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NFTs and the Art World – What's Real, and What's Not

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NFTS AND THE ART WORLD – What's Real, and What's Not

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Table of Contents

Introduction 26
I. Myth 1: NFTs are artworks. 27
A. *What is a blockchain?* 27
B. *Cryptography and blockchains* 27
C. *What do the "immutability" and "public ledger" concepts mean in blockchain language?* 28
D. *What does it mean for a blockchain to be distributed and decentralized?* 30
E. *What is the "mining" or "minting" process?* 31
F. *How does this Part address the myth that NFTs are artworks?* 33
II. Myth 2: NFTs create a false and artificial scarcity in artworks. 34
A. *The real meaning of ownership of NFTs* 35
B. *How do artworks get connected to NFTs?* 36
III. Myth 3: The valuation of NFTs is unlike any rational process of valuation for any other artwork or asset 38
A. *Scarcity* 38
B. *Provenance* 40
C. *Attribution to a particular artist* 42
D. *Popularity and Historical Significance* 45
E. *Potential for growth in price* 48
IV. Myth 4: "Smart Contracts" are like regular contracts 50
V. Myth 5: NFTs have created the ability of artists to receive resale royalty rights 51
VI. Myth 6: NFTs will allow all artists the chance to make serious money from their art. 55
Conclusion 57

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1. Spears Gilbert Associate Professor of Law, University of Kentucky, J. David Rosenberg School of Law. Professor Murray thanks Gabrielle Castro (J.D. candidate, UK Rosenberg College of Law) for her research relating to this project. He also thanks Dean Mary Davis for her support and the assistance of the University of Kentucky College of Law Faculty Research program.

Introduction

Out of the cloistered mist of the COVID-19 crisis in 2021, a massively complicated and poorly understood cryptography-based tool for the registration and verification of digital assets stormed into the art world and turned it on its head.[2] This tool is called a non-fungible token (NFT). This nifty registration and verification tool took center stage when digital artist Mike Winkelmann—known as Beeple in the art world—sold an NFT-linked digital artwork collage called "EVERYDAYS: The First 5000 Days" for $69 million at the venerable Christie's auction house[3] and instantly became the third most expensive living artist (behind Jeff Koons and David Hockney).[4] How a digital artist could become the third most expensive living artist, when for decades digital art was scarcely collected and even more scarcely curated by museums and top galleries, is a story intimately tied to the revolutionary tool of NFTs.

This Article explores the reality and mythology of NFTs in art law and in the art world by unpacking six myths, misconceptions, and poorly understood truths about NFTs that prevent persons, and particularly art law lawyers, from understanding the role NFTs are playing and could play in the art world and beyond. The Article discusses the legal and financial attributes and potentialities of NFTs for artists, galleries, dealers, investors, museums, and, most especially, for lawyers who advise the players in the art world. The six myths or misconceptions are:

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2. Non-fungible tokens (NFTs) have been in use since 2014. The first NFT is believed to be Kevin McCoy's *Quantum*, minted in 2014. Wallace Ludel, *Sotheby's and Artist Kevin McCoy Sued over Sale of Early NFT*, Art Newspaper (Feb. 4, 2022), https://www.theartnewspaper.com/2022/02/04/sothebys-kevin-mccoy-lawsuit-quantum-nft [https://perma.cc/5YSZ-VLJA]. NFTs became a well-known item in the crypto community in 2017 with the introduction of the CryptoPunk generative art NFT collection and the *CryptoKitties* NFT collection. Andrew Steinwold, *The History of Non-Fungible Tokens (NFTs)*, Medium (Oct. 7, 2019), https://medium.com/@Andrew.Steinwold/the-history-of-non-fungible-tokens-nfts-f362ca57ae10 [https://perma.cc/FW7P-ZZ8B]. Later still, NFTs became commonly known and widely recognized outside of the crypto community in 2021 with the famous sale of Beeple's *EVERYDAYS* work. Robyn Conti & John Schmidt, *What Is an NFT? Non-Fungible Tokens Explained*, Forbes Advisor (Apr. 8, 2022, 8:36 AM), https://www.forbes.com/advisor/investing/nft-non-fungible-token/#:~:text=Although%20they've%20been%20around,on%20NFTs%20since%20November%202017 [https://perma.cc/RB8R-EUZG]. *See infra* notes 3 and 4.
3. Kelly Crow & Caitlin Ostroff, *Beeple NFT Fetches Record-Breaking $69 Million in Christie's Sale*, Wall St. J. (Mar. 11, 2021, 10:48 AM), https://www.wsj.com/articles/beeple-nft-fetches-record-breaking-69-million-in-christies-sale-11615477732 [https://perma.cc/DM2Z-RQ9W].
4. Kelly Crow, *Your NFT Sold for $69 Million—Now What? Beeple Turns to a New Project, and Old Masters.*, Wall St. J. (June 24, 2021, 8:06 AM), https://www.wsj.com/articles/artist-beeple-sold-his-nft-for-69-million-cryptocurrency-christies-digital-art-11624536293 [https://perma.cc/Z2KU-79T3].

Myth 1: NFTs are artworks.
Myth 2: NFTs create a false artificial scarcity in artworks.
Myth 3: The valuation of NFTs is unlike any rational process of valuation for any other artwork or asset.
Myth 4: Smart Contracts are like regular contracts.
Myth 5: NFTs have created the ability of artists to receive resale royalty rights.
Myth 6: NFTs will allow all artists the chance to make serious money from their art.

I. Myth 1: NFTs are artworks.

NFTs are not artworks. They are a cryptography tool that uses blockchain technology to verify and secure a record of the existence and ownership of digital and real-world assets.[5] Some of the most famous and high-priced NFTs have been associated with artwork, particularly digital artwork, but the NFT itself is a block on a blockchain that is intended to be immutably connected to a digital asset, such as an artwork.

A. *What is a blockchain?*

Because NFTs are a blockchain technology tool, it is necessary to understand what blockchains are and how NFTs use blockchain cryptography to embed artworks or a unique link to the artwork into a block on a blockchain. The concepts of blockchains that matter the most to NFTs are cryptography, immutability, distributed, publicly viewable, but privately accessible only by a unique access key.

B. *Cryptography and blockchains*

The metaphor I will use for a blockchain to explain its design is that of an expandable string of safety deposit boxes. Instead of using solid boxes, locks, and keys, the designer of the blockchain boxes used cryptography to define the boxes and how they connect to each other.[6] The entire string of boxes is an extremely complicated, connected chain of computer-encrypted data clusters for recording and encrypting transactions and the data relating to the transactions.[7] The separate clusters—the safety deposit boxes—are, in blockchain language, the "blocks" of the chain.

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5. *See* Conti & Schmidt, *supra* note 2. I realize this sentence might have made as much sense to the average reader as, "Twas brillig, and the slithy toves Did gyre and gimble in the wabe: All mimsy were the borogoves, And the mome raths outgrabe." Lewis Carroll, Through the Looking-Glass, and What Alice Found There 31 (Philadelphia, Henry Altemus Co. 1897). But keep reading and I will try to unpack all of these concepts.
6. *See What is Blockchain Technology?* , IBM, https://www.ibm.com/topics/what-is-blockchain [https://perma.cc/28DN-L7QA].
7. *Id.*

Most blockchains are append only, meaning a new block can only be added to the end of the chain of encrypted blocks.[8] A new block cannot be added to the middle of the sequence, and a block cannot be taken out of the chain. Therefore, if your block is an NFT that verifies and records the existence and ownership of an artwork, your block and its reference to an artwork is chained to all the blocks that preceded it—and immutably so.[9]

C. *What do the "immutability" and "public ledger" concepts mean in blockchain language?*

For crypto enthusiasts, one of the most exciting parts of blockchain technology is that once a new block is added to the chain, it cannot be removed.[10]. The block, whether it contains an NFT, a unit of cryptocurrency, or a different cluster of records of transactions, cannot be edited or destroyed. The block will be there in its place in the sequence until the blockchain itself is lost or abandoned,[11] but that event is unlikely because of the distributed nature of blockchains.[12] This is the blockchain concept of "immutability." If a block on the chain is an NFT that verifies and records the existence and ownership of a work of art, that record never goes away.[13] It cannot be deleted, edited, altered, or replaced.

An NFT owner could lose the address to the block, but that's a different problem. Accidentally losing the address or intentionally "burning" the address to a block means there is no way to access the block, but the owner did

8. *What is Blockchain Technology?*, Liquid, https://blog.liquid.com/what-is-blockchain-technology [https://perma.cc/C2LY-6EVR].
9. IBM, *supra* note 6.
10. *Id.*
11. By "abandoned," I mean some act such as a "hard fork" that starts a new branch of the blockchain moving off in a new direction, and a majority of the voting participants (holders) of the blockchain agree to recognize and perpetuate the new blockchain and officially disavow the old chain. Ethereum did this in 2016 with their blockchain that supports both cryptocurrency and NFTs to try to roll back the effects of a major hack of a decentralized autonomous organization called The DAO which at that time held 14 percent of all Ether cryptocurrency. This event was known as "The DAO Hack," and to reverse the effects of the hack the hard fork looked back to the composition of the Ethereum blockchain before the hack, declared that point to be the starting point of a new chain moving forward, which would bear the original name of "the Ethereum blockchain" producing "Ether" cryptocurrency. This was quite controversial because, as explained in this Part, blockchains are supposed to be immutable. The old chain that contained the blocks after the hack moved ahead, too, under the name "the Ethereum Classic blockchain," but its cryptocurrency was devalued in this process and to this day it is worth far less than regular Ether. *See* Cryptopedia Staff, *What Was the DAO?*, Cryptopedia, https://www.gemini.com/cryptopedia/the-dao-hack-makerdao [https://perma.cc/JMZ9-C3VR] (Mar. 16, 2022).
12. *See infra* Subpart D.
13. *Non-fungible Tokens (NFT)*, Ethereum, https://ethereum.org/en/nft [https://perma.cc/9WCG-EH7J].

not destroy the block.[14] The block will still be there in its place in the sequence of blocks on the chain, but the owner cannot access it anymore nor give access to someone else, such as by sale, swap, or transfer.[15]

The permanence of the recording function of blocks, which secure basic information about the existence and ownership of assets like artworks and cryptocurrency, is the reason a blockchain is described as an immutable public ledger. The blockchain is a ledger of all the records of transactions that took place "on chain" and that have been blocked together onto the blocks in the chain.[16] Once an NFT is blocked onto a blockchain, it will have a unique contract address[17] and token ID[18] associated with it. When later transactions occur "on chain" involving that contract address and token ID, these transactions also are recorded onto the blockchain. This ledger is public because people in the crypto community can use a chain explorer application[19] to input the contract address and token ID of an NFT to review and look up the record of transactions affecting this particular NFT, from its creation as an NFT, through all the different sales or transfers of the NFT. The chain explorer not only accesses the unique public contract address of each NFT on the blockchain, but it also recovers the wallet address[20] of the person who created the NFT

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14. *What Is Burning an NFT? A Complete Guide and Explanation*, NFTEXPLAINED.INFO, https://nftexplained.info/what-is-burning-an-nft-a-complete-guide-and-explanation [https://perma.cc/37SN-JD7Z].
15. *Id.*
16. Stephen J. Bigelow, *Blockchain: An Immutable Ledger to Replace the Database*, TECHTARGET (Sept. 9, 2021), https://www.techtarget.com/searchitoperations/tip/Blockchain-An-immutable-ledger-to-replace-the-database [https://perma.cc/HK97-VGEH].
17. The contract address refers to the "smart contract" that is in essence the brains of the NFT. Some crypto natives call NFTs "contracts" in reference to the fact that everything that is good and useful about NFTs comes down to the smart contracts running the NFTs. *See infra* Part .
18. The token ID refers to the number of the NFT in a sequence. Because a huge number of NFT projects involve the minting of a large series of related NFTs—for example, CryptoPunks (series of 10,000), Bored Ape Yacht Club (series of 10,000)—it becomes necessary to use the token ID to identify which CryptoPunk or Bored is referenced. *See, e.g.*, CryptoPunks, *CryptoPunk #7233*, OPENSEA, https://opensea.io/assets/0xb47e3cd837ddf8e4c57f05d70ab865de6e193bbb/7233 [https://perma.cc/Q6P8–2W49]; Bored Ape Yacht Club, *#7233*, OPENSEA, https://opensea.io/assets/0xbc4ca0eda7647a8ab7c2061c2e118a18a936f13d/7233 [https://perma.cc/GMR3–6CFW].
19. Etherscan is a very popular blockchain explorer for the Ethereum blockchain. *See The Ethereum Blockchain Explorer*, ETHERSCAN, https://etherscan.io [https://perma.cc/LYK3-ELQP].
20. A "wallet address" is a unique individual address for a digital storage device called a "wallet" which is designed to work with blockchain technology. *Cryptocurrency Wallet Addresses*, BITPRIME, https://www.bitprime.co.nz/knowledge-base/what-is-a-wallet-address [https://perma.cc/P85F-CSED]. At present a person can only make transactions on a blockchain using the cryptocurrency of the blockchain—for example, to buy an NFT that is blocked on the Ethereum blockchain you use must use Ether,

(i.e., ordered the transaction to "mint" the NFT). If the NFT is further transferred "on chain," the explorer will show the wallet addresses of everyone who transferred and everyone who received the NFT, thus revealing the wallet address of the current owner as the wallet address of the last recipient of a transfer of the NFT.[21]

But knowing the public addresses of the creator and the current owner and other information about the contents of the NFT on the public ledger is not enough to allow a person in the crypto community to unlock the NFT and access the contents because each NFT has a unique access code called a "private access key" or just "private key."[22] If a person has the private access key code, they can access the NFT and what it contains and pertains to; if they don't have the private access key, they cannot access the NFT (it's all about encryption, remember). It is the private key that is actually transferred to the wallet address of the purchaser when an NFT is sold. The actual NFT—meaning the smart contract that defines and runs the NFT—stays on the blockchain.[23]

D. *What does it mean for a blockchain to be distributed and decentralized?*

A second reason crypto fans are so enthusiastic about blockchain technology is that the blockchain itself—the chain of blocks (data clusters) or safety deposit boxes in my metaphor—is simultaneously held in identical form by a large number of users.[24] It is not centralized in one place or on one server or under the control of one person or entity. So, think of "distributed" as meaning "decentralized" in this context.

Consider the Ethereum blockchain, generally recognized as the leading blockchain for NFTs.[25] On June 21, 2022, a copy of the entire Ethereum block-

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the native cryptocurrency of the Ethereum blockchain—so you must have a wallet that stores cryptocurrency from which you can make or receive payments. *See Everything You Need to Know About Wallets*, Coinmama, https://support.coinmama.com/hc/en-us/articles/360012569820-Everything-you-need-to-know-about-wallets [https://perma.cc/W4HF-E2QM].

21. *See, e.g.*, *Contract Overview, Bored Ape Yacht Club: BAYC Token*, Etherscan, https://etherscan.io/address/0xbc4ca0eda7647a8ab7c2061c2e118a18a936f13d [https://perma.cc/K3FU-CH7M] (exhibiting record of transactions related to Bored Ape #7233).

22. Alistair Cavan, *Why Do I Need a Crypto Wallet for NFTs?*, Elec. Artefacts (June 4, 2021), https://www.electricartefacts.art/news/why-do-i-need-a-crypto-wallet-for-nfts [https://perma.cc/SYT8–7W79].

23. *Id.*; Paxful Team, *A Look into Public Keys, Private Keys, and Wallet Addresses*, Paxful (Apr. 21, 2020), https://paxful.com/blog/what-are-public-keys-private-keys-wallet-address [https://perma.cc/5STK-ZYRF].

24. Diego Geroni, *Blockchain Nodes: An In-Depth Guide*, 101 Blockchains (Apr. 5, 2021), https://101blockchains.com/blockchain-nodes [https://perma.cc/W77H-RHS4].

25. *Blockchains Vie for NFT market, but Ethereum Still Dominates—Report*, Cointelegraph: Research (Oct. 8, 2021) [hereinafter *Blockchains Vie for NFT Market*], https://cointelegraph.com/news/blockchains-vie-for-nft-market-but-ethereum-still-dominates-report [https://perma.cc/KEC5-TNUT] ("Ethereum leads the NFT market, generating more than 97% of recent sales . . . ."); *Top NFT Blockchains for 2022*, Matob News,

chain was simultaneously held by 2,206 persons or entities who are referred to as "nodes."[26]

This feature of the blockchain is desirable to crypto enthusiasts because a blockchain is not owned or controlled by any single person or entity. No one can kick your blocks out of the chain or deny you access to the blockchain, as long as the person seeking access is following the rules for mining or minting the blocks on the chain. No hacker can attack or rob "the blockchain" because there is no "one blockchain" to hack,[27] and it is extremely unlikely that a hacker could simultaneously hack all or even a majority of the distributed copies of the blockchain to alter or rob the chain.[28]

Blockchains are decentralized by design, because the originators of this technology purposefully did not want any person or entity, such as banks, corporations, governments, or nations, to control or regulate a blockchain.[29] Rather than seeking security and trust from the full faith and credit of a government or the monetary reserves of a major bank, participants in the blockchain community of users, investors, and developers find security and trust in a peer-to-peer network of users that each store a full copy of the blockchain, and in the encryption technology of the blockchain itself, that allows transactions without the interaction or supervision of intermediaries or gatekeepers.[30]

E. *What is the "mining" or "minting" process?*

A "miner" or "minter" is the term for someone who can claim the right to append a new block to a blockchain if, in the current "proof of work" model of blockchain creation,[31] the person downloads the entire blockchain and works

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https://matob.web.id/news/top-nft-blockchains-for-2022 (last visited July 9, 2022) ("Ethereum is undeniably the king of NFTs . . . . More than 90% of all digital assets have been created as ERC-721 tokens on the Ethereum network . . . .").

26. *Welcome to Ethereum*, Ethereum, https://ethereum.org/en [https://perma.cc/J4WU-SJYM].

27. Note that The DAO that was hacked was an organization connected to the Ethereum blockchain that raised money in the form of Ether, but The DAO itself was not the Ethereum blockchain. The DAO's wallet got hacked and siphoned, but the Ethereum blockchain itself was not hacked. *See What Was The DAO?*, *supra* note 11.

28. Hacking a blockchain may be difficult to the point of nearly impossible, but it apparently is easier to hack a portal, such as a "bridge" designed to transfer crypto assets from one blockchain to another, and make off with hundreds of millions in crypto assets. *See* Andrew Thurman, *Axie Infinity's Ronin Network Suffers $625M Exploit*, CoinDesk (Mar. 30, 2022, 12:59 PM), https://www.coindesk.com/tech/2022/03/29/axie-infinitys-ronin-network-suffers-625m-exploit [https://perma.cc/2LHV-SVU3].

29. *See* Adam Hayes, *Blockchain Facts: What Is It, How It Works, and How It Can Be Used*, Investopedia (June 24, 2022), https://www.investopedia.com/terms/b/blockchain.asp [https://perma.cc/KGA8-KCF3].

30. *Id.*

31. "Proof of work" is the current and most prevalent model for building blockchains. Jake Frankenfield, *Proof of Work (PoW)*, Investopedia, https://www.investopedia.com/terms/p/proof-work.asp [https://perma.cc/3G5K-YFTB] (May 2, 2022). The "work"

through a series of complex mathematical calculations called cryptographic "hash" processes.[32] Under the proof of work model, both mining and minting use hash calculations to form blocks and chain them to the blockchain and, as noted above, the blocks could represent cryptocurrency, tokens (NFTs), or other clusters of data.[33] Under proof of work, if the miner or minter is the first to find a match indicating an open "address" on the chain, then the miner can bundle a block whose header includes that identified address on the chain.[34]

By contrast, if the "proof of stake" model is used to form an NFT, then the process is more likely to be called minting or "forging" rather than mining.[35] In this model, the persons who want to be eligible for the rewards of creation will stake cryptocurrency in a staking wallet in order to gain the right to be a validator.[36] Out of this group, one validator will be selected to forge the

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done in a proof of work model is the hash calculations described in this paragraph of the Article. *Id.* In order to process these proof of work calculations efficiently and profitably, a miner or minter needs to use a large "mining rig" which is a computer setup with massive CPUs (central processing units), GPUs (graphics processing units), or Application Specific Integrated Circuit (ASIC) hardware that consume remarkably large amounts of electricity. *What is a Mining Rig?*, BIT2ME ACADEMY, https://academy.bit2me.com/en/what-is-mining-rig [https://perma.cc/K6VS-7V9X]. Because of the environmental impact and other concerns with proof of work, the crypto community is moving toward simpler and more energy efficient means of adding blocks to a chain such as "proof of stake" procedures. Jake Frankenfield, *Proof-of-Stake (PoS)*, INVESTOPEDIA, https://www.investopedia.com/terms/p/proof-stake-pos.asp [https://perma.cc/4PRZ-NGAA] (June 9, 2022) [hereinafter Frankenfield, *Proof-of-Stake*].

32. Back in the good old days of eight or nine years ago, the Bitcoin blockchain could be downloaded and hash encryptions made to create Bitcoin blocks using a regular desktop or laptop computer. *See* Alex Lielacher, *Crypto You Can Mine from a Home Computer in 2022*, BRAVE NEW COIN. (May 24, 2022, 2:30 PM), https://bravenewcoin.com/insights/crypto-assets-you-can-mine-from-a-home-computer [https://perma.cc/77WV-NFZ60]. As the Bitcoin blockchain grew in size and length in terms of the number of transactions blocked into the chain, it became necessary for much larger "mining rigs" to be used to handle the computing necessary to add blocks to the expanding blockchain. *Id.*
33. *See* CFI Team, *Minting Crypto*, CORP. FIN. INST., https://corporatefinanceinstitute.com/resources/knowledge/data-analysis/minting-crypto [https://perma.cc/8RB7-EBD3] (Jan. 19, 2022).
34. Hash calculations and the hashing process are probably several feet further down the rabbit hole than people reading this article on NFTs need to go. But for further information, see Lucian Constantin, *Hashing Explained: Why It Is Your Best Bet to Protect Stored Passwords*, CSOONLINE (Jan. 13, 2021, 2:00 AM), https://www.csoonline.com/article/3602698/hashing-explained-why-its-your-best-bet-to-protect-stored-passwords.html [https://perma.cc/8AD3–2VQJ]; Jake Frankenfield, *Hash*, INVESTOPEDIA, https://www.investopedia.com/terms/h/hash.asp [https://perma.cc/AJN8-ZACH] (Jan. 13, 2022); Adam Hayes, *Target Hash*, INVESTOPEDIA, https://www.investopedia.com/terms/t/target-hash.asp [https://perma.cc/24MP-Z3UY] (June 29, 2021).
35. Shaan Ray, *What is Proof of Stake*, HACKERNOON (Oct. 6, 2017), https://hackernoon.com/what-is-proof-of-stake-8e0433018256 [https://perma.cc/2Z3S-QUA4].
36. With proof of work, most often the rewards are the coins of the native cryptocurrency of the blockchain that you "mine" in the proof of work process, but with proof of stake

block, and the other validators will vote to validate the block.[37] If a majority of validators approve the block, it is then appended to the blockchain.[38] If the non-forging validators find that the forging validator proposed a block with invalid transactions (e.g., a minter is trying to spend the same cryptocurrency coins for two different minting operations, which is called "double-spending"[39]) then the block will be rejected, and the forging validator will lose all or part of its stake.[40]

The block will be a uniquely identifiable encrypted cluster of transactions that is not already present and blocked onto the chain. In both models of block formation, proof of work or proof of stake, the work of the miner, minter, or forger is examined by super-users of the blockchain called "full nodes" or "validators" who verify that the proposed new block meets the standards of the blockchain—in other words, the block both works as a newly identified encryption hash and one that is capable of being chained to the hash of the last prior block added to the chain.[41] If the transactions bundled into the block are accepted by a majority of full nodes or validators, the block is then chained in by hash encryption as a continuation of the other clusters already on the chain. At that point, using the safety deposit box metaphor, the creator has mined or minted or forged a unique box that can be chained onto the expanding string of boxes. Each safety deposit box (block) is unique because it is based on a unique cluster of encryption formulas with a unique address on the blockchain.

F. *How does this Part address the myth that NFTs are artworks?*

This Part addressed the myth that NFTs are artworks by clarifying that NFTs are just one type of block on a blockchain that registers and stores data.

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the reward is based on the cryptocurrency staked in order to participate in verifying the transactions that are used to form a block. If you verify correct transactions, you will collect your reward based on your stake; if you verify incorrect transactions, you will lose all or part of your stake. *What Is Crypto Staking and How Does It Work?*, N26 (Feb. 16, 2022), https://n26.com/en-eu/blog/what-is-staking-crypto [https://perma.cc/R2YP-KUC9]. On the Ethereum blockchain, the rewards are the transaction fees called "gas" fees which the persons ordering the creation of an NFT pay to the persons verifying the transactions and minting the NFT. Omkar Godbole, *Traders Bet on Ether Staking After Ethereum 2.0 Upgrade*, CoinDesk (Mar. 21, 2022, 7:19 AM), https://www.coindesk.com/markets/2022/03/21/traders-bet-on-ether-staking-after-eth-20-upgrade [https://perma.cc/W5NF-KBJB].

37. *See* Frankenfield, *Proof-of-Stake*, *supra* note 31.

38. *Id. See also Proof of Stake: Crypto Staking vs. Crypto Minting*, MyContainer (Jul. 15, 2020), https://www.mycointainer.com/insight/proof-of-stake-crypto-staking-vs-crypto-minting [https://perma.cc/JY2L-W5ZG].

39. Jake Frankenfield, *Double-Spending*, Investopedia, https://www.investopedia.com/terms/d/doublespending.asp [https://perma.cc/H8V8-E9RC] (Jan. 7, 2022).

40. *Proof of Stake: Crypto Staking vs. Crypto Minting*, *supra* note 38; Frankenfield, *Proof-of-Stake, supra* note 31.

41. *See supra* notes 33, 35, 36, 38.

NFTs were not created to allow for the registration and verification of artworks; it just so happens that artworks have taken advantage of the NFT technology to put NFTs into popular consciousness. As with all of the blocks on a blockchain, NFTs are each a cluster of encryption formulas recording a transaction or registering and verifying the existence of some item; for example, a file, a unit of cryptocurrency, an application, or an artwork. This explanation also helps to drive home another point: there are many blockchains, and some are used for a wide variety of purposes and services (such as the registration of cryptocurrency, NFTs, programs, and documents), while others were created to be devoted only to one purpose (such as the registration of cryptocurrency).[42] NFTs, too, exist on many blockchains, but the Ethereum blockchain has gained the most attention because it currently is the most popular destination for artwork NFTs.[43]

II. Myth 2: NFTs create a false and artificial scarcity in artworks.

This statement is more of a misconception than a myth. The truth is NFTs create actual uniqueness in digital assets, including artworks, in a manner that allows them to be regarded as scarce and therefore more valuable and desirable, in a way that digital works have never been regarded before. The work of NFTs to turn digital files into collectible items is no illusion of scarcity. It is real, actual scarcity as in uniqueness. After being immutably linked or coded into an NFT, a digital or real-world item is now uniquely tied to a single block on a blockchain by what is understood to be an immutable and transparently traceable bond.

Because artwork NFTs represent truly unique works of art, one might come a little closer to understanding the escalation in pricing of NFTs that has appeared to many observers to be as mindless as the speculation in Dutch tulip

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42. Because the ethos of the cryptoverse is to be decentralized (not controlled by any nation, or government, or single organization, or person), and the ethos of blockchain technology is to make it open-source and free to all to use, then some users can buck the design trend of a given blockchain and figure out a formula to encrypt and store something other than the core items onto the blockchain. An example of this is someone hash encryption technology to encrypt and store a non-cryptocurrency and non-NFT file on a blockchain. *See* Ben Whittle, *Storing Documents on the Blockchain: Why, How, and Where*, Coin Central (Dec. 23, 2018), https://coincentral.com/storing-documents-on-the-blockchain-why-how-and-where [https://perma.cc/9445-JRNH].

43. *See Blockchains Vie for NFT Market*, *supra* note 25; *Top NFT Blockchains for 2022*, *supra* note 25.

varieties[44] or the sale of "so many feet of 'blue sky.'"[45] Crypto natives are avid collectors of NFT art, and many early adopters of Bitcoin, Ether, and other crypto assets have made tens of millions of dollars' worth of cryptocurrency that they cannot spend at the grocery store nor at the average car dealership. Yet, they can spend cryptocurrency to buy NFTs without the need to convert the assets to a fiat currency like the U.S. dollar.

A. *The real meaning of ownership of NFTs*

At this point, as one who has spent decades writing about law and the art world, I should point out that one critique of the entire concept of NFT uniqueness is that it is the NFT itself that is unique, not the digital artwork that is registered and verified by the NFT. Thus, one can spend millions of dollars' worth of cryptocurrency on a Bored Ape Yacht Club image, and thereby become the registered owner of that Ape, but anyone and everyone can right click on that same image of the Ape and download their own digital file of that Ape that is equal in every way to the "original" .jpeg file that became linked to an NFT on the Ethereum blockchain. Equal, except for the fact that one file is deemed to be the original .jpeg by virtue of its linkage to an NFT. In other words, anyone can look at this small .jpeg on their phone or computer and what they are looking at is the same as the original NFT-linked .jpeg. But this observation misses the point of ownership entirely.[46] NFT collectors do not seek to own the *only* copy of a .jpeg image. They seek to own the *original* .jpeg image and all of the status, bragging rights, and community "cred" that goes with ownership of the certified *original* .jpeg image.[47] And the NFT establishes

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44. Dutch tulip varieties speculation in the Netherlands in 1636 to 1637 has been a darling narrative of speculation balloons and boom and bust cycles for economics, finance, markets, and law classes. *See* Dave Roos, *The Real Story Behind the 17th-Century 'Tulip Mania' Financial Crash*, History (Mar. 16, 2020), https://www.history.com/news/tulip-mania-financial-crash-holland [https://perma.cc/ETG5-Z8KK]. The same narrative can encompass irrational swings in Gamestop's stock price in 2021, but Gamestop adds the additional complication of market manipulation, as in buying and selling stocks in large volumes to cause the giant swings in the stock price, followed by exchanges and platforms, such as Robinhood, restricting trading in the stock which further affects the stock price. Hamza Shaban & Hannah Denham, *What You Need to Know About GameStop's Stock Price Chaos*, Wash. Post (Jan. 29, 2021), https://www.washingtonpost.com/business/2021/01/28/gamestop-stock-amc-reddit-faq [https://perma.cc/MZ76-WY5L].

45. *See* Hall v. Geiger-Jones Co., 242 U.S. 539, 550 (1917).

46. *See, e.g.*, Kevin Roose, *Why Did Someone Pay $560,000 for a Picture of My Column?*, N.Y. Times (Aug. 12, 2021), https://www.nytimes.com/2021/03/26/technology/nft-sale.html [https://perma.cc/W3TX-K6P5].

47. *See* Scott Galloway, *Scarcity Cred*, No Mercy / No Malice (Apr. 9, 2021), https://www.profgalloway.com/scarcity-cred [https://perma.cc/E5FT-FJUZ]. My Kentucky colleague, Brian Frye, has opined on this topic in several articles and papers. *See* Brian L. Frye, *After Copyright: Pwning NFTs in a Clout Economy*, __ Colum. J.L. & Arts ___ (forthcoming, 2022), available at https://ssrn.com/abstract=3971240; Brian L. Frye,

that status of the original image to both verify and record the desired ownership of a digital asset.

B. *How do artworks get connected to NFTs?*

As noted previously, the NFT records a transaction of minting that is bundled into a block and encrypted and chained to a blockchain. Because blockchains have most often used a proof of work model for creation of blocks, and the most popular chain for art NFTs, Ethereum, imposes gas fees for the creation of NFTs, there is a strong incentive to keep the amount of data (i.e., the file size) of the items that are to be coded into the NFT to a minimum. In crude terms, the larger the file size, the more time it takes for a minter to find a matching address for the block, and the more gas fees are run up to append the block to the chain. Thus, if the block is to contain an actual artwork file (such as a digital .jpeg, .gif, or .png file), it must be an extremely tiny graphic file size. That is why CryptoPunks can be coded right into their NFT and stored on the chain—because they are a tiny file size, extremely low resolution, massively pixelated works of only 24 X 24 pixels,[48] which means in a one square inch image they have 24 dpi resolution or 0.000576 megapixel resolution.[49] By comparison, if you are reading this article on a fairly new laptop or computer monitor, you most likely are enjoying 1920 X 1080 dpi resolution[50] (1,920 pixels by 1,080 pixels per square inch), and the smartphone in your purse or holster could have a 16 megapixel camera which on average settings gives you a shot with 4,920 pixels by 3,264 pixels per square inch in it.[51] Deeply rich and detailed digital paintings and photographs can be up to several megabytes per image, which is relatively huge in comparison to the massively low resolution CryptoPunks or other tiny pixelated profile picture (PFP) NFT projects. Therefore, it would be prohibitively expensive to mint and store on the blockchain even an average sized .jpeg painting or photograph.

The crypto tech way around this difficulty is not to store the actual artwork "on chain," but only to record a link to the artwork stored in an "off

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How to Sell NFTs Without Really Trying, 13 HARV. J. SPORTS & ENT. L. 113 (2022); Brian L. Frye, Pwnership in the NFT Art Market at Boston College Law School: Winter/Spring Colloquium on Art Law (Mar. 18, 2022) (transcript available at https://ssrn.com/abstract=4060481).

48. *CryptoPunks*, LARVA LABS, https://www.larvalabs.com/cryptopunks [https://perma.cc/6S4H-5BK4].

49. *See What Are Pixels, Resolution and DPI?*, TRACER, https://tracer1.com/pixels-resolution-dpi [https://perma.cc/UQ82-X82R]; *Megapixel Calculator*, TOOLSTUD, https://toolstud.io/photo/megapixel.php?compare=video&calculate=print&width=24&height=24 [https://perma.cc/VAC2-AWQN].

50. *Most Common Screen Resolution in 2022*, UX PICKLE (Feb. 13, 2022), https://uxpickle.com/most-common-screen-resolution-in-2022/# [https://perma.cc/Z5DE-ZEX6].

51. Alex Kidman, *What Resolution Does My Phone Camera Actually Need?*, FINDER, https://www.finder.com.au/phone-camera-resolution [https://perma.cc/BQC8-J9JT] (Dec. 29, 2020).

chain" storage location. What this means is the artwork .jpeg file is stored in a storage site on the World Wide Web, and the metadata of the smart contract[52] creating and running the NFT includes the link to the artwork.[53] Then, the NFT need only contain an encrypted link to the file location of the artwork.[54]

This method can work even for real world objects.[55] An NFT can store a short description of the object in the metadata of its smart contract, or it can store an encrypted link to a document—literally, a document containing a few words or an image describing or depicting a real world item—and that real world item could be a physical work of art.[56] As in the example of art stored off chain, the identifying document referenced here could itself be encrypted and stored in an off chain location, and then the NFT will encrypt and record the link to the document, and everyone using an exchange (such as opensea.io) or a chain explorer can look up the contract and see the information about a digital or real world asset that is secured in the blockchain.[57]

This discussion once again drives home the message that the NFT is not the artwork, but a record of an artwork, either digital or not, that can be immutably linked by encryption into a block that is chained into a blockchain.[58] The link to the work or its description is coded into the smart contract of the

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52. For more information on smart contracts, see *infra* Part . By way of introduction, smart contracts are a small bit of code that makes up a simple computer program that runs the operation of an NFT. *What Are Smart Contracts on Blockchain?*, IBM, https://www.ibm.com/topics/smart-contracts [https://perma.cc/2AZ2-TTAK]. Smart contracts are often written in the Solidity programming language because that is a language specially adapted for use on Ethereum, the most popular blockchain for NFTs. *See* SOLIDITY, https://docs.soliditylang.org/en/v0.8.13 [https://perma.cc/9DZB-P2KH].
53. *See The Storage Method of NFT Artworks that You Can't Ignore*, FIO (Oct. 25, 2021), https://www.fio.one/2021/10/25/the-storage-method-of-nft-artworks-that-you-cant-ignore [https://perma.cc/6XZN-JLFB] (illustrating an NFT listing, the code for the smart contract, and the metadata of the smart contract showing the link to the storage location of the image on the Worldwide Web).
54. Aaron Hertzmann, *Why Are People Spending Millions on What is Essentially a Link to a JPEG File?*, FASHION L. (Mar. 15, 2021), https://www.thefashionlaw.com/why-would-anyone-spend-millions-on-what-is-essentially-a-link-to-a-jpeg-file [https://perma.cc/M6DB-PNZB].
55. This is one of the reasons why NFT technology is discussed so enthusiastically in the conversations about the coming metaverse, because NFTs can create and record ownership rights in both virtual and actual goods and services for the real world and the metaverse. *See, e.g.*, Sophie Goossens & Nick Breen, *NFTs - Ownership in the Metaverse*, REED SMITH (July 5, 2021), https://www.reedsmith.com/en/perspectives/2021/07/nfts-ownership-in-the-metaverse [https://perma.cc/WK6K-DRAP].
56. *See Best Practices for Storing NFT Data Using IPFS*, INTERPLANETARY FILE SYS., https://docs.ipfs.io/how-to/best-practices-for-nft-data/#best-practices-for-storing-nft-data-using-ipfs [https://perma.cc/4HHP-KS9U].
57. *See id.*
58. Andrew Guadamuz, *What Do You Actually Own When You Buy an NFT?*, WORLD ECON. F. (Feb. 7, 2022), https://perma.cc/GPL8–2YQA.

NFT and the smart contract will have a unique contract address in a block that is chained to a blockchain.[59]

III. Myth 3: The valuation of NFTs is unlike any rational process of valuation for any other artwork or asset.

The statement that "the valuation of NFTs is unlike any rational process of valuation for any other artwork or asset" is a myth. The truth is that the valuation of NFTs is exactly the same as any other work of art or collectible item. The most important components of this formula for valuation are: scarcity, provenance, attribution to a particular artist, popularity, historical significance, and potential for growth in price.[60]

A. *Scarcity*

Scarcity is the most important component of valuation that NFTs have brought to digital art. The expressed concern that no one should give any value to a digital artwork because anyone and everyone can make a copy of the work is answered by the actual uniqueness of an NFT linked artwork.[61] When coded into the smart contract of an NFT, a digital artwork has become unique, one of a kind, identifiable and verifiable as being different from all other copies of the digital artwork. And because of this status, the digital artwork is scarce to the point of being unique, and therefore uniquely collectible and curatable.[62]

Compare the valuation of NFTs to photographs, which have long been accepted as a scarce form of artwork making them collectible and curatable[63] even though the technology of photographic reproduction allows for a nearly infinite capacity of reproduction from the same plate or negative or digital file.[64] Prints of photographs have a much longer history of being collected compared to digital artworks, even though a photographic print can be reproduced and duplicated from a negative, a plate, or a digital file many times over.

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59. *See* Sumi Mudgil, *How to Write and Deploy an NFT*, Ethereum (Apr. 21, 2021), https://ethereum.org/en/developers/tutorials/how-to-write-and-deploy-an-nft [https://perma.cc/TFV3–5H3U].
60. *See* Kaylee Randall, *What Makes Art Valuable?*, The Collector (Aug. 11, 2019), https://www.thecollector.com/what-makes-art-valuable [https://perma.cc/UVA5-X6JK].
61. *See* Hertzmann, *supra* note 54.
62. *See id. See also* Roose, *supra* note 46.
63. Penelope Dixon, *A Short History of Photograph Collecting*, Afterimage (2001), https://www.afterimagegallery.com/dixon.htm [https://perma.cc/H9JG-WUDR].
64. This shall be my obligatory citation to Walter Benjamin's *The Work of Art in the Age of Mechanical Reproduction* (1936). Benjamin was a Marxist philosopher who critiqued the impact of photography and film on the meaning and valuation of art referencing the 1930's technology of photography and film reproduction. *See* Walter Benjamin, *The Work of Art in the Age of Mechanical Reproduction, in* Illuminations (Hannah Arendt ed., Harry Zohn trans., Schocken Books 1969). Benjamin, of course, didn't face the prospect of digital image files which have multiplied the potential for infinite reproduction.

However, the art collecting world has agreed, by group-think, or tradition, or simple cultural experience, that a single print of a photograph can be worth millions of dollars.[65]

Artificial scarcity is achieved in the reproduction of photographs, paintings, and drawings by the creation of numbered series, thereby making it appear that a collector has obtained one of a limited number of prints[66] An additional boost to value can be added if the artist takes the time to sign a certain number of prints or serigraphs[67] because not all photographic, silkscreen, or lithographic prints have been touched by the artist, let alone autographed by the artist. But some prints have been, which explains why printed or stamped signatures do not add as much value to prints as wet ink signatures.[68] Artificial scarcity is achieved in sculpture by the time-honored process of making a limited number of moldings and castings from a single mold.[69] None of these practices guarantees scarcity; they are proxies for scarcity that are acceptable to the art collecting community. It is not unheard of that an artist bucks the trend by extending the edition, or making a second or third edition of the same image or photograph that previously was the subject of a limited series,[70] or even by signing blank pieces of paper so future dealers and associates could run off additional "signed" prints or serigraphs.[71]

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65. *See* Dixon, *supra* note 63; Nestor Gilbert, *10 Most Expensive Photographs In the World: Images Worth Millions*, FINANCES ONLINE, https://financesonline.com/10-most-expensive-photographs-in-the-world-images-worth-millions [https://perma.cc/WS45-YVFR].
66. *Art Market Value: Photo Editions and Print Editions*, THE PRACTICAL ARTWORLD, https://thepracticalartworld.com/2011/08/29/editioned-prints-and-photographs-how-many-what-value [https://perma.cc/6QL8-JFVG].
67. Artsy Specialist, *What Determines the Value of a Print?*, ARTSY (Oct. 24, 2018, 10:13 AM), https://www.artsy.net/article/artsy-specialist-determines-value-print [https://perma.cc/X6QQ-Q4CQ].
68. *See id.*
69. *See* College Art Association of America Board of Directors, *Statement on Standards for the Production and Reproduction of Sculpture*, COLL. ART ASS'N OF AM. (Feb. 17, 2013), https://www.collegeart.org/standards-and-guidelines/guidelines/sculpture [https://perma.cc/J7H4-CELH].
70. Artsy Specialist, *What to Know When Buying Limited Editions*, ARTSY (Oct. 10, 2018, 6:39 PM), https://www.artsy.net/article/artsy-specialist-buying-limited-editions [https://perma.cc/Y7UR-K9JD]; Richard Wong, *What Are Limited Edition Prints?*, FINE ART PHOTOGRAPHY PRINTS, https://www.fineartphotographyprints.com/limited-edition-prints [https://perma.cc/7VL9–7YW8].
71. Salvador Dali was famously accused of signing hundreds of thousands of blank sheets of paper so his associates could run off "authentically signed" Dali prints in his absence or even after his death. Stanley Meisler, *Fake Paintings: 81 and Ill, Dali Still Confounds*, L.A. TIMES (Apr. 16, 1986, 12:00 AM), https://www.latimes.com/archives/la-xpm-1986–04–16-mn-4-story.html [https://perma.cc/CL25-W2U4] ("[A] reporter . . . discovered that Hotel Meurice in Paris had 50,000 blank sheets with Dali's signature in its storeroom. A former manager, John Peter Moore, has estimated that Dali signed 350,000 blank sheets in his lifetime.")

As I write this paragraph in April 2022, a print of a Man Ray photograph known as *Le Violon d'Ingres* (see image[72] at right) is about to be auctioned at Christie's and the pre-auction estimate is $5 million, which, if obtained at the auction in May, will make this print the most expensive photograph ever sold at auction.[73] Note that this is not the only print of this photograph in existence, meaning that this artwork is not as scarce and unique as the average NFT.[74] If someone has taken the time to preserve the negative or plate of the image created by Man Ray, then many more prints could be created of this same image with a fidelity that would satisfy connoisseurs of the photographic arts. Yet, the print to be auctioned at Christie's is not valuable just because of its relative scarcity, it is valuable for its provenance and history of ownership, for its attribution to Man Ray, for its popularity and historical significance, and no doubt for its potential to rise in price.

B. *Provenance*

Provenance is an artworld term that refers to the history of possession and ownership of a work from creation to the present.[75] An incomplete or nonexistent provenance record is the mark of a forgery or a work that has been stolen or looted or otherwise improperly removed from the possession of its rightful owner. Provenance is therefore tied to, if not synonymous with, the concept of authenticity.[76]

NFTs have helped digital artist to conquer the problem of provenance because the smart contracts of NFTs and the transactions that interact with the smart contracts create records of ownership on the blockchain from the wallet

72. Michael D. Murray, cropped thumbnail-sized version of Man Ray's *Le Violon d'Ingres* (photograph) (1924).

73. Kelly Crow, *Christie's to Auction Iconic Man Ray Photograph of Nude Woman for Record $5 Million or More*, WALL. ST. J. (Feb. 15, 2022, 9:00 AM), https://www.wsj.com/articles/christies-to-auction-iconic-man-ray-photograph-of-nude-woman-for-record-5-million-or-more-11644933600 [https://perma.cc/MQ3T-UQNU]. To update the story, on May 14, 2022, the photograph broke all records and exceeded its preauction estimate when it sold at auction for $12.4 million. Toyin Owoseje, *Man Ray's 'Le Violon d'Ingres' Photograph Sells for Record $12.4 million*, CNN (May 15, 2022), https://www.cnn.com/style/article/man-ray-most-expensive-photograph-auction-record/index.html [https://perma.cc/F4C4-YBGP].

74. Crow, *supra* note 73 ("[Man Ray] later made a handful of subsequent prints of the same image, which now belong to museums such as the Centre Pompidou and the Getty.").

75. *See Provenance: What Is It and Why Should It Matter to You?*, ARTWORK ARCHIVE, https://www.artworkarchive.com/blog/provenance-what-is-it-and-why-should-it-matter-to-you [https://perma.cc/5BJ8-CUWF].

76. *See id.*

address of the minter through to the wallet address of the recipient of the last transfer of the NFT, otherwise known as the current owner of the NFT.[77] Previously, .jpegs, .gifs, .pngs, and other digital image files were relatively anonymous creations. Some images are tagged with captions giving attribution to an author, and someone with expertise can check the metadata of an image,[78] but the metadata could have been "scrubbed" (deleted or altered), or someone may have snipped or screen captured the image from its appearance online or on a computer or smart phone making the snipper the creator of the image file in question in the metadata of the image. NFTs, on the other hand, record the wallet address of the creator of the NFT and every subsequent transferee of the NFT, and this information is stored on a blockchain where it is immutable and distributed.

Provenance matters to NFT collectors. One of the critical if not essential explanations of the value of CryptoPunk NFTs is because the collection was created by some Original Gangsters (OGs)[79] of the cryptoverse,[80] and indeed, the collection (along with CryptoKitties) is one of the foundational collections of the NFT space.[81] In addition, those persons who collected the CryptoPunks in 2017 are considered OGs of the NFT trading community, and several of them reflect this by using a pseudonym for their wallet address with the word "Punk___" in their identifier.[82]. The ownership of a CryptoPunk may also be regarded as more valuable if it has been previously owned by yet another superstar of the cyberworld. And NFTs allow a collector to prove both the identity of the minter and the identity of each owner and transferee of the

77. *See Non-Fungible Tokens (NFT)*, ETHEREUM, https://ethereum.org/en/nft/#how-nfts-work [https://perma.cc/Q3UQ-5JZ5].

78. *See* Mona, *How To Find Metadata of Images*, TECHNIPAGES (Mar. 4, 2020), https://www.technipages.com/how-to-find-metadata-of-images [https://perma.cc/AJ5X-BC95].

79. An "OG" – "Original Gangster" means a person with longevity and credibility in a community—a certified original, long-time user, player, or participant. *See* Alma Fabiani, *What Does OG Mean? Here's Everything You Need to Know*, SCREENSHOT (Dec. 2, 2021), https://screenshot-media.com/visual-cultures/internet-culture/what-does-og-mean [https://perma.cc/CS3T-Q7CG]. It is believed that the rapper Ice-T made the term a mainstream reference with the release of his fourth album, *O.G. Original Gangster* (1991). *Id.* The term later became a fixture of the crypto community, and in this community it can refer to any cryptocurrency trader and investor that is still around after the 2013–14 Bitcoin bear market. Crypto Calavera, *20 Crypto Words that You Must Know Before the End of Today*, MEDIUM (Mar. 19, 2018, 5:30 AM), https://medium.com/@cryptoweek/20-crypto-words-that-you-must-know-before-the-end-of-today-de7d11fd83e4 [https://perma.cc/VTH8-ZXFX].

80. *See The Art Angle: How the CryptoPunk OGs Lit the Fuse for the NFT Boom*, ARTNET NEWS (Nov. 12, 2021), https://news.artnet.com/multimedia/the-art-angle-how-the-cryptopunk-ogs-lit-the-fuse-for-the-nft-boom-2033032 [https://perma.cc/RR6S-B3UM].

81. *Id.*

82. For example, Punk4156 is the pseudonym of a collector of NFTs and participant in at least one decentralized autonomous organization. @Punk4156, TWITTER, https://twitter.com/punk4156?ref_src=twsrc%5Egoogle%7Ctwcamp%5Eserp%7Ctwgr%5Eauthor.

NFT, because all of that information is stored on the blockchain where it can be read by a blockchain explorer.

By comparison, one of the reasons the print of Man Ray's photograph, *Le Violon d'Ingres*, is commanding a pre-auction estimate of $5 million is because this print was owned for several decades by Rosalind Gersten Jacobs.[83] Ms. Jacobs was a fashion world icon from her many years as a fashion buyer for Macy's and an avid art collector.[84] Therefore, although there are several other prints of *Le Violon d'Ingres* in existence, this particular print was owned by Rosalind Gersten Jacobs, which makes it all the more desirable and thus valuable to own.

C. *Attribution to a particular artist*

With three-dimensional art—paintings, drawings, conceptual art, and sculpture—the proof of attribution of the work to a famous artist may be the single most important factor of valuation of the work. The most expensive painting ever sold at auction to date is *Salvator Mundi* (The Savior of the World), which sold at Christie's in 2017 for $450 million.[85] Previously, that same painting sold at auction in 1958 for $72 dollars, and at an estate sale in 2005 for $10,000.[86] It once was valued much lower because in 1958 and 2005 the painting was attributed to a painter named Giovanni Antonio Boltraffio who worked in Leonardo da Vinci's studio.[87] Despite this brush with greatness, Boltraffio's work did not command high prices. But in 2013, experts decided that *Salvator Mundi* was in fact the work of Leonardo da Vinci himself (a decision not without its controversy), and once attributed to the great master, the painting was able to be sold in 2017 for $450 million.[88]

With NFTs, the attribution factor is another critical factor in the valuation of the NFT. NFT technology has allowed emerging artists like

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83. Jessica Stanley, *Christie's Presents the Surrealist World of Rosalind Gersten Jacobs & Melvin Jacobs*, Christie's (Feb. 14, 2022), https://www.christies.com/about-us/press-archive/details?PressReleaseID=10366 [https://perma.cc/8L4Z-V27Q].

84. *Id.*; *Rosalind Jacobs 1925–2020*, N.Y. Times (Jan. 1, 2020), https://www.legacy.com/us/obituaries/nytimes/name/rosalind-jacobs-obituary?id=14652126 [https://perma.cc/C4VS-64Y5].

85. Cecilia Rodriguez, *Leonardo Da Vinci's Salvator Mundi Sold For More Than $450 Million, Breaking World Record*, Forbes (Nov 15, 2017, 08:43 PM), https://www.forbes.com/sites/ceciliarodriguez/2017/11/15/leonardo-da-vincis-salvator-mundi-sold-for-more-than-450-millions-breaking-world-record/?sh=448384b4e228 [https://perma.cc/VM7P-WRUS].

86. *Timeline: How 'Salvator Mundi' Went From £45 to $450 Million in 59 Years*, Artnet News (Nov. 15, 2017), https://news.artnet.com/market/timeline-salvator-mundi-went-45-to-450-million-59-years-1150661 [https://perma.cc/PXA9-FKK6].

87. *Id.*

88. *Id.*

FEWOCiOUS (Victor Langlois),[89] Miss Teen Crypto (Randi Hipper),[90] Solace (Carlos Gomez),[91] and even pre-teen artists like Benyamin Ahmed,[92] to compete for sales on the same terms and in the same marketplace with established artists like Damien Hirst[93] and Banksy.[94] NFTs have no gatekeepers, no gallery owners to impress, no dealers to woo, and no museum curators to cajole.[95] Without these barriers to entry to the market, NFT artists can command never before seen prices for their artwork. As one example, the floor price (price of the least expensive NFT in a collection) of FEWOCiOUS's NFTs is 1.55 Ether ($4,932) and the highest priced item is 195 Ether ($620,530),[96] prices that digital artists, let alone teenaged digital artists, could hardly aspire to before the advent of NFTs.

NFT collectors pay attention to the authorship of NFTs because the lack of gatekeepers in the NFT marketplace also means the space is jam-packed with

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89. FEWOCiOUS is the pseudonym of Victor Langlois, a transgender teen whose physical artwork and NFTs netted $2.16 million at auction at Christie's in July 2021. Dan Avery, *Transgender Teen's Crypto Art Series Fetches $2.16 Million at Christie's*, NBC News (Jul. 2, 2021, 10:13 AM), https://www.nbcnews.com/nbc-out/out-life-and-style/transgender-teens-crypto-art-series-fetches-216-million-christies-rcna1324 [https://perma.cc/J7MG-LHLU].
90. Miss Teen Crypto is the pseudonym of Randi Hipper, a New York teenager who mints and sells NFTs and is a speaker on the crypto and NFT convention circuit. *See* Miss Teen Crypto, https://missteencrypto.com [https://perma.cc/YV89-HY77].
91. Carlos Gomez had no home computer and started making and selling NFTs on a borrowed iPad, Steven Kurutz, *Teens Cash in on the NFT Art Boom*, N.Y. Times (Oct. 4, 2021), https://www.nytimes.com/2021/08/14/style/teens-nft-art.html [https://perma.cc/ND8M-FB2H], thereby creating a true Horatio Alger story for the 21st century. *See* Stefan Kanfer, *Horatio Alger: The Moral of the Story*, City J. (Autumn 2000), https://www.city-journal.org/html/horatio-alger-moral-story-11933.html [https://perma.cc/YM6P-VJTY].
92. In 2021, Benyamin Ahmed, at the tender age of 12, released an NFT collection called *Weird Whales* which, along with other NFT collections he has minted or collaborated on, has reportedly earned the suburban Londoner over a million dollars' worth of cryptocurrency. Rikki Schlott, *Meet 12-Year-Old Benyamin Ahmed Who Made $1 Million Creating NFTs*, N.Y. Post (Feb. 3, 2022, 10:46 AM), https://nypost.com/2022/02/03/meet-the-12-year-old-boy-who-became-a-millionaire-off-nfts [https://perma.cc/ZK3G-M5DK].
93. *See* HENI, Damien *Hirst – The Currency*, OpenSea, https://opensea.io/collection/thecurrency [https://perma.cc/4WZJ-TVTW].
94. *See* Burnt Banksy, *Original Banksy Morons*, OpenSea, https://opensea.io/assets/0xdfef5ac9745d24db881fef3937eab1d2471dc2c7/1 [https://perma.cc/8LW8—8BXF].
95. Compare the NFT market to the advice given at *My Art Belongs in Museums, How Do I Get It There?*, which plots a course through each level of gatekeeper—art fairs, dealers, major galleries, and finally museums. *My Art Belongs in Museums, How Do I Get It There?*, ArtBusiness.com, https://www.artbusiness.com/orvzt.html [https://perma.cc/G74S-P5WP].
96. *See FEWOCiOUS*, OpenSea, https://opensea.io/collection/fewocious (last visited Apr. 7, 2022) (prices as of Apr. 7, 2022).

forgers, spoofers, copycats,[97] rug-pullers, [98] and fraudsters.[99] The attribution of a work to a famous creator is the first step of the process of researching which NFTs to purchase. It will be the difference between purchasing a real CryptoPunk[100] and owning a punk from the CryptoPunk V1 collection,[101] the Wrapped CryptoPunk collection,[102] and the Cryptography Punks collection on the Solana blockchain.[103] Major marketplace platforms such as OpenSea will attempt to weed out some of the obvious fraudsters,[104] and while two of the punk offerings I cited on OpenSea are "verified collections," only the first one listed is the original and by far the most valuable collection of punks.[105]

In case you missed it, the discussion above stated that the NFT smart contract records the creator *of the NFT*—meaning the wallet address of the minter of the NFT. It does not record the actual creator of the image or image file that is being linked to the NFT contract. If the creator of the image and the minter of the NFT are two different people, only the wallet address of the minter gets encrypted onto the blockchain. This allows the potential for a fraudulent minting of artwork that was not created by the minter. There are other means to check for authenticity of an NFT by reviewing the listing on

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97. *See* Adi Robertson, *Two NFT Copycats Are Fighting over Which Is the Real Fake Bored Ape Yacht Club*, The Verge (Dec. 30, 2021, 2:29 PM), https://www.theverge.com/2021/12/30/22860010/bored-ape-yacht-club-payc-phayc-copycat-nft [https://perma.cc/7KC6-J2QZ].
98. "Rug Pull" is the curiously jovial term for a fraud perpetrated in the NFT marketplace, the classic example of which is a project that promises long-term development from its creators, but the creators then disappear overnight after selling out their NFT collection. *See* Chainalysis Team, *The Biggest Threat to Trust in Cryptocurrency: Rug Pulls Put 2021 Cryptocurrency Scam Revenue Close to All-Time Highs*, Chainalysis (Dec. 16, 2021), https://blog.chainalysis.com/reports/2021-crypto-scam-revenues [https://perma.cc/JV4U-BYW2].
99. *See id.*; Samantha Hissong, *NFT Scams Are Everywhere. Here's How to Avoid Them*, Rolling Stone (Jan. 24, 2022, 9:55 AM), https://www.rollingstone.com/culture/culture-features/nft-crypto-scams-how-to-not-get-scammed-1286614 [https://perma.cc/L4XL-CGYW]; Jack Morse, *Feds Arrest Alleged Scammers Behind Notorious NFT Rug Pull*, Mashable (Mar. 24, 2022), https://mashable.com/article/nft-frosties-rug-pull-scam-arrest [https://perma.cc/7MJ9-T2DW].
100. The real, original CryptoPunks Collection, *CryptoPunks*, OpenSea, https://opensea.io/collection/cryptopunks [https://perma.cc/2WZV-W2B2].
101. FrankNFT_eth, *CryptoPunks V1 (Wrapped)*, OpenSea, https://opensea.io/collection/official-v1-punks [https://perma.cc/YF7Y-CFHA].
102. 0ZU, *Wrapped Cryptopunks*, OpenSea, https://opensea.io/collection/wrapped-cryptopunks [https://perma.cc/CP5G-CAAQ].
103. *Cryptography Punks*, Solsea, https://solsea.io/collection/61c2a8bd2dfc9df883ccdd2e [https://perma.cc/VL9J-5WRY].
104. Robertson, *supra* note 97 ("OpenSea has banned the PHAYC and Phunky Ape Yacht Club (or PAYC) collections, both of which are based on the same gimmick: selling NFTs with mirrored but otherwise identical versions of high-priced Bored Ape Yacht Club avatars.").
105. *See CryptoPunks*, *supra* note 100; *Wrapped Cryptopunks*, *supra* note 102.

the exchange (such as OpenSea) or the Twitter or Discord discussion regarding the release (the "drop") of the NFT.[106] One can check to see if the creator names match the listings or to see if there are tweets from defrauded purchasers, but these avenues of research do not guaranty that the wallet address of the minter is the actual author and creator of the artwork linked to the NFT. "Buyer beware" and "Do your own research" have become mantras of the NFT world[107] as they have been for the art collecting community.

D. *Popularity and Historical Significance*

The popularity factor that drives up the prices of NFT artworks cannot be denied, but that again is one more reason why NFTs are completely similar to artworks of all other genres. NFTs have attracted attention because of the extraordinary heights to which the prices of NFT-linked art have gone, with seemingly little connection to the aesthetical or expressive quality of the artworks or the skill and prior reputation of the artists creating the art that was then linked to an NFT. But all that means is that some NFT artists have caught a wave in a matter of a few months that other pre-NFT artists took years or decades to catch.

Historical significance is a little daunting to measure when the artwork NFT genre is only about five years old,[108] and did not reach the center of the art world's attention span until March of 2021, with the EVERYDAYS sale.[109] Other genres of art can lay a stronger claim to actual historical significance over decades or centuries.

Man Ray's work carries great historical significance because Man Ray was a prominent figure in the Dada and Surrealist movements. He was friends with Dali and Picasso, who themselves are two of the most important figures of 20th century art.[110] The photograph *Le Violon d'Ingres* is also historically

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106. Ian Dean, *NFT Drops: Everything You Need to Know*, Creative Bloq (Jan. 16, 2022), https://www.creativebloq.com/features/nft-drop [https://perma.cc/53GF-5H9X].

107. Marc Adrian, *What You Need to Know About Non-Fungible Tokens (NFTs)*, iMoney (Jan. 12, 2022) https://www.imoney.ph/articles/nft [https://perma.cc/3NKV-PJQ6] ("[I]t is important to be cautious and do your own research for anything to do with the world of blockchain. As always, it is a case of caveat emptor – let the buyer beware – when you start to invest or trade on the NFT market."); Aaron Reed, *Are NFTs the Future of Photography?*, Aaron Reed Photography, https://www.aaronreedphotography.com/gallery/is-nft-the-future-of-photography [https://perma.cc/D47R-MU2K] (quoting artist T.J. Thorne, "Buyer beware. Do your own research. The proof is all on the blockchain.").

108. *See* Steinwold, *supra* note 2.

109. *See* Crow & Ostroff, *supra* note 3.

110. *Salvador Dalí and Man Ray, by Carl Van Vechten*, Surrealism Art, http://www.surrealismart.org/artists/salvador-dali/man-ray.html [https://perma.cc/SJ6U-S8F3]; Cathryn J. Prince, *How Dada Movement Influencer Man Ray Ran from the Nazis—and His Jewish roots*, Times Israel (Sept. 23, 2021, 3:49 PM), https://www.timesofisrael.com/how-dada-movement-influencer-man-ray-ran-from-the-nazis-and-his-jewish-roots.

significant because the subject of the photograph is Kiki de Montparnasse, a fixture of the 1920's Parisian "Jazz Age" scene.[111] The title of the work translates to "Ingres' violin," and alludes to a French idiom meaning a "hobby" which suggests that the title means Man Ray has been "playing" with Kiki de Montparnasse as a "hobby,"[112] adding a touch of scandal to the story of the photograph.

However, popularity is as much a feature of value in the art world as any of the factors discussed here. Consider the case of Andy Warhol, who is poised to take over the top spot for the highest priced painting ever sold at auction this spring when one of his Marilyn Monroe paintings, *Shot Sage Blue Marilyn* (1964), goes up for auction at Christie's.[113] The pre-auction estimate is $200 million, but the smart money says the bidding could exceed the $450 million paid for Leonardo da Vinci's *Salvator Mundi* discussed above.[114] This is an extraordinary situation to contemplate given that Andy Warhol is a twentieth century artist, not a time-honored master painter and scientist whose artworks and discoveries define the Renaissance Era.[115] Andy Warhol defies the concept

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111. Kiki de Montparnasse was an American named Alice Ernestine Prin whose flapper image and "Lost Generation" friends and acquaintances made her a cultural icon of the 1920's Parisian Jazz Age scene. Her autobiography, *Kiki's Memoirs* (1929), had an introduction by fellow "Lost Generation" American-Parisian, Ernest Hemingway. *See* Nikon, *Kiki*, Hemingway's Paris (June 10, 2007), http://hemingwaysparis.blogspot.com/2007/06/kiki.html [https://perma.cc/Z8V8-L2UD].

112. *Ingre's Violin, 1924 by Man Ray*, Man Ray: Paintings, Photography, & Bio, https://www.manray.net/ingre-s-violin.jsp [https://perma.cc/X9BZ-MDJA]; *Le Violon d'Ingres (Ingres's Violin)*, Getty Museum Collection, https://www.getty.edu/art/collection/object/104E4A [https://perma.cc/B4QC-2JMC].

113. Katya Kazakina, *An Andy Warhol 'Marilyn', Estimated to Fetch $200 Million, Could Become the Most Expensive Work of Art Ever Sold at Auction*, Artnet News (Mar. 21, 2022), https://news.artnet.com/market/andy-warhol-marilyn-christies-200m-2087993 [https://perma.cc/9VHE-GHKQ]. To update the story, Warhol's *Shot Sage Blue Marilyn* did not set the all-time record for artwork at an auction, but it did sell for $195 million, making it the most expensive work by an American artist and the most expensive 20th century work ever sold at auction. *Andy Warhol's 'Shot Sage Blue Marilyn' Sold for $195M at NY Auction, Most for US Artist*, NBC4 New York (May 10, 2022, 8:52 AM), https://www.nbcnewyork.com/entertainment/entertainment-news/andy-warhols-shot-sage-blue-marilyn-sells-for-195m-at-ny-auction-most-for-a-u-s-artist/3679452 [https://perma.cc/6KNR-68CP].

114. *See* Kazakina, *supra* note 113.

115. *See How Did Leonardo Da Vinci Influence the Renaissance*, DailyHistory, https://dailyhistory.org/How_did_Leonardo_Da_Vinci_influence_the_Renaissance [https://perma.cc/34XK-SEY7] (Sept. 21, 2021) ("Leonardo is one of the towering figures in the development of Renaissance and Western culture. He was a remarkable man and a genuine polymath who had extraordinary insights and achievements. The Florentine was able to develop new techniques in painting that revolutionized the art form, and it inspired many of the greatest painters of the Renaissance, such as Raphael. Leonardo had a great influence on sculpture and architecture in Italy during his lifetime and after. Leonardo was also a scientist and interested in a wide range of subjects.")

of scarcity because he was one of the most prolific artists in history,[116] producing thousands upon thousands of works.[117] He even called his famous studio and collaboration space "The Factory."[118] The *Marilyn* going on the block in May 2022 is one of several *dozen* similar *Marilyn* paintings Warhol created starting in 1962, the year of the actress's death.[119] And this calculation does even take into account the many silkscreen collages and series Warhol created based on that same image of Marilyn Monroe from a promo photo for the 1953 film *Niagara*.[120] Even considering that this *Marilyn* is a "shot" *Marilyn*—referring to the incident in 1964 when Dorothy Podber shot four of the five 1964 Marilyn portraits through the forehead with a small revolver[121]—this still means that there are three other Shot Marilyns silkscreened at the same time and place that are in existence, although of that group, only the one coming up for auction in May 2022 has a sage blue background.[122]

How can Warhol rival the old Renaissance master, Leonardo da Vinci? This is a factor of both popularity and historical significance.[123] If you are agog upon reading that Warhol might be a rival to the Renaissance master da Vinci, consider that Warhol defined a category of art—Pop Art[124]—and changed the

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116. *Andy Warhol: Biography (1928–1987)*, BIOGRAPHY (Apr. 27, 2017), https://www.biography.com/artist/andy-warhol [https://perma.cc/R3NX-ZHP5].

117. *Paintings, Sculptures, and Drawings*, ANDY WARHOL FOUND. FOR THE VISUAL ARTS, https://warholfoundation.org/warhol/catalogue-raisonne/paintings-sculptures-drawings [https://perma.cc/5J8P-7SDT].

118. *Id.*

119. This year's auction work, *Shot Sage Blue Marilyn*, dates back to 1964, but Warhol made at least 23 Marilyn portraits in 1962 alone. *See Marilyn Monroe*, MYARTBROKER, https://www.myartbroker.com/artist-andy-warhol/collection-marilyn-monroe [https://perma.cc/W23D-FV4T]. A different *Marilyn*, known as *White Marilyn* (1962) last sold for at auction in 2014 for $41 million. David Ng, *Andy Warhol Paintings Take In More Than $100 Million at Auction*, L.A. TIMES (May 14, 2014, 10:58 AM) https://www.latimes.com/entertainment/arts/culture/la-et-cm-andy-warhol-auction-20140514-story.html [https://perma.cc/XPD2–4MWN].

120. *See Marilyn Monroe*, *supra* note 119.

121. Tom Leonard, *The Bullet Hole that Turned Andy Warhol's Monroe into a £150million Masterpiece*, DAILY MAIL (Mar. 22, 2022, 8:02 PM), https://www.dailymail.co.uk/news/article-10641805/The-bullet-hole-turned-Andy-Warhols-Monroe-150million-masterpiece-writes-TOM-LEONARD.html [https://perma.cc/9RYU-3C44]. The *Shot Marilyns* might have additional attraction for Warhol collectors because Warhol himself was shot three times in the chest by feminist activist Valerie Solanas in his own studio, The Factory, in 1968. *See Andy Warhol's "Shot Marilyns"*, MASTERWORKS FINE ART GALLERY, https://news.masterworksfineart.com/2019/11/26/andy-warhols-shot-marilyns [https://perma.cc/HJB9-EFAZ].

122. *Shot Marilyns*, WIKIPEDIA, https://en.wikipedia.org/wiki/Shot_Marilyns# [https://perma.cc/RA9R-6UKL].

123. *See* Meredith Mendelsohn, *10 Reasons Art Collectors Are Obsessed with Andy Warhol*, INTROSPECTIVE (July 12, 2020), https://www.1stdibs.com/introspective-magazine/collecting-andy-warhol [https://perma.cc/5JTV-PWJE].

124. *About Pop Art*, SOTHEBY's, https://www.sothebys.com/en/art-movements-pop-art (last

course of art history in the mid-twentieth century.[125] He is acknowledged as an influence on many of today's most important artists, including Jeff Koons, Takashi Murakami, Stella Vine, Richard Prince, Polly Apfelbaum, Damien Hirst, and Gerhard Richter.[126]

It could be considered shocking that NFTs gathered in one year the kind of momentum that Warhol has sustained for several decades. Financial news outlets such as Forbes and the Wall Street Journal, and national and international newspapers such as the New York Times and the Guardian have gushed about artists who have entered the NFT market and made huge fortunes in cryptocurrency.[127] NFTs are the darling topic of the art world news in this one year period. It is impossible to know whether NFTs will still be a central topic of discussion in the art world ten years from now. No matter what, Beeples and his EVERYDAYS sale, and the surrounding explosion of the NFT art marketplace will make it into my art law casebook,[128] and treatise,[129] and "Art Law in a Nutshell."[130]

E. *Potential for growth in price*

As much as art collectors might decry the money-making potential of art collecting, the buying and selling of art is a business, and art collecting is regarded as an investment activity.[131] Art has been regarded as a hedge on inflation and the downward movement of other asset classes in the marketplace.[132]

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visited Apr. 7, 2022); *What is Pop Art? Techniques, Artists, and Examples that Shaped the Movement*, Invaluable (Sept. 7, 2018), https://www.invaluable.com/blog/what-is-pop-art [https://perma.cc/3UTK-ETDR].

125. Matthew Israel, *Warhol's Influence*, Artsy (Feb 6, 2014, 5:02 PM), https://www.artsy.net/article/matthew-warhols-influence [https://perma.cc/3DZH-AUWC].

126. Lauren Palmer, *Under Andy's Spell: 10 Artists Inspired by Warhol on His Birthday*, Artnet News (Aug. 6, 2015), https://news.artnet.com/art-world/10-artists-inspired-by-warhol-on-his-birthday-322565 [https://perma.cc/Z8X5-C9GY]; MasterClass Staff, *Andy Warhol: A Guide to Andy Warhol's Life and Artworks*, MasterClass (Feb. 25, 2022), https://www.masterclass.com/articles/andy-warhol-guide#3-characteristics-of-andy-warhols-art [https://perma.cc/JA9J-GCZ6].

127. Conti & Schmidt, *supra* note 2; Roose, *supra* note 46.

128. Leonard D. DuBoff & Michael D. Murray, Art Law: Cases and Materials (3d ed. forthcoming 2023).

129. 1 Leonard D. DuBoff, Christy A. King, Michael D. Murray, & James A. R. Nafziger, Art Law Deskbook: Artists' Rights in Intellectual Property, Moral Rights, and Freedom of Expression (2d ed. forthcoming, 2025).

130. Leonard D. DuBoff, Christy A. King, & Michael D. Murray, Art Law in a Nutshell (7th ed. forthcoming, 2025).

131. Paul Sullivan, *You Want to Buy Art. Is It About Love or Money?*, N.Y. Times (Feb. 15, 2019), https://www.nytimes.com/2019/02/15/your-money/art-investing.html [https://perma.cc/R9WG-AJKK].

132. Nouriel Gino Yazdinian, *The Emergence of Art Collection as an Investment Against Inflation*, Forbes (Aug. 3, 2021, 7:50 AM), https://www.forbes.com/sites/forbesbusinesscouncil/2021/08/03/the-emergence-of-art-collection-as-an-investment-

In addition to Warhol's popularity and influence and historical significance, Warhol also has a great track record of maintaining growth in the value of his works.[133] This is particularly important with Warhol because, as noted above, there is no shortage of Warhol artworks on the market.[134]

No one knows whether NFTs will stand the test of time as an asset class. At the moment, many observers attribute the rising prices in the art NFT world to a speculation boom[135] while others say the potential market is only just getting started.[136] The dollar amounts that chase NFTs are in part caused by the inflationary effects of the cryptocurrency ecosystem itself.[137] NFTs were created and initially popularized by those who were already immersed in the cryptocurrency market. As cryptocurrencies—most famously Bitcoin and Ether—spiraled upward and investors' portfolios swelled with cryptowealth, many turned to a form of collectible that was intimately connected to the crypto-blockchain economy as a desirable thing to purchase.[138] Buying NFTs was a responsible and patriotic thing for a committed citizen of the cryptoverse to do. Add to that the boredom and decreased spending opportunities of the locked-down COVID-19 world, and there emerges a recipe for growth in both price and value for NFTs.[139] As NFTs are now intimately connected with many observers' conceptions of ownership of digital assets in the emerging

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against-inflation/?sh=7e7afc577831 [https://perma.cc/GLR9-GACC].

133. Y-Jean Mun-Delsalle, *More than 30 Years Since Andy Warhol's Death, His Works Remain Highly Collectible and Recession-Proof*, Forbes (Oct. 7, 2019, 5:20 PM), https://www.forbes.com/sites/yjeanmundelsalle/2019/10/07/more-than-30-years-since-andy-warhols-death-his-works-remain-highly-collectable-and-recession-proof/?sh=7a1df8ec60d5 [https://perma.cc/E38M-D7PY].

134. *See Marilyn Monroe, supra* note 119.

135. Clive Thompson, *The Untold Story of the NFT Boom*, N.Y. Times (Aug. 12, 2021), https://www.nytimes.com/2021/05/12/magazine/nft-art-crypto.html [*https://perma.cc/3M6D-JH5S*] ("[The rising prices in the art NFT market] looks to [NFT skeptics] like more empty speculation, the next phase in the decades-long financialization of everything.").

136. Jack Morse, *Sick of NFTs? Insiders Insist They're Just Getting Started*, Mashable (Dec. 21, 2021), https://sea.mashable.com/tech/18700/sick-of-nfts-insiders-insist-theyre-just-getting-started [https://perma.cc/M629-TZG4].

137. Zachary Crockett, *Why NFTs Are Suddenly Selling for Millions of Dollars*, The Hustle (Mar. 6, 2021), https://thehustle.co/why-nfts-are-suddenly-selling-for-millions-of-dollars [https://perma.cc/9QF2-WVVV]. The rise in cryptocurrency prices in late 2020 through early 2021 coincided with a rise in interest and prices of NFTs, which in turn, brought new investors into the cryptocurrency market so they could participate in the buying and selling of NFTs. *See* Muyao Shen, *Why the NFT Frenzy Won't Drive Up Prices for Bitcoin Just Yet*, Nasdaq (Mar. 12, 2021, 4:19 PM), https://www.nasdaq.com/articles/why-the-nft-frenzy-wont-drive-up-prices-for-bitcoin-just-yet-2021–03–12; Harry Robertson, *Hype Around the Metaverse Drove NFT Tokens Up 42% in November, Making it the Best Performing Cryptocurrency Sector*, Mkts. Insider (Dec. 6, 2021, 9:08 AM), https://markets.businessinsider.com/news/currencies/metaverse-nft-tokens-sand-mana-kraken-bitcoin-ether-decentraland-sandbox-2021–12 [https://perma.cc/C7LY-FSMT].

138. *See* Crockett, *supra* note 137.

139. *See id.*

metaverse,[140] it is unlikely that NFTs will drop out of the assets and investments conversation anytime soon.

IV. Myth 4: "Smart Contracts" are like regular contracts.

"Smart contracts" are one of the great oxymorons of the 21st century: they are neither smart, nor are they contracts in the legal sense of the term. As noted above, smart contracts are a small bit of code that makes up a simple computer program that runs the operation of an NFT.[141] They are not "smart" in any real world or cryptography world or even computer programming sense of the word "smart."[142] As of now, smart contracts have nothing to do with artificial intelligence (AI) or machine learning, but that marriage may be on the social calendar soon.[143] The only thing that appears "smart" about smart contracts is that they are a clever solution to a problem of allowing the brain of an NFT to perform simple operations of the "If Yes, then X; If No, then Y" category.

The acknowledged father of smart contracts, Nick Szabo, famously described smart contracts as being like the brains of a vending machine: if coins deposited equal $1, dispense soda; if coins deposited do not equal $1, do not dispense soda.[144] However, the code required to execute such instructions is discrete and elegant, and short enough to be encrypted into a blockchain block with a minimum of work effort and gas fees.

Smart contracts are commonly associated with Ethereum, even though they exist on many other blockchains,[145] because the Ethereum developer community wrote Ethereum Request for Comments-721 (ERC-721) standard that

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140. Goossens & Breen, *supra* note 55; Georgia Weston, *NFTs and Their Role in the "Metaverse"*, 101 Blockchains (Dec. 24, 2021), https://101blockchains.com/nfts-and-metaverse [https://perma.cc/WH73-DXPC].

141. IBM, *supra* note 52.

142. *See* David G.W. Birch, *They're Not Smart and They're Not Contracts*, Forbes (Sept. 4, 2021, 6:02 AM), https://www.forbes.com/sites/davidbirch/2021/09/04/theyre-not-smart-and-theyre-not-contacts/?sh=4d69d88e397e [https://perma.cc/Z3PG-J4Q3].

143. Ahmed Almasoud, Maged M. Eljazzar, & Farookh Hussain, *Toward a Self-Learned Smart Contracts*, https://arxiv.org/ftp/arxiv/papers/1812/1812.10485.pdf [https://perma.cc/4P88-JV68]; Guido Santos, *How Smart Contracts and AI Could Work Together*, App Developer Mag. (Sept. 20, 2021), https://appdevelopermagazine.com/how-smart-contracts-and-ai-could-work-together/ [https://perma.cc/DGS6-DYHG]; Marcin Borecki, *Making Smart Contracts Smarter: The Magic Combo of Blockchain & AI*, Medium (Aug. 19, 2020), https://medium.com/swlh/making-smart-contracts-smarter-the-magic-combo-of-blockchain-ai-4859f66fbe3c# [https://perma.cc/33JF-Q8FN].

144. *See* Nick Szabo, *The Idea of Smart Contracts* (1997), https://www.fon.hum.uva.nl/rob/Courses/InformationInSpeech/CDROM/Literature/LOTwinterschool2006/szabo.best.vwh.net/idea.html [https://perma.cc/AC22-A843].

145. *See* Cryptopedia Staff, *Real-World Use Cases for Smart Contracts and dApps*, Cryptopedia (Dec. 23, 2021), https://www.gemini.com/cryptopedia/smart-contract-examples-smart-contract-use-cases [https://perma.cc/8U5U-CDZG].

allowed NFTs to be created as "non-fungible" (i.e., unique) bundles of data on the Ethereum block chain.[146] A prior standard, ERC-20 standard, governed the functioning of fungible items (such as cryptocurrency coins). With ERC-721, many other functions can be programmed into the operation of an NFT.[147]

Smart contracts are also not contracts in the legal sense. They are not negotiated and they do not represent a meeting of minds on a transaction. However, smart contracts most often contain licenses in the nature of "shrink-wrap" or "clickwrap" licenses of software or online content.[148] When a person agrees to buy the NFT they become automatically bound by the terms written into the smart contract itself or linked to the smart contract from an off chain location. If there are a lot of terms and conditions written into the ERC-721 smart contract, such as terms for the transfer of some but not all intellectual property rights or terms regarding the payment of a resale royalty right,[149] then there most likely will be a link coded into the smart contract to the terms stored in a document located off chain.[150] The off chain document listing the terms and conditions of the NFT, such as intellectual property terms, could in theory be negotiated and amended before, during, and after the transaction, which is not possible with the terms coded into the smart contract once those terms are appended to the blockchain.[151]

V. Myth 5: NFTs have created the ability of artists to receive resale royalty rights

Resale royalty laws (also known by the French phrase, *droit de suite* or "right of continuation" laws) give artists a right to participate in the proceeds

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146. ERC-721 Non-Fungible Token Standard, Ethereum (Apr. 16, 2022), https://ethereum.org/en/developers/docs/standards/tokens/erc-721 [https://perma.cc/6QKH-3VZZ]; Shaan Ray, *Non-Fungible Token (NFT) Standards: An Overview*, Hackernoon (May 22, 2021), https://hackernoon.com/non-fungible-token-nft-standards-an-overview-w71y34y3 [https://perma.cc/74KQ-FPEE].

147. *See ERC-20 Token Standard*, Ethereum (May 22, 2022), https://ethereum.org/en/developers/docs/standards/tokens/erc-20/ [https://perma.cc/GD6T-546V]; Veronica Coutts, *Ethereum Tokens Explained.*, Medium (Jul. 3, 2019), https://medium.com/linum-labs/ethereum-tokens-explained-ffe9df918008.

148. *See* DocuSign Contributor, *Are Clickwrap Agreements Legally Binding?*, DocuSign (June 4, 2019), https://www.docusign.com/blog/when-agreement-just-clicks [https://perma.cc/4DQK-M7F7].

149. *See infra* Part .

150. Guido Kucsko, Anna Katharina Tipotsch, & Alexander Pabst, *Formulating a Smart Contract and Minting an NFT*, Schonherr (May 21, 2021), https://www.schoenherr.eu/content/formulating-a-smart-contract-and-minting-an-nft [https://perma.cc/QP65-PCZ9].

151. *Id.* Of course, such human interaction is anathema to the trust-free, no intermediaries credo of the blockchain universe. *See, e.g.*, Marco Iansiti & Karim R. Lakhani, *The Truth About Blockchain*, Harv. Bus. Rev. (Jan. – Feb. 2017), https://hbr.org/2017/01/the-truth-about-blockchain [https://perma.cc/YH85-EWH6].

realized from the resale of their works.[152] While copyright laws give the creator of a work the right to control reproduction, many visual artists do not benefit as directly as print authors do from this aspect of copyright protection.[153] Unlike print authors, who derive their primary economic return on a literary work through the sale of multiple copies, visual artists receive most of their economic returns from the sale of the original works they create.[154] Royalties paid to artists upon the resale of their works put visual artists on a more equal footing with print authors by giving artists the right to participate in any exploitive use of their creation and by recognizing that increases in the value of art are based on the artists' on-going labors.[155]

NFT enthusiasts rejoice in the myth that NFTs have created the ability of artists to receive resale royalty rights on their artworks when the works are resold. In fact, artists across the globe have had the ability to receive resale royalty rights by means of contract and covenant and often by national law[156] and international law.[157] Nevertheless, American NFT enthusiasts might be excused in their ignorance of the global resale royalty situation because in the United States (and many other countries), resale royalty rights have never caught on, with the exception of the state of California. Even California's law was hounded out of existence by a series of lawsuits that ultimately declared the law to be incompatible with United States copyright law.[158]

What NFTs have done is make the calculation and payment of a resale royalty a built-in option that can be programmed into the smart contract of the NFT.[159] On OpenSea, considered to be the most popular site in early 2022 for minting, selling, and trading NFTs,[160] there is a step in the setup of your Open-

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152. DuBoff, et al., *supra* note 129, at 4–69.
153. *Id.*
154. *Id.*
155. *Id.*
156. *See, e.g.*, Legge sul diritto d'autore [Law for the Protection of Copyright and Neighboring Rights], Legge 4 aprile 1941, N. 633, G.U. July 16, 1941, art. 144–55 (It.) (an Italian code granting the authors of art the right, in certain circumstances, to receive a share of the proceeds from any "subsequent sale" of their original work provided that at least one of the parties in the subsequent sale operates "professionally in the art market.").
157. *See, e.g.*, Council Directive 2001/84/EC of 27 September 2001 on the Resale Right for the Benefit of the Author of an Original Work of Art, 2001 O.J. (L 272) 32 (EC) (a European Parliament directive establishing an artist's "inalienable" resale right).
158. Close v. Sotheby's, Inc., 894 F.3d 1061, 1064 (9th Cir. 2018), (holding that the California Resale Royalty Statute is preempted by the Copyright Act of 1976).
159. Pratin Vallabhaneni & Adam Chernichaw, *How Do NFT Royalties Work?*, Talks on Law, https://www.talksonlaw.com/briefs/how-do-nft-royalties-work# [https://perma.cc/2WEJ-C7F5].
160. Kshitij Nigam, *Best NFT Marketplace: Buy Sell Crypto Art & NFTs in 2022*, Island Now (Apr. 1, 2022), https://theislandnow.com/blog-112/best-nft-marketplace [https://perma.cc/SKC4–4EJD]; Jessica Klein, *OpenSea, the World's Hottest NFT Startup, Gained 500,000 Users in 1 Year. Its Founders Went from Broke to Billionaires in that Same Time. Now They're Struggling to Keep It from Going off the Rails*, Fortune (Mar.

Sea listing account where you can set the resale royalty percentage for all of the NFTs you will mint under that account.[161] The royalty percentage can be set as low as "zero" and as high as 10 percent.[162] Setting a resale royalty percentage of zero and thereby foregoing the royalty altogether is not necessarily a foolish bargain because the resale royalty rate will be viewed as a tax (a transaction cost) on future profits from the resale of the NFT, and thus setting the rate too high will be a drag on resales as potential buyers and sellers may balk at this tax.[163]

Resale royalty rights have traditionally been viewed with some skepticism even within the arts community because only a few top earning artists have ever truly benefitted from multiple resales of their works that would generate the resale royalty.[164] For the numbers to matter, there must be regular resales of the works, hopefully at higher and higher prices. In reality, however, much of art is bought, held, and not resold on a regular basis. Two major longitudinal studies concluded that only a very small number of artists would ever receive an appreciable amount of resale royalty.[165] For Wu, the more comprehensive of the two studies, only 0.15 percent of the 233,000 artists in the study had resales of over $1,000 in value from which royalties might have been derived over the course of the 51 months of the study,[166] and of that group, five artists (Willem De Kooning, Jasper Johns, Roy Lichtenstein, Frank Stella, and Robert Rauschenberg) accounted for 55 percent of the resales.[167] That's great news if your name is Willem De Kooning, Jasper Johns, Roy Lichtenstein, Frank Stella, or Robert Rauschenberg, but not so great news if it is not. In 2013, the United States Copyright Office reexamined the arguments and evidence in favor of and against the right, and agreed that a resale royalty right might only provide a significant benefit to a small number of artists; the Office

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30, 2022, 1:20pm), https://fortune.com/longform/opensea-nfts-eth-ethereum-crypto-marketplace-founders [https://perma.cc/W7L7–5ZXJ].

161. Jose Oramas, *How to Mint Your First NFT on OpenSea? A Step-by-Step Guide*, CryptoPotato (Dec. 29, 2021, 5:02pm), https://cryptopotato.com/how-to-mint-nft-opensea-guide [https://perma.cc/8SSL-ST74].

162. *Id.*

163. *See* Andy Storey, *Do NFT Creators Get Royalties? 8 Things to Know*, Poster Grind (Dec. 18, 2021), https://postergrind.com/do-nft-creators-get-royalties-8-things-to-know [https://perma.cc/X9F9-U8E5].

164. *See, e.g.*, Laurel Wickersham Salisbury, *It's Not That Easy: Artist Resale Royalty Rights and The ART Act*, Ctr. for Art L. (Jul. 1, 2019), https://itsartlaw.org/2019/07/01/its-not-that-easy-artist-resale-royalty-rights-and-the-art-act; Herbert I. Lazerow, *Art Resale Royalty Options*, 63 J. Copyright. Soc'y USA 201, 206, 237 (2016).

165. Jeffrey C. Wu, *Art Resale Rights and the Art Resale Market: A Follow-up Study*, 46 J. Copyright. Soc'y USA 531 (1999)]; Tom R. Camp, *Art Resale Rights and the Art Resale Market: An Empirical Study*, 28 Bull. Copyright. Soc'y USA 146 (1980).

166. Wu, *supra* note 165, at 543.

167. *Id.* at 544.

nevertheless recommended to Congress that it should look into the topic.[168] In addition, when given the chance created by Brexit to walk away from the resale royalty requirement of the European Union's directive 2001/84/EC, the United Kingdom decided to keep it, declaring in January 2021 that, "The Artist's Resale Right has provided an essential income for thousands of artists and artists' estates for nearly 14 years in the UK."[169]

The current NFT market of 2021–2022 may look very promising for rapid sales and frequent resales of NFTs, but as the market matures, it is likely that people may return to a more traditional pattern of buying and holding, which will dampen the expectation of a continuing stream of passive income from NFTs that have been sold.

The other half of this myth of NFTs is that smart contracts merely *allow* for the payment of a royalty to the original minter on the resale of the NFT, they do not guarantee it.[170] There are ways around a resale royalty payout. First, the triggering mechanism for an NFT to pay a resale royalty is dependent on the blockchain standard used and it may even be dependent on the marketplace platform used.[171] Essentially, NFT owners have the capability to move their NFT from the original minting platform's architecture to an off-platform wallet and then sell the NFT on a marketplace platform that does not use the original minting platform's architecture and smart contract protocols (for example, on a marketplace on another blockchain).[172] Such a transaction will not "notify" the original smart contract of the NFT on the original blockchain that a sale took place and therefore the smart contract will not order a payout of the resale royalty.[173] NFTs also can be transferred without the use of a marketplace platform through a simple wallet to wallet transfer—referred to as taking the transaction "off chain"—and again, this would not "notify" the NFT's smart contract that a sale took place so that the smart contract can order a payout of the resale royalty.[174] The original minter of the NFT could peri-

168. U.S. Copyright Off., Resale Royalties: An Updated Analysis 65–66, 68 (2013), https://www.copyright.gov/docs/resaleroyalty/usco-resaleroyalty.pdf [https://perma.cc/3GV3-PJPS].

169. *How Does Brexit Affect the Artist's Resale Right?*, Artists' Collecting Soc'y (Jan. 20, 2021), https://artistscollectingsociety.org/news/how-does-brexit-affect-the-artists-resale-right/# [https://perma.cc/7BHB-HUBX].

170. *See* Storey, *supra* note 163. *See also* Katarina Feder, *Can I Earn Royalties Anytime Someone Resells My NFT? + Other Artists'-Rights Questions, Answered*, Artnet News (Dec. 21, 2021), https://news.artnet.com/opinion/royalty-nft-other-artists-rights-questions-answered-2052319 [https://perma.cc/YG5E-9CNN].

171. James Beck, *Can NFTs Crack Royalties and Give More Value to Artists?*, Consensys: Blog (Mar. 2, 2021), https://consensys.net/blog/blockchain-explained/can-nfts-crack-royalties-and-give-more-value-to-artists [https://perma.cc/UQF3–3JPH].

172. *See* Vallabhaneni & Chernichaw, *supra* note 159; Feder, *supra* note 170; Storey, *supra* note 163.

173. *See* Storey, *supra* note 163. *See also* Feder, *supra* note 170.

174. *See* Storey, *supra* note 163. *See also* Feder, *supra* note 170.

odically use a chain explorer and do an accounting of the contract addresses of all of their NFTs that were sold and see if any show transfers for which no resale royalty was paid. For those transfers, the original minter could contact the transferor and transferee to try to determine if that transfer was in fact a sale and purchase event that should have triggered the payment of a resale royalty; but at this point all the original minter can do is ask the transferor and transferee to live up to terms and pay the royalty associated with the NFT. The original minter has no leverage; the NFT is already transferred, someone new owns the private key, the transfer was carried out using the rules coded into the blockchain ecosystem, and "code is law."[175]

A third problem is that over time, the platform architectures will evolve and new smart contract protocols will be developed and used, but the NFTs already sold will be stuck with the same protocol used when it was minted.[176] Remember: blockchains are immutable and you cannot edit an existing block on the chain. If artists are satisfied with listing and selling their NFTs on OpenSea on the Ethereum blockchain, and are willing to stay hopeful that others will also resell their NFTs on OpenSea, then they should be fine on collecting the resale royalties when and if they have resales.

VI. Myth 6: NFTs will allow all artists the chance to make serious money from their art.

This statement is the artwork NFT version of the crypto myth of WAGMI: "We All Gonna Make It."[177] The truth is, not all NFT artists are going to make it. If the current market for NFTs makes it seem that minting an NFT is like planting a money tree, it is not. A minter still must find a way to get people to

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175. *See* Olga V. Mack, *'Code Is Law': Should Software Developers Protect Our Freedoms?*, Above the Law (Aug. 12, 2019, 12:44 PM), https://abovethelaw.com/2019/08/code-is-law-should-software-developers-protect-our-freedoms [https://perma.cc/AZ2E-9ZF2]. *See also* Emily Nicolle, *Massive Crypto Hacks Test 'Code Is Law' Ethos*, Bloomberg, (Mar. 31, 2022, 2:00 PM), https://www.bloomberg.com/news/newsletters/2022–03–31/crypto-code-is-law-until-a-600-million-hack-bloomberg-crypto [https://perma.cc/ZLY2-GDQ2].

176. Josh Stark, *Making Sense of Blockchain Smart Contracts*, CoinDesk (Sept. 11, 2021, 5:18 AM), https://www.coindesk.com/markets/2016/06/04/making-sense-of-blockchain-smart-contracts [https://perma.cc/YTS2-B8M5]; Francis Odisi, *Intro to Challenges of Upgrading Smart Contracts in Ethereum with Solidity*, Level Up Coding (Jan 30, 2020), https://levelup.gitconnected.com/introduction-to-ethereum-smart-contract-upgradability-with-solidity-789cc497c56f [https://perma.cc/8EAY-ZLUY].

177. Jacky Yap, *WAGMI, Ape, IYKYK: 15 Crypto Slangs Only a True Crypto Nerd Will Know*, Chain Debrief (Sept. 27, 2021), https://chaindebrief.com/crypto-slangs-only-a-true-crypto-nerd-will-know [https://perma.cc/87XG-NTK4].

buy the art, and even if the market was red hot in most of 2021 and still very hot in early 2022,[178] this does not mean that whatever is listed will turn to gold.[179]

NFT technology has helped artists by taking many of the intermediaries out of the process of offering artworks for sale and selling them. The old school 20th century way of selling art for high prices had dozens of gatekeepers: art fair organizers, art show juries, gallery owners, dealers, art critics, and museum curators.[180] The NFT marketplace has no gatekeepers because that is how blockchain works.[181] Items are listed and transactions occur without the interaction or supervision of intermediaries or gatekeepers.[182]

However, sales do not just fall off a tree. Before NFTs, there was ecommerce on eBay, Etsy, Amazon, and other Web 2.0[183] marketplaces, and most of these sales were of real world three-dimensional art (paintings, drawings, sculptures, and crafts).[184] In order to overcome the built in problem of customers not being able to see and touch the art in person, artists needed to improve their social media prowess through Twitter, Instagram, Facebook, Pinterest, and other media messengers in order to get new traffic and repeat traffic through their listings.[185] NFT listings function the same. NFT artists should think about promoting their work on Twitter, hyping it a little on Instagram,[186] starting their own Discord server to build a community around their own NFT efforts, and

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178. Andrew Hayward, *Crypto Prices Are Down While the NFT Market Remains Red Hot. Here's Why*, Decrypt (Jan. 11, 2022), https://decrypt.co/90228/crypto-prices-down-nft-market-red-hot-ethereum-solana [https://perma.cc/GJ4K-7RC6].

179. *See* Patrick Reinmoeller & Karl Schmedders, *Why the NFT Market Will Collapse*, Project Syndicate (Jan. 28, 2022), https://www.project-syndicate.org/commentary/reasons-why-nft-market-will-collapse-by-patrick-reinmoeller-and-karl-schmedders-2022–01 [https://perma.cc/AQ4A-KMBK].

180. *See My Art Belongs in Museums, How Do I Get There?*, *supra* note 95.

181. Adam Hayes, *Blockchain Explained*, Investopedia (Mar. 5, 2022), https://www.investopedia.com/terms/b/blockchain.asp [https://perma.cc/KGA8-KCF3].

182. *See id.*

183. Web 2.0 is the current manifestation of the web, with interactive social media and ecommerce. Will Kenton, *Web 2.0*, Investopedia (Feb. 3, 2022), https://www.investopedia.com/terms/w/web-20.asp [https://perma.cc/5RL6-DZQP].

184. *See* Jessica Stewart, *18 Ways for Artists to Sell Their Creative Work Online*, My Mod. Met (May 25, 2020), https://mymodernmet.com/how-to-sell-art-online [https://perma.cc/YD3F-22E5].

185. *How to Sell Art on Facebook - Social Media for Artists*, ArtBusiness.com, https://www.artbusiness.com/artists-how-to-sell-art-on-facebook.html [https://perma.cc/YV69–2XH7]; *How to Promote and Sell Your Art on Pinterest*, Artwork Archive https://www.artworkarchive.com/blog/how-to-promote-and-sell-your-art-on-pinterest [https://perma.cc/N4KN-7FEK].

186. Karim Ahmad, *7 Tips to Promote Your NFT Art*, MakeUseOf (Mar. 11, 2022), https://www.makeuseof.com/nft-art-promotion-tips [https://perma.cc/4WCT-MMST].

dropping by other Discord servers and channels[187] and Reddit subreddits[188] to spread the word about their offerings. Artists will need to write an enticing listing for their NFTs on Open Sea or other platforms, and plan for the future, because NFT collectors seem to love communities, so if artists want repeat customers they probably will have to plan to offer a community experience.[189] And then they're probably "GMI" (going to make it).

Conclusion

This Article is written for the participants in the art world, the artists, dealers, gallery owners, and museum curators, and the lawyers seeking to advise them. It also may serve to help educate regulators who might try to step in and curb the worst excesses and fraudulent practices of this ecosystem. If these myths and misconceptions are better understood for what is real and what is not real about NFTs, then clients' expectations may be adjusted to a more rational level, legal analysis and advice will be more helpful, and regulators may be able to find a way to help the NFT ecosystem function better without stomping out its creative potentialities.

NFTs as a concept and a technology are probably not going away soon, because there are many people with lots of money invested in the emerging metaverse[190] and NFTs are believed to be key to actual ownership of assets

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187. Discord is a social media messaging app that has become popular with the crypto and NFT community in part because it is decentralized and therefore matches the ethos of the blockchain world. Othmane Zizi, *Here's How Much the Crypto World Loves Discord More Than Telegram*, The Bus. of Bus. (Jan. 3, 2022 2:51 PM), https://www.businessofbusiness.com/articles/heres-how-much-the-crypto-world-loves-discord-more-than-telegram [https://perma.cc/6DX7-TBLE]; *What is Discord?*, Discord https://discord.com/safety/360044149331-What-is-Discord [https://perma.cc/U8UZ-8VWB]; *Why Use Discord To Promote an NFT Project?*, Blue Manakin (Jan. 11, 2022), https://thebluemanakin.com/en/blog/discord-to-promote-an-nft-project [https://perma.cc/Y8Q2–4CHA].

188. Reddit is known as "the front page of the internet," and is believed to be a great venue for raising awareness of your NFT efforts. Ahmad, *supra* note 186.

189. Jia Ying Chang, *Don't Market Your NFTs*, Coinmonks (Nov. 16, 2021), https://medium.com/coinmonks/dont-market-your-nfts-ac0993a7c25f [https://perma.cc/DXN5-YBUT] ("Grow your community instead of splurging on NFT ads.").

190. The "metaverse" is a broad concept of an emerging existence in a virtual or augmented reality. Metaverse refers to a new lifestyle involving expanded online interactions and experiences of people in as yet unimagined and unrealized levels of virtual or augmented reality. *See* Eric Ravenscraft, *What Is the Metaverse, Exactly?*, Wired (Apr. 25, 2022, 7:00 AM), https://www.wired.com/story/what-is-the-metaverse [https://perma.cc/VNE9-P56R]. The contributors to the metaverse intend to use blockchain technology, particularly cryptocurrencies and NFTs, as currency and ownership-recording and tracking devices (e.g., virtual deeds to virtual property, in one conception) in the metaverse. Binance, *Why NFTs Are the Keys To Accessing the Metaverse*, Binance Blog (Dec. 8, 2021), https://www.binance.com/en/blog/nft/why-nfts-are-the-keys-to-accessing-the-metaverse-421499824684903085 [https://perma.cc/656A-4FC2]; Mehab

and access to services and governance in a virtual universe.[191] NFT artwork, on the other hand, may continue to boom or it may wane in importance and enthusiasm. As noted above, the NFT is not the artwork, but it allows digital works to be made scarce to the point of being unique, and registers and verifies the existence and chain of ownership of the NFT in an immutable public ledger. Smart contracts may get smarter and become more like sophisticated computer applications—the term for which is "dapp" for "decentralized applications."[192] What is for certain is we have not seen the end of the story of NFTs in the cryptoverse[193] or metaverse.

Qureshi, *How NFTs Will Be the Key to Access and Experience the Metaverse*, The Indian Express, (Apr. 9, 2022 6:14 PM), https://indianexpress.com/article/technology/crypto/how-nfts-will-be-the-key-to-access-and-experience-the-metaverse-7838515/# [https://perma.cc/594H-PF3P].

191. Binance, *supra* note 190; Qureshi, *supra* note 190.

192. Matt Hussey & Scott Chipolina, What are Dapps?, Decrypt (Oct. 1, 2020), https://decrypt.co/resources/dapps.

193. The term "cryptoverse" refers to the universe of blockchains. Blockchains are the cryptoverse, and the people and entities that use blockchain technology are the denizens of the cryptoverse. Amandeep Coleman, *What Is Cryptoverse - An Introduction*, Washington Independent (Dec. 29, 2021), https://washingtonindependent.com/what-is-cryptoverse [https://perma.cc/T2AH-RTYS].