

The Cost of Music

Has Digital Democratization Made Sound Recording Copyrights Obsolete?

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Introduction

This Article examines the cost of recording music in the digital age and the enduring contribution made by recording professionals (producers & engineers). Commentators—both academics and pundits—have repeatedly claimed that digital technologies have democratized creativity. Supposedly, any DIY musician with a laptop and GarageBand can make home recordings that sound just as good as professionals in a high-end studio. As a result, costs have plummeted, and viral fame is but a mouse-click away. Our research probes the reality underlying these claims.

Have digital technologies made costs disappear? Are DIY musicians really competing effectively in the music marketplace? Has technology rendered recording professionals obsolete? We explore these questions empirically through both qualitative and quantitative evidence. The answers have significant implications for copyright policy.

Copyright skeptics have advanced a narrative of “digital democratization” to undermine the rationale for copyright. In their view, the transformative effects of digital technologies have fundamentally altered creative production in ways that render copyright incentives, at best, irrelevant or outright counterproductive.

This “democratization” critique has assumed particularly force in the context of music sound recordings. Copyright skeptics have advanced specific claims that we seek to examine empirically. For example, skeptics claim that DIY artists are able to produce high-quality music on their own that can compete successfully with traditional studio productions. There is certainly an abundance of DIY tracks being released via online platforms. However, questions remain as to the commercial viability of these home-grown productions. Evidence that DIY music can garner popular appeal on a mass scale would justify claims that such alternative mechanisms offer a viable substitute for current music industry production.

To test this proposition, we collected data from the Billboard Hot 100 charts, Spotify, and other sources. Our data shows that instances of genuine DIY creativity making it onto the charts are extremely rare—less than 1% of tracks currently charting are DIY productions. We also show that many commonly cited examples of DIY music artists achieving overnight viral success are misleading: in almost all these cases, the artists in question received the benefit of professional recording assistance.

What about the claim that the empowering potential of digital technologies has led to drastic reductions in the time and cost required to record commercially successful music? Presumably, if DIY tools were so *effective* and easy to use, no one would pay for recording studios or professional assistance. And if digital technologies really yielded dramatic time-savings compared to analog recording techniques, those who did seek professional studio assistance would expect to pay less and get quicker results. We explored these propositions via qualitative interviews with recording professionals and other industry experts.

These interviews have furnished objective data on time and costs—which turn out *not* to have changed significantly due to digitization. We also explored qualitatively the added value that recording professionals bring to the creative process and sought to understand why a DIY-inclined artist might—or might not—choose to seek professional assistance. The results help to explain why DIY production has failed to gain traction on commercial charts. Collectively, our research suggests that the copy-skeptics have overstated their case. The rationale for sound recording copyrights as a mechanism to underwrite investment in high-quality recordings and socially valuable music remains essentially intact in the digital age.

I. Copyright Policy Context

A. Traditional Rationale

Copyright protection in the United States is traditionally justified under an incentivize rationale. Copyright exclusivity is intended to incentivize creative investments by allowing authors and content industry intermediaries to recoup the costs of producing and commercializing creativity. As such, it has long been seen as vital lynchpin underpinning creative industries.

B. Digital Democratization

In recent years, the incentive rationale for copyright has been challenged by skeptics. Copyright skeptics and technology evangelists have advanced a countervailing narrative of “digital democratization.” The democratization narrative hails the empowering potential of digital technology as liberating creators from dependence on content industry intermediaries (record labels, studios, etc.). Proponents of this narrative note that creators are increasingly able to use digital tools to produce content at home on their laptops without the assistance of industry professionals. They claim such DIY creators can bypass gatekeepers, post their works directly online, and achieve overnight viral success. Such digital empowerment renders recording professionals effectively obsolete.

The digital emancipation narrative has direct implications for copyright policy. Proponents claim that copyright’s justification is rooted in a prior analog era based on capital-intensive modes of creative production. However, now that artists can create, record, and distribute their work without the assistance of intermediaries, the costs of creativity are said to have fallen dramatically. As such, copyright skeptics suggest that copyright incentivizes may no longer be needed to incentivize creative investment.¹ Artists will create out of love, or they will hold concerts, sell t-shirts, and post online tip jars.

C. Are Sound Recording Copyright Still Needed?

The digital democratization has assumed special force in the context of commercial music recording. Compared to other forms of creative endeavors such as novel-writing or filmmaking, the intrinsic costs of creating new music are seen as low,² and the effects of digital democratization thus particularly transformative.

¹ See, e.g., Mark Lemley, *IP in a World Without Scarcity*, 90 N.Y.U. L. REV. 460, 505-507 (2015); Eric R. Johnson, *Intellectual Property and the Incentive Fallacy*, 39 FLORIDA ST. UNIV. L. REV. 623, 675-79 (2011).

² Writing a novel may take months or years of effort. Making a film often requires an array of technical and artistic contributors to collaborate over an extended production process. By contrast, making music is seen as

In a prior era, it cost millions of dollars to record music in professional studios using expensive equipment and relying on highly paid technicians to operate them. Records then needed to be printed in factories and trucked them to warehouses and retail centers. Such production and distribution processes were beyond the reach of individual artists. Accordingly, musicians depended on record labels to furnish the capital and provide the means to record their work and distribute it to consumers.

However, today this dependency on intermediaries no longer exists. A musician can strum on her guitar for a few hours until inspiration strikes and then record a song on her laptop that she releases the same day all by her herself. Using inexpensive tools, today's artists are now equipped with the creative capacity equivalent to a million-dollar studio and can produce just as high-quality recordings. Or so the claim goes—and such claims are widespread in scholarly literature.³

The effects of digital technologies on distribution are seen as no less transformative. With a few simple mouse-clicks, artists can upload their music onto free content hosting platforms that instantly put their work within the reach of millions, if not billions of potential listeners.⁴ Talented artists can “go viral” virtually overnight. The breakout success of DIY artists such as Justin Bieber are widely cited as blazing a path for wannabe artists to bypass record labels and master their own destinies.⁵

To copy skeptics, now that artists can create, record, and distribute their music inexpensively without the assistance of intermediaries, the rationale for copyright in music recordings seems questionable. Digital democratization leads inextricably to disintermediation. Disintermediation confers radical cost-savings. And cost-savings mean that copyright is no longer needed to recoup up-front investments—or, at minimum, could be drastically pruned in scope.⁶

Copyright skeptics claim that music production can withstand the massive losses of revenue and evisceration of current industry support structures that eliminating sound recording copyrights would bring. Studios would close, and producers and engineers would have to find

comparatively easy, quick, and cheap to produce using inexpensive tools in DIY fashion. *See, e.g.* Sprigman & Raustiala, XX.

³ *See, e.g.* Lemley, *supra* note xx, at xx (“High quality music recording no longer requires a trip to a sound studio in Hollywood or Nashville; online tools enable emerging artists to produce a professional recording at a fraction of the previous cost.”); Johnson, *supra* note xx, at xx (“Albums can now be recorded in someone’s home, using a personal computer, and they can achieve a quality that not so many years ago would have required a massive recording studio and the involvement of engineers and supporting musicians.”); Joel Waldfoegel, *And the Bands Played On: Digital Disintermediation and the Quality of New Recorded Music* (2012) (“An artist can create a recording with a few hundred dollars worth of software, rather than hundreds of thousands of dollars of studio time.”); Chris Sprigman and Kal Raustiala, *THE KNOCKOFF ECONOMY* (2012) (“Musicians once had to rely on expensive studios and highly trained engineers to record their music, and big companies to manufacture and distribute it. . . . All of that has now changed—for the better. With a laptop, artists can produce high quality recordings on their own, and distribute them easily via the Internet.”).

⁴ *See* Lemley, xx (“Want your music available to a global audience? Click a few buttons and it’s done.”); Johnson, *supra* note xx (“Distribution in the music arena has been democratized even more thoroughly than production. Artists can take a home-recorded album and make it available to a worldwide audience over the internet instantly.”).

⁵ *See, e.g.* Lemley, xx (“You no longer need to turn over 80% of your revenues to a major label record company in exchange for the company mass-producing hundreds of thousands of plastic discs and shipping them to retail stores.”); Walfogel, *supra* xx (citing Bieber anecdote as emblematic of new possibilities).

⁶ *See* Lemley, xx (“An IP regime based on the idea that reproduction and distribution are costly and need to be encouraged becomes unnecessary in a world where reproduction and distribution become costless.”).

new jobs. But musicians would flourish in this new era of digital empowerment, and new music would keep flowing without any loss of quality.⁷

Even without repealing the sound recording copyright, the claims of skeptics could affect current policy debates. It is worth noting that the U.S. Copyright Act already discriminates against sound recording copyrights, giving them weaker protection compared to other forms of creativity. There is legislation in Congress that would eliminate such disparities, and, for example, expand the public performance right for sound recordings to put it on a parity with other copyrighted expression (as is almost universally the case in other countries). Arguments about the value of professionally mediated studio recordings vs. DIY recordings at home bear directly on the justifiability of such legislation.

Furthermore, the Music Modernization Act of 2018 created for the first time a statutory compensation right for music producers and engineers. Copy-skeptics, enamored by the digital emancipation narrative, naturally opposed this right as a rent-seeking boondoggle. Now that software has rendered producers and engineers obsolete, why should society pay for them via copyright law? Needless to say, if the skeptics' views prevailed, such compensation rights would be repealed and sound recording copyrights severely pared back or eliminated.

II. Testing Democratization Claims Empirically

Our project aims to empirically test claims key premises underlying the digital democratization critique of copyright. Do digital tools empower DIY creators to bypass professional assistance? If so, we should see a decline in the use of costly professionals to produce commercial music recordings. Instead, the charts should be populated with DIY artists and bedroom recordings. Does technology render negligible the cost of commercially recorded music? If so, the time required to produce music should have fallen, and the fees that recording professionals command should likewise have plummeted. We explore these questions below through both qualitative and quantitative evidence.

A. Charts Do Not Lie

1. Methodology

To test the theory that digital democratization has precipitated a rise in successful DIY artists and a decline in recording and production professionals, we surveyed multiple US song charts at different points in time in 2020 and 2021. Charts are a well-recognized, standard measure of a song's commercial success and popularity. We consulted two major weekly top-100 charts—the Billboard Hot 100 and Rolling Stone Top 100. To address concerns that these charts' methodologies may be susceptible to manipulation by powerful record companies, and therefore underrepresent independent DIY artists, we also consulted the Spotify Top 50 chart for the same weeks as the Rolling Stone chart data we collected. The Spotify Top 50 chart is derived exclusively from Spotify play data, and so arguably provides a more reliable measure of popularity. We were able to confirm that for the two weeks we collected data, there was an 88 and 94 percent match between the songs appearing on the Rolling Stone and Spotify charts, alleviating concerns that the Rolling Stone chart data is heavily manipulated.

⁷ See, e.g. Lemley & Desai, XX; see also Eben Moglen. Cf. Waldfoegel, *supra* note xx (presenting empirical evidence that diminished revenues due to digitization has not led to loss of music quality).

In addition, to capture a snapshot of “viral” trends, we sampled the Rolling Stone Trending 25 chart, which ranks newly released songs that achieve the greatest gains in popularity in a given week measured by percentage growth in audio streams. The extent to which these songs are commercially successful remains unclear.

We sampled the Billboard Hot 100 chart for the weeks of March 14, 2020, May 16, 2020, and August 22, 2020, and the Rolling Stone Top 100 and Spotify Top 50 charts for the weeks of October 2, 2020 and February 19, 2021. We also sampled the Rolling Stone Trending 25 chart for the weeks of October 2, 2020 and February 19, 2021. We thus surveyed 650 total chart positions. Because there is considerable overlap between different charts and longitudinally on the same charts (some songs have sufficient staying power to linger on the chart for many months), our total dataset of unique songs is 394.

For each track in our data set, we collected information about the number and role(s) of recording professionals—aside from the artist—involved in the track’s production. If there was at least one recording professional—a producer, recording engineer, mix engineer, editor, or mastering engineer—involved in the track’s production, then we coded the track as professionally assisted and not “DIY.” We also recorded information about the number of songwriters involved in the track’s composition and whether the song was self-released by the artist or released by a record label. We primarily used Spotify and Tidal’s music credits databases to collect information about songwriters, producers, and other recording professionals. We then cross-checked that data against the Jaxsta music credits database, and verified the Jaxsta data by cross-checking it against the MusicBrainz and Discogs music credits databases. In the few cases where there were discrepancies or a lack of data, we performed broader web searches to gather supplemental or clarifying information about the recording from sources such as music publications and Wikipedia.

2. Preliminary Findings

Of the 394 songs in our dataset, just two were identified as purely DIY recordings: “Put Your Records On” by Ritt Momney (#84 on the Rolling Stone Top 100 and #28 on Spotify Top 50 charts for week of October 2, 2020), which is a remix of a cover song by Corinne Bailey Rae song, and “Tokyo” by Leat’eq (#15 on the Rolling Stone Trending 25 chart for February 19, 2021). In other words, roughly 0.5% of the songs in our sample were produced, recorded, mixed, and mastered by the artist with no apparent outside help.

However, as noted, one of these DIY tracks appeared only on the Rolling Stone Trending 25 list—which meant that it gained some market traction but did not actually make it onto the charts of the week’s most popular tracks. This leaves only one actual chart-topper that can be described as a DIY production.

If we focus solely on the lists of chart-topping hits in our sample, there were a total of 344 unique tracks represented. And we coded only one of those 344 chart-topping songs as a purely DIY effort. Thus, the percentage of genuine hits in our sample made entirely through DIY production was actually less than 0.3%. In other words, our data suggests that instances of pure DIY artists achieving commercial success at the highest level are about rare as a unicorn.

Furthermore, even that one DIY track by Ritt Momney, while self-produced, was actually a remix of an earlier professionally-made recording. As such, its DIY status remains subject to question. To be sure, remixing a hit requires skill and creativity. However, starting off with professionally recorded vocals avoids some of the home recording challenges that DIY artists

often struggle to overcome. Thus, even this supposed DIY success needs to be qualified with an asterix.

Chart(s) Surveyed	Week of	# of DIY tracks	Track Title	Chart Position	Artist
Billboard Hot 100	3/14/2020	0	-	-	-
Billboard Hot 100	5/16/2020	0	-	-	-
Billboard Hot 100	8/22/2020	0	-	-	-
Rolling Stone Top 100 / Spotify Top 50	10/2/2020	1	Put Your Records On	#84	Ritt Momney
Rolling Stone Top 100 / Spotify Top 50	2/19/2021	0	-	-	-
Rolling Stone Trending 25	10/2/2020	0	-	-	-
Rolling Stone Trending 25	2/19/2021	1	Tokyo	#15	Leat'eq

Finally, while we did not count assistance from songwriters or labels for purposes of determining DIY purity, it is worth noting that several songs (perhaps as many as a dozen?) in our chart-topping samples appear to have gotten there without label assistance. We are still working to establish a precise count because verifying this information is tricky.⁸ However, our data suggest that instances of charting tracks succeeding virally in the absence of the label assistance are considerably more common than tracks produced through purely DIY recordings. In other words, professional help with the recording process matters more than marketing clout from labels.

⁸ It is not uncommon for indie tracks to achieve a measure of viral success that attracts label attention, leading the artist to sign with label midstream.

B. The Myth of the Viral DIY Breakout Artist

What about all those stories you hear of artists posting home-made tracks that suddenly go viral, launching them into overnight stardom? In fact, many commonly cited examples of DIY breakout successes turn out to be significantly overblown. Claims that the artist “went viral” and achieved fame and fortune entirely through their own home-brewed recordings do not hold up under closer examination. Viral success stories frequently fall into one of five patterns: (1) Established Professionals; (2) Rerecorded Demos; (3) Extrinsic Boosts; (4) Hidden Help; or (5) Remixes. (These categories are not mutually exclusive).

1. *Established Professionals*

Many of the “viral success stories” that commentators refer to as examples of hitherto unknown artists “blowing up the internet” are simply not examples of DIY successes. Carly-Rae Jepson’s “Call Me Maybe” and Psy’s “Gangnam Style” both unexpectedly went viral in 2012. Yet, both were already experienced artists who had signed to labels in their home countries (Canada & South Korea, respectively). While viral success allowed them to reach new global audiences and achieve unprecedented fame, these were not DIY productions by any definition.⁹

2. *Rerecorded Demos*

In other cases, a DIY artist did gain some traction with a home-made record, but their home recording functioned mainly as the modern equivalent of an analog-era “demo tape” that attracts the attention of industry talent scouts. Justin Bieber, perhaps the archetypal poster child of DIY virality, falls into this category. His home-made recordings on YouTube attracted only a few thousand listeners at first. However, one of them was professional music manager, Scooter Braun. Braun signed Bieber, got him into a professional studio, and then *re*-recorded Bieber’s tracks (as well as several new ones). These professionally-made recordings, backed by the industry label clout of mega-star, Usher, were responsible for Bieber’s subsequent breakout success, attracting millions of listeners and skyrocketing Bieber to superstardom.¹⁰

3. *Extrinsic Boosts*

Harlem Shake—it was arguably the video dance meme, not Baauer’s song itself that drove consumption as legions of imitators posted videos of themselves dancing the dance, spawning an internet sensation.¹¹

Old Town Road by Lil Nas X similarly benefit from an extrinsic boost, in this case the controversy spurred by Billboard’s refusal to classify “Old Town Road” as a Country song. Widely decried as racist, the decision spurred widespread media coverage and popular outrage that catalyzed interest in the underlying song. Billy Rae Cyrus and Country music stars then joined forces with Lil Nas X to re-record and re-release his song, accompanied by a slickly produced video, thereby catapulting it to a #1 hit.

4. *Hidden Help*

⁹ Producers, engineers, professional video-makers – label distribution – not an amateur to be seen anywhere.

¹⁰ Billie Eilish’s breakout hit “Ocean Eyes” similarly seems to have benefited from re-release in the form of professionally made music video at some point in its rise to viral mega-hit status. However, as noted below, Eilish also benefited from professional help from the get-go. *See infra* note xx and accompanying text.

¹¹ Wikipedia (“However, it did not begin to sell significantly until February,^[14] when a [YouTube](#) video, uploaded by [Filthy Frank](#) and featuring the song, developed into an [Internet meme](#) of [the same name](#).^[18] The 30-second video showed people dancing to the song and was parodied more than 3,000 times in other user-submitted videos).

Colbie Callait's supposed viral rise was celebrated by commentators as arising from her posting recordings from her "bedroom in Malibu" on MySpace.¹² These accounts failed to mention that her dad produced *Rumors*, Fleetwood Mac's pathbreaking album (among several other albums).

Billie Eilish's viral success similarly had a ringer in the involvement of her brother, Finneas, who wrote and produced her debut hit single, *Ocean Eyes*.¹³ In addition, the duo appear to have secured assistance from outside professionals mixing and mastering and also gotten record label involvement early on behind the scenes. Such professional help was deliberately kept "off label" in order to preserve the veneer of home-grown authenticity. Similarly, Justin Bieber's early videos were deliberately shot by Scooter Braun in a manner that preserved the illusion of their being home-made productions. In other words, the viral appeal of these putatively home-brewed productions was, in large part, a deliberate marketing strategy devised by professionals.

5. *Remix Redux*

DIY tracks are often remix of prior recordings in whole or in part. Lil Nas X bought the instrumental employed in "Old Town Road" from Netherlands-based producer YoungKio and recorded his own vocals over that foundation. YoungKio's track, for its part, came from a remixed sample from a Nine Inch Nails guitar riff. Thus, Lil Nas X's recording relied heavily on creative elements that he did not personally create.

This is not to say the phenomena of DIY virality does *NOT* exist. There are certainly examples of truly self-made artists who *have* achieved breakout success this way. Our point here is only that popular perceptions of their prevalence has been significantly inflated by putative examples—widely reported and touted by commentators—that are, at best, misleading and based on incomplete accounts. These viral success stories appeal naturally to our sympathy for the underdog. They offer the classic Hollywood narrative of the outsider who beats the system and achieves improbable success. For digital evangelists, they also fit with a techno-utopian world view whereby digital technologies are upending monopolists, liberating artists, and ushering in a Brave New World of disintermediated meritocracy. This narrative may have some basis in reality. However, when it comes to many of the leading anecdotes on which it is founded, the actual facts are far more problematic than its proponents acknowledge.

III. The Enduring Value of Recording Professionals

To shed further light on the process of recording music in the digital age, we spoke to more than a dozen musicians, recording professionals (producers & engineers), and other industry experts. In particular, we conducted in-depth, semi-structured interviews with eight recording professionals. We chose experienced producers and engineers who regularly work with independent artists and have extensive familiarity with DIY production methods. Their "view from the trenches" provides important insights into the effects of digital technology on the music recording process. Our interviews explored the promise and peril of home-recording, the

¹² See Kal Raustiala & Christopher Sprigman, *THE KNOCKOFF ECONOMY*, XX.

¹³ By this time, Finneas had already had a professional music career as a performer and had been through the commercial recording process and learned from the pros. <https://www.today.com/popculture/awards/who-is-finneas-oconnell-billie-eilish-brother-rcna22063>

evolving but enduring need for recording professionals, and the extent to which digital tools have altered the time and costs entailed in producing commercial music. Overall, the accounts provided by these professionals help to explain the limited inroads made by digital democratization that we identified in our quantitative data.

A. Democratization of Music Recording

An initial matter, we asked our interviewees whether they agreed with claims made copy skeptics that the advent of digital technologies has dramatically lowered the time, costs, and skills required to produce music at a commercial quality. We then explored this topic with them at greater length to unpack the inquiry into more specific questions and arrive at a nuanced understanding of their views.

The recording professionals we spoke to all acknowledged the transformative potential that digital tools offered. Indeed, many of them had been early adopters of digital recording. However, when it came to assessing the extent to which such potential had actually led to a democratization of music recording, they offered a fairly consistent account: Overall, they agreed that the democratizing effects of digital technology remained limited.

Our interviewees cited several limiting factors. They emphasized that technology alone cannot produce great music. They further explained that: (1) music recording is not algorithmic; (2) modern recording tools and techniques are complex and difficult to master; and (3) experience and innate aptitude matter.

First, the process of recording, mixing, and mastering music is both technical and creative. Our interviewees all noted that these tasks cannot be reduced to a mechanical formula. Both the production and mixing processes, in particular, require engaging in a complex array of creative choices that, done well, can significantly enhance the final product.¹⁴ Different recording professionals starting with identical inputs will arrive at very different solutions. Their creative inputs contribute meaningfully to whether or not a song reaches its full potential.

Second, modern recording technologies are powerful, but their power lies in the sophisticated capabilities and the extensive menu of controls, settings, and options they offer.¹⁵ Unleashing their capabilities to their full effect is neither simple nor intuitive. To be sure, artists can go with default settings or use pre-set “plug-ins.” But there are no one-size-fits all solutions.¹⁶ Indeed, part of the challenge is choosing the right tools or settings for the specific project at hand to create a desired effect or accentuate a mood or feeling.

This points to the third limiting factor: the role that innate ability and experience plays. Our interviewees emphasized that what matters most is not the tools, but the person wielding

¹⁴ See, e.g. Count written comments: “The mixing phase is both highly creative and highly technical, and is arguably the single most important part of the process that makes the end product sound “finished” or “professional”. A good mixer can make a poor quality recording sound good in many cases. On the other hand, an inexperienced mixer can make a good recording sound terrible.”

¹⁵ Pro Tools and Ableton are among the leading providers of digital audio workstation (DAWs). Garageband is not a serious recording tool.

¹⁶ No serious visual artist would follow a paint-by-numbers kit. Similarly, recording professionals approach each creative project on its own terms. Experimenting and playing with possibilities are vital to achieving excellence.

them.¹⁷ You can buy Jimi Hendrix’s guitar, but that doesn’t mean you can play like Jimi.¹⁸ Similarly, mastering the art of recording requires specific skills and abilities that remain just as elusive in the digital age as they did in the days of eight-track cassettes and vacuum tubes. Much of this ability comes only with experience.¹⁹ Almost all our interviewees referred to the 10,000 hour or 10-year to mastery rule.²⁰ They further described this learning curve as functioning along multiple dimensions.

In part, it’s about learning *how* to manipulate the controls and options effectively to achieve desired effects. But technical proficiency only gets you so far. Shepherding a recording to its full potential also requires creativity and musicality. It is about knowing *what* can be done, being alert to possibilities, and knowing *when* to make a particular choice and *why*. It means learning when to break the rules—going outside the box to conjure up something surprising and unexpected that makes for a memorable record.

Achieving quality results often requires improvising and problem-solving. Doing this well requires the ability to listen critically and understand what is working and what is not, which is a specific skill in of itself.²¹ Moreover, creative choices do not function in a vacuum. Experience teaches *which* elements play well with others and how to use effects to enhance an overall vibe without being jarring.

DIY artists can purchase the necessary tools and watch any number of “how to” videos online, but that does not guarantee that their home-recorded productions will succeed any more than a home chef who buys a fancy six-burner stove, a set of Le Creuset pots and pans, and a library of cookbooks can expect to turn out Michelin-star worthy cuisine. Succeeding requires talent, determination, and experience.

Furthermore, DIY recordings are fraught with pitfalls for the unwary. One experienced producer/engineer who works frequently with DIY artists tells us that he uses a standard form to offer feedback at the workshops he runs. His form lists 20 common “rookie mistakes” that frequently engender subpar results. He described the musicians attending his workshop as

¹⁷ As Count commented, “there are billions of people with smart phones that have the capability of shooting movies, but does that mean that there are billions of filmmakers as good as Martin Scorsese or Francis Ford Coppola? . . . Just because someone has a laptop, doesn’t mean they can be the next Radiohead. The skills required to use these tools are what take the most time, not the actual act of sitting down and recording a song. The skills needed in order to use these new digital tools to their fullest still require many years to master.

¹⁸ We heard different variations on this idea: one interviewee put it more baldly: “Anyone can pick up a guitar and play it badly.” Crane Interview.

¹⁹ “Tools are only as good as the person using them, and in order to use these tools properly [requires] spending an enormous amount of time learning and updating themselves on how to use these new tools. Despite what many people outside of the music industry believe, digital technologies have not dramatically reduced the time, or the skill needed to create something great. Anyone can now create something ok, or acceptable, but most of the time, it still requires many years in order to develop the skills required to make something great.”

²⁰ Popularized by Malcolm Gladwell, the idea is that achieving excellence at any skill requires years of practice.

²¹ An interviewee noted a successful producer colleague who has minimal computer/technical skill but is a master at hearing a recording and song’s deficiencies.

“heavily invested in the home recording process”—not total newbies. Even so, every one of their demo tapes exhibits at least *one* of the errors on his form, and most have multiple flaws.²²

B. The Enduring Need for Recording Professionals

As a result, the role of recording professionals who work with DIY artists has evolved. Interviewees reported spending more time correcting mistakes and trying to salvage flawed records as opposed to focusing on creative enhancements. The workshop-leading producer/engineer mentioned above with the 20-flaw form commented that “honestly, with a lot of ... home-recorded or self-recorded things that people are sending me, 75% of it is more of a rescue job than a fine-tuning job.”²³ A Grammy-winning professional told us that she screens newbie artists to avoid taking on error-plagued projects that turn into nightmares.²⁴

To be sure, some aspects of the recording process are easier for home recordists to succeed at than others. Recording serviceable music tracks individually is easier than mixing the tracks into an integrated whole. Creating music virtually based on sampled and synthesized sounds is easier than recording live instruments. Recording vocals is easier than recording drum sets.²⁵ For this reason, hip hop and electronic music are more susceptible to DIY projects than genres such rock or R & B.²⁶

Overall, however, our interviewees agreed that only a small minority of DIY artists are capable of shepherding a home recording project entirely on their own from the start to finish—their estimates ranged from 15% to less than 1%.²⁷ They also agreed that virtually no one starting off should expect to succeed without at least some external assistance.

Skeptics might wonder what “success” means in this context. We pressed our interviewees on this point, questioning whether they were fetishizing acoustic subtleties that only a professional or hard-core audiophile listening on high-end speakers would detect. They insisted that the baleful effects of subpar recordings and mixes were significant and noticeable: poorly tuned vocals that grate on listener’s ears; muddy or tinny sound that mutes a song’s emotional impact; other flaws that similarly mar the esthetic experience even for casual listeners using cheap earphones.

More to the point, they emphasized that subpar recordings were highly unlikely to succeed in today’s hypercompetitive market. While a handful of DIY artists might overcome such handicaps with a catchy enough melody or through sheer musical talent that outshines their recording flaws, they are fighting with one hand behind their back and selling short their music’s potential.

To be sure, some musicians thrive on the creative autonomy that home recordings afford—the chance to realize one’s own vision unmediated by outside agents and the luxury of working at one’s own pace freed from the rigors of the studio clock. Yet, these remain the

²² Crane Interview. Examples of common mistakes included failing to control ambient noise or treat the recording space to dampen echoes, failure to synch the phasing of different tracks properly, poor microphone placement, errors in software settings, messing up compression or EQ, inapt or excessive use of effects, etc.

²³ *Id.* Other interviewees echoed this viewpoint. One told us he spends more time editing vocal tracks now than recording them. Matt Hennessy Interview (?).

²⁴ Maria Elisa Ayerbe Interview.

²⁵ Willie G. Womack thought around 60-70% of artists could successfully record vocals on their own (albeit with some flaws). Maria Elisa Ayerbe thought less than half.

²⁶ Jazz or classical music are even more challenging to master. Matt Hennessy.

²⁷ Willie G Womack at 15%. Maria Elisa Ayerbe 1%. Most estimated around 5%.

exception. Many more musicians struggle with technical challenges of home recording, and the cognitive burdens of operating outside their comfort level can have debilitating effects on their music in more ways than one.

Expecting DIY musicians to master the complexities of home recording along with all the other tasks that digital disintermediation means they have less time to focus on songwriting and musicianship.²⁸ Artists whose heads are distracted by the technical details of recording settings may not deliver their best performances. The luxury of delegating these chores to experienced professionals frees musicians to focus on what they best. Moreover, recording professionals do more than handle the technical aspects. They can help artists improve all aspects of a song, including lyrics and arrangement, functioning as a set of expert ears whose feedback and suggestions can push artists to achieve their best work. Indeed, some producers are expert at coaxing performances out of artists that the artists cannot attain when recording alone. All of this suggests that an enduring role for recording professionals that remains salient notwithstanding the potential for digital democratization.

Cynics may respond that “of course your interviewees would say that.” After all, their very livelihoods depend on perpetuating a culture of dependency. Selling the self-serving mystique of acoustic perfection encourages artists to shell out their hard-earned earnings keeping such professionals employed.

To be sure, such vested interest remains undeniable. And there is doubtless some degree of psychological self-validation at play whereby professionals want to believe that their skills and expertise confer a genuine benefit for their clients.

Against this, we note that many of our interviewees offer workshops or post “master class” videos empowering DIY artists to learn home production skills. So, their interest is not entirely one-sided. Moreover, the accounts they offered us are nuanced. They noted that some tasks and some genres are more readily susceptible to DIY methods than others.

However, even if you discount their accounts are riddled by self-interested bias, the fact remains that their accounts are consistent with the quantitative chart data already discussed showing that DIY artists, in fact, are *not* succeeding at the highest levels commercially. In this regard, our qualitative findings serve to fill in the gaps and provide a more granular and nuanced explanation for those quantitative results.

C. The Stubborn Persistence of Recording Costs

Our interviews shed light on the effect of digital democratization in another respect: We also explored the costs and time required to complete the recording process and asked interviewees whether digital technologies had altered these metrics significantly. While interviewees gave a range of estimates, overall, their accounts suggest that, here too, the effects of digital technologies have been significantly overstated.

²⁸ Count Eldridge commented, “[i]ncreasingly, artists are releasing songs that are never touched by any outside producer, mixer, or mastering engineer. Although this is empowering, **few artists truly have the resources, time, and desire to learn all phases of music production, and few artists/performers are even capable of becoming experts in all of these tasks.** There are countless examples of musical greats from the past who may have been excellent singers, performers, or talented at their one instrument, but would never have been capable of ALSO being good at arranging, recording, editing, mixing, and mastering.”

Contrary to the digital evangelist claims, the costs of recording have not disappeared.²⁹ The costs to professionally record, mix, and master a music track at commercial caliber quality total easily in the thousands of dollars, and those costs have not significantly changed despite the shift to digitization.

Studios do charge slightly less compared to 20 years ago, reflecting reduced equipment costs and less need for lower-level support staff. In this respect, digital technologies have had an effect. But the main costs of recording, mixing, and mastering music is the time and expertise of top people – producers, mixers, masterers. Talented professionals still command top dollar.³⁰ Digital tool cannot replace them and deliver comparable quality.³¹

Technology has not markedly reduced the time and cost associated with many music production tasks, which remain labor-intensive tasks and require hands-on experimentation to find customized solutions: E.g. auditioning the right keyboard sounds, getting good drum and guitar sounds, working on the right/tight arrangements, working on vocal takes and editing.

“It’s a great misconception that people have that, Oh, Everything’s a lot quicker and cheaper now. And certain aspects are a little cheaper, handful of things are a little quicker. But a lot of the things are exactly the same amount of time.”³²

Technology has also *increased* some costs. Today every note, drum hit, and vocal line can be tuned and quantized to perfection, and engineers and producers spend huge amounts of time editing sloppy instrument and vocal tracks to make them technically perfect. Audience ears have become accustomed to such flawless engineering. Thus, foregoing such optimization is not commercially viable. Yet, as noted, DIY artists recordings typically arrive chock full of flaws. Thus, the time and money saved on home recording is frequently offset by increased need for editing and cleanup.

Overall, once again, a nuanced picture emerges—with some costs having declined, others having gone up. Overall, there seems to have been a slight cost reduction—somewhere in the range of 10-40%. But hardly the drastic evisceration of costs that digital democratization proponents trumpet.

Of course, if you record in your living room, greater cost reductions are attainable—if you overlook the musicians own time and opportunity costs of investing in mastering these skills. As noted, the evidence suggests that many musicians struggle with home recording. And our cost data further bears this out.

²⁹ By contrast, distribution costs clearly have declined dramatically—one label executive we spoke to described a 75% reduction in the costs of distributing new music compared to the prior era based on physical media. Ben Kline interview.

³⁰ Current recording cost ranges

- Mixing engineer costs: to compete with charting, professional artists, mixing a ten-song album
 - \$6,000 to \$12,000 for a mixing engineer with chart credits
 - \$50,000 to \$80,000 or more for a grammy-winning mix engineer.
- Producer:
 - \$500-\$1000 for a professional producer;
 - up to \$40,000 per song for a star producer.
- Good mastering engineers are between \$75 – \$200 per song (so between \$750 and \$2000 per 10-song album record)
- Generally not inclusive of studio rental fees—yes, people dos still record in studios.

³¹ Mastering comes closest—new AI offers clear potential to replace human engineers at comparable quality level.

³² Count Eldridge Interview, Producer & Mix Engineer

After all, if musicians could get by just fine without shelling out on professional help, they'd be doing it. And we'd see a demand squeeze leading to reduced prices in the market. Some of that has happened for studios and recording costs, which is unsurprising since tracking most susceptible to DIY disintermediation.

However, the costs of other professional services have hardly budged. Moreover, even the slight cost declines that have transpired overall may have more to do with the budgetary pressures that musicians face given reduced revenues in the age of digital streaming than any empowerment or negotiating clout they have gained from DIY production alternatives.³³

Similarly, the embrace of home recordings and other DIY processes by many artists may be driven by budgetary necessity more than intrinsic preference. They know they risk subpar results by foregoing professional assistance but have no real alternative.

IV. Final Thoughts

Copyright is designed to work through market mechanisms. This is a deliberate policy choice. Mass culture is most rewarded because in an economic sense it is “what the public objectively values.” For better or for worse, popular music has an outsized role in contemporary life. It influences our culture. It worms its way into the public ear and provides the soundtrack to our lives.

One can question this, but that's how our system is engineered. That's what copyright incentivizes. Based on that rationale, with those priors, digital DIY productions are clearly no substitute for professionally-produced recordings. As such, it seems premature to pull the plug on the principal legal mechanism that underwrites investment in high-quality recordings.

One can argue that DIY creativity has other value not measured in the marketplace. It may satisfy niche demands or serve other goals such as self-expression. Indeed, digital democratization has many fine features as a sociological proposition. But as an economically viable alternative to the recording industry? Not so much . . .

Bottom Line: the need for copyright to pay for it all remains largely unaltered.

³³ Ben Kline similarly noted that demand for studios—and the rates that studio professionals could command—fell sharply post-Napster mirroring the rapid decline in industry revenues due to filesharing. Similarly, as industry revenues recovered, studios got busier and rates went back up.