

# CODED COPYRIGHT?: HOW COPYRIGHT ENFORCEMENT, REMUNERATION, AND VERIFICATION TERMS IN BLOCKCHAIN-ENHANCED CONTRACT MODELS FOR ONLINE ART SALES COMPARE TO THEIR TRADITIONAL COUNTERPARTS

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## ABSTRACT

*From digital certification services to non-fungible tokens (commonly referred to as “NFTs”), blockchain-enhanced contract models are becoming increasingly more prevalent in online art sales. This Note evaluates the efficacy of these agreements by comparing their copyright enforcement, remuneration, and verification terms with those found in traditional art consignment contracts. Case studies of how blockchain-enhanced art consignment agreements function in practice for an online auction house (Christie’s), a gallery (DADA.nyc), and a marketplace (OpenSea) will illustrate the similarities and differences between traditional art consignment agreements and their on-chain counterparts.*

## I. INTRODUCTION

In July 2020, insurance giant Hiscox and art market research firm ArtTactic released an industry report with stunning news: online-only art sales generated \$370 million in the first half of 2020, a figure more than five times higher than that of the same period in 2019.<sup>1</sup> One year later, online-only art sales ballooned to a staggering \$6.8 billion, with non-fungible token (“NFT”) art sales alone topping out at \$3.5 billion.<sup>2</sup> While the COVID-19 crisis undoubtedly played a role in changing this recalcitrant industry’s

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<sup>1</sup> HISCOX & ARTTACTIC, HISCOX ONLINE ART TRADE REPORT 2020: PART ONE: THE ONLINE ART TRADE 2 (2020), [https://www.hiscox.co.uk/sites/uk/files/documents/2020-07/Hiscox\\_online\\_art\\_trade\\_report\\_2020-new.pdf](https://www.hiscox.co.uk/sites/uk/files/documents/2020-07/Hiscox_online_art_trade_report_2020-new.pdf) [<https://perma.cc/4XP4-QJE9>] (hereinafter HISCOX ART REPORT 2020).

<sup>2</sup> HISCOX & ARTTACTIC, HISCOX ONLINE ART TRADE REPORT 2021: PART ONE 2 (2021), [https://www.hiscox.co.uk/sites/default/files/documents/2021-10/21674a-Hiscox\\_online\\_art\\_trade\\_report2021-part\\_one\\_1.pdf](https://www.hiscox.co.uk/sites/default/files/documents/2021-10/21674a-Hiscox_online_art_trade_report2021-part_one_1.pdf) [<https://perma.cc/V8E6-LKPJ>] (hereinafter HISCOX ART REPORT 2021).

cautious approach to e-commerce, experts believe that strong online art sales are here to stay.<sup>3</sup>

Yet this surge in digital art sales is likely to carry with it a complementary increase in crime. Forgers have habitually used online art sales platforms, such as virtual auctions, galleries, and art marketplaces, to make millions from selling counterfeit artworks with false documentation to unsuspecting customers.<sup>4</sup> According to Robert Wittman, founder of the Federal Bureau of Investigation's Art Crime Team, this increase in fraudulent works and documentation is a central concern for the industry.<sup>5</sup> "The entire art crime industry worldwide is a \$6 billion endeavor," he explained, "[and] [t]he biggest part of the art crime industry worldwide is fraud."<sup>6</sup>

Thanks to the growing threat of fraud in online art sales, artists seeking to sell visual artworks online are now confronting significant obstacles in enforcing their copyright protections, collecting remuneration, and authenticating their work. Defending against fraudulent artworks online has become incredibly difficult for artists, thanks to the decreased scrutiny of sellers on aggregator marketplaces such as eBay,<sup>7</sup> Etsy,<sup>8</sup> and Amazon,<sup>9</sup> and the sheer volume of offerings across a plethora of virtual galleries and

<sup>3</sup> HISCOX ART REPORT 2020, *supra* note 1, at 1 ("I could sit here on the fence and find good reasons to say yes, no or maybe. I am going for a bold yes . . . . The main reason is that social distancing is here to stay for long enough that it will change how we buy art as well as many other things."); *see also* HISCOX ART REPORT 2021, *supra* note 2, at 2 ("The online art market is in buoyant mood, with a near-unanimous consensus (97%) among the platforms we surveyed that the next 12 months will be good. With online sales blossoming and lucrative new markets like NFTs to tap into, it's easy to see why they're so optimistic."); *see also* D.G., *The Art Market Shuns Digitization, But Can It Survive?*, HARVARD BUS. SCH. DIGIT. INITIATIVE (Nov. 21, 2016), <https://digital.hbs.edu/platform-rctom/submission/the-art-market-shuns-digitalization-but-can-it-survive> [<https://perma.cc/NT5T-7SS8>].

<sup>4</sup> Fraudulent art sales online have resulted in recent arrests of dealers in Michigan, New York, and California who have each made millions selling counterfeit works online. *See* Complaint, United States v. Spoutz, No. 1:16-cr-00392 (S.D.N.Y. Jan. 28, 2016), <https://www.justice.gov/usao-sdny/file/819596> [<https://perma.cc/7PQ6-Q334>] (discussing the criminal charges levied against Eric Spoutz, a prolific forger who made \$1.45 million selling counterfeit versions of artworks online); Sarah Cascone, *Hamptonite Arrested for Peddling Fake Jackson Pollocks on eBay*, ARTNET (June 30, 2014) <https://news.artnet.com/market/hamptonite-arrested-for-peddling-fake-jackson-pollocks-on-ebay-51025> [<https://perma.cc/F9D9-UF3U>] (detailing the criminal charges brought against John D. Re, a forger who made \$1.6 million over eight years selling counterfeit artwork online); Daniel Victor & Christine Hauser, *California Man Pleads Guilty in \$6 Million Art Fraud Case*, N.Y. TIMES (Mar. 13, 2020), <https://www.nytimes.com/2020/03/13/us/philip-righter-art-fraud.html> [<https://perma.cc/9YFA-LKQG>] (discussing the recent arrest of Philip Righter, a prolific forger who made six million dollars off of selling counterfeit artworks online with false documentation).

<sup>5</sup> John Powers, *Fakes, Forgeries and Dirty Deals*, FRAUD MAG. (Jan./Feb. 2016), <https://www.fraud-magazine.com/article.aspx?id=4294991131> [<https://perma.cc/56XV-FTMF>].

<sup>6</sup> *Id.*

<sup>7</sup> *See id.*; *see, e.g., also* Milton Esterow, *Art Experts Warn of a Surging Market in Fake Prints*, N.Y. TIMES (Jan. 24, 2020), <https://www.nytimes.com/2020/01/24/arts/design/fake-art-prints.html> [<https://perma.cc/AX5H-5R4N>] (discussing how fraudulent art sales online have increased in European and American markets).

<sup>8</sup> Steve Schlackman, *The Etsy Copyright Infringement Problem*, ART L.J., <https://alj.artrepreneur.com/etsy-copyright-infringement> [<https://perma.cc/38MX-X3JZ>] (last accessed on Dec. 14, 2021); *see also* Dan Duray, *Online Art Sales Are on the Up—And so Is Fraud*, THE ART NEWSPAPER (Aug. 31, 2015), <https://www.theartnewspaper.com/news/online-art-sales-are-on-the-up-and-so-is-fraud> [<https://perma.cc/XSL9-YPZR>] (detailing how artist rights organizations have struggled to persuade Amazon and eBay to enforce artists' copyright protections by verifying the works listed on their sites as authentic before they are sold).

<sup>9</sup> Nicole Nguyen, *Stolen Artwork Is All Over Amazon—And Creators Want the Company To Do Something About It*, BUZZFEED NEWS (Jan. 23, 2019), <https://www.buzzfeednews.com/article/nicole-nguyen/amazon-counterfeit-art-sellers-fakes-copyright-infringement> [<https://perma.cc/6ZP8-HG2Y>] (discussing how difficult it is for independent artists to enforce their copyright protections through takedown requests on Amazon).

auction houses.<sup>10</sup> Increased infringement can also cause artists to miss out on significant sources of income from primary sales revenue for their original work, privately contracted secondary sales revenue, and even royalty revenues from unlicensed reproductions of their work.<sup>11</sup> As a result, many artists find themselves unable to enjoy the reputational and economic benefits of selling their work online.<sup>12</sup>

This increase in counterfeit art sales online has also made it more difficult to verify a work's authenticity.<sup>13</sup> The current sophistication of forged artworks and ease of copying afforded by digital technologies have caused buyers to question the veracity of a given work's signature or certificate of authenticity in online art sales.<sup>14</sup> Moreover, many art experts and authentication committees have ceased to give expert opinions on works altogether, thus eliminating a crucial source of secondary verification of an artwork's documentation.<sup>15</sup> Thus, artists and their estates now face increased difficulty verifying a given artwork's authenticity in an online environment.

Confronted by these obstacles, websites that sell art have started to incorporate blockchain technology into their sales contracts to enhance copyright protections for artists, enforce payment terms, and alleviate concerns about authenticity in their art sales.<sup>16</sup> This Note will address the emergence of blockchain-enhanced contract models in online art sales and how these agreements compare to their traditional counterparts. The second section will discuss copyright challenges for visual art sales online and overview current assumptions and concerns within art consignment agreements, the traditional contract model used in online sales. The third section will discuss how blockchain-enhanced contract models could be incorporated in online art sales, as well as how this technology may be used to address some of the traditional model's assumptions and concerns. The fourth section will explore how blockchain-enhanced agreements function in

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<sup>10</sup> Esterow, *supra* note 7 (noting that even though aggregator platforms like Etsy, Amazon, and eBay claim to have protocols established to weed out fakes, groups like the Artists' Rights Society still find enough counterfeit works across various websites that their in-house lawyer sends at least one take down notice to a website every day).

<sup>11</sup> *Id.* (describing how, in one instance, forgers obtained an authentic, unsigned Lichtenstein print, added a fake signature and a "bogus certificate of authenticity," and sold the fake prints as a signed limited edition for as much as \$50,000).

<sup>12</sup> *Id.*; see also Nguyen, *supra* note 9 (noting that some artists reported spending hours filing takedown requests with Amazon each month and report thousands of dollars in lost income annually as a result of infringement on the platform).

<sup>13</sup> Esterow, *supra* note 7 (quoting art dealer Susan Sheehan describing the difficulty she had ascertaining whether or not two Warhol prints she purchased for \$100,000 from a well-known auction house were authentic or fake).

<sup>14</sup> See Nicole Martinez, *Can You Spot a Fake? The Trouble with Authenticating Art*, ART L.J., <https://alj.artpreneur.com/authenticating-art> [<https://perma.cc/5NM7-X2V8>] (last accessed Dec. 14, 2021) (describing the difficulties buyers have in verifying their purchased work is authentic, especially when the certificate of authenticity accompanying the work is unsubstantiated or forged); see, e.g., Tonya M. Evans, Derek Fincham, Katya Fisher & Jeanne L. Schroeder, *Panel 2: Art Law and Blockchain*, 37 CARDOZO ARTS & ENT. L.J. 589 (2019) (noting a need in the art industry for increased transparency in justifying, and proving, provenance and ownership of a given artwork).

<sup>15</sup> Martinez, *supra* note 14; see also Jennifer Maloney, *The Deep Freeze in Art Authentication*, WALL ST. J. (Apr. 24, 2014, 8:26 PM), <https://www.wsj.com/articles/SB10001424052702304279904579518093886991908> [<https://perma.cc/2M6J-NR4L>] (describing lawsuits levied against art authentication committees within organizations like the Keith Haring Foundation, the Andy Warhol Foundation for the Visual Arts, and the Jean-Michel Basquiat Estate).

<sup>16</sup> See Evans et al., *supra* note 14; see also Tonya M. Evans, *Cryptokitties, Cryptography, and Copyright*, 47 AIPLA Q.J. 2195 (2019).

practice by evaluating case studies demonstrating the ways in which these contracts have been implemented in an online auction house, a gallery, and an art marketplace. The fifth and final section will conclude with a normative opinion on how blockchain-enhanced contract models could be incorporated into online art sales and how these agreements may impact artists.<sup>17</sup>

## II. COPYRIGHT CHALLENGES FOR VISUAL ART IN AN ONLINE MARKETPLACE

### A. AN OVERVIEW OF COPYRIGHT INTERESTS IN ART SALES

Copyright laws in the United States provide federal legal protection for “original works of authorship [that are] fixed in [a] tangible medium of expression.”<sup>18</sup> As a result, original works of visual art are generally protected by the provisions of the Copyright Act of 1976, which applies to pictorial, graphical, and sculptural works.<sup>19</sup> Copyright protection initially vests in the artist who created the work, with the duration of its protections determined in part by the artist’s lifetime.<sup>20</sup> For works created by a single artist on or after January 1, 1978, these copyright protections last for seventy years after the artist’s death.<sup>21</sup> For works created by joint artists, these protections are extended until seventy years after the death of the last surviving artist.<sup>22</sup> Copyright protections vest automatically upon the work’s creation and, with a few important exceptions, provide the artists with the exclusive rights to reproduce the work, create derivative works based on the protected artwork, distribute copies of the artwork, and even initially display the artwork publicly for the first time.<sup>23</sup> This means that anyone who creates, distributes, or publicly displays the artwork without the permission of the original artist infringes that artist’s copyright, thus leaving the infringer vulnerable to civil, and even criminal, penalties.<sup>24</sup>

In addition to these copyright protections, some “unique works of visual art” receive additional protections under the Visual Arts Rights Act of 1990

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<sup>17</sup> To keep the analysis focused, it will help to identify at the outset all the issues that this Note will not address. This Note will not address blockchain’s use in enforcing or verifying a creator’s copyright interests in any context other than the art market and will not evaluate blockchain-based mechanisms within the context of copyright infringement defenses like fair use. All discussion of blockchain asset records will operate under the optimistic assumptions that the information recorded upon the ledger is correct, and that the ledger itself is not at risk of a security breach. Each of these issues is worth discussing on its own in greater detail and, thus, will not be hastily addressed in this brief discussion.

<sup>18</sup> 17 U.S.C.A. § 102.

<sup>19</sup> *Id.*

<sup>20</sup> *Id.* at § 302. Artist is used in this note to refer to a specific type of author who enjoys copyright protections under federal law.

<sup>21</sup> *Id.* at § 302(a) (“Copyright in a work created on or after January 1, 1978 . . . endures for a term consisting of the life of the author and 70 years after the author’s death.”).

<sup>22</sup> *Id.* The duration of protections differs for works that are made for the author’s employer as a work made for hire, but since this Note focuses on works created by authors for their personal benefit, we will not address these differences. For further discussion on works made for hire, see *Comty. for Creative Non-Violence v. Reid*, 490 U.S. 730, 741–42 (1989).

<sup>23</sup> 17 U.S.C. § 103.

<sup>24</sup> *Id.* It is also worth noting that, under 17 U.S.C. § 109(c), museums enjoy some limited exceptions to this display right as owners of a “particular copy” and, thus, may legally display an artwork without the authority of the copyright owner. For more discussion regarding the contours of this exception, see *Mass. Museum of Cont. Art Found., Inc. v. Büchel*, 593 F.3d 38, 64 (1st Cir. 2010).

(“VARA”), which amended the Copyright Act of 1976.<sup>25</sup> VARA provides that copyright owners of qualifying works of visual art have the right to demand that their name be displayed in conjunction with any displays of the artwork.<sup>26</sup> These protections apply to visual artworks which exist solely as a unique original or in a limited edition of up to 200 consecutively numbered, signed copies.<sup>27</sup> Additionally, under certain circumstances, the artist has the right to prevent any distortion, mutilation, modification, or destruction of their artwork.<sup>28</sup> If such destruction occurs against the artist’s wishes, the artist can invoke their rights under VARA to obtain equitable relief and damages.<sup>29</sup> Like the Copyright Act of 1976, VARA’s additional protections do not require that the work satisfy a minimum price threshold before the protections can be invoked.<sup>30</sup> Unlike the Copyright Act of 1976, VARA does not require the artist to register their work’s copyright in order to bring an action for infringement, secure statutory damages, or collect attorney’s fees.<sup>31</sup> Further, VARA’s additional rights, which are separate from the artist’s copyright, expire upon the artist’s death and do not transfer along with the artwork when it is sold.<sup>32</sup> VARA’s rights remain with the artist unless they die or agree to waive them in writing.<sup>33</sup> While the bulk of this Note will focus on the rights that artists enjoy under the Copyright Act of 1976, many of the artworks discussed also likely qualify for VARA protections, an overlap which further highlights the market need for more effective copyright enforcement mechanisms in online art sales.

When an artist sells a unique manifestation of their work, whether it be physical or digital, they are usually selling two rights out of the bundle they enjoy from their artwork’s copyright protection: the right to possess the work and the right to display the work.<sup>34</sup> The artist’s other copyright protections, such as authorship, reproduction, or the right to make derivative works based off of the original artwork, remain theirs and do not transfer over to the buyer after the sale is made.<sup>35</sup> Accordingly, the artist enjoys the exclusive right to license or reproduce their work even after the unique or limited edition manifestation is sold (absent any special contract obligations) because they still retain the appropriate copyright protections.<sup>36</sup> Preserving these exclusive rights after a sale can be especially difficult to manage in an online marketplace because unauthorized reproductions of works abound, and Internet intermediaries are under no obligation to track down and report

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<sup>25</sup> 17 U.S.C. § 106A(e).

<sup>26</sup> *Id.*

<sup>27</sup> *Id.*

<sup>28</sup> *Id.*; see also Büchel, 593 F.3d at 54–55.

<sup>29</sup> 17 U.S.C. § 106A(e).

<sup>30</sup> Steven C. Schechter, *Understanding the Rights of Visual Artists*, 231 N.J. L. MAG. 20, 22–23 (Dec. 2004).

<sup>31</sup> Patrick Flynn, *Validity, Construction and Application of Visual Artists Rights Act (17 U.S.C.A. §§ 101 et. seq.)*, 138 A.L.R. FED. 239 (originally published in 1997) (explaining that, under VARA, copyright registration is not required to file a suit, see injunctions, damages, and attorney’s fees).

<sup>32</sup> *Id.*

<sup>33</sup> *Id.*

<sup>34</sup> Schechter, *supra* note 30; see also *Mass. Museum of Cont. Art Found., Inc. v. Büchel*, 593 F.3d 38, 64 (1st Cir. 2010).

<sup>35</sup> *Id.*

<sup>36</sup> *Id.*

every single instance of infringement to the artwork's copyright owner.<sup>37</sup> Thus, the need for additional enforcement mechanisms online is more pronounced for artists who depend on these protections to earn a living from their work.

Finally, if Congress approves the American Royalties Too Act—a bill mandating that the original artist be paid a small resale fee for secondary sales of their work—both sellers and artists will need more efficient mechanisms in place to facilitate online resale payments.<sup>38</sup> In the current system, if an artist privately contracts to receive a resale payment from secondary sales of their original artwork, they depend upon the seller to alert them to any resale income earned from subsequent sales of the work.<sup>39</sup> This model assumes that the seller knows who the original artist is, where the artist is currently located, and how the seller can send them the payment. For many fine art works, especially those resold in online marketplaces, these assumptions are dubious at best.<sup>40</sup> Automating resale payments using a blockchain platform to deposit an agreed-upon amount into the original artist's cryptocurrency wallet upon a transaction's consummation would enable sellers to easily and efficiently fulfill their resale payment obligations. This automation would also give sellers a way to honor any existing resale contract obligations quickly and cheaply, while equipping them with the tools they would need to comply with changes from pending legislation.

## B. TODAY'S DIGITAL ART MARKET

The art market is a lucrative industry with a growing online presence.<sup>41</sup> As of 2020, the global art market was worth more than \$50 billion,<sup>42</sup> with online sales alone valued at \$12.4 billion.<sup>43</sup> Although the online market currently represents a comparatively small portion of the overall art market, it has seen tremendous growth over the past five years and is showing no

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<sup>37</sup> Morgan E. Pietz, *Part I Article: Copyright Court: A New Approach to Recapturing Revenue Lost To Infringement: How Existing Court Rules, Tactics From the "Trolls," and Innovative Lawyering Can Immediately Create a Copyright Small Claims Procedure That Solves BitTorrent and Photo Piracy*, 64 J. COPYRIGHT SOC'Y 1, 3–4 (2017) (noting that the Digital Millennium Copyright Act ("DMCA") largely let Internet intermediaries off the hook, as long as they comply with the DMCA's "'notice and takedown' procedures. Thus, the onus for policing Internet infringement was largely shifted onto rights holders. Making matters worse, the DMCA takedown procedure is seen by content owners as an ineffective and expensive game of whack-a-mole that seldom succeeds in permanently removing infringing content[.]"); see also Claire Demos, Comment, *Returning the Photographer's Autonomy: The Integration of Blockchain Technology into Copyright Registration*, 18 J. MARSHALL REV. INTELL. PROP. L. 221, 234–35 (2018) ("The burden of infringement detection is placed *solely* on the copyright owner, despite the inconceivably high volume of potential online activity to be monitored.").

<sup>38</sup> Pietz, *supra* note 37; see also American Royalties Too Act, S. 3488 115th Cong. (2017–2018) [hereinafter American Royalties Too Act].

<sup>39</sup> Schechter, *supra* note 30, at 23; see also Dalya Alberge, *Artists Target Rogue Dealers Who Refuse to Pay Resale Royalties*, GUARDIAN (Oct. 11, 2014, 7:05 PM), <https://www.theguardian.com/artanddesign/2014/oct/12/artists-threaten-legal-action-resale-royalties> [<https://perma.cc/ASD5-EUF3>].

<sup>40</sup> Evans, *supra* note 16, at 264; see also U.S. COPYRIGHT OFF., RESALE ROYALTIES: AN UPDATED ANALYSIS 1, 73–74 (2013), <http://copyright.gov/docs/resaleroyalty/usco-resaleroyalty.pdf> [<https://perma.cc/G4SF-CGPD>] (noting the administrative challenges that would accompany the office's endorsement of implementing a federal resale royalty right for visual artists selling works in galleries, auction houses, and web-based platforms or services).

<sup>41</sup> See Statista Research Department, *Art Market Worldwide—Statistics & Facts*, STATISTA (Aug. 5, 2021), <https://www.statista.com/topics/1119/art-market> [hereinafter *Statista Art Market Report*].

<sup>42</sup> *Id.*

<sup>43</sup> *Id.* at 13.

signs of slowing down.<sup>44</sup> This recent digital migration is evident across all consumer market segments within the art industry, demonstrating that buyers with budgets anywhere from \$10 to \$100 million are all open to buying unique or limited edition artworks online.<sup>45</sup>

The resulting increase in online sales across consumer demographics has triggered a complementary need for more effective authentication practices online. Currently, most in-person or online art sales are authenticated by either an appraisal certificate, the artist's signature, or a combination of both.<sup>46</sup> These authentication practices are typically only as good as the reputation of the art dealer or auction house issuing the certificate, especially when an in-person inspection is unavailable.<sup>47</sup> And even when an inspection is possible, forgeries can still fool the most skilled experts.<sup>48</sup> This risk of fraud increases significantly when visual art is sold online, as common security precautions like watermarks or added metadata can be easily removed by a technologically savvy counterfeiter with a cloud-storage account.<sup>49</sup> "In most art sales, there's no way to find out where these things come from, who they belong to, and if the person selling the art is the true owner of the copyright," explains Brad Schlei, attorney and cofounder of the art verification platform Verisart, "so, the buyer always is left with some doubts as to whether or not the vendor can sell it in the first place."<sup>50</sup> Since an artwork's inherent value is largely based on its authorship, more effective authentication practices in online sales are poised to greatly benefit both buyers and sellers as the art industry continues to expand.<sup>51</sup>

### C. CURRENT CONTRACT MODELS FOR ONLINE ART SALES

Most online art sales are structured as consignment contracts between the artist and the website displaying their work, whether it be an auction house, gallery, or marketplace.<sup>52</sup> Accordingly, this Note's analysis will focus on consignment contracts as the standard model used in online art sales. In these agreements, the website, acting as the seller, contracts with the artist for the rights to (i) possess, (ii) display, and (iii) resell their work to a third

<sup>44</sup> *Id.* at 14.

<sup>45</sup> *Id.* at 12, 16; see Eileen Kinsella, *Looking to Lure New Buyers, Christie's Tried a Sale of Art Starting at Just \$100. It Paid Off Big Time*, ARTNET (Feb. 5, 2020), <https://news.artnet.com/market/christies-100-sale-hundreds-of-bidders-1770690> [<https://perma.cc/3PAB-6R2B>].

<sup>46</sup> Rebecca Barham, *What Is It Worth? A Guide to Art Valuation and Market Resources*, 54 ALERT COLLECTOR 21, 22–24 (2015) (describing the resources available online to prospective art buyers to search artist signature records and hire a professional art appraiser to verify the authenticity of the artwork).

<sup>47</sup> *Id.* at 25.

<sup>48</sup> See Jennifer Smith, *Knoedler & Co. Gallery Settles Art-Fraud Case*, WALL ST. J. (Feb. 10, 2016, 10:16 P.M.), <https://www.wsj.com/articles/knoedler-co-gallery-settles-art-fraud-case-1455120395> [<https://perma.cc/GW9W-CYRB>] (describing the aftermath of a lawsuit against one of the oldest galleries in the United States after the gallery made millions of dollars from selling in counterfeit works art dealers between 1994 and 2008).

<sup>49</sup> Demos, *supra* note 37, at 231–35.

<sup>50</sup> Interview with Bradford Schlei & Robert Norton, Cofounders, Verisart (Oct. 16, 2020) [hereinafter Verisart Interview] (on file with author).

<sup>51</sup> Barham, *supra* note 46, at 21.

<sup>52</sup> See Gary D. Sesser & Judith Wallace, *Consigning Fine Art: Seven Things Fiduciaries Should Know*, in SPECIAL REPORT: ARTS, AUCTIONS & ANTIQUES A25, A25–A26 (2014) (discussing the general terms of an art consignment agreement that an agent of an art owner's estate should pay close attention to when evaluating sales opportunities).

party.<sup>53</sup> Once the sale is complete, the buyer gains the right to possess the unique artwork while the artist is given a percentage of the sale as payment.<sup>54</sup> Artists typically earn between 50 and 70 percent in primary sale commissions in online sales, with a small fraction of these sales revenues going towards third-party payment processing fees.<sup>55</sup> The table below compares these fees, along with applicable payment fees from secondary sales, across four popular art sales websites.

Table 1: A comparison of consignment commissions earned by artists across four online art sales websites (two virtual galleries and two marketplaces).

|                                | Online Galleries                              |                                   | Online Art Marketplaces         |                                     |
|--------------------------------|---|-----------------------------------|---------------------------------|-------------------------------------|
|                                | Saatchi Art                                   | Artfinder                         | Etsy                            | Ebay                                |
| <b>Price Range</b>             | \$40 – \$100,000 <sup>56</sup>                | \$13 – \$11 million <sup>57</sup> | \$0.20 – \$65,000 <sup>58</sup> | \$0.01 – \$15 million <sup>59</sup> |
| <b>Primary Sale</b>            | 65% <sup>60</sup>                             | 67% <sup>61</sup>                 | 92% <sup>62</sup>               | 90% <sup>63</sup>                   |
| <b>Secondary Sales</b>         | 5% <sup>64</sup>                              | N/A                               | N/A                             | N/A                                 |
| <b>Payment Processing Fees</b> | \$1.00 – \$3.00 per transaction <sup>65</sup> | N/A                               | 3% + \$0.25 <sup>66</sup>       | N/A                                 |

<sup>53</sup> Schechter, *supra* note 30, at 23; *see also* U.C.C. § 2-106(1) (AM. L. INST. & UNIF. L. COMM'N 2021); Louis Smoller, *What to Include in an Art Consignment Agreement with a Gallery*, ART L.J. (Dec. 17, 2018), <https://alj.artpreneur.com/art-consignment-agreement> [<https://perma.cc/7B7C-AA5P>].

<sup>54</sup> Smoller, *supra* note 53; *see also* Practical Law Commercial Transactions, *Consignment*, THOMAS REUTERS PRAC. L., <https://1.next.westlaw.com/Document/11c63118cef2811e28578f7ccc38dcbee/View/FullText.html?transitionType=UniqueDocItem&contextData=> (last visited Dec. 14, 2021).

<sup>55</sup> *See* Caroline Goldstein, *So You Want to Sell Your Art? Here Are 6 Online Platforms Looking to Help Emerging Artists Make a Buck*, ARTNET (July 28, 2018), <https://news.artnet.com/art-world/sell-your-art-without-a-gallery-1322180> [<https://perma.cc/TYF9-TXFU>].

<sup>56</sup> *Id.*

<sup>57</sup> *Id.*

<sup>58</sup> *Art & Collectibles*, ETSY, [https://www.etsy.com/c/art-and-collectibles/painting?explicit=1&order=price\\_desc](https://www.etsy.com/c/art-and-collectibles/painting?explicit=1&order=price_desc) [<https://perma.cc/SG8G-H49P>] (last visited Dec. 14, 2021).

<sup>59</sup> *Art Drawings*, EBAY, [https://www.ebay.com/b/Art-Drawings/552/bn\\_2310986?rt=nc&\\_sop=16](https://www.ebay.com/b/Art-Drawings/552/bn_2310986?rt=nc&_sop=16) [<https://perma.cc/S7HJ-H9RY>] (last visited Dec. 14, 2021).

<sup>60</sup> *See Payments*, SAATCHI ART, <https://support.saatchiart.com/hc/en-us/articles/115003366567-Payments> [<https://perma.cc/4HNW-UPQK>] (last visited Dec. 14, 2021) [hereinafter *Saatchi Art Payments*].

<sup>61</sup> *Commission and Fees Policy*, ARTFINDER (Jan. 30, 2019), <https://sellers.artfinder.com/article/773-commission-and-fees-policy-january-2019> [<https://perma.cc/TB7U-DGZV>]; Goldstein, *supra* note 55.

<sup>62</sup> *Sell*, ETSY, <https://www.etsy.com/sell> [<https://perma.cc/QZP8-KP7A>] (last visited Dec. 14, 2021) [hereinafter *Etsy Sell*].

<sup>63</sup> *Seller Fees*, EBAY, <https://pages.ebay.com/seller-center/get-started/seller-fees.html> [<https://perma.cc/BM8K-MNM4>] (last visited Dec. 14, 2021).

<sup>64</sup> *Saatchi Art Payments*, *supra* note 60.

<sup>65</sup> Fran Checkley, *Payment with Hyperwallet*, 90 SECONDS (Nov. 2020) <https://support.90seconds.com/en/articles/3206001-payment-with-hyperwallet> [<https://perma.cc/SZNB-TWV2>].

<sup>66</sup> *Etsy Sell*, *supra* note 62.



### 1. Assumptions About and Concerns with the Current Model

This current consignment contract model centers on two key assumptions about authentication and enforcement of an artist's retained copyright protections that are complicated by conducting art sales online.

First, it assumes that the artist in the agreement is the author of the artwork and, as such, the rightful owner of all of associated rights that they have contracted with the seller (an auction house, marketplace, or gallery) to sell to a third-party buyer on her behalf.<sup>67</sup> Authentication is essential to a successful agreement, as the artwork's price is intrinsically tied to its authorship.<sup>68</sup> Without verified documentation of its authorship, whether that be a signature, expert appraisal, or record of sale, the artwork loses much of what makes it valuable to a potential buyer and becomes an entirely different product.<sup>69</sup> It may be difficult to authenticate a work of art in an initial sale, as the gallery or third-party buyer may not be able to prove that the artist is representing the work's authorship honestly and must verify their claims by combing through various online databases of signatures to confirm the work in question is genuine.<sup>70</sup> This process becomes exponentially more complex for resales, as the artist probably is not directly contracting with the gallery to sell their work and, thus, would be unable to personally verify the work's authenticity.<sup>71</sup>

The second assumption is that the artist will retain any copyright protections that are not associated with the sale of the unique work, such as the right of reproduction and the right to produce derivative works.<sup>72</sup> While this factor seems relatively straightforward, things can become more complex as the work's value fluctuates.<sup>73</sup> Since an artwork's value reflects a variety of shifting factors, like provenance (the history associated with the artwork), current aesthetic trends in the market, the artist's reputation, and sales of similar works, the value a work may command in the market changes over time.<sup>74</sup> As a result, the artist's complementary retained rights to reproduce that artwork or create derivative works may change in value as well.<sup>75</sup> Thus, an artwork's increase in value makes it difficult for an artist to defend against unwanted infringement of their exclusive copyrights, especially given the ease with which visual art may be duplicated using

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<sup>67</sup> See Smoller, *supra* note 53.

<sup>68</sup> *Id.*

<sup>69</sup> Sessler & Wallace, *supra* note 52, at A26; see, e.g., Erica Coslor, *Transparency in an Opaque Market: Evaluative Frictions Between "Thick" Valuation and "Thin" Price Data in the Art Market*, 50 ACCT., ORG. & SOC. 13, 13–17 (2016) (noting throughout that transparency in art market sales is a "paradoxical request" when the appraisal and authentication of a work is difficult to obtain and the artwork's value relies upon subjective standards such as social construction, historical context, and aesthetic preferences).

<sup>70</sup> Sessler & Wallace, *supra* note 52, at A26; see also Barham, *supra* note 46, at 1.

<sup>71</sup> Sessler & Wallace, *supra* note 52, at A26.

<sup>72</sup> See Schechter, *supra* note 30, at 23–24.

<sup>73</sup> *Id.*

<sup>74</sup> See Coslor, *supra* note 69, at 14–15 (noting that an artwork's value may be impacted by variable factors such as its provenance, "taste," the artist's reputation, and sales of similar works).

<sup>75</sup> U.S. COPYRIGHT OFF., *supra* note 40, at 31–32 (discussing the potential income a visual artist could earn from licensing their retained copyrights); see also Daniel Grant, *For Artists, a Change of Canvas Can Be Good Business*, WALL ST. J. (Apr. 29, 2013), <https://www.wsj.com/articles/SB10001424127887324640104578163423236599156> [<https://perma.cc/YPF3-YSL8>].

digital technology.<sup>76</sup> If the copyright is infringed, the artist probably will not be able to both verify the infringer's identity and contact them with a takedown request.<sup>77</sup> Consequently, the artist's success may ironically cause them to lose potential royalty income because they cannot enforce their copyright.

### III. HOW BLOCKCHAIN-ENHANCED MODELS COULD BENEFIT ONLINE ART SALES

#### A. A BRIEF INTRODUCTION TO BLOCKCHAIN TECHNOLOGY

To understand the impact that blockchain-enhanced consignment contracts could have on digital art sales, we must first understand the underlying technology. Blockchain is open source code.<sup>78</sup> It runs a program that adds a page of new information to a digital ledger (the "block") and synchronizes that page's information, along with other encrypted data, to the rest of the ledger (the "chain").<sup>79</sup> This chain is maintained by a peer-to-peer ("P2P") network of independently owned computers, connected by the system's open source code, that create a single record of transaction data.<sup>80</sup> Blockchain technology's decentralized structure was one of the main reasons why it was so revolutionary when Satoshi Nakamoto introduced it to the world in 2008.<sup>81</sup> Prior to Nakamoto's 2008 whitepaper and subsequent use of blockchain technology in the Bitcoin Network, online payments had been recorded via a double-entry bookkeeping system which depended upon a third-party intermediary to verify the transactions.<sup>82</sup> Thanks to Nakamoto's blockchain technology, the Bitcoin Network allowed users to bypass the intermediary and conduct the transactions directly.<sup>83</sup> The result was an efficient platform for transactions that empowered its users to directly control their assets.<sup>84</sup>

Blockchain's combination of three preexisting component technologies—consensus mechanisms, public key encryption with digital signatures, and P2P networks—provides the technology with unique characteristics that could help artists selling visual artwork online efficiently facilitate copyright enforcement, remuneration, and authentication practices.<sup>85</sup> For instance, blockchain repurposes public key cryptography, one of the technological building blocks of current Internet encryption protocols, as a digital fingerprint of sorts to secure exchanges between

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<sup>76</sup> Grant, *supra* note 75; *see also* Esterow, *supra* note 7; Demos, *supra* note 37.

<sup>77</sup> Esterow, *supra* note 7.

<sup>78</sup> PRIMAVERA DE FILIPPI & AARON WRIGHT, *BLOCKCHAIN AND THE LAW: THE RULE OF CODE 20* (2018).

<sup>79</sup> *Id.*

<sup>80</sup> Evans, *supra* note 16, at 234–35.

<sup>81</sup> Satoshi Nakamoto, *Bitcoin: A Peer-to-Peer Electronic Cash System*, SATOSHI NAKAMOTO INST. (Oct. 31, 2008), <https://nakamotoinstitute.org/bitcoin/> [<https://perma.cc/9HAT-GFVU>].

<sup>82</sup> BANKING ON BITCOIN (Gravitas Ventures 2016); *see also* Evans, *supra* note 16, at 232.

<sup>83</sup> Nakamoto, *supra* note 81.

<sup>84</sup> *Id.*

<sup>85</sup> DE FILIPPI & WRIGHT, *supra* note 78, at 20 (commending Satoshi Nakamoto for "fusing together public-private key cryptography, digital signatures, and peer-to-peer technologies to create a new distributed database, which came to be known as a blockchain").

users.<sup>86</sup> In blockchain-based transactions, private-public key cryptography serves as a set of protections that allows a unique cryptographic owner to control access to her creative and financial assets via a unique digital signature.<sup>87</sup> Thus, just as storing a unique sculpture or painting in a private vault restricts access to the artwork, so too does restricting access to a creative asset by locking its digital permissions with asymmetric cryptography. If a user wanted to view the asset digitally, feature it in their digital content, or ascertain its location to display for private use, they must possess the corresponding private key to unlock its permissions.

Similarly, P2P networks are also deployed as a decentralized way to record and verify data across an independently owned network of computers. By utilizing a network of computers to independently verify transactions with the blockchain's distributed ledger, each computer is forced to check its work against other computers in the network to reach a consensus as to whether a given transaction is valid, and, if valid, whether it should be recorded to the software's blockchain with a permanent, unique public key or "hash."<sup>88</sup> The result is a ledger of verified transactions recorded on the blockchain software that is distributed across the computers on the software's network, hence why blockchain is often referred to as "distributed ledger technology."<sup>89</sup> Any software user can track down a given transaction using its public key, thus creating a system that is both decentralized and publicly auditable.<sup>90</sup> An additional benefit of the decentralized structure created by P2P networks is that payment terms can be efficiently and effectively enforced via smart contract controls on the Ethereum Network, which will be discussed in more detail below.

Finally, the resulting ledger's tamper-resistant transaction data can be used to create an immutable record of provenance and authorship for an artwork, thus helping to authenticate online sales. The distributed ledger's data is resistant to tampering because the system is append-only—new information can be added by verified users, but nothing can be deleted.<sup>91</sup> Since the transactions do not rely on a central intermediary, exchanges can be recorded without a central organization governing the system's operations, making the recording system more accessible to independent artists with limited resources.<sup>92</sup>

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<sup>86</sup> Evans, *supra* note 16, at 235–36; *see also* Ted Fischer, *Private and Public Key Cryptography and Ransomware*, CTR. FOR INTERNET SEC. (Dec. 2014), <https://www.cisecurity.org/wp-content/uploads/2017/03/Cryptography.pdf> [<https://perma.cc/MA9U-J3ME>].

<sup>87</sup> Evans, *supra* note 16, at 235–36.

<sup>88</sup> DE FILIPPI & WRIGHT, *supra* note 78, at 22 (describing a hash as a "unique fingerprint . . . of all transactions contained in that block, along with a timestamp and—importantly—a hash of the previous block").

<sup>89</sup> *Id.* at 23; *see also* Evans, *supra* note 16, at 235–36.

<sup>90</sup> DE FILIPPI & WRIGHT, *supra* note 78, at 23 (describing the characteristics of Blockchain's verification system that make the information stored within it publicly verifiable and resistant to intermediary interference).

<sup>91</sup> *Id.*; *see also* Evans, *supra* note 16, at 236 ("[Blockchains] are append-only because new information can be added but nothing can be deleted.").

<sup>92</sup> DE FILIPPI & WRIGHT, *supra* note 78, at 34 ("Because they do not come with any centralized authority or gatekeeper, anyone with an Internet connection can retrieve information stored on a blockchain simply by downloading freely available open source software.").

### 1. Introduction to Ethereum

Understanding the Ethereum Network is crucial to comprehending all of the available mechanisms by which copyright protections, payment terms, and authentication can be enhanced using blockchain technology because it offers distinctly different capabilities from the original Bitcoin Network.<sup>93</sup> The Ethereum Network was developed to provide an infrastructure for decentralized applications (“dApps”) and their smart contracts, programmable software discussed in further detail below.<sup>94</sup>

Overall, it is best to understand Ethereum as a suite of protocols. These protocols define the platform through which all decentralized applications execute their operations.<sup>95</sup> At the center of the platform’s functionalities is the Ethereum Virtual Machine (“EVM”), which can execute code like a general-purpose computer.<sup>96</sup> Developers can independently create their own applications to run on EVM.<sup>97</sup> As their applications are added to EVM, Ethereum’s P2P network maintains its ledger of payment transactions (made using ether, the network’s native currency) *and* executes its smart contract operations.<sup>98</sup> The result is a network in which each node is a “small virtual machine” that simultaneously updates the distributed Ethereum ledger while executing smart contracts like a personal computer.<sup>99</sup>

Table 2: A comparison between the Bitcoin and Ethereum blockchain networks.

|                     | <b>Bitcoin</b>                                     | <b>Ethereum</b>  |
|---------------------|--|--|
| <b>Founder(s)</b>   | Satoshi Nakamoto (pseudo anonymous) <sup>100</sup> | Vitalik Buterin, Gavin Wood, and Jeffrey Wilck <sup>101</sup>  |
| <b>Core Concept</b> | Digital payments <sup>102</sup>                    | Smart contracts <sup>103</sup>   |
| <b>Transaction</b>  | Send payment from Alice to Bob <sup>104</sup>      | Send payment from Alice to Bob if <ul style="list-style-type: none"> <li>- Date is January 1, 2021</li> <li>- Bob’s balance is less than 10 ether<sup>105</sup></li> </ul> |

<sup>93</sup> *Id.* at 27.

<sup>94</sup> *Id.*

<sup>95</sup> *What Is Ethereum?*, ETHEREUM HOMESTEAD, <https://ethdocs.org/en/latest/introduction/what-is-ethereum.html> [<https://perma.cc/Y9FD-8DYL>] (last visited Dec. 17, 2020) [hereinafter *Introduction to Ethereum*].

<sup>96</sup> *Id.*

<sup>97</sup> *Id.*

<sup>98</sup> *Id.*; see also Evans, *supra* note 16, at 239–42.

<sup>99</sup> *Id.*

<sup>100</sup> Nakamoto, *supra* note 81.

<sup>101</sup> See Vitalik Buterin, *A Next-Generation Smart Contract and Decentralized Application Platform*, GITHUB, <https://github.com/ethereum/wiki/wiki/White-Paper> (last visited Oct. 26, 2020).

<sup>102</sup> Nakamoto, *supra* note 81.

<sup>103</sup> Buterin, *supra* note 101.

<sup>104</sup> Nakamoto, *supra* note 81.

<sup>105</sup> *Introduction to Ethereum*, *supra* note 95.

## 2. Introduction to Smart Contracts

Even though Bitcoin and Ethereum are both powered by blockchain's principles of distributed ledgers and cryptography, they have many technical differences. Most notably, transactions on the Ethereum Network can contain executable code, which facilitates the creation of immutable, programmatic contracts using ether ("ETH").<sup>106</sup> These programmable or "smart contracts" were first conceived in the late 1990s by Nick Szabo, a computer scientist.<sup>107</sup> Szabo advocated relying on cryptographic protocols as a means of writing computer software that resembled a "contractual clause" which would bind parties together by minimizing opportunities for either one to terminate its performance obligations.<sup>108</sup>

It is important to note that a smart contract is neither "smart" nor a "contract" as it has no artificial intelligence qualities and cannot be construed as a legal document.<sup>109</sup> Smart contracts simply automate the execution of business logic, obligations, and agreements.<sup>110</sup> In other words, the smart contract's program takes on the role of a mediator or arbitrator by enforcing the execution parameters built into the code.<sup>111</sup> While smart contracts can certainly streamline the performance of an agreement, "technologically competent legal professionals" must still review and supervise these programs.<sup>112</sup>

Today, Ethereum tracks two types of accounts: externally owned accounts ("EOAs"), which are controlled by human beings, and contract accounts (smart contracts), which are run by self-executing code.<sup>113</sup> A contract account's code is triggered when a transaction is sent to that account, making the code's deployment dependent upon an external request.<sup>114</sup> Additionally, users can autonomously add new contract accounts to Ethereum by deploying code to the platform's blockchain.<sup>115</sup>

<sup>106</sup> Nathan Reiff, *Bitcoin vs. Ethereum: What's the Difference?*, INVESTOPEDIA (June 16, 2020), <https://www.investopedia.com/articles/investing/031416/bitcoin-vs-ethereum-driven-different-purposes.asp> [<https://perma.cc/KB7T-A7P3>].

<sup>107</sup> Nick Szabo, *Formalizing and Securing Relationships on Public Networks*, FIRST MONDAY (Sept. 1, 1997), <https://firstmonday.org/ojs/index.php/fm/article/view/548/469>.

<sup>108</sup> *Id.*; see also DE FILIPPI & WRIGHT, *supra* note 78, at 27.

<sup>109</sup> Jeanne L. Schroeder, *Sense, Sensibility and Smart Contracts: A View from a Contract Lawyer*, 49 UNIF. COM. CODE L.J. 251, 251 (2020) ("Contracts are relationships between legal actors that can never be completely to algorithms."); see also DE FILIPPI & WRIGHT, *supra* note 78, at 74 ("Where traditional legal agreements and smart contracts begin to differ is in the ability of smart contracts to enforce obligations by using autonomous code.").

<sup>110</sup> *6 Essential Blockchain Technology Concepts You Need to Know*, MARCO POLO NETWORK (formerly TRADEIX), <https://tradeix.com/essential-blockchain-technology-concepts> (last accessed Oct. 26, 2020) ("A smart-contract is a digital program that automates the execution of business logic, obligations, and agreements."); see generally Nicola Atzei, et al., *SoK: Unraveling Bitcoin Smart Contracts*, in PRINCIPLES OF SECURITY AND TRUST 217–42 (Lujó Bauer & Ralf Küsters eds., 2018).

<sup>111</sup> H.R.J. RESP. 596, 115<sup>th</sup> Cong. at 210 (2018), [https://www.jec.senate.gov/public/\\_cache/files/aaa\\_c3a69-e9fb-45b6-be9f-b1fd96dd738b/chapter-9-building-a-secure-future-one-blockchain-at-a-time.pdf](https://www.jec.senate.gov/public/_cache/files/aaa_c3a69-e9fb-45b6-be9f-b1fd96dd738b/chapter-9-building-a-secure-future-one-blockchain-at-a-time.pdf) [<https://perma.cc/M2SL-WLSF>] ("Usually the judicial system adjudicates contractual disputes and enforces terms, but it is also common to have another arbitration method, especially for international transactions. With smart contracts, a program enforces the contract built into the code.").

<sup>112</sup> See MODEL RULES OF PROFESSIONAL CONDUCT r. 5.3, cmt. 2, 3 (AM. BAR ASS'N 1980).

<sup>113</sup> *Introduction to Ethereum*, *supra* note 95.

<sup>114</sup> *Id.*

<sup>115</sup> *Id.*

### 3. Introduction to Fungible and Non-Fungible Assets

Ethereum's ability to support programmable, self-executing contract accounts allows it to facilitate the exchange of crypto assets with a variety of characteristics on its platform, including fungible and non-fungible assets.<sup>116</sup> Unlike a fungible asset, which is simply an item that can replace or be replaced by an identical item, non-fungible assets are unique items that cannot be replaced by something identical.<sup>117</sup> Examples of fungible assets include currency and cross-listed stocks.<sup>118</sup> Examples of non-fungible assets include original artworks or domain names.<sup>119</sup>

Both fungible and non-fungible digital assets have been widely adopted and in use for decades but were not able to be exchanged without the presence of a third-party intermediary until the Bitcoin Network brought blockchain technology to life in 2009.<sup>120</sup> Bitcoin's use of blockchain technology revolutionized digital transactions by empowering people to trade fungible tokens of currency—Bitcoin—with one another without a bank or a government regulating the transactions.<sup>121</sup> People who sought a similar level of freedom in transactions involving non-fungible digital assets began demanding a non-fungible token (“NFT”) as a way to liquidate their increasingly lucrative collections of unique digital assets.<sup>122</sup> Their demands were answered when the NFT debuted in 2017.<sup>123</sup>

### 4. Introduction to Non-Fungible Tokens (ERC-721)

The NFT was built on the Ethereum Network using the community's programming protocols (hence its technical title, ERC-721).<sup>124</sup> Each number attached to a particular ERC references a specific token standard.<sup>125</sup> These

<sup>116</sup> *Id.*

<sup>117</sup> Devin Finzer, *The Non-Fungible Token Bible: Everything You Need to Know About NFTs*, OPENSEA (Jan. 10, 2020), <https://OpenSea.io/blog/guides/non-fungible-tokens> [<https://perma.cc/H5XF-T277>].

<sup>118</sup> See Jake Frankenfield, *Fungibility*, INVESTOPEDIA (Jan. 23, 2021), <https://www.investopedia.com/terms/f/fungibility.asp> [<https://perma.cc/5NNE-WSXZ>].

<sup>119</sup> Finzer, *supra* note 117.

<sup>120</sup> Evans, *supra* note 16, at 249 (“In contrast to the lack of digital scarcity and rampant infringement ushered in by digital technology and P2P networks via the centralized web, blockchain's Internet of value actually makes ownership of digitally scarce assets possible.”).

<sup>121</sup> BANKING ON BITCOIN, *supra* note 82.

<sup>122</sup> See Akhilesh Ganti, *How Does Fortnite Make Money? Online Gaming and eSports Experience Strong Growth*, INVESTOPEDIA (Sept. 10, 2020), <https://www.investopedia.com/tech/how-does-fortnite-make-money> [<https://perma.cc/X9FZ-FRPD>]; *Online Event Ticketing Market Size Worth \$67.99 Billion by 2025*, GRAND VIEW RSCH. (May 2018), <https://www.grandviewresearch.com/press-release/global-online-event-ticketing-market>; Ron Jackson, *A Half-Dozen Newly Reported 6-Figure Domain Sales at GoDaddy Fill Top Spots on This Week's Chart*, DNJ. (Oct. 14, 2020), <https://www.dnjournal.com/archive/domain-sales/2020/20201021.htm>; see also Finzer, *supra* note 117.

<sup>123</sup> Evans, *supra* note 16, at 247.

<sup>124</sup> Before anyone in the Ethereum community can change or add a token standard to the network, developers must first submit a proposal known as an Ethereum Request for Comments (“ERC”) to seek input from the Ethereum community to further refine the proposal's technical specifications and, ultimately, incorporate the feedback into a formal Ethereum Improvement Proposal (“EIP”) for adoption into the software protocol. *Id.*; see also Vikalik Buterin, *Standardized Contract APIs*, GITHUB (June 23, 2015), [https://github.com/ethereum/wiki/wiki/Standardized\\_Contract\\_APIs/499c882f3ec123537fc2fced57eaa29e6032fe4a](https://github.com/ethereum/wiki/wiki/Standardized_Contract_APIs/499c882f3ec123537fc2fced57eaa29e6032fe4a) [<https://perma.cc/D6GG-QSVD>]; *EIP-20: ERC-20 Token Standard*, ETHEREUM IMPROVEMENT PROPOSALS, <https://eips.ethereum.org/EIPS/eip-20> [<https://perma.cc/U758-7MP8>] (last visited Oct. 27, 2020) [hereinafter EIP-20].

<sup>125</sup> EIP-20, *supra* note 124; see also Anujit Kuman Mukhopadhyay, *The Ultimate List of ERC Standards You Need to Know*, 101 BLOCKCHAINS (July 22, 2018), <https://101blockchains.com/erc-standards> [<https://perma.cc/A5UG-AU69>].

tokens are used to create and exchange unique digital assets, commonly referred to as cryptocollectibles.<sup>126</sup> Appropriately enough, NFTs were also referred to as “deeds” during the proposal process, demonstrating the developers’ shared intent to have the final token evidence a holder’s ownership of a given asset.<sup>127</sup> While additional NFT standards have emerged since ERC-721’s debut, in the subsequent sections I will focus on the ERC-721 standard exclusively in my discussion of NFTs’ use in blockchain-enhanced consignment contracts.<sup>128</sup>

#### B. A COMPARISON BETWEEN BLOCKCHAIN-ENHANCED CONTRACT MODELS AND TRADITIONAL CONTRACT MODELS USED IN ONLINE ART SALES

Blockchain technology’s incorporation into consignment contract models, whether manifested as a transaction record on a blockchain ledger or as a NFT, typically augments three key terms of these agreements: (i) representations and warranties (authentication), (ii) licensing (copyright enforcement), and (iii) payment (remuneration). Table 3 below compares each of these terms across traditional art consignment sales agreements and blockchain-enhanced art consignment sales agreements.

Table 3. Comparison of Authentication, Licensing, and Payment Terms in Traditional Art Consignment Sales Agreements and Blockchain-Enhanced Agreements

|  | <b>Traditional Art Consignment Sales Agreements</b>   | <b>Blockchain-Enhanced Agreements (without NFTs)</b>  | <b>Blockchain-Enhanced Agreements (with NFTs)</b>   |
|--|---|---|---|
| <b>Representations and Warranties (Authentication)</b> | For all sales, consignors must demonstrate they have good title and can transfer the work free from any security interests or liens. <sup>129</sup> | For all sales, consignors must demonstrate they have good title and can transfer the work free from all security interests or liens. <sup>130</sup> | Since NFTs can be possessed by only one Ethereum account at a time, both initial and secondary sale consignors prove their good title and the work’s authenticity by possessing it at the time of the agreement. <sup>131</sup> |

<sup>126</sup> Evans, *supra* note 16, at 247; see also Yos Riady, *Ethereum ERC Standards You Should Know About*, YOS RIADY (Apr. 14, 2019), <https://yos.io/2019/04/14/erc-standards-you-should-know-about> [https://perma.cc/FLB9-5ZQS].

<sup>127</sup> Evans, *supra* note 16, at 247.

<sup>128</sup> See Finzer, *supra* note 117 (noting that multiple non-fungible token standards have emerged since ERC-721’s emergence in 2017, including ERC-998 and ERC-1155, along with other standards unrelated to Ethereum like DGoods).

<sup>129</sup> *Id.*

<sup>130</sup> *Id.*

<sup>131</sup> Evans, *supra* note 16, at 253 (explaining that the token may not be transferred except “by transfer from one—and only one—Ethereum wallet to another.”).

Table 3 (continued)

|  | <b>Traditional Art Consignment Sales Agreements</b>  | <b>Blockchain-Enhanced Agreements (without NFTs)</b>   | <b>Blockchain-Enhanced Agreements (with NFTs)</b>   |
|--|--|--|---|
| <b>Representations and Warranties (Authentication) (continued)</b> | For secondary sales, consignees require the consignor to provide a “representation of authenticity” detailing the work’s provenance, transaction history, and appraisals. <sup>132</sup> | For primary sales, the artwork’s blockchain record can be used as proof of authenticity. For secondary sales, it can be used as the work’s “representation of authenticity.” <sup>133</sup>  |   |
| <b>Licensing (Copyright Enforcement)</b>                           | If infringement occurs after a sale, the rights-holding consignor must track down the infringing party and press charges. <sup>134</sup>   | Generally the same as the traditional model, but the blockchain’s record of ownership helps expedite the actual copying analysis by providing a list of owners that had access to the original work. It may also be used as evidence of ownership in rights disputes. <sup>135</sup> | Smart contract protocols must be triggered by the exclusive possessor of the NFT to grant access to any associated licensing rights connected to the work. <sup>136</sup> |

<sup>132</sup> *Id.*<sup>133</sup> Verisart Interview, *supra* note 50; *see also How It Works*, ARTORY, <https://www.artory.com/how-it-works> [<https://perma.cc/6MKH-PC5N>] (last accessed Dec. 14, 2021).<sup>134</sup> While consignees generally have fiduciary duties to their consignors, these duties can be limited by contract and are especially difficult to enforce when instances of copyright infringement occur that do not explicitly implicate the copyright at issue in an art sale. *See Sesser & Wallace, supra* note 52.<sup>135</sup> Verisart Interview, *supra* note 50; *see also How It Works, supra* note 133.<sup>136</sup> Evans, *supra* note 16, at 253.



Table 3 (continued)

|                               | <b>Traditional Art Consignment Sales Agreements</b>  | <b>Blockchain-Enhanced Agreements (without NFTs)</b>  | <b>Blockchain-Enhanced Agreements (with NFTs)</b>  |
|-------------------------------|--|---|--|
| <b>Payment (Remuneration)</b> | <p>Varies by platform.</p> <p>For elite auction houses, the consignee receives a buyer's premium ranging between 12.5% and 25% of the sale price.</p> <p>For online galleries, the consignee receives between 30% and 50% of the sale price as commission.<sup>137</sup></p> <p>For art marketplaces like Etsy, the consignee receives 5% of the sale price.<sup>138</sup></p> | <p>No change from the traditional model, as blockchain is not used to facilitate payment.<sup>139</sup></p> <p>Blockchain records are occasionally used to justify a work's price in secondary sales by providing a transparent history of previous price points.<sup>140</sup></p> | <p>Varies by platform.</p> <p>For galleries and auction houses, the consignee receives between 15% and 30% of the sale price as commission.<sup>141</sup></p> <p>For art marketplaces, the consignee receives a flat rate of 2.5% of the sale price as commission.<sup>142</sup></p> |

In both blockchain-enhanced models, the representation and warranty terms of the traditional consignment contract model are augmented by the technology's immutable record of authorship and provenance. For contracts that utilize blockchain solely to evidence the work's authorship, provenance, and, if applicable, restoration history, the record of sale provided by the technology's distributed ledger can be used by consignors to prove good title and transfer the asset free of any security interests. This is especially helpful for sales at extremely high price points, as the artwork, akin to security

<sup>137</sup> *Conditions of Sale for Christie's Inc.*, CHRISTIE'S (Jan. 2018), [https://www.christies.com/pdf/onlineonly/ECOMMERCE\\_CONDITIONS\\_OF\\_SALE\\_CINC\\_Jan\\_2018.pdf](https://www.christies.com/pdf/onlineonly/ECOMMERCE_CONDITIONS_OF_SALE_CINC_Jan_2018.pdf) [<https://perma.cc/SCS5-YMKU>] [hereinafter *Christie's Conditions of Sale*].

<sup>138</sup> *Id.*

<sup>139</sup> Verisart Interview, *supra* note 50; see also *How It Works*, *supra* note 133.

<sup>140</sup> Verisart Interview, *supra* note 50; see also *How It Works*, *supra* note 133.

<sup>141</sup> See *supra* Table 1.

<sup>142</sup> *Id.*

interests, represents a significant store of value for the buyer.<sup>143</sup> Any liens or undisclosed security interests can compromise the work's value significantly, leaving the buyer vulnerable to an unexpected decrease in the work's value at best and litigation from adversely affected parties at worst.<sup>144</sup>

Likewise, in both blockchain-enhanced models, the technology augments the traditional model's licensing terms for artists by providing additional tools they can use to ensure that their retained copyrights are enforced after primary and secondary sales of the work. For artists seeking to ensure that their retained copyrights, including the right to adapt or reproduce the artwork, are respected after the initial work's sale, blockchain's distributed ledger gives them an invaluable list of owners who have access to the work. This list, in turn, narrows the number of people who have access to the work, providing crucial evidence in any infringement claims that the artists may want to pursue.

The evidentiary value of blockchain's record of ownership for copyright enforcement claims is further strengthened when the artwork is stored and transferred on the Ethereum blockchain network as an NFT. A tokenized artwork, or cryptocollectible, inherently resists unauthorized use by requiring the owner's exclusive private cryptographic key to unlock access to the work. If a user wants to view the asset, reproduce it in their digital content, or display it online, they must first possess the corresponding private key to unlock its permissions. This extra layer of authorization further narrows the number of people who could potentially infringe the original artist's copyright by actually copying the work, as they would first need to access the work by possessing it in their Ethereum account.

Finally, the payment terms of the traditional consignment contract model are slightly modified by blockchain-enhanced agreements. For agreements that use only blockchain as a record, the payment terms and commission percentages are largely unchanged as sales do not use blockchain network's currency to consummate the transactions. However, the transaction history captured within an artwork's associated blockchain ledger can be used to justify the work's price point in secondary sales by providing a transparent history of its value over time that may not otherwise be accessible.<sup>145</sup> The payment terms for blockchain-enhanced agreements that utilize NFTs are more significantly impacted, as these agreements consummate payment using ether, the Ethereum blockchain network's native currency. By using ether to conduct these transactions online, these websites save on third-party payment processing costs and can use the savings to enhance artists' commission rate for primary sales.<sup>146</sup> Further, by using smart contract controls to automate the payment terms for primary and secondary sales, these agreements immortalize the original artists' commission rates that were set when they minted the token.<sup>147</sup> Thus, the artist is able to project how much

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<sup>143</sup> Evidence demonstrating authenticity in art sales may become even more valuable as collectors are increasingly viewing art as an investment vehicle and, thus, collecting pieces based upon their anticipated future resale value. See generally Alice Xiang, Comment, *Unlocking the Potential of Art Investment Vehicles*, 127 *YALE L.J.* 1698 (2017).

<sup>144</sup> See Sesser & Wallace, *supra* note 52, at A25–A26.

<sup>145</sup> See Coslor, *supra* note 69, at 1.

<sup>146</sup> See *supra* Table 4.

<sup>147</sup> See, e.g., Evans, *supra* note 16, at 256–57.

of a set commission they will earn from future sales of their tokenized work, agnostic of its increase in value, as they chose and programmed those commission rates into its smart contract controls.

### C. HOPES AND FEARS ASSOCIATED WITH INCORPORATING BLOCKCHAIN TECHNOLOGY INTO ART SALES AGREEMENTS

Yet, as blockchain-enhanced consignment contracts are a new innovation in the art market, no contractual paradigm has been established. There are various competing ideas about how blockchain technology is best positioned to enhance trust in the copyright interests on all sides of the transaction. From the buyer's perspective, blockchain is best used as a receipt, ensuring they are purchasing the appropriate rights out of the artist's bundle of copyright protections tied to the work: the right to possess the work, the right to display the work, and the right to resell the work.<sup>148</sup> From the artist's perspective, blockchain is best used as insurance, enforcing any future payment obligations and remaining rights the artist is entitled to over the course of the copyright's duration.<sup>149</sup> These remaining rights can vary considerably depending on the medium of the work, the artist's privately negotiated resale royalties, and the licensing market for the work's reproduction and derivative rights.<sup>150</sup> Each of these competing perspectives also brings along its respective hopes and fears surrounding blockchain's use as a copyright-enforcement tool in these contracts. These perspectives are discussed in further detail below.

#### 1. The Hopes

Market participants who are optimistic about integrating blockchain technologies into the art market hope that this technology will pave the way towards a more "balanced, transparent, and equitable market for all" by addressing concerns surrounding authentication and enforcement of copyright protections in online art sales.<sup>151</sup> Specifically, artists hope blockchain's distributed ledger technology will help them monitor their art's value, efficiently collect any associated payments from sales or royalty licensing, and help them provide emerging artists with a sales platform that enables them to make a sustainable living from their work.<sup>152</sup> As Matt Kane, an artist-turned-developer who has made six-figure sales from tokenized digital artworks, explained, "We're interested in the welfare of the many over the profit of the few. . . . [T]hat's sort of an ethic that we all find very easy to believe in."<sup>153</sup>

<sup>148</sup> DUNCAN MACDONALD-KORTH ET AL., *THE ART MARKET 2.0: BLOCKCHAIN AND FINANCIALISATION IN THE VISUAL ARTS* 16 (2018), <https://www.dacs.org.uk/DACSO/media/DACSDocs/Press%20releases/The-Art-Market-2-0-Blockchain-and-Financialisation-in-Visual-Arts-2018.pdf> [<https://perma.cc/42AR-74EH>]; see also Verisart Interview, *supra* note 50; Xiang, *supra* note 143.

<sup>149</sup> *Id.*; see also Verisart Interview, *supra* note 50.

<sup>150</sup> See Schechter, *supra* note 30.

<sup>151</sup> MACDONALD-KORTH ET AL., *supra* note 148, at 16.

<sup>152</sup> *Id.*

<sup>153</sup> Melanie Ehrenkranz, *How Blockchain Technology Reached Christie's and Changed the Art World Along the Way*, NBC NEWS (Oct. 27, 2020), <https://www.nbcnews.com/tech/tech-news/how-blockchain-technology-reached-christie-s-changed-art-world-along-n1244951> [<https://perma.cc/L99R-E9Y4>].

In fact, faced with the omnipresent threat of fraud, buyers may also find a great deal of comfort in tracking an artwork's authenticity via blockchain's distributed ledger technology. Like the physical identification tags (namely RFID tags) affixed to an artwork that allow it to be tracked through any transportation routes or transactions, registering a physical or digital artwork on a blockchain platform could provide a similar level of transparency and security for prospective buyers.<sup>154</sup> Blockchain offers an effective, tamper-resistant, and permanent way to tie an artwork's provenance and authenticity to its identity for the duration of the work's circulation in the market.<sup>155</sup> Unlike RFID tags, which can be physically removed and placed on counterfeit works, a digital fingerprint in the form of a cryptographic hash is immutable.<sup>156</sup> As such, the authentication information encapsulated in the hash's code remains tied to its respective artwork in perpetuity on blockchain—an alluring prospect for a market rife with counterfeit works.<sup>157</sup>

Additionally, blockchain's distributed ledger technology may also be an efficient way to ensure that artists' retained copyright protections—such as the right of reproduction and right to produce derivative works—are enforced after a work is sold. Thanks to smart contract-enhanced standards like ERC-721, the same immutable record that authenticates a given work with a cryptographic hash could also be used to control its access and exploitation.<sup>158</sup> By leveraging the automated, programmable copyright protections baked into the smart contract controls of NFTs, artists would be able to protect their work without becoming immersed in the time and expense of traditional copyright enforcement measures.<sup>159</sup> For instance, after an artist and a buyer reach a licensing agreement for the buyer to reproduce the artist's tokenized artwork, the artist can enforce the terms of their agreement by programming them into the artwork's code prior to transfer.<sup>160</sup> Once the tokenized artwork is transferred to the buyer, the code captured in the token executes a series of if-then commands that automate payments to the designated parties (usually the author, the platform, and the owner or transferor) for each subsequent use.<sup>161</sup> Thus, by representing an existing copyright as a tokenized asset, the artist enjoys more control and financial participation for the duration of their protections thanks to blockchain technology's increased market transparency.<sup>162</sup>

It is worth noting, however, that an increased level of transparency in art transactions is not embraced by the entire market. While artists have market incentives to know who owns their work and at what price it is trading, reclusive buyers and sellers in the art market may be incentivized to keep these numbers hidden to preserve the market's notorious discretion and opacity.<sup>163</sup> Consequently, consignment contracts enhanced with blockchain

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<sup>154</sup> See generally MACDONALD-KORTH ET AL., *supra* note 148, at 16–17.

<sup>155</sup> *Id.*

<sup>156</sup> *Id.*

<sup>157</sup> *Id.*

<sup>158</sup> Evans, *supra* note 16, at 264.

<sup>159</sup> *Id.*; see also JULIE E. COHEN ET AL., COPYRIGHT IN A GLOBAL INFORMATION ECONOMY 50 (4th ed. 2015).

<sup>160</sup> Evans, *supra* note 16, at 253–54.

<sup>161</sup> *Id.* at 245–46, 253–54.

<sup>162</sup> *Id.* at 264.

<sup>163</sup> See Coslor, *supra* note 69; MACDONALD-KORTH ET AL., *supra* note 148, at 14.

technology measures might best address these clashing concerns by implementing blockchain protocols within a private platform with restricted access permissions, allowing transparent data for market participants who desire it while protecting the privacy of those who wish to remain discreet.<sup>164</sup>

## 2. The Fears

Market participants who are pessimistic about integrating blockchain technologies into the art market ironically fear the very thing that spurred technologists to create blockchain in the first place<sup>165</sup>: an all-powerful intermediary who will extract “even more severe economic rents” from artists and buyers alike, leaving artists disenfranchised and buyers alienated.<sup>166</sup>

For many artists who view blockchain through this dystopian lens, the specific fear is that a large social media company will use distributed ledger technology to create a prominent blockchain platform that will be used to monitor, sell, and track physical and digital artworks.<sup>167</sup> While it may seem alarmist at first, this fear appears increasingly grounded in reality once all the factors necessary for a successful, global digital ledger are taken into consideration. A large, well-capitalized, and technologically adept company would be nicely positioned to create a digital ledger that is scalable enough to offset the transaction costs of selling artwork online at various price points.<sup>168</sup> Since social media companies detect the most instances of alleged copyright infringement for artists online,<sup>169</sup> this solution proposes to alleviate any lingering liabilities that are not covered by the Digital Millennium Copyright Act’s safe harbor provisions for internet service providers like large social media companies.<sup>170</sup>

Additionally, Alex Atallah, cofounder of OpenSea, a popular digital marketplace for NFTs, is quick to point out that artworks recorded on a blockchain ledger or traded as NFTs are far from immune to the threat of infringement:

The authenticity of a cryptocollectible is really only as good as its creator . . . [A]nyone can mint a non-fungible token on our site for free to turn an image into a unique, tokenized asset. Most of the time, the people creating these tokens are the original authors, but occasionally we see a few accounts stealing artwork from other sources, like Instagram, and passing it off as their own.<sup>171</sup>

He leads the company’s efforts to prevent infringement on OpenSea’s art marketplace by regularly monitoring instances of infringement and proactively disabling accounts that peddle counterfeit tokens. Although

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<sup>164</sup> *Id.*

<sup>165</sup> *See id.* at 16.

<sup>166</sup> MACDONALD-KORTH ET AL., *supra* note 148, at 17–18; *see also* Nakamoto, *supra* note 81; BANKING ON BITCOIN, *supra* note 82.

<sup>167</sup> *Id.*

<sup>168</sup> *Id.*

<sup>169</sup> *Id.*

<sup>170</sup> 17 U.S.C. § 512 (2010).

<sup>171</sup> Interview with Alex Atallah, Cofounder, OpenSea (Sept. 4, 2020) [hereinafter OpenSea Interview] (on file with author).

Atallah still believes NFTs have a lot of potential to prevent unauthorized use of creative assets online, he is realistic about the benefits it can bring to the market. “Tokenizing an artwork deters a lot of forgers because it is significantly more difficult than copy and pasting an image into your browser,” he admits, “[b]ut it’s not a perfect solution.”<sup>172</sup>

Further, a utopian embrace of blockchain technology in art sales is frustrated by a lack of consensus among market participants on what outcome would be in their collective best interest. Unlike a large social media company whose corporate goals are focused on expanding its revenue,<sup>173</sup> the art industry’s social and ideological goals hinder its players from uniting under a similar, capitalistic interest.<sup>174</sup> Thus, a variety of concerns across the art industry must be addressed by an agreed-upon representative entity before the market can come together to collectively embrace, or reject, a major technological shift like blockchain.<sup>175</sup>

#### IV. CASE STUDIES OF HOW THREE ART SALES WEBSITES HAVE UTILIZED BLOCKCHAIN-ENHANCED CONTRACT MODELS

Case studies of three digital art sales platforms—an auction house, a gallery, and a marketplace—will illustrate the ways in which blockchain technology has been embedded into their sales agreements as a tool to facilitate timely authentication, copyright enforcement, and efficient payments.<sup>176</sup>

##### A. THE AUCTION HOUSE: CHRISTIE’S

In 2018, Christie’s was the first mainstream auction house to incorporate blockchain technology into both physical and digital art sales when they registered *An American Place: The Barney A. Ebsworth Collection* on Artory’s blockchain platform.<sup>177</sup> The auction, which took place in person and online, registered \$317.8 million in art sales on Artory’s private Ethereum

<sup>172</sup> *Id.*

<sup>173</sup> *Id.*; see also Maëlle Gavet, *What’s Next for Silicon Valley?*, HARV. BUS. REV. (Sept. 30, 2020), <https://hbr.org/2020/09/whats-next-for-silicon-valley> [<https://perma.cc/5TRV-6MTA>] (“As the tech giants have reached market caps equivalent to midsize national economies, expectations and moral obligations have grown, too. Facebook has a market cap of more than \$700 billion, up from \$240 billion just five years ago, while Apple, Amazon, Microsoft and Alphabet are now trillion dollar-plus companies.”).

<sup>174</sup> MACDONALD-KORTH ET AL., *supra* note 148.

<sup>175</sup> *Id.*

<sup>176</sup> While other instances of blockchain’s adoption in the art industry (like fractionalized NFT ownership opportunities) have materialized in the international art market, this paper will focus exclusively on instances of blockchain adoption in consignment contracts governed by U.S. law and will not discuss fractional ownership opportunities. For more on fractionalized NFTs, see Karen J. Garnett, Jeffrey Neuburger & Frank Zarb, *NFTs Are Interesting but Fractionalized Non-Fungible Tokens (F-NFTs) May Present Even More Challenging Legal Issues*, BLOCKCHAIN & THE L. (Apr. 22, 2021), <https://blockchainandthelaw.com/2021/04/nfts-are-interesting-but-fractionalized-non-fungible-tokens-f-nfts-may-present-even-more-challenging-legal-issues/>.

<sup>177</sup> See Artory Collaborates with Christie’s on an Industry First: Registration of Major Art Collection Sale with Secure Blockchain Technology, BUS. WIRE (Oct. 11, 2018, 11:21 AM), <https://www.businesswire.com/news/home/20181011005616/en> [<https://perma.cc/8NS9-NWLS>].

blockchain.<sup>178</sup> Artory's blockchain, known as the Registry, was used to record the provenance and history of the artworks by providing immutable details of the artwork's sales, final prices, auction dates, item titles, restorations, and thefts.<sup>179</sup> The owners' personal data is the only information not openly listed on the Registry.<sup>180</sup> They are linked to their works via anonymous accounts, thus preserving the transaction history of the artworks while honoring the buyers' privacy.

This use of a private, permissioned blockchain as an authentication tool to bolster the confidence of anxious buyers in their eight-figure purchases reflects the compromise envisioned by blockchain's optimists above. In this world, consignment contracts are merely enhanced by complimentary blockchain technology measures that immutably record pertinent details about an artwork's provenance, sale price, and authentication, yet respect some of the opacity and mystery of the art market by leaving the buyer anonymous. Payment is still exchanged via traditional methods, and even though artists and their estates have access to the blockchain records for each work, it is unclear if they use them to enforce their retained copyright protections.<sup>181</sup>

Clearly, this model works for Christie's. After a successful pilot for *An American Place*, the auction house has continued to partner with Artory to register works on its permissioned blockchain platform.<sup>182</sup>

#### B. THE GALLERY: DADA.NYC

Meanwhile, digital platforms like DADA.nyc have been taking blockchain integration one step further by leveraging the programmable nature of NFTs (technically referred to as ERC-721) to operationalize licensing, monetization, and copyright enforcement of artworks sold within their gallery.<sup>183</sup> DADA.nyc does this by selling tokenized, limited edition art.<sup>184</sup> Since each digital artwork is "represented in the form of, and transferred by means of, non-fungible tokens," artists have the ability to track both the amount they are paid for each work and the timing of their payment.<sup>185</sup> These processes are "fixed, reliable and self-executing," thanks to ERC-721's functionality and use of smart contract technology.<sup>186</sup>

The artwork's tokenized representation also acts as a form of counterfeit insurance for the buyer and the artist, forming a crucial set of protections for

<sup>178</sup> *Id.*; see also *Christie's Conditions of Sale*, *supra* note 137.

<sup>179</sup> *Christie's Conditions of Sale*, *supra* note 137.

<sup>180</sup> *Id.*; see also ARTORY, *supra* note 133.

<sup>181</sup> *Christie's: Registration Partner*, ARTORY, <https://www.artory.com/partners/christies> [<https://perma.cc/EL67-WGYJ>] (last visited Dec. 14, 2021).

<sup>182</sup> *Id.* Christie's has since expanded into auctioning off non-fungible tokens, with its most recent sale of Beeple's *EVERYDAYS: THE FIRST 5000 DAYS* fetching over \$69.3 million in March 2021. Scott Reyburn, *JPG File Sells for \$69 Million as 'NFT Mania' Gathers Pace*, N.Y. TIMES (Mar. 11, 2021, 10:40 AM), <https://www.nytimes.com/2021/03/11/arts/design/nft-auction-christies-beeple.html> [<https://perma.cc/233G-M6QV>].

<sup>183</sup> Evans, *supra* note 16, at 264–65.

<sup>184</sup> DADA.NYC, <https://dada.nyc/home> [<https://perma.cc/3EH3-6N5K>] (last visited Dec. 14, 2021).

<sup>185</sup> Evans, *supra* note 16, at 264–65.

<sup>186</sup> *Id.*

digital art. The buyer is protected against counterfeited works by the restrictions programmed into the tokenized artwork's transfer protocols.<sup>187</sup> As NFTs are designed to represent scarce, unique works, the code governing their use only allows each user to transfer the work from one Ethereum wallet to another, thus restricting access for any unwanted reproductions.<sup>188</sup> This means that a buyer can confirm the work is authentic instantly upon receipt, as their asymmetric key is the only one capable of unlocking the unique artwork. Similarly, artists can use this tokenized standard to protect against unwanted infringement by programming the token's smart contract controls to limit the artwork's terms of transfer and duplication.

Further, the increased efficiency provided by a tokenized work's automated controls on transfer, payment, and copyright enforcement can pay off for the artist in the long term. The primary market split for works sold on DADA.nyc pays 70% of the revenue to the artist and 30% to the platform upon first sale.<sup>189</sup> This is on the higher end of average commissions paid out to artists upon first sale in non-tokenized digital gallery settings.<sup>190</sup> These commission terms are even kinder to artists whose works are resold on the platform. Instead of the 5% resale royalty proposed by the American Royalties Too Act, DADA.nyc offers artists 30% of the net revenue from a secondary sale of their artwork. The platform collects 10% for facilitating the sale, and the artwork's owner or transferor pockets the remaining 60%.<sup>191</sup> In both instances, a portion of the amount paid to the gallery is used to fund community art projects, thus paying it forward to other emerging artists on the platform.<sup>192</sup>

By automating royalty payments in these gallery consignment agreements, all parties benefit from the increased profit margins that come with reduced transaction costs in initial sales and resales of tokenized artwork. Further, much of the concern surrounding authenticity and ownership for digital artworks is alleviated by the copyright enforcement measures built into the NFT's smart contract controls.<sup>193</sup> This increased sense of security allows buyers to invest in digital artworks with confidence, intermediaries to dedicate resources into displaying those artworks, and artists to trust that they will be compensated fairly for value of their work, both at first sale and as they accumulate value over time.<sup>194</sup>

It is worth noting that DADA.nyc's ultimate vision is fixated on social, rather than economic, incentives.<sup>195</sup> The platform aims to foster sustainable

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<sup>187</sup> *Id.*

<sup>188</sup> *Id.*

<sup>189</sup> *Id.* at 265 (“The primary market split pays 70% to the artist and 30% to the platform. Because the transfer is via an NFT, artists and DADA continue to automatically receive payments on each transfer: 30% to the author, 10% to the platform, and 60% to the owner/transferor.”).

<sup>190</sup> See *supra* Table 3.

<sup>191</sup> Evans, *supra* note 16, at 265; see also American Royalties Too Act, *supra* note 38.

<sup>192</sup> Evans, *supra* note 16, at 265; see also DADA.nyc, [ArtProject2020] *The Invisible Economy, Vancouver Biennale*, YOUTUBE (Nov. 13, 2020), [https://www.youtube.com/watch?v=mH\\_ocCpI29A&feature=youtu.be](https://www.youtube.com/watch?v=mH_ocCpI29A&feature=youtu.be) [<https://perma.cc/674Z-57TQ>] [hereinafter DADA.nyc Invisible Economy]; *Experience the Magic of Visual Conversations*, DADA.NYC, [https://dada.nyc/visual\\_conversations](https://dada.nyc/visual_conversations) [<https://perma.cc/T9MQ-2W2Q>] (last visited Dec. 14, 2021).

<sup>193</sup> DADA.nyc Invisible Economy, *supra* note 192.

<sup>194</sup> *Id.*

<sup>195</sup> See Beatriz Helena Ramos, *Don't Stay in Your Lane: The Opportunity of the Crypto Art Remix*, DADA.ART (Sept. 8, 2020), <https://powerdada.medium.com/dont-stay-in-your-lane-c6d8d8d622df> [<https://perma.cc/8LHA-3XMX>] (explaining the co-founder's vision of the collaborative art platform



collaboration by rewarding artists who work together spontaneously to produce visual conversations—artworks that blend the efforts of multiple artists together in a final piece.<sup>196</sup> DADA.nyc views NFTs as a key aspect of this goal because the tokenized standard ensures that an artist can earn a living from their work without letting their sales define the value they bring to the community.<sup>197</sup> By automating attribution to the creator each time a single right from their “bundle of copyrights” is invoked, NFTs free the artist to focus more on creative collaborations and less on copyright enforcement. As co-founder Beatriz Helena Ramos explains, “the revolutionary innovation of NFTs as art does not rely on scarcity . . . innovation lies in the fact that attribution and ownership are linked to the artwork[.]”<sup>198</sup> The resulting effect, according to DADA.nyc, is that artists become less territorial over their work and more open to collaboration because they are confident they will receive credit—and payment—for their contribution.<sup>199</sup> Interestingly enough, these ideological aspirations reflect the very factors blockchain pessimists feared would inhibit the art industry from coming together as a whole to embrace, and operationalize, the new technology.<sup>200</sup>

### C. THE ART MARKETPLACE: OPENSEA

The third example, OpenSea, provides a more mainstream perspective on how blockchain-enhanced sales agreements have been incorporated into tokenized digital art sales. With an industry presence that has been described as “the Etsy of crypto,” OpenSea is the world’s largest marketplace of non-fungible, digital assets.<sup>201</sup> The platform currently features more than 300 categories of NFTs and over 10 million items that are sold by transferring the unique digital asset from one Ethereum wallet to another.<sup>202</sup> Of these assets, 746,265 are unique digital artworks with average prices ranging from \$0.05 to \$142,000.<sup>203</sup> As of December 2020, the platform had over 8,770 accounts and a market volume of over \$20 million of tokenized artworks.<sup>204</sup>

Like DADA.nyc, all artworks on OpenSea are digital and tokenized on the Ethereum platform. Unlike DADA.nyc, however, OpenSea’s goals are decidedly fixed on providing their 100,000 weekly users with economic

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becoming a community that prizes collaboration and social welfare over economic gain); *see also* DADA.nyc Invisible Economy, *supra* note 192.

<sup>196</sup> *Id.*

<sup>197</sup> *Id.*

<sup>198</sup> *Id.*

<sup>199</sup> *Id.*

<sup>200</sup> MACDONALD-KORTH ET AL., *supra* note 148.

<sup>201</sup> *The CoinDesk 50*, COINDESK (May 19, 2020), <https://www.coindesk.com/the-coindesk-50> [<https://perma.cc/X4SU-S7XA>] (“OpenSea has developed into the Etsy of crypto.”).

<sup>202</sup> *About OpenSea*, OPENSEA, <https://opensea.io/about> [<https://perma.cc/4RC5-ERLG>] (last visited on Dec. 14, 2021); *see also* Mason Nystrom, *OpenSea Surpasses 20,000 Users, Unofficially Claims the Title: “The Uniswap of NFTs,”* MESSARI (July 28, 2020), <https://messari.io/article/opensea-surpasses-20-000-users-unofficially-claims-the-title-the-uniswap-of-nfts> [<https://perma.cc/2XKT-89TV>].

<sup>203</sup> Prices have been converted from 0.0001 ETH and 302 ETH, respectively, using Ethereum’s market value as of November 22, 2020. *See Art Listings*, OPENSEA <https://opensea.io/assets?search=%7B%22categories%22%3A%5B%22art%22%5D%7D> [<https://perma.cc/D5ZJ-2GGF>] (last visited Dec. 14, 2021).

<sup>204</sup> OpenSea Interview, *supra* note 171.

incentives to buy and sell collectibles in their marketplace.<sup>205</sup> Since January 2018, the platform has passed over 70,000 ETH—roughly \$33 million—through its smart contracts, most recently averaging over \$1 million in monthly trading volume.<sup>206</sup>

While art sales are not the largest category on the platform, they increased substantially in 2020 and currently make up the platform’s fastest growing category.<sup>207</sup> Artists earn 97.5% commission on first sales of their work, with the platform absorbing 2.5% of the transaction price as an intermediary.<sup>208</sup> Since all sales are conducted using ether, Ethereum’s native form of payment, there are no additional transaction costs.<sup>209</sup> The platform retains the same commission for resales of original work, while the artist is at liberty to set their own resale fee by coding it directly into the NFT’s smart contract controls.<sup>210</sup> The secondary owner of the work pockets the remaining payment from the sale.<sup>211</sup>

OpenSea’s marketplace model is compelling because it offers a window into how NFT transactions could be adapted for mainstream use by independent creators. Like its fiat foil, Etsy, OpenSea deliberately keeps its platform tools free and easily accessible to all users, with complimentary guides that demonstrate how to customize their marketplaces, set their primary and secondary fees, run sales, and access site data to track asset performance.<sup>212</sup> OpenSea’s Storefront Manager even bridges the blockchain divide for new users by walking them through a seven-step process explaining how to open a storefront and mint their first non-fungible token.<sup>213</sup>

Pascal Boyart, a popular Parisian street artist who goes by “P Boy,” recently raved about the website’s ease of use for artists.<sup>214</sup> Boyart is known for incorporating Bitcoin QR codes into murals referencing famous artists, like Vincent Van Gogh, who struggled to earn a living from their work while alive yet sold paintings for millions posthumously.<sup>215</sup> The QR codes are linked to a donation account that allows audience members to tip Boyart in

<sup>205</sup> Stephen Stirling, *OpenSea Active Users Surging Again as More Flock to NFTs*, STREET (Sept. 30, 2021), <https://www.thestreet.com/crypto/news/opensea-users-surging-again-as-more-flock-to-nfts> [<https://perma.cc/5G8N-XUXN>].

<sup>206</sup> Nystrom, *supra* note 202.

<sup>207</sup> OpenSea Interview, *supra* note 171.

<sup>208</sup> *Frequently Asked Questions*, OPENSEA, <https://opensea.io/faq> [<https://perma.cc/AFW5-JT5F>] (last visited Dec. 14, 2021) [hereinafter *OpenSea FAQ*].

<sup>209</sup> In contrast, art marketplaces that use fiat money for their transactions typically reserve 3 to 5 percent of the artwork’s sale price to cover payment processing fees. *See supra* Table 1.

<sup>210</sup> *OpenSea FAQ*, *supra* note 208.

<sup>211</sup> *Id.*

<sup>212</sup> *Id.*

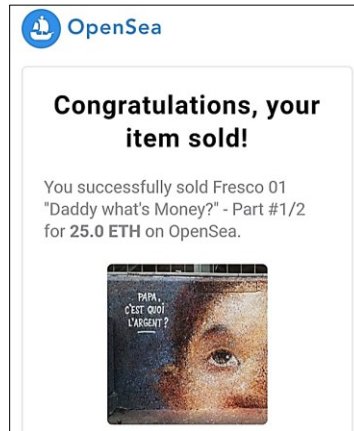
<sup>213</sup> Alex Atallah, *The First Way to Make & Sell Non-Fungible Tokens for Free, Without Paying Gas*, OPENSEA (Dec. 29, 2020), <https://opensea.io/blog/announcements/introducing-the-collection-manager/> [<https://perma.cc/2JPD-8M8T>].

<sup>214</sup> Pascal Boyart (@pascalboyart), TWITTER (Aug. 26, 2019, 12:32 PM), [https://twitter.com/pascalboyart/status/1166070963173306368?ref\\_src=twsrc%5Etfw%7Ctwcamp%5Etfw%7Ctwtterm%5E1166070963173306368%7Ctwgr%5E&ref\\_url=https%3A%2F%2Fopensea.io%2Fblog%2Fdevelopers%2Fhow-to-create-your-own-marketplace-on-OpenSea-in-three-minutes-or-less%2F](https://twitter.com/pascalboyart/status/1166070963173306368?ref_src=twsrc%5Etfw%7Ctwcamp%5Etfw%7Ctwtterm%5E1166070963173306368%7Ctwgr%5E&ref_url=https%3A%2F%2Fopensea.io%2Fblog%2Fdevelopers%2Fhow-to-create-your-own-marketplace-on-OpenSea-in-three-minutes-or-less%2F) [<https://perma.cc/F4T3-S8NZ>] (“World 1st #StreetArt Digital Collectible just sold 25 ETH to @alistairmilne on @opensea! A crazy day for all street artist[s] and ephemeral art, you can monetize your work without art dealers and galleries [sic]!”).

<sup>215</sup> Sarah Cascone, *A French Street Artist Made \$1,000 After Adding a Bitcoin QR Code to His Murals*, ARTNET (May 14, 2018), <https://news.artnet.com/art-world/french-street-artist-bitcoin-1283234> [<https://perma.cc/MF6N-F6KK>].

Bitcoin for his work by scanning the code with their phone.<sup>216</sup> The codes are displayed in conjunction with the mural and, thus, are inherently ephemeral, as most murals are eventually painted over after their installation.<sup>217</sup>

Figure 1: Pascal Boyart's tokenized representation of his mural, *Papa c'es quoi l'argent?*<sup>218</sup>



In 2019, Boyart tokenized an image of the first mural he painted featuring a Bitcoin code, a Parisian work entitled *Papa c'es quoi l'argent?*, into two NFTs using OpenSea's marketplace and minting platform.<sup>219</sup> Boyart sold both tokenized assets for 25 ETH apiece (roughly \$5,000 at the time of sale) in OpenSea's marketplace.<sup>220</sup> According to Boyart, the sale marked the first time a street artist had been able to memorialize, and monetize, their work as a digital cryptocollectible stored on a blockchain.<sup>221</sup> Due to OpenSea's low transaction fees, Boyart was able to pocket 97.5% of the net revenue from the sale.<sup>222</sup> He currently sells tokenized versions of his murals on OpenSea for prices ranging from 8 ETH (\$30,217 at time of sale) to 50 ETH (\$249,654 at time of sale).<sup>223</sup>

<sup>216</sup> *Id.*

<sup>217</sup> *Id.*; see also Lauren Hard, *5 Years Ago, Their 5Pointz Art Was Erased. Now There's a Museum for It*, N.Y. TIMES (Sept. 16, 2018), <https://www.nytimes.com/2018/09/16/nyregion/5pointz-street-art-graffiti-museum-nyc.html> [<https://perma.cc/564B-5UP4>] (discussing the impact the sudden destruction of street art mecca 5Pointz had on the art community); *Castillo v. G&M Realty L.P.*, 950 F.3d 155, 165 (2d Cir. 2020) (outlining why the Second Circuit Court of Appeals believed the street art at 5Pointz qualified for VARA protections, despite being the work in question being a collection of temporary installations).

<sup>218</sup> Atallah, *supra* note 213 (reproduced with the website's permission).

<sup>219</sup> Rick Delafont, *Crypto Artist Continues to Innovate with Tokenised Street Art Sale*, NEWSBTC (Nov. 2019), <https://www.newsbtc.com/news/bitcoin/crypto-artist-continues-to-innovate-with-tokenised-street-art-sale> [<https://perma.cc/X8M6-2K7B>]; see also Boyart, *supra* note 214.

<sup>220</sup> Delafont, *supra* note 219.

<sup>221</sup> *Id.* Such memorial opportunities are increasingly valuable for street artists working in the United States, as street art has a checkered history of copyright protections. Even though murals at 5Pointz recently qualified for copyright protections and VARA recognition rights, many other works have failed to receive the same protections and have been subsequently erased against the artists' wishes. See *Castillo*, 950 F.3d at 168.

<sup>222</sup> *OpenSea FAQ*, *supra* note 208.

<sup>223</sup> *Pascal Boyart Marketplace*, OPENSEA <https://opensea.io/collection/pascal-boyart> [<https://perma.cc/ZFK7-HW2G>] (last visited Dec. 14, 2021).

## D. A COMPARISON OF CONTRACT TERMS ACROSS CASE STUDIES

While the art market's holistic approach to blockchain is still uncertain at best, three key takeaways emerge from a side-by-side comparison of websites utilizing blockchain-based copyright authentication and enforcement mechanisms in art sales at all price points.

First, blockchain's distributed ledger technology has the potential to alleviate artists' concerns in enforcing their copyright protections online by providing an immutable digital record of authorship, transaction history, and—in the case of contracts utilizing NFTs—automated licensing terms. Blockchain-enhanced consignment agreements also provide artists with a more efficient way to collect remuneration for works sold online at all price points, thanks in part to blockchain's fractional payment features. Finally, blockchain-enhanced agreements have the potential to alleviate crucial authentication concerns by providing an immutable record of an artwork's authorship and provenance. Whether the record is documented on a blockchain ledger as part of an immutable transaction or captured within the artwork's smart contract controls as an NFT, the technology's distributed ledger can provide a transparent, verified record of ownership that other authentication services cannot in online sales.

Table 4. Comparison of Reported Authentication, Licensing, and Payment Terms for Artists in Sales Agreements of Case Studies

|  | <b>Christie's</b>                                       | <b>DADA.nyc</b>   | <b>OpenSea</b>  |
|--|---|---|---|
| <b>Authentic-<br/>ation<br/>(Warr-<br/>anty)</b> | Generally the same as traditional model. <sup>224</sup> | Consignee proves good title and right of transfer by possessing the NFT.  | Consignee proves good title and right of transfer by possessing the NFT.  |
| <b>Licensing</b>                                 | Unreported.   | The NFT's owner must grant access via smart contract protocols to any non-owners seeking to license the work's associated copyrights. | The NFT's owner must grant access via smart contract protocols to any non-owners seeking to license the work's associated copyrights. |

<sup>224</sup> *Christie's Conditions of Sale*, *supra* note 137.

Table 4 (continued)

|                | <b>Christie's</b>  | <b>DADA.nyc</b>   | <b>OpenSea</b>   |
|----------------|--|---|--|
| <b>Payment</b> | <p>Primary sale: Unclear. The buyer pays the auction house a premium between 12.5% and 25% of the work's sale price, based on price point, but the artist's portion of the sale is not specified.<sup>225</sup></p> <p>Secondary sales: Varies by private contract terms. All legal resale rights for original artists are enforced.<sup>226</sup></p> | <p>Primary sale: Artist receives flat rate of 70% of the sale price, agnostic of price point.<sup>227</sup></p> <p>Secondary sales: Artist receives flat rate of 30% of the sale price.<sup>228</sup></p> | <p>Primary sale: Artist receives 97.5% of the sales price, agnostic of price point.<sup>229</sup></p> <p>Secondary sales: Varies by privately programmed smart contract protocols.<sup>230</sup></p> |

To start, blockchain-enhanced consignment contracts offer artists seeking to sell their work online advantages in online sales that other forms of copyright enforcement cannot. Specifically, the technology's immutable, distributed ledger increases transparency for artists seeking to identify owners of their work. This increased transparency, in turn, allows artists to better identify potential infringers by narrowing the scope of access to the work and, in the process, substantiating evidence of actual copying. If the artist, upon noticing an unauthorized reproduction of their work for sale online, is able to accurately ascertain who would have access to the work at the time of infringement, they are much better positioned to both identify who is violating their retained copyrights and prevent them from flooding the market with counterfeit works. If the infringement occurs by someone other than the artwork's authorized owner, the artist can use the artwork's blockchain transaction history as evidence that the alleged counterfeiter does not have the right to reproduce the work. Likewise, if the artwork increases in value after its initial sale, the artist can utilize its blockchain transaction history to ensure her retained copyrights—such as the right to create derivative works and the right to produce reproductions of the original work—are honored by subsequent buyers. Simply knowing which blockchain account possesses the work, along with the terms of these

<sup>225</sup> *Id.* (“We calculate the buyer’s premium as follows: On all lots except wine, we charge 25% of the hammer price up to and including: USC \$250,000; 20% on that part of the hammer price over \$250,000 and up to and including USD \$4,000,000; and 12.5% of that part of the hammer price above USD \$4,000,000.”).

<sup>226</sup> *Id.* (For European jurisdictions where resale rights are enforced, artists receive their privately contracted amount, plus 4% of the work’s sale price up to €50,000, 3% for works sold over €50,000 and up to €200,000, 1% for works sold over €200,000 and up to €350,000 and 0.5% for works sold over €350,000 up to €500,000, and the lower of 0.25% or €12,500 Euros for works sold over €500,000).

<sup>227</sup> Evans, *supra* note 16, at 265.

<sup>228</sup> *Id.*

<sup>229</sup> *OpenSea FAQ*, *supra* note 208.

<sup>230</sup> *Id.*

subsequent sales, will give the artist the tools to identify at what point in the artwork's transaction history their retained copyrights were infringed.

These protections are further enhanced when the artwork is stored and transferred on the Ethereum blockchain network as an NFT. A tokenized artwork, or cryptocollectible, inherently resists counterfeiting and infringing use by requiring the owner's exclusive key to unlock access to the work. Just as storing a unique sculpture or painting in a private vault restricts access to an artwork, so too does tokenizing a unique creative asset restricts access by locking the digital asset's permissions with asymmetric cryptography. If a user wants to view the asset, reproduce it in their digital content, or display it online, they must possess the corresponding private key to unlock its permissions. Thus, the inherent scarcity of NFTs, coupled with their smart contract-governed terms of transfer, imbues cryptocollectibles with automatic copyright protections that preserve both the creator's and the owner's interest throughout the asset's digital circulation.

Second, blockchain-enhanced consignment contracts have the unique potential to positively impact art sales across price points for artists by providing an efficient, effective way to enforce payment terms throughout the artwork's circulation. Blockchain's fractional payment features allow remuneration at all price points—starting as low as \$0.0002—to be efficiently sent to the parties in a given transaction every time the work is sold.<sup>231</sup> Further, for works that are sold as NFTs on the Ethereum platform, the terms of payment for both initial sales and secondary sales of the work can be programmed into the smart contract's controls when the token is minted. This means the artist can immortalize the payment terms for all subsequent sales of their artwork from the work's inception, effectively eliminating any guesswork about their future commission payments. Since these payment terms are governed by the same protocols that facilitate the transfer of the digital artwork from one Ethereum wallet to another, they are guaranteed this preset commission for future sales, agnostic of the work's fluctuating value or price point.<sup>232</sup>

Lastly, blockchain-enhanced sales agreements appear to significantly alleviate concerns about a given artwork's authenticity for all parties to the transaction. Buyers purchasing artworks with a blockchain record benefit by having incontrovertible evidence of the work's authenticity. For sales at all price points, this proof is essential because it determines the artwork's value. Moreover, for sales at extremely high price points, this proof is paramount because the artwork, like a security interest, represents a significant store of value. Further, in tokenized artwork sales, buyers may also benefit financially from blockchain's increased efficiency by saving money on transactional costs. An intermediary website selling an artwork with a blockchain record benefits from having immutable confirmation that it has good title to the rights it is representing for sale. This record, evidencing a given work's authenticity, provenance, and restoration history, also ensures that the intermediary's product is authentic and free from any liens or

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<sup>231</sup> The smallest payment possible in bitcoin is one Satoshi, which is worth 0.00000001 BTC. The current value of this amount in dollars is approximately \$0.0002. See *Bitcoin Satoshi => USC*, BTC SATOSHI, <https://www.btc Satoshi.com> [<https://perma.cc/88AM-M6CM>] (last visited Dec. 14, 2021).

<sup>232</sup> This feature is especially valuable for artists selling works online through websites, like Christie's virtual auction house, that structure their primary sales commissions based on price. See *supra* Table 4.

security interests. Finally, artists connected to artworks with blockchain records, whether the record is separate from the work as an entry on a distributed ledger or embedded within it through an NFT, have increased security in their authorship interests, as these interests are immortalized in the work's decentralized, immutable record of ownership. This evidence may be extremely helpful in resolving disputes over a given work's authenticity when an artist's signature is not enough to confirm the work's value, and a third-party authentication service, like an expert or an authentication committee, will not render an opinion for fear of litigation.

## V. CONCLUSION

Overall, blockchain technology is far from a cure-all for the online art market's copyright concerns. Nevertheless, the technology has already demonstrated the potential to alleviate some of the most pernicious aspects of selling art online for visual artists by augmenting the enforcement, payment, and authentication terms of their online art consignment sales agreements. Unlike traditional agreements, blockchain-enhanced models provide artists with an enhanced record of ownership. This record can be used to enforce the artists' retained copyright protections by narrowing the number of people who have access to the work, thus substantiating evidence of actual copying in infringement claims. Blockchain-enhanced art sales agreements may also be able to increase the commission commanded by artists for primary and secondary sales by eliminating third-party payment processing, thus enforcing efficient, effective payment terms. It may also help artists price their work accurately by providing transparent pricing data for an artwork over the course of its transaction history. Finally, and perhaps most importantly, blockchain-enhanced agreements utilizing the technology's distributed ledger characteristics hold the unique potential to shore up authentication concerns by providing an immutable record of an artwork's authorship and provenance.

All of these additional benefits afforded by blockchain-enhanced consignment agreements offer some hope for artists struggling to combat infringement in online art sales. With a few tech-savvy tweaks to traditional consignment agreements used in online art sales, many of the concerns posed by an online environment's increased risk of infringement and forgery in art sales may be significantly alleviated by blockchain technology. Artists could also use these agreements to secure more consistent, efficient, and even lucrative payment terms in future sales in the process. Even though blockchain technology is decidedly not a panacea for infringement concerns in online art sales, the technology has the potential to significantly alleviate some of the most pernicious aspects of selling art online for artists and buyers alike. With a little hope, and a lot of trial and error, these blockchain-enhanced contract models may just form the foundation for more balanced, and equitable, copyright-enforcement strategies in online art sales.