BLOCKCHAIN TECHNOLOGY: THE BLUEPRINT FOR REBUILDING THE MUSIC INDUSTRY?♦

The history of the music industry is inevitably also the story of the development of technology. From the player piano to the vinyl disc, from reel-to-reel tape to the cassette, from the CD to the digital download, these formats and devices changed not only the way music was consumed, but the very way artists created it.

[EDGAR BRONFMAN JR. (Warner Music Group chairman).][1]

INTRODUCTION

Prior to the digital downloading era, the music industry shared a harmonious relationship with technological innovation. A new trend in

[1] Ed Christman, *Steve Jobs Remembered by Edgar Bronfman Jr., Martin Bandier and Other Executives*, HOLLYWOOD REP. (Oct. 6, 2011, 3:37 PM), http://www.hollywoodreporter.com/news/steve-jobs-remembered-by-edgar-245190.

technology often meant the industry was receiving a lucrative update that improved both its products and corporate dealings.[2] Over the past two decades, however, advancements in technology have reputedly proven costly for the music industry, transmitting waves of discordance rippling throughout its entire business structure.[3] That premise is now obsolete. So, why are parts of the industry still struggling with heavy revenue losses?

While it is true that digital formatting initially caused some setbacks for the industry, it eventually overcame those problems.[4] In fact, the International Federation of the Phonographic Industry's (IFPI) 2017 Global Music Report disclosed that digital streaming revenues in 2016 accounted for a record-breaking high of $15.7 billion.[5] The material explication as to why various parts of the industry have continued to suffer financial discrepancies is due to two factors that have plagued the industry long before digital music platforms became the mainstream medium[6] and exacerbated the rifts in revenue. These matters are rights management, which is a copyright law issue, and royalty distribution, which is hindered by its capitalistic management principles.[7]

Recently, there has been industry-wide chatter of implementing blockchain-based solutions, predominantly to rectify the foregoing sets of issues.[8] Proponents of blockchain argue that its technological properties will offer key players in the music marketplace a more efficient way to organize and identify creators' works, expose the

[2] *See* Ben Dickson, *How Blockchain Can Change the Music Industry*, TECHCRUNCH (Oct. 8, 2016), https://techcrunch.com/2016/10/08/how-blockchain-can-change-the-music-industry/.

[3] *U.S. Sales Database*, RECORDING INDUS. ASS'N OF AM., https://www.riaa.com/u-s-sales-database/ (last visited Sept. 19, 2017).

[4] Cary Sherman, *The State of Music Mid-Way Through 2017*, MEDIUM (Sept. 20, 2017), https://medium.com/@RIAA/the-state-of-music-mid-way-through-2017-7e90cad298f9 ("The pace of change embraced by record labels is staggering.").

[5] *IFPI Global Music Report 2017*, INT'L FED'N PHONOGRAPHIC INDUS. (Apr. 25, 2017), http://www.ifpi.org/news/IFPI-GLOBAL-MUSIC-REPORT-2017; *see also* Joshua P. Friedlander, *News and Notes on 2017 Mid-Year RIAA Revenue Statistics*, RECORDING INDUSTRY ASS'N AM., http://www.riaa.com/wp-content/uploads/2017/09/RIAA-Mid-Year-2017-News-and-Notes2.pdf (last visited Nov. 14, 2017).

[6] Margarita Khartanovich, *Managed Chaos: Why the Music Industry Needs Blockchain*, COINTELEGRAPH (Jan. 24, 2017), https://cointelegraph.com/news/managed-chaos-why-the-music-industry-needs-blockchain ("The music industry has lived through several so-called revolutions when . . . MP3 killed the record sales or Spotify disrupted the way we consumed music . . . However, rather paradoxically the industry has never changed that essentially, at its core which is its relationship with artists contracts, payments, licensing and copyrights.").

[7] *Id.* Marko Ahtisaari, the Founder of Sync Project, stated, "90 percent of the problem is people in the industry . . . ." *Id.*

[8] *Use Cases & dApps: Blockchain & the Evolution of the Music Industry*, BLOCKAPPS, http://blockapps.net/blockchain-music-industry/ (last visited Nov. 7, 2017) ("It has become clear to many in the music industry that blockchain holds tremendous potential. Its application includes solutions for releasing music, streamlining the distribution model, and funneling more of the revenue towards the creators . . . .").

multiple avenues of transactions for monetary distribution amongst the relevant contributors of a musical work, and aggregate a global database that could grant anyone access to this wealth of information.[9]

This argument presents only a superficial analysis of its features, portraying blockchain technology as the seemingly ideal design. Markedly, the proponents neglect to incorporate many of its overriding pitfalls, including, primarily, its incompatibility with how copyright law operates, which extends to the law's various licensing schemes and their attached statutory fees. What the blockchain proponents' arguments do indicate, however, are the most significant areas of the music industry that warrant serious reform measures. Once the legal foundation is amended, the concept of blockchain, or at least some of its properties, can eventually be revisited.

Accordingly, the purpose of this Note is to provide an in-depth analysis of the problems the music industry is facing in order to demonstrate why applying blockchain technology is an insufficient resolution. The Note will also propose two alternative recommendations and argue for adopting those blueprints instead. The Note unfolds in three parts. Part I examines the ongoing struggles of the music business and its failed attempts to remedy them. Part II provides a primer for blockchain technology, featuring a discussion of emerging use cases, and evaluates whether implementing blockchain technology is a viable solution for the music industry. The final portion offers two proposals prescribing more suitable measures Congress can undertake and explores the only possible value that the industry can currently extrapolate from blockchains: tokenization.

I. DIGITIZING THE MUSIC INDUSTRY: FROM AUTO-TUNE TO OUT-OF-TUNE

In the 1980s, a phenomenon known as the Digital Audio Revolution[10] conducted the music industry in its first lesson concerning the limitations of analog technology.[11] Digital processing allowed for a myriad of improvements during the recording and production stages of a work.[12] By the 1990s, analog had officially lost the battle to digital,

9 Dickson, *supra* note 2.

10 *See infra* Part I. The 1980s' Digital Audio Revolution triggered a series of new inventions that would have detrimental consequences, which would not be felt for another twenty years. What the music industry gained, from the start of the "Revolution" throughout the golden age of music in the 1990s, would ultimately be lost by 1999 during the rise of digital downloading.

11 Christopher DeArcangelis, *How the 1990s Changed Recording and Music Production Forever*, REVERB (Feb. 15, 2017), https://reverb.com/news/how-the-1990s-changed-recording-and-music-production-forever.

12 *Id.* For example, "[c]ompact discs opened the door for longer albums, and digital processing allowed producers to pitch shift, not only instruments, but also vocals, adding an unprecedented sheen to their finished products." *Id.*

signifying a pivotal moment in the history of the music industry.[13]

Digital processing also gave rise to innovative consumer products. Cassettes were superannuated by compact discs (CDs), and CDs were soon replaced by MP3s.[14] The introduction of MP3s taught the music industry its next lesson in technology: the highly controversial art of file-sharing, along with its notorious counterpart, bootlegging.[15] In 1999, Napster, a file-sharing program, was developed.[16] Its purpose would permanently restructure the entire music industry.[17]

As Napster's popularity spread, the music world exploded into a frenzy of peer-to-peer file-sharing software.[18] Numerous prototypes spawned from its concept, such as KaZaa, Morpheus, and LimeWire.[19] Eventually, consumers' habitual use of these programs severely impacted music sales,[20] causing record labels, artists, and the music industry to implode. Although Napster and its various illegal counterparts have since been shut down via lawsuits and settlements,[21] their legacy of piracy and bootlegging remains.

Apple's iTunes provided an initial solution to restoring the revenue lost due to Napster and its progenies.[22] The success of iTunes spurred

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[13] *Id.*

[14] *Id.*

[15] Schoups, *infra* note 17.

[16] Laura Sydell, *Napster: The File-Sharing Service That Started It All?*, NPR: MUSIC (Dec. 21, 2009), http://www.npr.org/2009/12/21/121690908/napster-the-file-sharing-service-that-started-it-all.

[17] Anna Nicolaou, *How Streaming Saved the Music Industry*, FIN. TIMES (Jan. 16, 2017), https://www.ft.com/content/cd99b95e-d8ba-11e6-944b-e7eb37a6aa8e ("When Napster took on the music industry in 1999, record companies fought back in courtrooms, but failed to come up with a viable model to combat the illicit music factory growing online."). *See generally* Annelise Schoups, *Why is Napster Called Napster?*, REWIND & CAPTURE (Aug. 10, 2016), http://www.rewindandcapture.com/why-is-napster-called-napster/. Napster provided its users with instantaneous, international access to thousands of song libraries, ripe to download for free. These consumer-oriented advantages quickly gained Napster a popular following, and consequently, a rapid spike in its user-base, *id.*

[18] Brad King, *The Day the Napster Died*, WIRED (May 15, 2002, 12:00 PM), https://www.wired.com/2002/05/the-day-the-napster-died/.

[19] *Id.*

[20] David Goldman, *Music's Lost Decade: Sales Cut in Half*, CNN: MONEY (Feb. 3, 2010, 9:52 AM), http://money.cnn.com/2010/02/02/news/companies/napster_music_industry/.

[21] *See* A&M Records, Inc. v. Napster, Inc., 239 F.3d 1004 (9th Cir. 2001); Arista Records, LLC v. Lime Grp. LLC, 784 F. Supp. 2d 398 (S.D.N.Y. 2011); UMG Recordings, Inc. v. MP3.Com, Inc., 92 F. Supp. 2d 349 (S.D.N.Y. 2000); Metro-Goldwyn-Mayer Studios, Inc. v. Grokster, Ltd., 545 U.S. 913 (2005); *see also* Alex Bracetti, *A History of P2P Sites Being Shut Down*, COMPLEX (Jan. 28, 2012), http://www.complex.com/pop-culture/2012/01/a-history-of-p2p-sites-being-shut-down/; David Kravets, *Dec. 7, 1999: RIAA Sues Napster*, WIRED (Dec. 7, 2009, 12:00 AM), https://www.wired.com/2009/12/1207riaa-sues-napster/.

[22] Press Release, Apple, iTunes Celebrates Its First Anniversary; Over 70 Million Songs Purchased (Apr. 28, 2004), https://www.apple.com/newsroom/2004/04/28iTunes-Celebrates-Its-First-Anniversary-Over-70-Million-Songs-Purchased/; *cf.* Adrian Covert, *A Decade of iTunes Singles Killed the Music Industry*, CNN: MONEY (Apr. 25, 2013, 5:22 PM), http://money.cnn.com/2013/04/25/technology/itunes-music-decline/index.html; Miguel Gallego, *How the MP3 Accidentally Destroyed the Music Industry*, REVERB (Apr. 18, 2017),

other commercial streaming services to evolve, including Pandora and Spotify.[23] In their continued efforts to combat music piracy, streaming services made it easier and cheaper for consumers to access music.[24] They also eliminated the need for MP3 players as well as the requirement of having to download a physical copy of a song in order to listen to it, effectively freeing up storage space on consumers' hard drives.[25] Despite the advantages that these services continued to offer, it only enabled those wishing to procure free music[26] to pursue a different method of piracy, called "stream ripping."[27]

In short, tracking the events originally offset by the 1980s Digital Audio Revolution demonstrates how the rise of digital downloading prompted the decline of the music industry. [28] In addition to piracy, digital technology is also responsible for many of the other issues highlighting the music industry's shortcomings,[29] including copyright protection, distribution of royalty payments, storage management in licensing databases, artists' rights, and unenforced Digital Millennium Copyright Act (DMCA) regulations.[30] Note that aside from introducing piracy on a magnified scale, digital technology illuminates this conglomeration of issues, but it is not necessarily the cause of them. For instance, royalty payment problems are strictly associated with business decisions,[31] and enforcing DMCA regulations should fall to Congress.[32]

https://reverb.com/news/how-the-mp3-accidentally-destroyed-the-music-industry. Apple's iTunes initially gave the industry cause for celebration; tracked over a decade, however, it seems it did more damage than good, *id.*

[23] *See* Jeff Dunn, *The Rise of Music Streaming Services Hasn't Killed Music Piracy*, BUS. INSIDER (Apr. 17, 2017), http://www.businessinsider.com/music-piracy-streaming-chart-2017-4; *see also* Ryan Faughnder, *Music Piracy is Down But Still Very Much in Play*, L.A. TIMES (June 28, 2015), http://www.latimes.com/business/la-et-ct-state-of-stealing-music-20150620-story.html.

[24] *See* Dunn, *supra* note 23.

[25] *See id.*

[26] Clyde Haberman, *Grappling With the 'Culture of Free' in Napster's Aftermath*, N.Y. TIMES: RETRO REP. (Dec. 7, 2014), https://www.nytimes.com/2014/12/08/technology/grappling-with-the-culture-of-free-in-napsters-aftermath.html; *see also* David Holmes, *The Music Industry's New War Is About So Much More than Copyright*, FAST COMPANY (Aug. 11, 2016), https://www.fastcompany.com/3061256/youtube-music-copyright-royalties-war (discussing how YouTube profits off of pirated copies of artists' music and is protected from actions of copyright infringement under the DMCA's "safe harbor" laws).

[27] *See* Dunn, *supra* note 23.

[28] DeArcangelis, *supra* note 11.

[29] Charles C. Mann, *The Heavenly Jukebox*, ATLANTIC (Sept. 2000), https://www.theatlantic.com/magazine/archive/2000/09/the-heavenly-jukebox/305141/.

[30] *See The Digital Millennium Copyright Act: U.S. Copyright Office Summary*, U.S. COPYRIGHT OFF. (Dec. 1998), https://www.copyright.gov/legislation/dmca.pdf. *See generally* Paul Resnikoff, *The Music Industry Has 99 Problems. and They Are…*, DIGITAL MUSIC NEWS (July 22, 2016), https://www.digitalmusicnews.com/2016/07/22/music-industry-99-problems-2.

[31] Mike Masnick, *Major Record Labels Are Keeping Nearly All the Money They Get from Spotify, Rather Than Giving It to Artists*, TECHDIRT (Feb. 5, 2015, 8:02 AM), https://www.techdirt.com/articles/20150204/07310329906/yes-major-record-labels-are-keeping-nearly-all-money-they-get-spotify-rather-than-giving-it-to-artists.shtml.

[32] *See Fix the DMCA to Curb Abuse*, VALUE THE MUSIC, https://valuethemusic.com/about/ (last

The next subsection will focus on these major challenges and how prolonging their resolution has deeply afflicted the industry.

A. *Rights Management: The Link to Who Owns What*

Music is one of the most complicated copyright environments with one of the worst data management practices.[33] A major key to resolving the issues of the music industry depends on copyright law and how certain rights are tracked or managed. For every piece of recorded music, there are two copyrights: one for the composition and one for the recording itself.[34] Each of these types of copyrights involves multiple parties and creates a "bundle" of several exclusive rights,[35] which are exercised by obtaining various licenses.[36] Large music publishers can administer these rights, but usually organizations, called Collective Management Organizations (CMOs), do so instead on behalf of the publisher to maintain efficiency or collective bargaining power.[37]

The licenses become a more complex organism to track when digital streaming music services are added to the mix.[38] These services create additional licenses, which depend on whether they are interactive (e.g., Spotify) or non-interactive streaming services (e.g., Sirius XM Satellite Radio).[39] Since there are distinct rights holders that each possess their own copyright law rights and multiple administrators that are responsible for processing the licenses associated with the rights, the industry must track the complete set of rights for both the sound

visited Nov. 14, 2017) ("It's time to fix these laws.").

[33] Khartanovich, *supra* note 6. Interns or IT departments are largely responsible for inputting data entry and recording comprehensive contracts, which leaves room for errors and gaps. Also, thousands of rights organizations are supposed to help coordinate music rights, but they also need to organize in a way that connect each of them to each other's databases to gain the metadata.

[34] Bill Rosenblatt, *Watermarking Technology and Blockchains in the Music Industry*, DIGIMARC, https://www.digimarc.com/docs/default-source/digimarc-resources/whitepaper-blockchain-in-music-industry.pdf?sfvrsn=2 (last visited Oct. 16, 2017) ("The copyright on the composition is assigned to one or more composers, each of whom is represented by one or more music publishers . . . The copyright in a sound recording, on the other hand, is owned by a recording artist or record label.").

[35] 17 U.S.C. § 106 (2002) (stating there are six exclusive rights in copyrighted works: reproduction, preparation of derivative works, distribution, public performance, public display, and public performance of digital audio transmission).

[36] Rosenblatt, *supra* note 34 (explaining there are separate licenses for mechanical rights—copying and distributing—performance rights, synchronization rights, and a variety of other licenses for digital music services).

[37] *Id.*; *see also Collective Management of Copyright and Related Rights*, WORLD INTELL. PROP. ORG., http://www.wipo.int/copyright/en/management/ (last visited Aug. 16, 2018).

[38] The advent of Napster enabled the availability of single-song downloads, causing the "bundled" compendium of rights, usually ascribed to a full album, to become "unbundled." *See generally* James R. Richardson, *The Spotify Paradox: How the Creation of a Compulsory License Scheme for Streaming On-Demand Music Platforms Can Save the Music Industry*, 22 UCLA ENT. L. REV. 45 (2014).

[39] Rosenblatt, *supra* note 34.

recordings and the compositions they embody.[40] This requires at least two unique identifiers for sound recordings and linkages between those sound recordings and their compositions.[41]

The main problem with music rights management is that there is no single authoritative source for mapping recordings to their underlying composition.[42] There are several unique identifiers for sound recordings that are spread widely across many record labels; but some are not implemented universally, and there are alternative identifiers to track other miscellaneous uses within the music industry. This has the effect of producing a profusion of fragmented databases.[43] Consequently, no verifiable database exists to search for ownership or rights information, which leaves errors or gaps in the system, that, in turn, affect the owners' legal rights[44] as well as the distribution of royalty payments.[45]

The music industry has previously attempted to find methods that would aggregate this data and restore owners' rights.[46] Napster is notoriously credited with the technical term Digital Rights Management (DRM) and its reactionary legal component—the DMCA—but the concept of rights management existed long before Napster.[47]

In 1983, a primordial form of DRM was grounded in the idea of superdistribution.[48] Superdistribution included protections for content owners that alerted the creator to whenever a product was copied, tracked the usage of the product via a system that enabled the owner to control the terms of the product's use, and incorporated a payment system that permitted users to make secure transactions with the content owner.[49] This basic idea led to enhanced methods of "tamper-proof" protection, monetization, and security.[50] Early on, developers had

40 *Id.*
41 *Id.*
42 *Id.*
43 *Id.*
44 *6 Famous Copyright Lawsuits*, LEGALSHIELD (Dec. 3, 2014), http://www.shakelaw.com/blog/6-famous-lawsuits-involve-licensing-creative-assets/ (stating inattention to usage rights and improper licensing of creative assets lead to lawsuits).
45 Rosenblatt, *supra* note 34; *see also* Steve Pociask, *Fair Play: Just Another Song and Dance*, FORBES (Sept. 17, 2015, 3:41 PM), https://www.forbes.com/sites/stevepociask/2015/09/17/fair-play-just-another-song-and-dance/2/#43de63221acb ("The payment system of identifying what songs are played and how songwriters and artists are compensated is so complex and nontransparent that one recent study suggests that artists are losing lots of money in all the of confusion, that royalties are being paid to the wrong parties and that the lack of clarity benefits intermediaries, not musicians.").
46 Khartanovich, *supra* note 6; *see also infra*, Part I.B.
47 Ernie Smith, *Let's Lock Information Down*, TEDIUM (Aug. 24, 2017), https://tedium.co/2017/08/24/drm-history-intertrust-contentguard/.
48 *The History of DRM, Part One*, TECHJUNKIE (Sept. 7, 2012), https://www.techjunkie.com/the-history-of-drm-part-one/.
49 *Id.*
50 Smith, *supra* note 47.

realized that without protection for content rights, electronic files would consist of nothing more than a collection of limited, disconnected applications.[51]

Fast-forwarding to 1998, several companies tried to achieve this goal again and formed the Secure Digital Music Initiative (SDMI).[52] The purpose was to create an open framework for sharing encrypted music by not only respecting copyrights, but also by allowing the use of them in unprotected formats.[53] Although this music initiative also failed to provide a universal DRM standard, it prevailed by further exposing the problem.

As technology evolved, the digital revolution radicalized copyrights by enacting fees to permit both the copying and transferring of rights.[54] In a particularly famous essay, Steve Jobs explained that the cost of implementing DRM protections and ensuring information is being used fairly is greater than the cost of obstructing its purpose and obtaining works illegally.[55] He urged major record labels to abandon the practice of affixing DRM technology to their files and instead negotiated with them to license their music to services like iTunes.[56] Eventually, DRM came back into play circa 2008 when Spotify increased in popularity and helped to abolish the idea of music ownership entirely.[57]

The concept of creating a global, comprehensive music database is not a novel idea either.[58] Since 2000, collection societies have attempted to resolve the issue of a lack of centralized database through multiple international coalitions.[59] Every single one of them has failed.[60] The latest, and incidentally most ambitious venture, was the Global Repertoire Database (GRD) effort.[61] The objective of the GRD was to create a singular, compiled, and authoritative ledger of ownership and control of musical works around the world.[62] Over eighty organizations

[51] *Id.* From this concept spawned one of the most important innovations of modern DRM software called Digibox.
[52] *Id.*
[53] *Id.*
[54] *Id.*
[55] *Id.*
[56] *Id.*
[57] *Id.*
[58] Klementina Milosic, *GRD's Failure*, MUSIC BUS. J. (Aug. 2015), http://www.thembj.org/2015/08/grds-failure/.
[59] *Id.*
[60] *Id.* In 2000, the International Music Joint Venture was formed, but ended in failure. Recognizing the value of such a database, the World Intellectual Property Organization (WIPO) launched the International Music Registry project in 2011, but enthusiasm petered, and it faltered as well. The most recent effort began in 2008 with the Global Repertoire Database, but was ultimately shelved by 2014, racking up more than $13.7 million in debt.
[61] *Id.*
[62] *Id.*

and more than 450 individuals across six continents elected to participate, ranging from recording artists to tech titans.[63]

Similar to what blockchain enthusiasts believe its technology can solve for music, the GRD offered the same potential benefits of transparency in regard to tracking, collecting, and allocating royalty fees properly, as well as lowering the administrative costs of these operations. The GRD also alleged its purpose was to create an authoritative, comprehensive, open, and multi-territory database to benefit the world of music, which would permit copyright applicants to register only once—as opposed to re-applying for registration in various jurisdictions. Finally, the GRD initiative claimed it would facilitate licensing processes.[64]

The GRD required two rounds of financing: the initial start-up funds and the funds needed to cover the annual operating budget.[65] After significant contributions were made, the GRD collapsed in July 2014, leaving behind a debt of more than $13.7 million.[66] Collection societies, most notably the American Society of Composers, Authors, and Publishers (ASCAP), began pulling out of the project and ultimately ceased funding it.[67] The combined loss of funding and information prevented the GRD from moving forward.[68]

Some sources suggest that the failure was attributed to the collection societies' fears of losing revenue from operational costs under a more efficient system.[69] Others speculate that it arose from a dispute over who would control the global database and administer its catalog.[70] Another reason cited for the failure was the concern that if publishers could license songs directly, collection societies would no longer need to serve as the intermediaries that facilitate the process.[71]

Despite the failure, there remains a fairly wide consensus across the music business that a fine-tuned system of rights ownership information management is crucial to developing the digital music industry, and the best way to achieve this is still through a global database.[72] The tools necessary for building such a globalized structure share analogous properties with blockchain's features, which explains blockchain enthusiasts' strong support for implementing the

[63] *Id.*
[64] *Id.*
[65] *Id.*
[66] *Id.*
[67] *Id.*
[68] *Id.*
[69] *Id.*
[70] *Id.*
[71] *Id.* (explaining that other factors potentially leading to the GRD's failure pertain to different data standards that would make it hard to provide consistent information, technological and legal barriers across the globe, and separate roles that collection societies play in various countries).
[72] *Id.*

technology.[73]

B. *Royalty Distribution: The Descent of the "C-Note"*

The issue of rights management directly impacts royalty distribution.[74] Two types of royalties are paid out each time a song is played: one for the sound recording, which compensates the artist (or, more plausibly, the record label), and the other for the musical work, which compensates the songwriter or company that holds the rights to the song.[75] If a person using the music material does not know who owns it (i.e., the purpose of organizing metadata), then the individual will not know whom to pay for its use.[76]

Like the rights management problem, this is not a new matter, but digital streaming platforms have contributed to its escalation.[77] Streaming services depend on major labels to provide licenses to pay for the content.[78] Major labels are docking large cuts of what should be paid to the artists, justifying their acts as if they were still producing physical

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[73] *See generally* Part II.

[74] Jesse Feister, *The Music Data Debacle*, MEDIUM (Mar. 16, 2016), https://medium.com/@flashfeister/the-music-data-debacle-you-re-already-fixing-it-482ee18cfead.

[75] *Music Royalties Guide*, ROYALTY EXCHANGE, https://www.royaltyexchange.com/learn/music-royalties (last visited Oct. 25, 2017).

[76] Jesse Walden, *What a Blockchain for Music Really Means*, MEDIUM: MEDIACHAIN BLOG (Apr. 25, 2016), https://blog.mediachain.io/what-a-blockchain-for-music-really-means-e2f8dc66d57d ("Spotify recently paid a $30M settlement to resolve a lawsuit with the National Music Publishers Association for royalties withheld because they didn't know who to pay."); *see also* Ed Christman, *Spotify and Publishing Group Reach $30 Million Settlement Agreement Over Unpaid Royalties*, BILLBOARD (Mar. 17, 2016, 2:38 PM), http://www.billboard.com/biz/articles/7263748/spotify-and-publishing-group-reach-30-million-settlement-agreement-over-unpaid; Elizabeth Stinson, *The Music Industry Bands Together to Finally Get Paid Online*, WIRED (Sept. 9, 2017, 7:00 AM), https://www.wired.com/story/the-music-industry-bands-together-to-get-paid-online/ ("[P]ayments follow attribution.").

[77] Kiran George, *Royalties in the Digital Music Industry: The Metadata Predicament*, SPICYIP (May 12, 2016), https://spicyip.com/2016/05/royalties-in-the-digital-music-industry-the-metadata-predicament.html ("Before the digital revolution transformed the way people accessed music . . . unlicensed users of copyrighted music probably didn't have too many legitimate excuses for not paying royalties. The backs of CD and cassette cases . . . always had a little colourful pamphlet on the front that displayed the album name, and one at the back that listed out the names of the publishers, directors, lyricists and composers. Because the credits to audio songs were always explicitly made known, this ensured that licensees could never use *difficulty in identification* of copyright holders as a pretext to justify sidestepping the payment of their share of royalties."). *See generally* Tim Ingham, *Kobalt Raises Another $14M, Forecasts FY Revenues of $500M*, MUSIC BUS. WORLDWIDE (Oct. 12, 2017), https://www.musicbusinessworldwide.com/kobalt-raises-another-14m-forecasts-fy-revenues-of-500m/.

[78] *Fair Music: Transparency and Payment Flows in the Music Industry*, RETHINK MUSIC INITIATIVE, http://static1.squarespace.com/static/552c0535e4b0afcbed88dc53/t/55d0da1ae4b06bd4bea8c86c/1439750682446/rethink_music_fairness_transparency_final.pdf (last visited Nov. 14, 2017) ("To provide music to its customers, digital streaming services typically require a mechanical license to stream a copy of the song, a public performance license from the PRO for right to publicly perform the song, and a master-use license from the record label to cover the ability to make copies and publicly perform those works through digital transmissions.").

copies of the material, i.e., vinyl records and CDs.[79] Complicated contracts and non-disclosure agreements help to ensure artists and listeners remain uninformed of the allocation of these profits.[80] Without physical evidence, artists lack the ability to prevent labels from distributing royalties at will.[81]

Another issue that needs to be addressed is how payments are actually distributed to the parties. Aside from the confusion that accompanies procuring numerous service licenses to correctly disburse subsequent fees, copyright law is outdated and does not protect creators as sufficiently as it did prior to the digital age.[82] In regards to royalty fees, government regulations require low rates, [83] as well as statutory mechanical royalty rates for both physical recordings and permanent digital downloads.[84] Finally, to further these complexities, the Department of Justice (DOJ) had threatened to revoke the 1941 consent decrees from ASCAP and Broadcast Music, Inc. (BMI), which would destroy royalty fee negotiations for everyone involved in the industry.[85]

In conjunction with the legal hurdles is the quandary of how to account for digital streaming revenues in this new era of music consumption.[86] Recently, the Recording Industry Association of America (RIAA) tweaked its gold and platinum certification process,

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[79] David Byrne, *Open the Music Industry's Black Box*, N.Y. TIMES (July 31, 2015), https://www.nytimes.com/2015/08/02/opinion/sunday/open-the-music-industrys-black-box.html?_r=0.

[80] *Id*.; *see also* Nicolas Cole, *Blockchain Technology Is Set to Disrupt Every Industry – and Music Is Next*, INC. (Aug. 22, 2017), https://www.inc.com/nicolas-cole/blockchain-technology-is-set-to-disrupt-every-indu.html ("How many times have we heard the infamous case study of a band being signed to a major label, only to sue them (and usually their manager) a few years later after realizing they'd been skimped on millions of dollars in royalties? That has been happening since the days of Elvis.").

[81] Byrne, *supra* note 79 ("[L]abels also get money from three other sources, all of which are hidden from artists: They get advances from the streaming services, catalog service payments for old songs and equity in the streaming services themselves."); *see also* Khartanovich, *supra* note 6 ("[O]ne could call the current state of the music business 'managed chaos' where its players record labels and publishers benefit from it. It takes months and years to pay out royalties to artists and composers.").

[82] Dina LaPolt, *It's Time For the Music Business to Start Embracing the Blockchain: Guest Post*, BILLBOARD (Apr. 12, 2017), https://www.billboard.com/articles/business/7759697/music-business-start-embracing-blockchain-dina-lapolt.

[83] *Id*.

[84] *Statutory Royalty Rates*, HARRY FOX AGENCY, https://secure.harryfox.com/public/StatutoryReports.jsp (last visited Oct. 19, 2017).

[85] *ASCAP-BMI Consent Decrees*, FUTURE OF MUSIC COALITION (Aug. 4, 2016), https://futureofmusic.org/article/fact-sheet/ascap-bmi-consent-decrees.

[86] Emma Grey Ellis, *Surprise, Surprise: The RIAA Gets Streaming All Wrong*, WIRED (Feb. 9, 2016, 7:00 AM), https://www.wired.com/2016/02/riaa-streaming-platinum/ (explaining that digital streaming services have impacted royalty rates for artists). The industry is struggling with how to account for money flow contingent on the number of times a song or album has streamed, *id*. One copyright attorney asserts that they have been "involved in record label audits where it was difficult for even the most experienced auditors to say what and why artists are being paid." *Id*.

making it easier to "go platinum" while simultaneously devaluing it as a medium of consumption for music.[87] As a result, artists are suffering the subsequent pecuniary disparities between physical album sales and streaming.[88]

Owners and publishers also must take into account the type of streaming service they use.[89] Interactive streams accrue more money than non-interactive, but interactive pay a greater portion of the revenue to the record labels, and non-interactive are bound to a compulsory license rate.[90] Additionally, there are tiers built into those two types of streams, premium and "freemium," which create further fiscal discrepancies.[91] The average range of rates varies between $0.005 to $0.0022 for the artist and label, but the publishers depend on a different set of criteria to calculate what is owed to them.[92] The diverging rates ultimately become an accountant's worst nightmare to untangle.[93]

If tackling these issues separately sounds intimidating, blindly implementing blockchain technology as the potential, overarching solution when there is currently no evidence available to support that it works, is just as daunting.[94] Most of the positive press about how blockchain technology can save the music industry is based on theoretical implications. Blockchains are much more limited in their capacities than the articles seem to suggest. The next part of this Note explores these concepts by elaborating on what blockchain technology is and the emergence of potential use cases for its application in the

[87] *Id.*

[88] *Id.*; *see also Rate Charts*, HARRY FOX AGENCY, https://www.harryfox.com/find_out/rate_charts.html (last visited Nov. 20, 2017).

[89] Bobby Owsinkski, *A Primer on Music Streaming Royalties*, HYPEBOT (May 18, 2016), http://www.hypebot.com/hypebot/2016/05/a-primer-on-streaming-music-royalties.html; *see also* Stuart Dredge, *How Much Do Musicians Really Make from Spotify, iTunes and YouTube?*, THE GUARDIAN (Apr. 10, 2015, 5:02 PM), https://www.theguardian.com/technology/2015/apr/03/how-much-musicians-make-spotify-itunes-youtube; Isaac Shepard, *Updated: My Music Service Royalty Rates Over the Last Two Years*, THE MUSIC MAZE (Sept. 8, 2017), https://www.themusicmaze.com/music-service-royalty-rates-last-two-years/.

[90] Owsinkski, *supra* note 89.

[91] *Id.*

[92] *Id.*; *see also* Sherman, *supra* note 4 ("Payouts to creators are very different and vastly impacted by outdated or abused laws and regulations. . . . [T]he amount of revenues that the three major categories of streaming generated are dramatically different, as is their disparate contribution to overall revenues.").

[93] Paul Resnikoff, *Calculate Your Earnings from Spotify, Apple Music, Pandora, Amazon, Google Play & More*, DIGITAL MUSIC NEWS (Apr. 25, 2017), https://www.digitalmusicnews.com/2017/04/25/streaming-music-royalty-calculator-spotify-apple-music-pandora/ (stating that other factors making the calculations difficult include: streaming platforms refusing to release their rates, in part to keep rates low to return to the labels; platforms not wanting to break down their per-stream rates; and most importantly, "it's actually hard for companies like Spotify to give reliable numbers because per-stream rates are constantly shifting, and vary depending on factors like country, ad-supported vs. premium, and total subscribers.").

[94] *See e.g*, Dickson, *supra* note 9.

music industry.

II. BLOCKCHAIN: A RECORD ON LOOP

Blockchain technology was originally developed as part of the digital currency, Bitcoin.[95] Although they are not the same concept,[96] an explanation of Bitcoin is a necessary prelude to fully comprehending the concept of blockchain technology.[97]

In 2009, Satoshi Nakamoto introduced the world to an electronic form of cash known as Bitcoin.[98] Its goal was to reestablish trust in the financial system by eliminating the use of an intermediary, i.e., a bank, and instead distributing that trust through a decentralized network, which could display transactions through cryptographic proof.[99] The decentralized ledger that was formed to record Bitcoin's anonymous transactions became blockchain;[100] inadvertently it was the more significant development between the two.

Blockchain, a type of distributed ledger, is maintained across a network of servers called "nodes," that get duplicated thousands of times.[101] The ledger contains a continuous and complete record (the chain), of all transactions performed, which then gets grouped into blocks.[102] A block is only added to the chain if the nodes—essentially the member computers associated with that chain—comply with the new block attempting to be added to the chain.[103] If all of the nodes on the network can verify that the transaction is valid, then a new block is formed.[104] To determine whether the transaction can become a certified block, the nodes compete to solve a highly complex algorithm entitled, "Proof of Work."[105]

Each block contains certain components: a cryptographic hash (a random and unique string of numbers mapped to the information stored within the block); a time stamp; and the hash of the preceding block.

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95 *Blockchain: The New Technology of Trust*, GOLDMAN SACHS, http://www.goldmansachs.com/our-thinking/pages/blockchain/ (last visited Sept. 22, 2017).

96 *Id.*

97 Liz Greer, *Satoshi Whitepaper*, HASHED HEALTH (July 12, 2017), https://hashedhealth.com/satoshi-whitepaper/.

98 *Id.*

99 *Id.*

100 John McKinlay, Duncan Pithouse, John McGonagle & Jessica Sanders, *Blockchain: Background, Challenges and Legal Issues*, DLA PIPER (Feb. 2, 2018), https://www.dlapiper.com/en/oman/insights/publications/2017/06/blockchain-background-challenges-legal-issues/.

101 *Id.* Analogous to the peer-to-peer networks that swap movie and music files, the nodes on a blockchain network operate in a similar manner and continuously share updated information with the communal database.

102 *Id.*

103 *Id.*

104 *Id.*

105 *Id.*

When information gets added to a blockchain, it triggers the "Proof of Work" process to generate a new hash, which then associates the data with that particular blockchain and secures it to the latest block.[106] Once this information attaches to the blockchain, the data becomes intricately interwoven with the block's "hash," which not only enables it to immediately detect any changes, but also makes it extremely complicated to alter the data due to the enormous amount of computing required to complete the "Proof of Work" algorithm that supplies the unique "hash."[107]

Additionally, a blockchain network may be open and public (permissionless) or structured within a private group (permissioned).[108] Members opting to use a private blockchain can preapprove its participants, govern how entries are recorded and under what circumstances they can be modified, and demand electronic passwords to gain access to the permissioned network.[109]

Another notable feature of blockchains, which could eventually become the most compelling application for the music industry, are smart contracts. A smart contract is a computer program that is capable of facilitating, executing, and enforcing the negotiation or performance of an agreement—the contract—using blockchain technology.[110] A programmer inserts a logical code akin to a normal legal contract (i.e., "if this, then that"), which acts as a set of instructions for the computer.[111] The code is then encrypted and dispatched to other computers via a distributed network of ledgers.[112] Once these computers receive the code, they each formulate an individual consensus about the results of the code and its execution.[113]

Thus, the functions of a blockchain make it well suited for certain business purposes. It can be applied to track digital transactions, store large quantities of data, create smart contracts, secure valuable information, and verify authority instantaneously.[114] In theory, blockchain's description sounds like the ultimate comprehensive tool for business solutions, which is why numerous industries, e.g., music,

106 *Id.*
107 *Id.*
108 *Id.*
109 *Id.*
110 *The Ultimate Guide to Understanding Smart Contracts*, BLOCKCHAINTECHNOLOGIES.COM, http://www.blockchaintechnologies.com/blockchain-smart-contracts (last visited Oct. 13, 2017).
111 *Id.*
112 *Id.*
113 *Id.* ("The network then updates the individual ledgers by recording the execution of the contract, and subsequently monitors them for compliance within the terms of the smart contract. In this type of system, single party manipulation is obverted because control over the execution of the smart contract is no longer possible because execution is no longer in the hands of a single party.").
114 *Blockchain: The New Technology of Trust*, *supra* note 95.

find its concept so appealing.

A. *Beyond Bitcoin*

Though the emergence of Bitcoin is partly responsible for the initial hype surrounding blockchain technology, the barrage of Internet articles speculating on the potential efficiencies blockchain can provide for numerous industries is instrumental to the rate in which companies are urging to have it implemented.[115] With the exception of Bitcoin—blockchain's only proven use case—many of these claims are either undeveloped ideas or hypothetical possibilities for a given industry.[116] In reality, blockchain technology still has much to prove.[117]

Although some companies are already employing its use, blockchain is limited in its application by the ways in which it can be manipulated.[118] Blockchain is most favorable in business conditions necessitating decentralization, tracking and storing large amounts of data or historical information, and creating trust or security for managing the records.[119] Other potential applications for it include identity creation, income generation through social media networks, and as a tool for forecasting.[120] More specifically, blockchain has allowed companies to roll out some extremely useful and innovative platform ideas, such as creating secure and transparent voting methods for election results, improving anti-counterfeit measures across different industries, and certifying the authenticity of artworks.[121] It has even had an impact on non-profit organizations handling international development overseas.[122]

Blockchain is largely still in its developmental stage. State governments have been reluctant in responding to the need for

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115 Vala Afshar, *Blockchain Will Disrupt Every Industry*, HUFFINGTON POST (July 10, 2017, 10:58 AM), http://www.huffingtonpost.com/entry/blockchain-will-disrupt-every-industry_us_5963868ce4b08f5c97d06b55; *see also Banking Is Only the Beginning: 42 Big Industries Blockchain Could Transform*, CBINSIGHTS: RESEARCH BRIEFS (Aug. 8, 2018), https://www.cbinsights.com/research/industries-disrupted-blockchain/.

116 Olusegun Ogundeji, *Only Proven Use Case for Blockchain Is Bitcoin's Blockhain, Says Bankymoon CEO*, COINTELEGRAPH (Oct. 15, 2016), https://cointelegraph.com/news/only-proven-use-case-for-blockchain-is-bitcoins-blockchain-says-bankymoon-ceo; *see also* Sue Troy, *Step-by-Step Guide to a Blockchain Implementation*, TECHTARGET, http://searchcio.techtarget.com/feature/Step-by-step-guide-to-a-blockchain-implementation (last visited Sept. 28. 2018).

117 Troy, *supra* note 116.

118 Nolan Bauerle, *Why Use a Blockchain?*, COINDESK, https://www.coindesk.com/information/why-use-a-blockchain/ (last visited Sept. 26, 2017).

119 *Id.*

120 Samrat Roy Chowdhuri, *21+33 Blockchain Examples and Applications*, TECHIESAMRAT.COM (Mar. 13, 2017), https://techiesamrat.com/blockchain-examples/.

121 *Id.*

122 Tanaka Nyamadzawo, *4 Ways Blockchain is Being Used in International Development*, BOND (Sept. 7, 2017), https://www.bond.org.uk/news/2017/09/4-ways-blockchain-is-being-used-in-international-development.

blockchains regulations,[123] but even without strict regulations in place, some companies have forged ahead by instituting their own blockchain initiatives.[124] As a result of this initial success, professionals within the legal and music industries have started linking up with the tech sphere to analyze how blockchain's innovative structure can possibly reform some of the music industry's ongoing problems.[125]

One of the primary issues, which will be discussed in more detail below, focuses on modifying the industry's financial scheme, and particularly the payment process—this is essentially how blockchain was formed in underlying Bitcoin currency.[126] Although no laws currently exist explicitly connecting blockchain technology and the music industry, there are some cases,[127] state statutes,[128] and financial codes[129], that assist in developing the legal framework for cryptocurrencies. Thus, blockchain's progressing legal foundation, coupled with the fact that many of the music industry's problems stem from its antiquated financial system, results in utilizing blockchain technology for monetary purposes as a solid first step towards

123 *State of Regulation 2017, Bitcoin and Blockchain Regulation in the United States*, DINBITS (Jan. 17, 2017, 6:17 AM), http://news.dinbits.com/2017/01/state-of-regulation-2017-bitcoin-and.html.

124 *See, e.g.*, *Platform*, UJO MUSIC, https://ujomusic.com/ (last visited Sept. 27, 2017). For example, UJO music has built its entire platform on it.

125 *E.g.*, Ben Dickson, *Blockchain Could Completely Transform the Music Industry*, VENTURE BEAT (Jan. 7, 2017, 10:40 AM), https://venturebeat.com/2017/01/07/blockchain-could-completely-transform-the-music-industry/; *ASCAP, SACEM, and PRS for Music Initiate Joint Blockchain Project to Improve Data Accuracy for Rightsholders*, ASCAP (Apr. 7, 2017), https://www.ascap.com/press/2017/04-07-ascap-sacem-prs-blockchain; Richard Kastelein, *TAO Network Team Up with Boogie Shack Music Group to Offer Music Industry Blockchain Solution*, BLOCKCHAIN NEWS (Aug. 24, 2016), http://www.the-blockchain.com/2016/08/24/tao-network-team-up-with-boogie-shack-music-group-to-offer-music-industry-blockchain-solution/.

126 Josh Hall, *How the Technology Behind Bitcoin Could Change the Music Industry – and Help Everyone Get Paid*, FACT MAGAZINE (Feb. 21, 2017), http://www.factmag.com/2017/02/21/blockchain-bitcoin-music-industry/; *see also* Joel Bevacqua, *Are Cryptocurrencies Like Bitcoin the Solution to the Music Industry's Woes?*, LA WKLY. (July 11, 2017, 9:10 AM), http://www.laweekly.com/music/blockchain-to-the-rescue-how-bitcoin-technology-could-save-streaming-music-revenue-8383424.

127 *E.g.*, *In re* Dole Food Co., Inc. Stockholder Litigation, No. CV 8703-VCL, 2017 WL 624843, at *4 n.1 (Del. Ch. Feb. 15, 2017); U.S. v. Ulbricht, 858 F.3d 71, 130 (2d Cir. 2017); *see also* Tanaya Macheel, *4 Court Cases Helping Shape the U.S. Stance on Bitcoin*, COINDESK (Sept. 28, 2014, 9:09 AM), https://www.coindesk.com/4-court-cases-helping-determine-us-stance-bitcoin/; Justin Connell, *Get Ready for 2017 – These Legal Precedents on Bitcoin Were Set in 2016*, BITCOIN.COM (Dec. 25, 2016), https://news.bitcoin.com/get-ready-for-2017-these-legal-precedents-on-bitcoin-were-set-in-2016/. Both articles reference either court decisions or statutes that overwhelmingly support Bitcoin as a form of currency. Some of the opposing arguments suggest that Bitcoin is actually a commodity that can be used as money and that Bitcoin should not be viewed as money because it does not fall under IRS guidelines or under those cases' state statutes.

128 Luke Parker, *U.S. States Working on Blockchain Legislation in 2017*, BRAVE NEW COIN (Apr. 2, 2017), https://bravenewcoin.com/news/us-states-working-on-blockchain-legislation-in-2017/.

129 Michael del Castillo, *Delaware House Passes Historic Blockchain Regulation*, COINDESK (July 1, 2017, 3:54 AM), https://www.coindesk.com/delaware-house-passes-historic-blockchain-regulation/.

improvement for the industry. Unfortunately, that step is at least five to ten years away.[130]

B. *Emerging Use Cases in Music*

Among the plethora of touted use cases for blockchain technology,[131] there are several rapidly emerging in the music industry. Proponents of blockchain applications are primarily conducting research for the major areas of the industry that need improving: digital rights management and royalty payments distribution. To reiterate, rights management refers to the system controlling copyrighted material, i.e., songs; royalty distribution pertains to how revenue is allocated to each of the parties involved in creating a musical composition. The rest of this section explains why blockchain is not necessarily a sweeping solution to the problems currently crippling the music industry and the emerging use cases in those arenas that are responsible for promoting this hype.

1. Revisiting the Issue of Rights Management

As previously described in the rights management section,[132] the music industry has already experimented with several efforts to cure the rights management issue, which shared analogous properties with blockchains. Despite the fact that each of these attempts failed, the same logic is being applied again to fix these problems, except this time by utilizing different technology: blockchains.

Many articles detailing the ways in which blockchain can be used as a global database to restore rights management ignore the fact that blockchain is simply a tool, not a software enabled to solve this problem.[133] The reasons put forth for using a blockchain, described below, mirror the ones for the GRD. For instance, several of the articles mention that blockchains are networks that could permit decentralized, global, public access in a secure and transparent manner.[134] They also claim that blockchains could eliminate the use of intermediaries, which has the effect of directly connecting the artist and consumer. Lastly, the articles emphasize that blockchains' unique storage of information,

130 John Palfreyman, *Ten Things Blockchain Is Not*, IBM: GOV'T INDUSTRY BLOG (May 2, 2017), https://www.ibm.com/blogs/insights-on-business/government/ten-things-blockchain-not/.

131 CBINSIGHTS, *supra* note 115.

132 *See supra* Part I.A.

133 Daniel Dewar, *Does the Music Industry Need a Blockchain?*, PAPERCHAIN (Apr. 6, 2017), https://blog.paperchain.io/does-the-music-industry-need-a-blockchain-e2c1df9bcde6.

134 *E.g.*, Dickson, *supra* note 125; Gideon Gottfried, *How 'the Blockchain' Could Actually Change the Music Industry*, BILLBOARD (Aug. 5, 2015), http://www.billboard.com/articles/business/6655915/how-the-blockchain-could-actually-change-the-music-industry; Mark Mayne, *What Blockchain Could Mean for Media and Entertainment*, IBC (July 14, 2017), https://www.ibc.org/tech-advances/what-blockchain-could-mean-for-media-and-entertainment/2069.article.

through its time-stamping and cryptographic hash properties, could incorporate the metadata—data pertaining to a musical work's ownership information—of each song into its records.[135]

Notice that the majority of articles employ the verb "could" and not "does." That is because not only does this technologically advanced form of blockchain not exist for the entertainment industry yet,[136] but also for the same reasons that the GRD failed,[137] namely, for reasons of transparency, storage, non-repudiable records, managing metadata, and worldwide public accessibility.[138] This is not a technological issue; if the GRD had failed because of technological limitations, then implementing blockchain "could" potentially be the solution to the rights management problem.

Although the music industry recognizes the demand for metadata, the incentive to supply it is severely lacking.[139] As mentioned above, a legacy of bad practice is to blame for this dilemma.[140] Artist contracts are complex, uniform industry standards do not exist, and file maintenance has been essentially non-existent.[141] Record labels, publishers, and Performing Rights Organizations (PROs) benefit from this muddled mess of private data, because it costs less and leaves unaccounted revenues behind for them to collect as profit.[142] Blockchains will not eliminate this problem; if anything, they will intensify it.[143]

If it took strenuous and excessive efforts to convince PROs to collectively combine their data during the GRD initiative, it will be equally as hard now to compel PROs and labels to comply again when the failure is fresh and debt is in the millions.[144] Also, this time may require even stronger persuasion tactics because PROs will be betting on a brand-new business model with no proof of success to support the risks.[145] The positives will always have to outweigh the negatives before

135 Dickson, *supra* note 125; *see also* Amy Bennie, *How the Music Industry Could Be Saved by Blockchain*, DIGITAL MARKETING BUREAU (July 5, 2017), http://www.thedigitalmarketingbureau.com/blockchain/music-industry-saved-blockchain.

136 *See* Palfreyman, *supra* note 130; *see also* Alexander Stewart, *The Hint of Blockchain*, MUSIC BUS. J. (Dec. 2016), http://www.thembj.org/2016/12/the-hint-of-blockchain/.

137 Milosic, *supra* note 58.

138 Stewart, *supra* note 136.

139 *Id.*

140 Matthew Hawn, *Why Blockchain Won't Save the Music Industry (at Least Not Yet)*, DIGITAL MUSIC NEWS (Dec. 9, 2016), https://www.digitalmusicnews.com/2016/12/09/blockchain-bitcoin-save-music-industry/.

141 *Id.*

142 *Id.*

143 *Id.* For one, it will cost millions to implement a comprehensive blockchain system. Secondly, it will extend unnecessary negotiations about who will control and input data to the blockchain. Lastly, there will be a bidding war over relinquishing music legacy catalogs since most of the money stems from them and the biggest rights holders will not be willing to share it, *id.*

144 *Id.*

145 *Id.*

a major industry sector decides to adopt a new system, especially one attempting to change its traditional methods and diminish its profits.[146]

Even if blockchain advocates somehow managed to gain the cooperation of all music organizations and blockchain's capabilities were advanced enough, there are further drawbacks to using blockchain.[147] Its application may not be necessary at all to fix an issue so embedded in bad business practices. Aside from the initial extravagant costs and the issue of scalability, there are several other points to consider before deeming blockchain as the superior option to adopt over the conventional private mode of a centralized database.

For one, advocates argue that eliminating intermediaries, such as publishers, will provide creators with greater control over their intellectual property rights and afford more accurate data collection.[148] Advocates also argue that removing the middlemen will return profits solely to artists, as opposed to lawyers and distributors.[149] This simply is not true. Blockchain will have to establish intermediaries, i.e., service providers, to build the system, aggregate data, ensure the database runs smoothly, and so on.[150] Blockchain does not function on its own,[151] so money will have to generate from somewhere to pay the new middlemen to maintain this complex system, and it will most likely get deducted from those benefitting from it: the artists.[152]

Additionally, since blockchains are tamper-resistant, if there were a central authority to contact, the data could not be changed or deleted without affecting the entire system (i.e., deleting one file from five years ago disrupts the whole chain).[153] For an industry that is suffering due to its longstanding adherence to stagnant business practices and wrought with legal battles over erroneous data, the last thing the industry wants is to implement a lawless system sans an "edit" button.

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146 *Id.*

147 *See, e.g.*, Jessie Willms, *Is Blockchain-Powered Copyright Protection Possible?*, BITCOIN MAG. (Aug. 9, 2016, 12:00 PM), https://bitcoinmagazine.com/articles/is-blockchain-powered-copyright-protection-possible-1470758430/ ("An additional challenge for someone seeking to make a blockchain for copyright is the hashing issue. A hash of a work isn't the same as the work itself and copyright is generally broader than just the specific arrangement of bits. Even a slightly modified work is likely to still be covered by the original work's copyright but the hash will be completely different.").

148 *See* Nick Ayton, *Blockchain to Disrupt Balance of Power in TV, Music and Film Industry*, COINTELEGRAPH (Feb. 6, 2017), https://cointelegraph.com/news/blockchain-to-disrupt-balance-of-power-in-tv-music-and-film-industry.

149 *See id.*

150 *See* Alan Graham, *Understanding Music and Blockchain Without the Hype: Revisited*, TRICHORDIST (Aug. 10, 2017), https://thetrichordist.com/2017/08/10/understanding-music-and-blockchain-without-the-hype-revisited/.

151 *See generally supra* Part II.

152 *See supra* Part II.

153 *See supra* Part II.

2. Returning to the Issue of Royalty Distribution

One of the primary reasons for the persistent hype—proclaiming blockchain as the music industry's savior, especially among artists—is blockchain's properties. If a decentralized ledger is instituted to act as a transparent, publicly available, non-repudiable resource, then the owners of works can trace their creations and know exactly where they can collect their royalties from, or at the very least, the person using it will know whom to pay.[154] Therefore, in theory, instituting blockchain is allegedly the advocates' key to resolving the rights management issue, which effectively solves the royalty distribution problem. Accordingly, artists can recoup more of the money that they are owed.[155]

This has sparked a wave of new start-ups to arise. Although they have a common goal, there seems to be a split between two methodologies in approaching the situation. One avenue focuses on using blockchain applications for payment systems. Another is looking into quasi-blockchain type databases to archive and account for all the information without a payment option. For example, the Open Music Initiative[156] and companies, such as Songspace[157] or Kobalt,[158] are concentrating their efforts on aggregating the metadata and creating systems where everyone involved in a musical composition can upload their information in one place, as opposed to storing it separately within their own entity's private centralized databases.[159]

As for implementing blockchain from a payment angle, companies are eagerly joining the race to be the first ones to successfully achieve this goal. They intend to reinvent the monetization of music through smart contracts, cryptocurrencies, micropayments, and direct fan-to-artist contact, which is the idea of eliminating the middlemen, e.g.,

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154 *See* Joseph Young, *Study: The Blockchain Can Solve the Music Streaming Industry's Biggest Problem*, COINTELEGRAPH (July 15, 2015), https://cointelegraph.com/news/study-the-blockchain-can-solve-the-music-streaming-industrys-biggest-problem.

155 *See id.*; *see also* Jeff John Roberts, *Microsoft and EY Launch Blockchain Tool for Copyright*, FORTUNE (June 20, 2018), http://fortune.com/2018/06/20/microsoft-and-ey-launch-blockchain-tool-for-copyright/ ("The idea of using a blockchain to track copyright royalties is not new: Blockchain evangelists have long touted it . . . But so far the solution has remained a theoretical one—in part because of the incredible complexity involved in managing copyright and payments.").

156 *See* Stinson, *supra* note 76.

157 *See* Feister, *supra* note 74.

158 *See* Bobby Owsinski, *The Music Industry's Big Data Problem*, FORBES (June 2, 2016, 10:00 AM), https://www.forbes.com/sites/bobbyowsinski/2016/06/02/music-big-data/#12620163f818.

159 *See* Chris Cooke, *Spotify Acquires Blockchain Team at Mediachain Labs*, COMPLETE MUSIC UPDATE (Apr. 27, 2017), http://www.completemusicupdate.com/article/spotify-acquires-blockchain-team-at-mediachain-labs/; *see also* Chris Cooke, *ASCAP, SACEM and PRS Collaborate on Blockchain Initiative*, COMPLETE MUSIC UPDATE (Apr. 10, 2017), http://www.completemusicupdate.com/article/ascap-sacem-and-prs-collaborate-on-blockchain-initiative/.

financial brokers or purchasing platforms, that deduct a portion of revenues.[160] The following are examples of some of the larger companies already executing these strategies and how each of them is experimenting with their own unique concepts.

For instance, *PledgeMusic* is building a Fair Trade Music Database that houses all of the metadata that companies and consumers can use to search for songs and play them.[161] Once played, a smart contract will automatically release payments to the owners whose information is linked to that song.[162] *PeerTracks* is an equity trade-like system for artists to manage royalties and revenues, and incorporates cryptocurrency tied to individual artists' profiles that are valued through the popularity of its creator.[163] *Musicoin* plans to facilitate all major aspects of music distribution, copyright, and royalty payments through the application of smart contracts, including equipping music fans with the power to decide how much they want to pay for songs in a pay-per-play format.[164] Payments will be accepted in the form of its own cryptocurrency, the "musicoin," which "will not be tied to any particular sovereign currency to allow users from all over the world to buy music from their favorite artists."[165] The final example, which incidentally is gaining the most traction, is *UjoMusic*. *UjoMusic*'s platform assembles the metadata for creations, gives artists direct control over their works by authorizing them to set their own rates via licensing schemes, selects the distribution channels to sell them through, and lastly, uses Ethereum as both the payment method and copyright protection,[166] enforceable through Ethereum's smart contracts.[167]

While all of these concepts are worth exploring further,[168] they are

[160] *See* Dickson, *supra* note 9; *see also Musicoin Aims to Create New Paradigm in the Music Industry*, CRYPTO ECON. (Mar. 7, 2017), http://www.crypto-economy.net/musicoin-aims-to-create-new-paradigm-in-the-music-industry/?lang=en.

[161] *See* Dickson, *supra* note 9; *see also About Us*, PLEDGEMUSIC, https://www.pledgemusic.com/learn/fans (last visited Nov. 14, 2017).

[162] *See* Dickson, *supra* note 9.

[163] *See* Dickson, *supra* note 125; *see also* MUSE BLOCKCHAIN, http://museblockchain.com (redirects to https://soundac.io/) (last visited Nov. 14, 2017).

[164] *See Musicoin Aims to Create New Paradigm in the Music Industry*, *supra* note 160; *see also Musiconomi*, COFOUND.IT, https://cofound.it/projects/musiconomi/ (follow "Solution" hyperlink) (last visited Nov. 14, 2017).

[165] *Musicoin Aims to Create New Paradigm in the Music Industry*, *supra* note 160; *Musiconomi*, *supra* note 163.

[166] Jordan Tuwiner, *What Is Ethereum? What Is Ethereum Mining?*, BUY BITCOIN WORLDWIDE (July 13, 2017), https://www.buybitcoinworldwide.com/ethereum/. Ethereum operates as both a cryptocurrency and an open source computing platform, *id.* While Bitcoin's value is strictly derived from it being a form of cryptocurrency, Ethereum is another type of cryptocurrency, but retains value through its ability to create universal applications, *id.*

[167] *See* Gottfried, *supra* note 133; Imogen Heap, *Blockchain Could Help Musicians Make Money Again*, HARVARD BUS. REV. (June 5, 2017), https://hbr.org/2017/06/blockchain-could-help-musicians-make-money-again. *See generally* UJO MUSIC, https://ujomusic.com (last visited Nov. 12, 2018).

[168] Theoretically, they work as a technological solution, but there is no long-term evidence to

not without incredible complications. In addition to first having to resolve the problems discussed under the rights management issue,[169] royalty distribution has its own inherent set of obstacles. Both rights management and royalty distribution issues must be fixed before even attempting to apply blockchain, because implementing its technology will generate a new, third set of problems that will also need to be addressed.

The aforementioned start-ups recognize the importance of a transparent, comprehensive database to keep track of owners' rights in order to facilitate payments. Hence, they are recommending some form of blockchain as a panacea. The formation of these companies, however, is aiding in reproducing the issues that they were initially trying to solve: fractured data. This is precisely the same scenario that produced the fragmented data initially, pre-digital streaming era—multiple corporations possessing similar ideas, but establishing different standards with varying sorts of information, which results in fractured data.[170] Just as with the GRD, the music industry has already attempted to agree upon a transparency code for streaming royalties, and it failed too.[171] Ultimately, any plan involving blockchain will have to assess how to organize, finance, and administer its application as one mega ledger, if its advocates ever want it to operate effectively.[172]

Rewinding to the storage issue, even with the help of blockchain's transparent and organizational characteristics, inputting metadata that is fraudulent or erroneous will remain at such status on a blockchain. As the industry witnessed with Napster, the decentralized aspect that peer-to-peer technology offers makes it extremely difficult to pinpoint whom to hold liable when unauthorized files are uploaded to a system in which there is no controlling authority to contact to remove the material. This can lead to compromising the entire database.[173]

demonstrate whether they are a viable solution to the revenue issues. Also, how are they accounting for the copyright conundrum and legacy record data?

169 *See supra* Part II.B.1.

170 *See* Daniel Sanchez, *War Erupts Over Whose Global Music Rights Database Is Better*, DIGITAL MUSIC NEWS (Aug. 4, 2017), https://www.digitalmusicnews.com/2017/08/04/riaa-ascap-bmi-congress-shared-music-database/ ("If each group creates their own music rights database, which one would the industry respect?").

171 Andy Edwards, *The UK Music Industry Tried to Agree a 'Transparency Code' for Streaming Royalties. It Collapsed – Here's Why*, MUSIC BUS. WORLDWIDE (Feb. 26, 2017), https://www.musicbusinessworldwide.com/the-uk-music-industry-tried-to-agree-a-transparency-code-for-streaming-royalties-it-collapsed-heres-why/. Viz., for the same reasons: executives could not agree on a standard, executives felt transparency threatened their businesses, and creators could renegotiate "unfair contracts" since they could see how the dividends split.

172 Andy Edwards, *Who Will Build the Music Industry's Global Rights Database?*, MUSIC BUS. WORLDWIDE (Feb. 15, 2016), https://www.musicbusinessworldwide.com/who-will-build-the-music-industrys-global-rights-database/.

173 *See* Christopher M. Swartout, *Toward a Regulatory Model of Internet Intermediary Liability: File-sharing and Copyright Enforcement*, 31 NW. J. INT'L L. & BUS. 499 (2011).

Also, if the information is missing but belongs to a major label or publisher, those owners will treat it as a threat to their business, claim it as proprietary, refuse to share it, and employ the same business tactics that resulted in the current predicament.[174] If alternative approaches could not accomplish this feat in the past, what will change when blockchain start-ups attempt to gain control over already established entities? Without collected or corrected data, artists will still fail to be paid properly, or worse, there will be no entity to hold accountable for unauthorized or pirated copies. This time, it will not be as simple as ordering a company akin to Napster to shut down.

The industry is motivated by capital, and thus, its possessive attitude towards royalty statements is not likely to change.[175] If prominent industry members did decide to adopt a blockchain design, they could easily customize it as a private and permissioned system,[176] so as to assert their power. On another note, implementing blockchains will pose many secondary questions that will require answers. How will artists market themselves without the push of a label? How will these companies secure compensation to run their blockchains without taking a cut of the profits (i.e., a middleman)? How will consumers know which new start-up to subscribe to or which start-up will offer the music that they want?

Again, there is the problem of issuing payments. Aside from outdated copyright law, missing metadata, statutory royalty rate standards, and digital streaming revenue discrepancies, there are also limitations to the cryptocurrency features in blockchain applications. Adding a layer of blockchain to the music industry's already corrupted foundation is not going to improve much, and for those who believe it can through smart contracts and cryptocurrencies, there will definitely be a prolonged lag-time.[177] That leads into the second half of blockchain's conundrum: the reality behind these financing mechanisms.

There are two glaring issues to resolve before a blockchain solution ever becomes a serious reality: how to apply blockchains and how the legal system will conform to their abilities.[178] These issues

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[174] *See supra* note 82.

[175] Young, *supra* note 154; *see also* Holmes, *supra* note 26 ("Labels often take home the lion's share of the revenue created by music consumption, just as they have throughout the history of recorded music."); Walden, *supra* note 76 ("There is a historical pattern of the media industry betting on closed systems again and again—dating all the way back to AOL vs. the open internet—and losing.").

[176] McKinlay, *supra* note 100.

[177] Palfreyman, *supra* note 130.

[178] Josh Stark, *The Two Topics in Law and Blockchain*, COINDESK (Jan. 14, 2017, 11:25 AM), https://www.coindesk.com/the-two-topics-in-law-blockchain/ (listing examples to include issues of how to legalize financial activity, characterize cryptocurrencies in terms of commodities or securities, and ensure trust between parties in smart contracts).

apply generally across all blockchain applications, but are especially disconcerting in regard to structuring payment systems, cryptocurrencies, and smart contracts—one of the primary reasons advocates are promoting blockchain for the music industry in the first place.

Smart contracts are praised as a transparent way to automatically pay in real time and split distributions among the correct owners according to its terms, or for their potential to create varying scenarios, e.g., where an artist may elect to be paid an amount per song.[179] Proponents of cryptocurrencies, which can operate through smart contracts, reference how they could support micropayments, may be used as a way to increase royalties for an artist based on supply and demand,[180] and perhaps even enable consumers to become distribution channels for their own digital music and receive payments for downloads taken from their personal music collections.[181]

Irrespective of the lack of financial regulation and the obvious risk of hacking that all new technology imposes,[182] there are plenty of drawbacks for dispensing royalty fees through smart contracts and cryptocurrencies. In conjunction with the outstanding problems left over from the rights management issue,[183] the standards set for royalties must be in accordance with statutes and copyright law. Therefore, a consumer or artist cannot arbitrarily decide how much to pay or how much they want to be paid for the music, respectively. Also, contracts frequently change when creating music because of the plethora of parties that are usually involved.[184] What if one party wants to remove itself from a work or does not want any affiliation with a particular political cause that the work may symbolize, but the rest of the parties do? There is no way to amend this request when operating under the terms of a smart contract.[185]

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179 *Blockchain Applications in Music*, BLOCKCHAIN TECH., http://www.blockchaintechnologies.com/blockchain-music (last visited Oct. 20, 2017); *see also* Andrew Rossow, *Blockchain Aims to Be the Biggest Stage for Empowering Music Artists*, FORBES (May 27, 2018, 8:39 PM), https://www.forbes.com/sites/andrewrossow/2018/05/27/blockchain-aims-to-be-the-biggest-stage-for-empowering-music-artists/#9233a783e0bb.

180 Rossow, *supra* note 179.

181 Dickson, *supra* note 125.

182 Joon Ian Wong, *A Coding Error Led to $30 Million in Ethereum Being Stolen*, QUARTZ (July 20, 2017), https://qz.com/1034321/ethereum-hack-a-coding-error-led-to-30-million-in-ethereum-being-stolen/.

183 *See generally* Part II.B.1. For example, the question of who pays still remains and transparency could prompt labels to implement private blockchains in order to protect their revenues again.

184 Chris Castle, *The MTP Interview: Alan Graham's Artist's Guide to Blockchain, Open Music Initiative, Smart Contracts and Dark Social (Part 1)*, MUSIC TECH. POL'Y (July 26, 2016), https://musictechpolicy.com/tag/smart-contracts/.

185 *Id.*

In addition, the scalability and cost of devising multiple transactions need to be considered. For example, Spotify alone uploads approximately 20,000 songs per day and over five million playlists are generated or edited daily on its platform.[186] Every time one of these actions is performed, the blockchain would have to refresh itself and record the transaction cost, tacking more and more data to the chain.[187] Currently, blockchain cannot handle this storage capacity.[188] It would also cause transactions to slow down at a substantial rate given the volume of users.[189] The cost to house all of this information on a blockchain, which will remain there in perpetuity, would vastly exceed any costs the industry is attempting to wrangle with now.[190]

Finally, on top of the split being launched by numerous companies attempting this venture, the industry is simultaneously trying to remedy the situation in its own ways.[191] Some solutions proposed by the industry include cracking down on royalty fees via settlements or lawsuits;[192] advancing services like Pandora Premium that return higher royalty fees;[193] launching the new Spotify and BMG Apps, which allow artists and their managers to view streaming data and take control of their presence on the streaming platform;[194] and developing the Royalty Claim Initiative[195] and the Open Music Initiative.[196]

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186 Craig Smith, *70 Amazing Spotify Statistics and Facts (June 2018) By the Numbers*, DMR (July 24, 2018), https://expandedramblings.com/index.php/spotify-statistics/#.Wep4fEzMwcg.

187 Walden, *supra* note 76.

188 *Id.*

189 *Id.*

190 *Id.*

191 *E.g.*, Benom Plumb, *What's Behind the ASCAP/BMI Joint Database, Facebook's Music Moves, and YouTube's Music Merger?*, ROYALTY EXCHANGE (July 28, 2017), https://www.royaltyexchange.com/blog/whats-behind-the-ascap-bmi-joint-database-facebooks-music-moves-and-youtubes-music-merger#sthash.s0BQiayN.dpbs.

192 *See, e.g.*, Eriq Gardner, *Universal Music Agrees to Pay $11.5 Million to Settle Digital Royalties Class Action*, HOLLYWOOD REP. (Apr. 14, 2015), http://www.hollywoodreporter.com/thr-esq/universal-music-agrees-pay-115-788553; Chris Cooke, *Record Industry Sues YouTube-mp3.org as Stream-Ripping Tops Piracy Agenda*, COMPLETE MUSIC UPDATE (Sept. 27, 2016), http://www.completemusicupdate.com/article/record-industry-sues-youtube-mp3-org-as-stream-ripping-tops-piracy-agenda/; John Paul Titlow, *Why Can't Spotify Stop Getting Sued? It's More Complex than It Sounds*, FAST COMPANY (July 25, 2017), https://www.fastcompany.com/40441194/why-does-spotify-keep-getting-sued.

193 Glenn Peoples, *Hello, Pandora Premium. Now, Here's How Royalties Are Being Paid for All Three Pandora Services*, MEDIUM (Apr. 20, 2017), https://medium.com/@glennpeoples/hello-pandora-premium-now-heres-how-royalties-are-being-paid-for-all-three-pandora-services-8e8bfc335d98.

194 *E.g.*, John Paul Titlow, *Spotify's New App Aims to Hook Artists on the Power of Their Own Data*, FAST COMPANY (Oct. 12, 2017), https://www.fastcompany.com/40478917/spotifys-new-app-aims-to-hook-artists-on-the-power-of-their-own-data; *BMG Launches Royalties App Co-Designed by Songwriters*, MUSIC BUS. WORLDWIDE (Aug. 16, 2017), https://www.musicbusinessworldwide.com/bmg-launches-royalties-app-co-designed-songwriters/.

195 *About Royalty Claim*, ROYALTYCLAIM, https://www.royaltyclaim.com/about (last visited Oct. 27, 2017) ("RoyaltyClaim is the world's first publicly accessible online aggregated database of

There are also five major battles erupting between the largest corporations that own music rights and politicians over whose global database should be constructed as the final standard.[197] Most importantly, both a budgetary proposal linking directly to the Copyright Office through API[198] and a Congressional bill regarding mandatory copyright registrations were recently introduced,[199] which would render the notion of implementing a new global blockchain initiative moot.

Suppose one standard, aggregated database is chosen. Even if a proposal could bypass the red tape of copyright laws, music industry regulations and practices, and implementing blockchain—unless it is completely free, which would defeat its entire purpose for artists—how would a music blockchain convince consumers to not only start paying for music again,[200] but also to gamble with these new forms of digital assets, risking hacks and non-refundable transactions?[201]

III. PROPOSAL FOR REBUILDING THE MUSIC INDUSTRY USING "OFF THE CHAIN" MENTALITY

In the future, blockchain technology could have an enormous impact on the way business is conducted in many industries throughout the world, but presently, its over-hyped potential is dangerous.[202] Apart from security issues, blockchain will have to dissolve technological, governance, organizational, and even societal barriers as a preliminary step.[203] While it could offer new foundations for economic and social systems, it will take decades for these infrastructures to not only fully embrace the concept,[204] but also to properly adopt the technology and

unclaimed entitlements such as royalties and music licenses.").

196 OPEN MUSIC INITIATIVE, http://open-music.org/about/ (last visited Oct. 27, 2017).

197 Sanchez, *supra* note 170.

198 *United States Register of Copyrights and Director of the U.S. Copyright Office Before the Subcomm. on* Legis. Branch Comm. on Appropriations Fiscal 2017 Budget Request for the U.S. Copyright Office (2016) (statement of Maria A. Pallante, Register of Copyrights, Director of U.S. Copyright Office).

199 *Id.*; Paul Resnikoff, *Surprise! If You Don't Register With the U.S. Government's Song Database, You Lose Your Copyright*, DIGITAL MUSIC NEWS (Sept. 22, 2017), https://www.digitalmusicnews.com/2017/09/22/us-govt-song-database-lose-copyright/.

200 *See* Hawn, *supra* note 140; *see also* Alan Graham, *Thoughts on the Open Music Initiative*, TRICHORDIST (June 16, 2016), https://thetrichordist.com/2016/06/16/thoughts-on-the-open-music-initiative/ ("'[T]ransparency' does not change the fact that culturally we've created a society that does not value paying for music or asking permissions. The average 18-34yr old [sic] will pay over $1k a year for specialty coffee, but feels somehow asking for $120 a year for all the music in the world is too much.").

201 *See* Hawn, *supra* note 140; *see also* Graham, *supra* note 200.

202 *See* Marco Iansiti and Karim R. Lakhani, *The Truth About Blockchain*, HARV. BUS. REV. (Jan.–Feb. 2017), https://hbr.org/2017/01/the-truth-about-blockchain; *see also* Daniel Newman, *Don't Believe the Hype: Understanding Blockchain's Limits*, FORBES (Aug. 17, 2018, 1:15 PM), https://www.forbes.com/sites/danielnewman/2018/08/17/dont-believe-the-hype-understanding-blockchains-limits/#2961a72356a1.

203 Iansiti and Lakhani, *supra* note 202.

204 *Id.*

adapt to the changes it induces.[205] As such, blockchain is not yet ready to be implemented as the cornerstone of the music industry.

Before even considering applying blockchain, the start of a better music industry should commence with devising an attainable solution for missing metadata so that the technology does not limit the extent of existing possibilities.[206] Since the problems outlined here affect the entire music industry, the final solution will most likely not please everyone involved with the decision.[207] Thus, a broad resolution would work best and should fundamentally focus on setting common standards for the two primary issues being discussed.[208] The rights management issue must be tackled first, because most of the remaining issues rely on repairing the fractured data.[209] From this perspective, blockchain's properties embody the perfect analogy for defining a potential metadata solution: improving the music industry requires a shared media network to operate effectively.[210]

Instead of having to solve more problems like who owns the global blockchain or who will fund it,[211] the attention should pivot to how to integrate systems that are already built and functioning. As demonstrated by past experiments, such as the GRD, the industry consistently struggles to embrace a sole *modus operandi*. Given the amount of response that blockchain has garnered in the industry—prompting new start-ups to form almost monthly—it seems as if those struggles would conceivably shift to the application of new technology, should the industry continue to operate under its current status quo.

For instance, the music industry should enforce a common procedure for tagging unique identifiers to new music by creating one numeric system.[212] Also, advanced software can be developed for existing companies, but moving forward, every new music business

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[205] *Id.*; *see also* Graham, *supra* note 200 ("We need to postpone the immediate urgency to create a central repository of rights, and especially the urge to move it to the blockchain (whichever blockchain). . . [T]his constant talk about how blockchain solves all the data issues is nonsense. Blockchain as a database is still just a repository of data, no matter how fancy you make it. Bad data in is bad data out. Bad input processes lead to bad data.").

[206] *See* Dewar, *supra* note 133.

[207] *See generally* Edwards, *supra* note 172.

[208] *See id.*

[209] Walden, *supra* note 76.

[210] *Id.*; *see also* Chris Castle, *The MTP Interview: Alan Graham's Artist's Guide to Blockchain, Open Music Initiative, Smart Contracts and Dark Social (Part 2)*, MUSIC TECH POL'Y (July 27, 2016), https://musictechpolicy.com/2016/07/27/the-mtp-interview-alan-grahams-artists-guide-to-blockchain-open-music-initiative-smart-contracts-and-dark-social-part-2/.

[211] Dewar, *supra* note 133.

[212] Walden, *supra* note 76; *see also* Graham, *supra* note 200 ("[N]o musical recording can be accepted into a system that will pay a royalty towards said recording unless it has a MVD. . . [D]ata [should] include[] there is at least one corresponding publishing identifier linked to that recording. If DSPs and the companies that supplied them did this one simple task of refusing any recording that does not have this data associated with it, we could solve vast issues affecting problems with data and the speed of payments on the publishing side.").

should be required to incorporate a database system that allows for interoperability.[213] This will resolve any political friction over power and establish compatibility across all entities and their systems.[214]

Furthermore, continuing to operate through the conventional structure of private centralized databases ensures trust through accountability and indemnification, which blockchain is not equipped to do.[215] The industry does not need to reinvent the wheel in order to fix itself (just the record); only tweaks reinstating some common ground are necessary.

The last two decades prove that the music industry will never successfully adopt a universal standard on its own. There are too many conflicting ideologies attempting to be represented among the chief organizations that these business decisions will affect. Ultimately, since the Constitution of the United States vests Congress with the power to enforce industry-wide regulations, Congress should initially wield its authority so that the industry will then be forced to follow suit.[216] It should start by proscribing new legislation that amends copyright laws and institutes fairer royalty rates.[217] Until then, discussions regarding blockchain technology, other open database initiatives, and payment systems should be postponed.[218]

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213 *See* Walden, *supra* note 76; *see also Web API*, SPOTIFY, https://developer.spotify.com/documentation/web-api/ (last visited Aug. 2, 2018) ("Based on simple REST principles, the Spotify Web API endpoints return JSON metadata about music artists, albums, and tracks, directly from the Spotify Data Catalogue.")

214 *See Web API*, *supra* note 213 (last visited Aug. 2, 2018) ("Rate Limiting enables Web API to share access bandwidth to its resources equally across all users.").

215 *See* Danny Anders, *Blockchains Won't Change the Music Industry. Only Artists Can*, COPYRIGHT & TECH. (Oct. 13, 2016), https://copyrightandtechnology.com/2016/10/13/guest-post-blockchains-wont-change-the-music-industry-only-artists-can/.

216 *See* Sanchez, *supra* note 170 ("Only Congress has the ability to create a neutral, reliable and comprehensive database."). *See generally* U.S. CONST. art. I, § 8, cl. 8; Legal Information Institute, *Intellectual Property Clause*, CORNELL L. SCH., https://www.law.cornell.edu/wex/intellectual_property_clause (last visited Oct. 30, 2017) ("The United States Constitution grants Congress the power 'to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.' Because this clause is the source of Congress' power to enact legislation governing copyrights and patents, it is often referred to as the 'patent and copyright clause.'").

217 *See* U.S. CONST. art. I, §8, cl. 8; *see also* Ari Herstand, *What Is the Music Modernization Act and Why Should It Pass*, DIGITAL MUSIC NEWS (Aug. 1, 2018), https://www.digitalmusicnews.com/2018/08/01/music-modernization-act/.

218 Chris Castle, *Will Congress Bring Songwriters a Lump of Coal or Justice?*, MUSIC TECH. POL'Y (Oct. 17, 2017), https://musictechpolicy.com/2017/10/17/will-congress-bring-songwriters-a-lump-of-coal-or-justice/ ("Most importantly—Congress should not introduce yet another distortion in the market with some database that will never work.").

A. *Lobbying for Legislation: A Chorale for the Choir of Congress*

Recently, Congress introduced some new bills that follow such sentiment.[219] Thus far, Bill HR 3350, Transparency in Music Licensing and Ownership Act, is one of the most crucial pieces of legislation proposed, since upon approval, the bill would immediately begin to remedy the situation.[220] If passed, it will require creators to register their songs with the U.S. Copyright database or forfeit their entire legal right to defend their copyright, which will simultaneously preclude them from collecting payments on their works.[221] Though this may seem like a harsh measure to its critics,[222] it is essential to begin the process of fixing copyright law and, eventually, foster progress across the entire music industry.

Congress also has the power to revoke legislation that is harmful to artists. For example, 17 U.S.C. § 115(c)(1) provides that "the owner is entitled to royalties for phonorecords made and distributed after being so identified . . . but is not entitled to recover for any phonorecords previously made and distributed."[223] If Congress were to either remove the clause pertaining to retroactive collection by owners as being allowable, or, better yet, discard compulsory license requirements altogether, then identified artists could recoup or negotiate more of the earnings that they are entitled.[224] Alternatively, Congress can increase statutory mechanical license royalty rates.[225]

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[219] *See, e.g.*, Copyright Office for the Digital Economy Act, H.R. 890, 115th Cong. (2017); Fair Play Fair Pay Act of 2017, H.R. 1836, 115th Cong. (2017); PROMOTE Act of 2017, H.R. 1914, 115th Cong. (introduced Apr. 5, 2017); Register of Copyrights Selection and Accountability Act of 2017, S.1010, 115th Cong. (introduced May 2, 2017); *see also* Nate Rau, *Fair Play Fair Pay Act Reintroduced in Congress, Would Make Radio Pay Artists*, TENNESSEAN (Mar. 30, 2017, 11:46 AM), http://www.tennessean.com/story/money/2017/03/30/fair-play-fair-pay-act-reintroduced-congress-would-make-radio-pay-artist-labels/99823798/.

[220] Resnikoff, *supra* note 199; *see also* Transparency in Music Licensing and Ownership Act, H.R. 3350, 115th Cong. (2017).

[221] Resnikoff, *supra* note 199; *see also* Castle, *supra* note 210 ("The Copyright Office should stop accepting address unknown filings and refer the matter to the Congress to close the loophole. Digital services could also refuse to post recordings for which they have no publisher information.").

[222] *See* Letter from Content Creators Coal. to the Honorable Bob Goodlatte, the Honorable John Conyers, Jr., and House Comm. on the Judiciary, Content Creators Coal. (Sept. 22, 2017), https://www.digitalmusicnews.com/wp-content/uploads/2011/07/c3-Letter-on-HR3350Final.pdf.

[223] Scope of exclusive rights in nondramatic musical works: compulsory license for making and distributing phonorecords. 17 U.S.C. § 115(c)(1) (2012); *see also* Dae Bogan, *Microsoft is Shutting Down Groove Music – How to Check for Mechanical Royalties Before It's Too Late*, ROYALTY CLAIM (Oct. 4, 2017), https://www.royaltyclaim.com/blog/microsoft-is-shutting-down-groove-music-how-to-check-for-mechanical-royalties-before-its-too-late.

[224] *See* Jerry Brito, *It's Time to End Compulsory Licensing for Digital Music*, TECH. LIBERATION FRONT (Mar. 8, 2013), https://techliberation.com/2013/03/08/its-time-to-end-compulsory-licensing-for-digital-music/ ("They should treat it [if copyright is a property right] as property and allow copyright holders to decide to whom they will license their music. That would mean prices negotiated in a free market, not fixed by apparatchiks, and an end to politically determined winners and losers.").

[225] *See* U.S. COPYRIGHT OFF., MECHANICAL LICENSE ROYALTY RATES (Jan. 2010),

The Copyright Board also recently advanced some input of its own to Congress. Many of its recommendations advocate for legislation that focuses on administering uniform royalty rate standards, which would have the effect of treating all creators alike; increasing the transparency involved with payment systems; establishing a more efficient licensing regime; and amending copyright laws to reverse the lack of protection afforded to pre-1972 sound recordings.[226] Its suggestions are supported by an incredibly in-depth study and are worth pursuing to save the music industry.[227]

The Copyright Board's recommendations prompted Rethink Music and the Berkeley Institute to organize their own case study based on similar factors.[228] After reiterating the importance of some of the Copyright Board's points, they also proffered several of their own suggestions.[229] These included adopting a bill of rights for creators, a decentralized distributed registry governed by a non-profit administration to enforce common standards, and most notably, an education initiative to ensure creators are aware of their rights.[230] Between both of these exhaustively comprehensive and highly analytical reports concerning the music industry, as well as several substantial bill proposals, it is readily apparent that Congress needs to act first before any new technology can be implemented in this arena.[231]

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https://www.copyright.gov/licensing/m200a.pdf; *see also* Ted Johnson, *Songwriters Push for Royalty Reform in Era of Trump Deregulation*, VARIETY (Apr. 25, 2017, 5:34 PM), http://variety.com/2017/music/news/ascap-paul-williams-royalty-rates-president-trump-1202395480/; Herstand *supra* note 217.

226 *Copyright and the Music Marketplace*, U.S. COPYRIGHT OFF. (Feb. 2015), https://copyright.gov/policy/musiclicensingstudy/copyright-and-the-music-marketplace.pdf; *see also* CLASSICS Act, H.R. 3301, 115th Cong. (introduced July 19, 2017), https://www.congress.gov/bill/115th-congress/house-bill/3301/text ("[T]o provide Federal protection to the digital audio transmission of a sound recording fixed before February 15, 1972, and for other purposes."); Michael Huppe, *As New Bill Drops to Protect Pre-1972 Copyrights, SoundExchange's Michael Huppe Weighs In*, BILLBOARD (July 19, 2017), http://www.billboard.com/articles/business/7873134/as-new-bill-drops-to-protect-pre-1972-copyrights-soundexchanges-michael ("New CLASSICS Act is one of several before 115th Congress seeking to fix laws hurting music creators.").

227 U.S. COPYRIGHT OFF., *supra* note 226.

228 *Fair Music: Transparency and Payment Flows in the Music Industry*, *supra* note 78.

229 *Id.*

230 *Id.*

231 *E.g.*, Huppe, *supra* note 226 ("We have an opportunity . . . to fix the streaming economy and address the inequities in the marketplace. And each of these bills represents a step towards a better future for music creators, and for music."); *see, e.g.*, Chris Castle, *Holding the Line on Tradeoffs for Statutory Damages*, MUSIC TECH. POL'Y (Oct. 1, 2017), https://musictechpolicy.com/2017/10/01/holding-the-line-on-tradeoffs-for-statutory-damages/ ("It is very likely that we will hear about a move to make significant amendments to the Copyright Act . . . . [A] high number of copyright-related bills [] have been introduced in the House of Representatives in the current session, so brace for an 'omnibus' copyright bill . . . ."); Ed Christman, *NMPA Chief David Israelite on Music Licensing Issues: 'The Value of the Song Is More Important Than the Process'*, BILLBOARD (Oct. 19, 2017, 6:01 PM), http://www.billboard.com/biz/articles/8006698/nmpa-chief-david-israelite-on-music-licensing-

Instead of forming various start-ups or initiatives, musicians and the industry should continue working together to lobby Congress for a newly amended Copyright Act and a revised creative process.[232] Following this approach will allow Congress the opportunity to fine-tune regulations, which in turn, will provide blockchains with more time to become sophisticated enough to then house a hopefully revitalized music industry; now, without any existing cracks in the foundation.[233] Both remedies can then blend together simultaneously.[234]

B. *Tokenization: Notes on a Chain*

Ideally, proponents should wait for Congress to address these issues before testing whether a blockchain solution is feasible;[235] however, there is one potential application that blockchain may be useful for and it should be the only reason it is being considered yet. That application is for tokenization.[236] Tokenization is the process of converting rights to an asset into a digital token on a blockchain.[237] The earliest form of proof to demonstrate how this could potentially work is comparable to a phenomenon known as the "Bowie bond."

In 1997, David Bowie bundled up almost 300 of his existing recordings and copyrights into a security that paid its buyer.[238] The so-called Bowie bonds were among the first in what would become a wave of esoteric asset-backed securities deals based on intellectual property.[239] Although music sales and royalty rates began to eventually

issues-the-value-of-the-song-is.

232 Bill Rosenblatt, *Proposed Settlement in Spotify Lawsuit Points the Way Towards Solving Music Industry Data Problems*, COPYRIGHT & TECH. (June 2, 2017), https://copyrightandtechnology.com/2017/06/02/proposed-settlement-in-spotify-lawsuit-points-the-way-towards-solving-music-industry-data-problems/ ("The settlement agreement requires Spotify to pay for the building of the web interface to its data, but otherwise, the effort and expense of searching it, finding matching compositions, and making claims for royalties all go to the rights holders. This particular division of responsibility may be mandated by a legal document, but it's an example of the type of cooperation that's going to be necessary in the future if the recording-composition mapping problem is ever going to be solved.").

233 *E.g.*, Palfreyman, *supra* note 130.

234 Jonathan Bailey, *Bitcoin, Blockchain and Copyright*, PLAGIARISM TODAY (June 2, 2016), https://www.plagiarismtoday.com/2016/06/02/bitcoin-blockchain-and-copyright/ ("[T]he usefulness of a third-party non-repudiation service, blockchain or otherwise, is limited by the U.S. Copyright Office. . . While non-repudiation services can provide a public record of ownership. . . the U.S. Copyright Office registration services as prima facie proof of ownership . . . [and is necessary to] filing a lawsuit.").

235 Huppe, *supra* note 226 ("There are no quick fixes to our legislative issues.").

236 BLOCKAPPS, *supra* note 8.

237 Addison Cameron-Huff, *Op Ed: How Tokenization Is Putting Real-World Assets on Blockchains*, BITCOIN MAG. (Mar. 30, 2017, 9:17 AM), https://bitcoinmagazine.com/articles/op-ed-how-tokenization-putting-real-world-assets-blockchains/.

238 Liz Moyer, *How David Bowie Changed Wall Street*, N.Y. TIMES (Jan. 11, 2016), https://www.nytimes.com/2016/01/12/business/dealbook/how-david-bowie-changed-wall-street.html?mcubz=1&_r=0.

239 *Id.*

diminish due to the progression of the digital era, the concept inspired other notable artists to embrace the trend.[240]

Eminem is the latest of these artists to adopt the idea of selling off a music catalog.[241] One start-up, Royalty Flow, used the investments garnered from buying Eminem's royalty rights to file for an Initial Public Offering (IPO), which could be the first music royalty-backed security open directly to ordinary people on an exchange.[242] As long as streaming revenues continue to lag, catalog sales will increase because songwriters recognize that selling their copyrights will entitle them to reclaim their owed payments faster.[243]

Tokenization might be a good approach to facilitating the sale of music catalogs. Since most music is now consumed digitally, converting a song into a digital asset could be a much simpler task.[244] While copyright metadata and other requisite legal reformations will still pose an issue, token technology allows for the possibility of subdividing payments among the various owners involved in a work's creation, and the digital transferring of those payments may become easier to process.[245] Additionally, tokens could enable individual artists to manage, distribute, and recoup income for their own music, which also means that the public could invest directly into their musical works.[246] Finally, the token start-up, SingularDTV, has already demonstrated that this method is feasible through its first successful sale of a song via crypto-token.[247]

Again, although tokenization has been proven through the use of cryptocurrencies and the SingularDTV model, it does not mean that the music industry is ready yet for a full-scale, rollout of blockchain applications. Legislative reform must take precedent if the music industry wants to thrive in the future without its prevailing hindrances.

IV. THE FINAL VERSE TO THE UNCHAINED MELODY: WHY THE PITCH FOR A BLOCKCHAIN SOLUTION ULTIMATELY FALLS FLAT

To conclude, the solution to the music industry's problems involves a chain, not a blockchain, reaction. First, it necessitates that

240 *Id.*

241 Liz Moyer, *Eminem Stock Follows in Footsteps of 'Bowie Bonds' as Producers Aim to Cash In*, CNBC (Sept. 25, 2017 3:45 PM), https://www.cnbc.com/2017/09/25/slim-shady-stock-follows-bowie-bonds-as-eminems-producers-cash-in.html.

242 *Id.* ("Its plan is to focus on music rights that generate 8 percent to 16 percent annual returns. . . It will pay investors dividends based on those returns.").

243 Melinda Newman, *The Songwriter Catalog Market Is Booming, With Indies Leading the Way*, BILLBOARD (Nov. 2, 2017, 1:45 PM), http://www.billboard.com/biz/articles/news/record-labels/8022442/the-songwriter-catalog-market-is-booming-with-indies-leading.

244 Cameron-Huff, *supra* note 237.

245 *Id.*

246 *Id.*

247 *See* SINGULARDTV, https://singulardtv.com (last visited Dec. 21, 2018).

Congress intervene to amend the current Copyright Act and to pass new legislation that conforms to digitized music standards.[248] Once these provisions are in place, then the music industry as a collective whole can decide on secondary technological decisions, such as which rights database to support or whether to establish interoperable blockchain applications across the industry for tokenization purposes. Eventually, after the laws and technology behind blockchain are adequately refined to support records as abundant and complex as those required for music, then it can finally be implemented as a permanent solution.[249]

Thus, the blueprint for rebuilding the music industry ultimately belongs to the architects of the law. Until Congress constructs a new copyright foundation to expand upon, the duetting developments between music and technology will have to push back the release date of their newest remix.

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[248] Music Modernization Act, H.R. 5447, 115th Cong. (as passed by H.R. Apr. 25, 2018), https://www.congress.gov/bill/115th-congress/house-bill/5447.

[249] Alexis Kramer, *Budding Blockchain, Copyright Relationship Needs Work*, BNA (June 11, 2018), https://www.bna.com/budding-blockchain-copyright-n73014476413.