Terms for Ephemeral Recording and Webcasting Digital Performance of Sounds Recordings (Web IV)</i>	December 16, 2015
Final Determination of Rates and Terms, <i>In the Matter of Mechanical and Digital Phonorecord Delivery Rate Determination Proceeding</i>	November 24, 2008
George Johnson’s (GEO) Preliminary Disclosures, <i>In the Matter of Determination of Royalty Rates for Making and Distributing Phonorecords (Phonorecords III)</i>	July 17, 2016
RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR	July 15, 2016
RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) (Phonorecords III)	
P t t i O d i D k t	
Motion to Adopt Settlement Industry-Wide, <i>In re Determination of Rates and Terms for Making and Distributing Phonorecords (Phonorecords III)</i>	October 28, 2016
RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) (Phonorecords III)	July 15, 2016
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RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022)	
i D k t N 16 CRB 0001 PR (2018 2022)	
Testimony of David Dorn, <i>In re Determination of Royalty Rates and Terms for Making and Distributing Phonorecords (Phonorecords III)</i>	November 1, 2016
Academic Articles/Books	
Anita Elberse, “Bye Bye Bundles: The Unbundling of Music in Digital Channels,” <i>Journal of Marketing</i> 74, no. 3, pp. 107–123	2010
Michael Gaffney and Pauline Rafferty, “Making the Long Tail Visible: Social Networking Sites and Independent Music Discovery,” <i>Program</i> 43, no. 4, pp. 375–391	2009
Michael Walker Jr., “A Better Public Performance Analysis for Digital Music Locker Storage,” <i>St. John’s Law Review</i> 87, no. 629, pp. 629–668	2013
Sanjeev Dewan and Jui Ramaprasad, “Music Blogging, Online Sampling, and the Long Tail,” <i>Information Systems Research</i> 23, no. 3, pp. 1056–1067	2012
Jamie Sexton, “Digital Music: Production, Distribution and Consumption” in <i>Digital Culture: Understanding New Media</i> , ed. Glen Creeber and Royston Martin (Maidenhead, UK: Open University Press)	2009
Erik Brynjolfsson et al., “Goodbye Pareto Principle, Hello Long Tail: The Effect of Search Costs on the Concentration of Product Sales,” Working Paper	January 2011
Hannes Datta et al., “Changing Their Tune: How Consumers’ Adoption of Online Streaming Affects Music Consumption and Discovery,” Working Paper	October 19, 2016

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Document Title, Bates Numbers	Document Date
Luis Aguiar and Joel Waldfogel, "Streaming Reaches Flood Stage: Does Spotify Stimulate or Depress Music Sales?," Institute for Prospective Technological Studies Digital Economy Working Paper 2015/05, pp. 1–37	2015
Reports	
RESTRICTED — Subject to Protective Order in Docket No. 16-CRB-0001-PR (2018-2022) (B000080346 (SPOTCRB000080346 III))	2016
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"IFPI Digital Music Report 2015: Charting the Path to Sustainable Growth," International Federation of the Phonographic Industry Report, NMPA00000751–94	2015
"The Recording Industry: World Sales 2003," International Federation of the Phonographic Industry Report, http://www.ifpi.org/content/library/worldsales2003.pdf	April 4, 2004
Brian T. Yeh, "Copyright Licensing in Music Distribution, Reproduction, and Public Performance," Congressional Research Service Report RL33631, Summary	September 22, 2015
Dana A. Scherer, "Money for Something: Music Licensing in the 21st Century," Congressional Research Service Report R43984	January 19, 2016
MidiA Report, "Global Music Forecasts 2014–2019: The Shift to the Consumption Era," SPOTCRB0005152–75	July 2014
Publicly Available Documents	
"A Safe Place for All Your Files," <i>Google</i> , https://www.google.com/drive/#start	
"About Amazon Music Storage Subscriptions," <i>Amazon</i> , https://www.amazon.com/gp/help/customer/display.html?nodeId=201379330	
"About Amazon Prime," <i>Amazon</i> , https://www.amazon.com/gp/help/customer/display.html?nodeId=200444160	
"About Digital Royalties," <i>RIAA</i> , http://www.soundexchange.com/artist-copyright-owner/digital-royalties/	
"About File Formats," <i>Amazon</i> , https://www.amazon.com/gp/help/customer/display.html?nodeId=201379270	
"About Google Play Music Subscriptions," <i>Google</i> , https://support.google.com/googleplay/answer/3140180?hl=en&ref_topic=6230728	
"About Media Formats," <i>Amazon</i> , https://www.amazon.com/gp/help/customer/display.html?nodeId=201379550	
"About the Amazon Prime Membership Charge," <i>Amazon</i> , https://www.amazon.com/gp/help/customer/display.html/ref=hp_left_v4_sib?ie=UTF8&nodeId=200966690	
"Amazon Digital Music Store," <i>Amazon</i> , https://www.amazon.com/MP3-Music-Download/b?ie=UTF8&node=163856011	
"Amazon Prime," <i>Amazon</i> , https://www.amazon.com/gp/prime/pipeline/prime_gifting_landing?ref=PrimeDP	
"Apple Music Connect: Frequently Asked Questions," <i>Apple</i> , http://www.apple.com/itunes/working-itunes/connect/faq	
"Apple Music," <i>Apple</i> , http://www.apple.com/apple-music/ , APL-PHONO_00009149–55	
"Apple Music's Curated Music Discovery Feature Goes Live for iOS 10 Beta Users," <i>AppleInsider</i> , http://appleinsider.com/articles/16/09/02/apple-musics-curated-music-discovery-feature-goes-live-for-ios-10-beta-users	September 2, 2016

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<p>“Apps & Games: Ringtones,” <i>Amazon</i>, https://www.amazon.com/s/ref=sr_ex_p_36_0?rh=n%3A2350149011%2Cn%3A%212445993011%2Cn%3A%219433446011%2Cn%3A%212350150011%2Cn%3A2478863011&bbn=2478863011&ie=UTF8&qid=1477236913&ajr=0</p>	
<p>“Artist Revenue Streams,” Future of Music Coalition List, http://money.futureofmusic.org/40-revenue-streams/#record</p>	
<p>“Billboard 200 Makeover: Album Chart to Incorporate Streams & Track Sales,” <i>Billboard</i>, http://www.billboard.com/articles/columns/chart-beat/6320099/billboard-200-makeover-streams-digital-tracks, APL-PHONO_00009156-59</p>	November 19, 2014
<p>“Deals,” <i>Amazon</i>, https://www.amazon.com/MP3-Deals/b/ref=dmm_hp_bbx_mr?ie=UTF8&node=678551011&pf_rd_m=ATVPDKIKX0DER&pf_rd_s=merchandised-search-left-3&pf_rd_r=AEQ8F6KW7AFACTEE0KR8&pf_rd_t=101&pf_rd_p=2573946502&pf_rd_i=163856011</p>	
<p>“Digital Definitions,” <i>Harry Fox Agency</i>, https://secure.harryfox.com/public/DigitalDefinitions.jsp</p>	
<p>“Digital Music: \$0.69-\$1.29,” <i>Amazon</i>, https://www.amazon.com/s/ref=sr_st?rh=n%3A163856011%2Cp_36%3A69-129%2Cp_n_feature_browse-bin%3A625151011&qid=1477349398&bbn=163856011&sort=price-desc-rank</p>	
<p>“Discover,” <i>Spotify</i>, https://support.spotify.com/us/using_spotify/discover_music/discover/</p>	
<p>“Display,” <i>Spotify</i>, https://www.spotify.com/us/brands/formats/display/</p>	
<p>“Getting the Best Out of Net Music,” <i>BBC News</i>, http://news.bbc.co.uk/2/hi/entertainment/1719779.stm</p>	December 19, 2001
<p>“Google Music is Open for Business,” <i>Google Official Blog</i>, https://googleblog.blogspot.com/2011/11/google-music-is-open-for-business.html</p>	November 16, 2011
<p>“How Much Music Is Available In TIDAL?,” <i>TIDAL</i>, https://support.tidal.com/hc/en-us/articles/201167102-How-much-music-is-available-in-TIDAL-</p>	
<p>“How to Use Google Play Music,” <i>Google</i>, https://support.google.com/googleplay/answer/4515411?hl=en</p>	
<p>“iCloud,” <i>Apple</i>, http://www.apple.com/icloud/</p>	
<p>iCloud Music Library: Understanding differences between Apple Music and iTunes Match," <i>Apple</i>, https://support.apple.com/en-us/HT204962</p>	October 11, 2016
<p>“Inventing Entertainment: The Early Motion Pictures and Sound Recordings of the Edison Companies,” <i>Library of Congress</i>, https://www.loc.gov/collections/edison-company-motion-pictures-and-sound-recordings/articles-and-essays/history-of-edison-sound-recordings/history-of-the-cylinder-phonograph/</p>	
<p>“Investing In Music,” International Federation of the Phonographic Industry Report, http://www.ifpi.org/content/library/Investing_In_Music.pdf</p>	2014
<p>“iTunes,” <i>Apple</i>, http://www.apple.com/itunes/music/.</p>	
<p>“Learn About Digital Music,” <i>Music Matters</i>, http://whymusicmatters.com/pages/about-digital-music</p>	
<p>“Learn More about Prime Music,” <i>Amazon</i>, https://www.amazon.com/gp/feature.html?docId=1002557791</p>	
<p>“Legal Music Services,” <i>Pro Music</i>, http://www.pro-music.org/legal-music-services-north-america.php</p>	
<p>“Link Spotify with Facebook,” <i>Spotify</i>, https://support.spotify.com/is/account_payment_help/account_settings/using-spotify-with-facebook/</p>	
<p>“Listen Now,” <i>Google</i>, https://play.google.com/music/listen?authuser#/now</p>	
<p>“Music on Google Play,” <i>Google</i>, https://play.google.com/store/music?hl=en</p>	
<p>“Official Singles Chart Top 100,” <i>Official Charts</i>, http://www.officialcharts.com/charts/singles-chart/</p>	October 20, 2016

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"The 10 Things You Need To Know About TIDAL," <i>TIDAL</i> , https://support.tidal.com/hc/en-us/articles/203023142-The-10-Things-You-Need-to-Know-about-TIDAL	
"The Streaming Price Bible – Spotify, YouTube and What 1 Million Plays Means to You!," <i>The Trichordist</i> , https://thetrichordist.com/2014/11/12/the-streaming-price-bible-spotify-youtube-and-what-1-million-plays-means-to-you/	November 12, 2014
"Tidal - High Fidelity Music Streaming," Tidal, http://tidal.com/us/try-now	
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Aloe Blacc, "Aloe Blacc: Streaming Services Need to Pay Songwriters Fairly," <i>Wired</i> , http://www.wired.com/2014/11/aloe-blacc-pay-songwriters/	November 5, 2014
Amy Harmon, "Congress to Preview Digital Music Service," <i>The New York Times</i> , http://www.nytimes.com/2001/05/17/technology/17MUSI.html	May 17, 2001
Andy Malt, "RIAA Adds Streaming to Digital Gold and Platinum Certification," <i>Complete Music Update</i> , http://www.completemusicupdate.com/article/riaa-adds-streaming-to-digital-gold-and-platinum-certification/	May 10, 2013
Apple Press Release, "Introducing Apple Music – All The Ways You Love Music," https://www.apple.com/pr/library/2015/06/08Introducing-Apple-Music-All-The-Ways-You-Love-Music-All-in-One-Place-.html	June 8, 2015
Apple Press Release, "iTunes Music Store Sells Over One Million Songs in First Week," http://www.apple.com/pr/library/2003/05/05iTunes-Music-Store-Sells-Over-One-Million-Songs-in-First-Week.html	May 5, 2003
Audrey Shi, "Amazon Prime Members Now Outnumber Non-Prime Customers," <i>Fortune</i> , http://fortune.com/2016/07/11/amazon-prime-customers/	July 11, 2016
Ben Popper, "Rhapsody rebrands itself as Napster," <i>The Verge</i> , http://www.theverge.com/2016/6/14/11936974/rhapsody-rebrands-as-napster	June 14, 2016
Ben Sisario, "Billboard, Changing the Charts, Will Count Streaming Services," <i>The New York Times</i> , http://www.nytimes.com/2014/11/20/business/media/billboard-changing-the-charts-will-count-streaming-services-.html	November 19, 2014
Benny Evangelista, "Music Firms Open Online Services, but Will Fans Pay?," <i>SFGate</i> , http://www.sfgate.com/business/article/Music-firms-open-online-services-but-will-fans-2845907.php	December 3, 2001

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Charlotte Hassan, "68% of Smartphone Owners Stream Music Daily, Study Finds," <i>Digital Music News</i> , http://www.digitalmusicnews.com/2016/03/11/parks-associates-68-of-u-s-smartphone-owners-listen-to-streaming-music-daily/	March 11, 2016
Charlotte Hassan, "Surprise! YouTube Slashed Its Royalty Rate by 50% Last Year," <i>Digital Music News</i> , http://www.digitalmusicnews.com/2016/07/12/youtube-per-stream-royalty-rate-halved/	July 12, 2016
Charlotte Hassan, "Tidal Is Growing Faster Than Apple and Spotify Combined," <i>Digital Music News</i> , http://www.digitalmusicnews.com/2016/05/16/tidal-become-major-competitor-spotify-apple-music	May 16, 2016
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Daniel Ek, "Hello America. Spotify Here.," <i>Spotify</i> , https://news.spotify.com/us/2011/07/14/hello-america-spotify-here/	July 14, 2011
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