

11-2022

Navigating the Non-Fungible Token

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Recommended Citation

Kimberly A. Houser & John T. Holden, Navigating the Non-Fungible Token, 2022 ULR 891 (2022).
<https://doi.org/10.26054/0d-r48b-sq13>

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NAVIGATING THE NON-FUNGIBLE TOKEN

Kimberly A. Houser* & John T. Holden**

Abstract

\$91.8 million, \$69 million, and \$52.7 million. These are the amounts associated with the three most sought after Non-Fungible Tokens (NFTs) sold in 2021.¹ Although NFTs were first created in 2014, 2021 saw a massive rise in their global popularity. In fact, Google reported that in 2021, “How to buy an NFT?” was one of its most searched questions.²

NFTs can alternatively represent a collectible, a financial instrument, or a permanent record associated with a person, physical or digital object, or data—each presenting an entirely distinct set of legal issues. The lack of governmental expertise in emerging technologies accompanied by the shortage of regulatory guidance has created a frustrating environment for innovators. Despite being one of the fastest-growing industries in the world, there is a remarkable deficit in legal scholarship regarding these devices. NFTs, with their attendant blockchain and smart contract technologies, can create new paradigms around ownership and identification and inspire entirely new business models. In addition to clarifying what NFTs are, this Article seeks to fill the gap in the literature by analyzing how the specific use of an NFT implicates different areas of the law. Examining the way NFTs function in sectors ranging from fine arts to finance, this Article suggests how tokenization law and policy must advance to leverage the incredible opportunities that NFTs present.

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¹ Werner Vermaak, *The Top 20 Most Expensive NFTs*, FINDER (May 16, 2022), <https://www.finder.com/most-expensive-nfts> [<https://perma.cc/6JQS-U6KP>].

² Rachel Kraus, *Where to Buy Dogecoin, and Google’s Other Extremely 2021 Top Searches of the Year*, MASHABLE (Dec. 8, 2021), <https://mashable.com/article/google-search-trends-2021> [<https://perma.cc/2M7R-B83J>].

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INTRODUCTION

Although the first so-called non-fungible token (NFT) was created in 2014,³ worldwide interest in NFTs soared in early 2021 with the launch of NBA Top Shot Moments—a virtual trading card/highlight clips hybrid, which allowed fans to purchase officially-licensed short videos of top NBA moments.⁴ But the \$69.3 million sale of an NFT by contemporary artist Beeple truly propelled the “nifty,” as

³ 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/K2Y2-KC6D>] (noting that Kevin McCoy’s *Quantum* is regarded as the “first-ever NFT”).

⁴ See Robyn Conti, *Guide to NBA Top Shot*, FORBES ADVISOR (May 12, 2022, 7:09 AM), <https://www.forbes.com/advisor/investing/cryptocurrency/nba-top-shot/> [<https://perma.cc/TR96-P7MM>].

an NFT is referred to,⁵ into mainstream consciousness.⁶ Many wondered why an image that could be downloaded from the internet by anyone could merit such a high price.⁷ Beeple's sale, which was marketed as "a milestone for digital art collecting,"⁸ raised questions about whether the concept of NFTs reflected a breakthrough moment for digital art and a new direction for collecting or whether the sale price was being driven by naked speculation surrounding digital assets more broadly.⁹

Although NFTs are often confused with cryptocurrency—likely because NFTs and crypto-coins/tokens are both created using blockchain technology—NFTs and crypto are very different devices. The speed with which technology advances, and the lack of technological understanding at the state and federal government levels, have created a regulatory vacuum around both. As such, there is scant legal scholarship surrounding NFTs. The few articles that exist focus on isolated areas of law.¹⁰ Current legal scholarship on cryptocurrency and blockchain excludes discussions of NFTs; this skews the understanding of tokenization¹¹ to a narrow slice of tokens—namely, those which serve as a medium of exchange.¹²

⁵ Despite the NFT being pronounced "nifty," we will use the more common article "an" when referring to an NFT.

⁶ See Kyle Chayka, *How Beeple Crashed the Art World*, NEW YORKER (Mar. 22, 2021), <https://www.newyorker.com/tech/annals-of-technology/how-beeple-crashed-the-art-world> [<https://perma.cc/3HLM-975J>].

⁷ See, e.g., Amanda Yeo, *Think Cryptocurrency Is Bad? NFTs Are Even Worse*, MASHABLE (Mar. 10, 2021), <https://mashable.com/article/nft-cryptocurrency-bad-environment-art/> [<https://perma.cc/7H6D-464A>] ("What are you purchasing, really? This isn't like comparing an original oil painting to a print, where the copies are very clearly different to the original. Your tokenized artwork is exactly the same as every copy ever made of it, and every copy yet to be made. You don't have some unique version only you can enjoy."); Chris M. Skinner, *The Case Against NFTs*, FINANSER (Mar. 15, 2021), <https://thefinanser.com/2021/03/the-case-against-nfts.html/> [<https://perma.cc/F2JE-JF8G>] ("Let me state that it's perfectly OK for creators to sell their work on their website, or on a third-party platform. It's also OK for fans to spend their money the way they want. My only issue with NFTs is that they are based on a lie. If NFT promoters weren't lying about their product, I wouldn't care."); Daniel Van Boom, *NFTs Don't Make Sense but That Won't Stop Them*, CNET (Mar. 17, 2021, 6:11 PM), <https://www.cnet.com/news/nfts-dont-make-sense-but-that-wont-stop-them/> [<https://perma.cc/8LB8-C6Y5>] ("There's a precedent for this in cryptocurrency, the blockchain cousins of NFTs. Cryptocurrency markets don't make sense, so in a way it makes sense that NFTs don't either. Both are born out of speculation.").

⁸ *Beeple's Opus*, CHRISTIE'S, <https://www.christies.com/features/Monumental-collage-by-Beeple-is-first-purely-digital-artwork-NFT-to-come-to-auction-11510-7.aspx> [<https://perma.cc/8TN6-9PRD>] (last visited June 23, 2022).

⁹ Van Boom, *supra* note 7.

¹⁰ A search of the term "NFT" on SSRN in February 2020, for example, revealed only 12 papers (although by June 2022, the number rose to 69).

¹¹ Tokenization is the process of "minting" an asset into an NFT. See *infra* Part I.

¹² A search of the term "cryptocurrencies" on SSRN in June 2022, for example, revealed 1,357 papers, and for "blockchain," 2,889 papers.

This Article is the first to explore how an NFT's specific use implicates different areas of the law. An NFT that serves as a collectible, like a sports trading card, could implicate gambling law. In contrast, an NFT representing ownership in a business or as identification would not. NFTs cannot be regulated as a single concept, rather, legislators and agencies must consider the *use* for which an NFT is created. Likewise, it is especially important for regulatory purposes to understand the difference between NFTs and cryptocurrencies.¹³ A cryptocurrency is designed as a medium of exchange; an NFT is not.¹⁴ A cryptocurrency is fungible; an NFT is not.¹⁵ A cryptocurrency is created on a blockchain with very limited technology, while an NFT's underlying technology is almost unlimited.¹⁶ These distinctions have important legal consequences. An NFT can alternatively represent a collectible,¹⁷ a financial instrument,¹⁸ or a permanent record associated with a person, digital or physical item, or data.¹⁹ This makes it incredibly difficult to regulate. Each type of use presents different risks, benefits, and legal issues.

The promise of NFTs extends to virtually every industry; our present system, however, is ill-equipped to regulate their use. This Article advances the literature by clearing up the confusion surrounding fungible and non-fungible tokens and explaining why the underlying blockchain and smart contract technologies make the NFT such a versatile device. It also illuminates the legal issues presented by the various uses of NFTs and concludes with legislative recommendations for developing a regulatory scheme around tokenization. Specifically, the Article proceeds in four substantive parts. First, Part I clarifies what NFTs are, describes

¹³ Lawyers, technology scholars, and media sources have all incorrectly at times labeled NFTs as a type of cryptocurrency. *See, e.g., Confused About NFTs? Here's All You Need to Know*, ICHELE BRANDS (Mar. 26, 2021), <https://ichelebrands.com/blogs/news/confused-about-nfts-heres-all-you-need-to-know-faq> [<https://perma.cc/8RWE-ZH3U>] (“NFT stands for non-fungible token—a digital token that’s a type of cryptocurrency, much like Bitcoin or Ethereum.”); Qin Wang, Rujia Li, Qi Wang & Shiping Chen, *Non-Fungible Token (NFT): Overview, Evaluation, Opportunities and Challenges 1* (Oct. 25, 2021) (unpublished manuscript), <https://arxiv.org/pdf/2105.07447.pdf> [<https://perma.cc/UET6-7S2K>] (A “[n]on-Fungible Token (NFT) is a type of cryptocurrency . . .”); Pramod Chintalapoodi, *Legal Implications of Non-Fungible Tokens (NFT)*, CHIP L. GROUP (Apr. 5, 2021), <https://www.chiplawgroup.com/legal-implications-of-nfts/> [<https://perma.cc/EC76-UXJ6>] (“An NFT is a type of cryptocurrency asset . . .”); Wallace E.J. Collins III, *The ABCs of NFTs (Understanding “Non-Fungible Tokens”)*, ENT. INDUS. L. ISSUES (Mar. 6, 2021), <https://wallacecollinsentertainmentlawblog.blogspot.com/2021/03/the-abcs-of-nfts-understanding-non.html> [<https://perma.cc/57BM-VYZU>] (“To wit, an NFT is a type of cryptocurrency.”).

¹⁴ *See infra* Part I.

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ *See infra* Part II.

¹⁸ *See infra* Part III.

¹⁹ *See infra* Part IV.

how they are created, and provides an overview of the underlying technology. Parts II through IV explore how particular uses of NFTs implicate specific areas of law. Thus, Part II examines the use of NFTs as collectibles, such as in the form of trading cards and creative works, and explores the legal consequences related to gambling and copyright law. Part III explains how the use of NFTs as financial instruments could subject them to securities, finance, or tax regulations. Part IV illustrates the potential of tokens, and specifically NFTs, to revolutionize identification and record-keeping for both physical and digital assets and the related implications for property law. Finally, Part V explains why any regulations must take into account how these different uses require different regulatory schemes. The Article concludes by explaining why tokenization law and policy require a new way of thinking and suggests how that might be accomplished.

I. WHAT ARE NFTS?

An NFT is an encrypted unit of data stored on a digital ledger created and verified on a blockchain representing a unique “asset.”²⁰ A blockchain is essentially a database where NFTs are stored and transfers are recorded.²¹ NFTs are known as “non-fungible” because the token represents something unique that is not interchangeable with other NFTs. In the case of an NFT, the “token” is the data stored on the blockchain pointing to the subject asset.²² The blockchain ledger records the tokens in every transaction, and therefore, ownership of the token is

²⁰ NFTs can serve as a digital certificate representing ownership of a digital or physical asset, ownership in an enterprise, or as a permanent record of information or identity. The best way to envision a non-fungible token is as a container of data that can only be opened with a key. *See infra* Part IV. Or, for a more exciting explanation, see Saturday Night Live, *NFTs – SNL*, YOUTUBE (Mar. 21, 2021), <https://www.youtube.com/watch?v=mrNOYudaMAc>. Note that although a blockchain is a form of distributed ledger technology (DLT), not all types of DLTs use block to store data. *See Blockchain & Distributed Ledger Technology (DLT)* (Apr. 12, 2018), <https://www.worldbank.org/en/topic/financialsector/brief/blockchain-dlt> [<https://perma.cc/35CP-Z8NE>] (“Blockchain is one type of distributed ledger.”). We primarily use the term blockchain as the vast majority of NFTs are created using blockchain technology (primarily using the ERC-721 standard discussed in Part I.B.).

²¹ *See infra* Part I.A.

²² *See Token*, BLACK’S LAW DICTIONARY (11th ed. 2019) (“A sign or mark; a tangible evidence of the existence of a fact.”). *See also* State v. Green, 18 N.J.L. 179, 181 (N.J. 1840) (“‘To designate’ is to point out, or mark by some particular token; and a token, is defined to be ‘a sign’ or ‘mark.’”). The data entries made on a blockchain are known as “tokens” indicating that they are evidence of the existence of a fact (such as the digital representation of an asset which may or may not reside on the blockchain). *See* Ravi Subbaraman & Naren Krishnan, *Blockchain Tokenization in Enterprises and Beyond*, IBM (Feb. 24, 2021), <https://www.ibm.com/blogs/blockchain/2021/02/blockchain-tokenization-in-enterprises-and-beyond/> [<https://perma.cc/3XQ7-4F2X>] (“Blockchain tokens are the digital representation of complete or shared ownership in anything of value.”).

available and verifiable.²³ When someone “mints” their digital asset,²⁴ they essentially create a certificate that exists on the blockchain, which prevents it from being copied or deleted.²⁵ The cost to mint the NFT is known as a “gas fee.”²⁶ Tokenization is the conversion of a digital or physical asset into a digital unit of data to serve as a record of ownership or identity. Any transfer of the token is blockchain-managed; therefore the person or entity that originally tokenized the asset is no longer involved.²⁷

It is often only this token, which can serve as a certificate of ownership or provenance, that resides on the blockchain.²⁸ A digital asset may reside on the blockchain as part of the token, or, if it is too large, on an off-chain website.²⁹ Access to the NFT is provided through a “wallet,” which also enables the holding of cryptocurrencies.³⁰ Although many NFT platforms require payment in

²³ See Antony Lewis, *A Gentle Introduction to Digital Tokens*, BITSONBLOCKS (Sept. 28, 2015), <https://bitsonblocks.net/2015/09/28/gentle-introduction-digital-tokens/> [<https://perma.cc/KA5Z-PKTT>] (discussing how transactions can be verified once they are validated and added to the blockchain).

²⁴ Creating an NFT on a blockchain is known as “minting.” Minting requires that the transaction be verified and confirmed through consensus as “correct.” This consensus verification can be accomplished via mining or staking. For more detailed information on how this process works, see *Non-fungible Tokens (NFT)*, ETHEREUM.ORG, <https://ethereum.org/en/nft/> [<https://perma.cc/D7RA-V593>] (last visited June 15, 2022).

²⁵ *What Is Minting an NFT? Everything You Need to Know*, NFI <https://www.nfi.edu/what-is-minting-an-nft/> [<https://perma.cc/SQ7J-LFV2>] (last visited July 26, 2022).

²⁶ This fee is paid to the validators who verify and process the data entry. LEON PERLMAN, REGULATION OF THE FINANCIAL COMPONENTS OF THE CRYPTO-ECONOMY 6 n.14, 15, https://sipa.columbia.edu/sites/default/files/25222_SIPA-White-Paper-CE-Regulation-web.pdf [<https://perma.cc/KJU5-T5ZJ>] (last visited Aug. 20, 2022).

²⁷ See *infra* Part II.C. The person or entity tokenizing an asset or other data, such as identity, can establish a smart contract.

²⁸ Historically, tokens have been long used to represent hard assets. For example, a deed would be considered a token of real property. See *infra* Part IV.A.1. for a discussion of the use of NFTs to identify ownership of real estate.

²⁹ Ron N. Dreben & Amelia Pennington, *Non-fungible Tokens and Copyright: Diligence Issues to Consider*, MORGAN LEWIS: LAWFLASH (Apr. 12, 2021), <https://www.morganlewis.com/pubs/2021/04/nonfungible-tokens-and-copyright-diligence-issues-to-consider> [<https://perma.cc/6YJG-JVJR>] (explaining that it is important to understand where the actual asset is located and to conduct due diligence prior to purchasing one to make sure that, although the token on the blockchain is secure and immutable, the asset is located somewhere secure and not on a fly by night website).

³⁰ A digital wallet allows you to store NFTs and cryptocurrencies. 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/> [<https://perma.cc/46P6-NQND>]. The wallet must be compatible with the platform on which the NFT resides, just as a cryptocurrency wallet would need to be compatible with the blockchain on which the cryptocurrency resides. Although there are many types of digital wallets, in

cryptocurrencies, some accept credit cards.³¹ An NFT can also serve as a certificate representing a physical asset.³² Unlike Bitcoin and other cryptocurrencies, NFTs are not interchangeable with each other, and each represents a distinct asset with a different value.³³ Although both cryptocurrencies and NFTs can be digitized tokens,³⁴ there is a difference in how they are created and what protocol is used.³⁵

Fungibility vs. non-fungibility is key to understanding why an NFT cannot be a cryptocurrency. Bitcoin, for example, the most popular cryptocurrency, is fungible in that all Bitcoins are of the same value and are interchangeable.³⁶ An NFT created from a work of art, for example, is non-fungible in that it is not the same as any other NFT.³⁷ No two NFTs are entirely identical.³⁸ Each NFT is assigned a unique digital identifier, like a serial number, known as a “hash.”³⁹ The hash serves as verification, meaning that the creation or transfer of the NFT has been authenticated through a

general, a wallet meant to interact with a blockchain would provide the user with a private key to essentially “unlock” their NFT.

³¹ *Id.*

³² See also *infra* Part IV.A.

³³ Matthew Chaim, *A Guide to NFTs, and How They Are About to Revolutionize Pretty Much Everything*, ONE37PM (Oct. 9, 2021, 2:12 PM), <https://www.one37pm.com/grind/money/guide-to-nfts> [<https://perma.cc/5CTY-JDGV>]. The value of an NFT is highly subjective. It amounts to what a buyer is willing to pay. There are, however, various factors that come into play, including rarity, utility, tangibility, interoperability, and perhaps most importantly, social proof. See Dilip Kumar Patairya, *How Do You Assess the Value of an NFT?*, COINTELEGRAPH (Mar. 12, 2022), <https://cointelegraph.com/news/how-do-you-assess-the-value-of-an-nft> [<https://perma.cc/9BNM-SEET>].

³⁴ Note that cryptocurrencies that exist on their own blockchain, such as the Bitcoin blockchain, are known as “coins,” but when a cryptocurrency exists on top of another blockchain, such as the Ethereum blockchain, they are referred to as tokens. Cryptocurrencies created on Ethereum using the ERC-20 protocol including Maker, (MKR), Golem (GNT), and Augur (REP) would be considered tokens. *The Difference Between Coins and Tokens*, LEDGER (Oct. 23, 2019), <https://www.ledger.com/academy/crypto/what-is-the-difference-between-coins-and-tokens> [<https://perma.cc/54RE-SEM3>].

³⁵ On the Ethereum blockchain for example, ERC-20 protocol is used to create cryptocurrencies, while ERC-721 is used to create NFTs.

³⁶ 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/334W-4VDZ>].

³⁷ *Id.*

³⁸ Ollie Leech, *What Are NFTs and How Do They Work?*, COINDESK (Mar. 24, 2022), <https://www.coindesk.com/what-are-nfts> [<https://perma.cc/8K92-B56G>].

³⁹ *Blockchain*, SYNOPSIS.COM, <https://www.synopsys.com/glossary/what-is-blockchain.html#:~:text=A%20blockchain%20is%20a%20decentralized,the%20consensus%20of%20the%20network.%E2%80%9D> [<https://perma.cc/GT3A-V7LT>] (last visited June 15, 2022).

validation mechanism.⁴⁰ The following subparts explain the technologies underlying NFTs: (A) blockchain, (B) token standards, and (C) smart contracts.

A. Blockchain

A blockchain is a database or ledger that is distributed among and verified by its users.⁴¹ It is distributed in the sense that there are multiple participants (known as nodes) who, through cryptography and consensus mechanisms, verify transactions to be added to the blockchain. It is typically decentralized in the sense that there is no one central authority.⁴² With a decentralized distributed ledger, like most blockchain configurations, any verified additions are immediately shared across all network members (nodes).⁴³ Once the shared data on the blockchain is verified by

⁴⁰ The two main mechanisms for validating a transaction are Proof of Work (PoW) and Proof of Stake (PoS). With a PoW consensus mechanism, such as used by Bitcoin, multiple nodes (known as miners) compete to be the first to create the next hash based on a complex mathematical computation. See Fahad Saleh, *Blockchain Without Waste: Proof-of-Stake*, 34 REV. FIN. STUD. 1156, 1157 (2021). PoW expends excessive energy as multiple computers use incredible processing power to compete against the other nodes. *Id.* It has been widely reported that Bitcoin mining consumes more energy than the entire country of Argentina. See, e.g., Cristina Criddle, *Bitcoin Consumes 'More Electricity than Argentina,'* BBC NEWS (Feb. 10, 2021), <https://www.bbc.com/news/technology-56012952> [<https://perma.cc/Y3W5-9QHR>]. Cf. Nic Carter, *How Much Energy Does Bitcoin Actually Consume?*, HARV. BUS. REV. (May 5, 2021), <https://hbr.org/2021/05/how-much-energy-does-bitcoin-actually-consume> [<https://perma.cc/4D67-XELP>]. With a PoS consensus mechanism, the computation is randomly assigned to nodes (known as validators) with a stake in the system (using coins as collateral), making it costly for them to make an error. Ethereum, for example, is planning on moving from PoW to PoS to cut its energy consumption by 99%. Peter Fairley, *Ethereum Plans to Cut Its Absurd Energy Consumption by 99 Percent*, IEEE SPECTRUM (Feb. 16, 2019), <https://www.fintechnews.org/ethereum-plans-to-cut-its-absurd-energy-consumption-by-99-percent/> [<https://perma.cc/7FLY-44KD>]. Once all of the transactions in a block are validated by 51% of the miners or validators, it is attached to the previous block in the chain.

⁴¹ Saleh, *supra* note 40.

⁴² A blockchain could be centralized if all of the nodes were operated by one entity. See Yannis Bakos & Hanna Halaburda, *Permissioned vs Permissionless Blockchains: Tradeoffs in Trust and Performance* 1–2 (Nov. 30, 2021) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3789425# [<https://perma.cc/F8XQ-W43L>]. In a non-blockchain centralized system, for example, such as a county recorder's office, which keeps a ledger of real estate transactions, there is one "trusted" central authority that records all of the transactions. Should something happen to the central authority, the entire system fails. See Balázs Bodó, Jaya Klara Brekke & Jaap-Henk Hoepman, *Decentralisation in the Blockchain Space*, 10 INTERNET POL'Y REV. (2021).

⁴³ Philipp Hacker, Ioannis Lianos, Georgios Dimitropoulos & Stefan Eich, *Regulating Blockchain*, in REGULATING BLOCKCHAIN: TECHNO-SOCIAL AND LEGAL CHALLENGES 1, 4 (2019).

the majority of the nodes, it becomes permanent.⁴⁴ The verification process is known as the consensus mechanism.⁴⁵

The first commercial use of blockchain was the Bitcoin blockchain, which was designed to be a peer-to-peer currency that did not rely on any financial institution or third-party intermediary.⁴⁶ This permissionless blockchain is trustless in the sense that the consensus mechanism assures that a transaction with an unknown party is verified.⁴⁷ Since the Bitcoin blockchain's creation, thousands of cryptocurrencies have been created.⁴⁸ It was not until the second generation of blockchain that NFTs could be minted.⁴⁹ Because each block contains a unique digital identifier or cryptographic hash and is attached to the previous block and time-stamped, data cannot be altered or inserted.⁵⁰ A block is like a container of transactions.⁵¹ When data is entered into a container (the block), it is linked cryptographically to the previous block creating the chain, hence, blockchain.⁵² This data entry is known as a token. Although tokens created on a blockchain can be either fungible or non-fungible; this, however, would essentially replicate a centralized ledger.⁵³

⁴⁴ Wang et al., *supra* note 13, at 4.

⁴⁵ Aside from PoW and PoS, there is Proof of Burn, Proof of Authority, Proof of Capacity, and Proof of Storage, with new mechanisms being created frequently. See Thibault Schrepel, *Collusion by Blockchain and Smart Contracts*, 33 HARV. J.L. & TECH. 117, 120 (2019).

⁴⁶ Eswar Prasad, *Five Myths About Cryptocurrency*, BROOKINGS INST. (May 24, 2021), <https://www.brookings.edu/opinions/five-myths-about-cryptocurrency/> [<https://perma.cc/WV7C-53H7>].

⁴⁷ Bakos & Halaburda, *supra* note 42, at 3. In a permissioned blockchain, the set of validators are restricted and trusted. *Id.*

⁴⁸ *Id.*

⁴⁹ Steinwold, *supra* note 36.

⁵⁰ WORLD BANK GRP., DISTRIBUTED LEDGER TECHNOLOGY & SECURED TRANSACTIONS: LEGAL, REGULATORY AND TECHNOLOGICAL PERSPECTIVES – GUIDANCE NOTES SERIES: NOTE 3: DISTRIBUTED LEDGER TECHNOLOGY AND SECURED TRANSACTIONS FRAMEWORK: A PRIMER 7, 12 (2020), <https://openknowledge.worldbank.org/bitstream/handle/10986/34009/Distributed-Ledger-Technology-and-Secured-Transactions-Framework.pdf?sequence=1&isAllowed=y> [<https://perma.cc/T8XN-J9SK>].

⁵¹ Damien Cosset, *Blockchain: What Is in a Block?*, DEV CMTY. (Dec. 27, 2017), <https://dev.to/damcosset/blockchain-what-is-in-a-block-48jo> [<https://perma.cc/E4TU-HFYD>].

⁵² WORLD BANK GRP., *supra* note 50, at 12.

⁵³ *Id.* at 18. When using the term blockchain herein, we are referring to tokenized blockchains.

The Ethereum blockchain,⁵⁴ created by Vitalik Buterin and launched in 2015, improved upon the Bitcoin blockchain⁵⁵ by enabling computer code to be stored in a block, thereby allowing developers to create decentralized applications (DApps) and smart contracts.⁵⁶ This functionality enabled NFT marketplaces to run on the Ethereum blockchain—guaranteeing security and anonymity without centralized oversight.⁵⁷ By operating on the blockchain, all transactions and metadata that run the network are recorded, and this data is verifiable by any user with internet access.⁵⁸ As a result, proof of authenticity can be created for digital assets such as NFTs.⁵⁹ Before NFTs and blockchain, digital files that were uploaded online could be copied infinitely and with 100% accuracy.⁶⁰ Thus, an NFT has the advantage of demonstrating to others that a user has authentic and unerasable ownership over an asset.⁶¹

B. Token Standards

Although the Bitcoin blockchain was the first iteration of blockchain technology, Bitcoin was solely designed as a digital currency. As such, the Bitcoin blockchain has very little functionality. It is, at its essence, a trustless digital ledger of financial transactions requiring verification to update all of the nodes.⁶² Initially, the Ethereum blockchain operated much like the Bitcoin blockchain, using its own token standard (ERC-20) to add fungible tokens, like cryptocurrencies, to its ledger.⁶³ A token standard is a set of application rules permitting a blockchain to be utilized for token creation. In 2018, however, Ethereum implemented a new token standard (ERC-721) and enabled the creation of non-fungible tokens. Each token could now represent a unique asset and be assigned a hash—a unique digital

⁵⁴ See generally Vitalik Buterin, *A Next Generation Smart Contract & Decentralized Application Platform*, BLOCKCHAIN LAB, http://blockchainlab.com/pdf/Ethereum_white_paper-a_next_generation_smart_contract_and_decentralized_application_platform-vitalik-buterin.pdf [<https://perma.cc/HG4C-S9N8>] (providing an overview of the Ethereum blockchain).

⁵⁵ The concept of the Bitcoin blockchain was published in *Bitcoin: A Peer-to-Peer Electronic Cash System*, purportedly by Satoshi Nakamoto. See Satoshi Nakamoto, *Bitcoin: A Peer-to-Peer Electronic Cash System*, BITCOIN.ORG, <https://bitcoin.org/bitcoin.pdf> [<https://perma.cc/GPH3-WRHA>] (last visited May 29, 2021).

⁵⁶ Sylve Chevet, *Blockchain Technology and Non-Fungible Tokens: Reshaping Value Chains in Creative Industries 13–14* (2018) (Master's Thesis, HEC Paris), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3212662 [<https://perma.cc/EG4E-MYZB>].

⁵⁷ *Id.*

⁵⁸ *Id.* at 9.

⁵⁹ *Id.*

⁶⁰ *Id.* at 6.

⁶¹ *Id.*

⁶² For a full explanation of how the Bitcoin blockchain system works, see *id.*

⁶³ Steinwold, *supra* note 36.

identifier.⁶⁴ In sum, while both Bitcoin and Ether (Ethereum tokens) use blockchain and can be used as a form of payment, it is smart contracts on the Ethereum blockchain that enable the creation and distribution of NFTs.⁶⁵ One cannot create an NFT on the Bitcoin blockchain.

Although ERC-721 is the most commonly used token standard for NFTs, Ethereum creates other standards with different functionality, such as ERC-1155, which permits the creation of semi-fungible tokens.⁶⁶ Additionally, new platforms, such as Flow and Tezos, focus entirely on NFT creation.⁶⁷ Dapper Labs, the entity behind NBA Top Shot, created the Flow standard. With differing blockchains, however, there is a lack of interoperability. This means that an NFT created on Ethereum using the ERC-721 standard could not be sold on Flow or Tezos.⁶⁸

C. Smart Contracts

The term “smart contract” was first coined by Nick Szabo in 1994, who postulated computer code that could execute the terms of a contract automatically.⁶⁹

⁶⁴ Ki Chong Tran, Stephen Graves & moreReese, *What Is ERC-721? The Ethereum NFT Token Standard*, DECRYPT (May 18, 2022), <https://decrypt.co/resources/erc-721-ethereum-nft-token-standard> [<https://perma.cc/4UHA-F6MN>].

⁶⁵ Ghaith Mahmood, Jordan Naftalis & Veronica Ye, *Creative Crypto: IP Implications of Selling Creative Works Tied to Non-Fungible Tokens*, JD SUPRA (Mar. 16, 2021), <https://www.jdsupra.com/legalnews/creative-crypto-ip-implications-of-7863392/> [<https://perma.cc/6E2T-N4MH>].

⁶⁶ See Usman W. Chohan, *Non-Fungible Tokens: Blockchains, Scarcity, and Value 5* (Mar. 24, 2021) (unpublished manuscript), https://privpapers.ssrn.com/sol3/papers.cfm?abstract_id=3822743 [<https://perma.cc/6NUY-A63L>] (discussing ERC-1155).

⁶⁷ Shaan Ray, *Non Fungible Token (NFT) Standards: An Overview*, HACKERNOON (May 22, 2021), <https://hackernoon.com/non-fungible-token-nft-standards-an-overview-w71y34y3?source=rss> [<https://perma.cc/AE6R-9EVH>].

⁶⁸ Rahul A. R., *How to Create an NFT or Non-Fungible Token? Part 1 ERC-721 Standard*, ACCUBITS (Mar. 22, 2021), <https://blog.accubits.com/how-to-create-an-nft-token-erc-721-standard/> [<https://perma.cc/D8L8-GRTJ>] (“Every blockchain will have a distinct NFT token standard, wallet service, and marketplace. For example, if you develop NFTs on top of the Binance Smart Chain, you will only be able to sell them on platforms that support Binance Smart Chain assets. This means you wouldn’t be able to sell them on other marketplaces.”).

⁶⁹ A smart contract is “[a] a set of promises, specified in digital form, including protocols within which the parties perform on these promises.” Nick Szabo, *Smart Contracts: Building Blocks for Digital Markets* (1996), https://www.fon.hum.uva.nl/rob/Courses/InformationInSpeech/CDROM/Literature/LOTwinterschool2006/szabo.best.vwh.net/smart_contracts_2.html [<https://perma.cc/KG6K-32XG>]. Using the example of vending machines, where you put a coin in the machine and your product automatically comes out without the need to go to a concession stand and use a human as an intermediary, Szabo wanted the code to execute automatically on the completion of a condition required in the code. Nick Szabo, *Formalizing and Securing Relationships on Public Networks*,

It was not until 2015, however, that Ethereum was able to put smart contracts into practice on its blockchain.⁷⁰ Smart contracts serve as digital if/then programs that run on a decentralized ledger and execute automatically.⁷¹ Ethereum improved upon this technology, enabling greater functionality in the creation of NFTs. Smart contracts enable parties who do not know (and do not trust) each other to engage in transactions without an intermediary such as a bank or title company.⁷² The self-executing code, for example, could provide that for every future sale of a particular art NFT, the creator will receive a 10% royalty payment. This would occur automatically, without the creator having to monitor future sales.⁷³ Smart contracts can also be programmed to trigger an action based on information not contained in the blockchain.⁷⁴ These off-chain events, known as “oracles,” provide the blockchain with data from an external source through an API (Application Based Interface).⁷⁵ The oracle serves to document the “if” portion of an “if/then” smart contract.

Smart contracts have enormous potential to facilitate automation, especially in sales transactions. Smart contracts are not technically contracts but rather computer code that executes instructions.⁷⁶ By automating transactions, however, they reduce transaction costs.⁷⁷ Because smart contracts are self-executing, however, there is no

FIRSTMONDAY (1997), <https://journals.uic.edu/ojs/index.php/fm/article/view/548/469> [<https://perma.cc/KG6K-32XG>].

⁷⁰ *Ethereum Explained: A Guide to the World Supercomputer*, CRYPTOPEDIA (Dec. 23, 2021), <https://www.gemini.com/cryptopedia/ethereum-blockchain-smart-contracts-dapps> [<https://perma.cc/G4UA-56YW>].

⁷¹ See Florian Martin-Bariteau & Marco Pontello, Hashing Out Agreements: An Overview of “Smart” Contracts Under Canadian Law 10 (July 9, 2020) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3592986 [<https://perma.cc/P6HX-JCJ5>].

⁷² Wang et al., *supra* note 13, at 4. Banks serve as intermediaries to provide trust between parties to a banking transaction and title companies serve as intermediaries to provide trust between purchasers and sellers of real estate.

⁷³ Adam Chernichaw, Pratin Vallabhaneni & Shobha Lizasa, *The Rise of NFTs – Opportunities and Legal Issues*, WHITE & CASE (Apr. 20, 2021), <https://www.whitecase.com/publications/alert/rise-nfts-opportunities-and-legal-issues> [<https://perma.cc/YL5W-TABX>].

⁷⁴ Hacker et al., *supra* note 43.

⁷⁵ Shaan Ray, *NFTs and Smart Contracts*, MEDIUM: SHAAN RAY (May 18, 2021), <https://medium.com/lansaar/nfts-and-smart-contracts-6c4c5516d5a0> [<https://perma.cc/7PK7-ZWSF>].

⁷⁶ Stuart D. Levi & Alex B. Lipton, *An Introduction to Smart Contracts and Their Potential and Inherent Limitations*, HAR. L. SCH. FORUM ON CORP. GOVERNANCE (May 26, 2018), <https://corpgov.law.harvard.edu/2018/05/26/an-introduction-to-smart-contracts-and-their-potential-and-inherent-limitations/> [<https://perma.cc/AAJ7-L8UC>].

⁷⁷ WORLD BANK GRP., *supra* note 50, at 23.

direct way to amend or terminate them.⁷⁸ If a smart contract relies on an oracle and the oracle pushes incorrect information, the smart contract automatically executes anyway.⁷⁹ Additionally, there is no current legal framework governing their creation or enforcement.⁸⁰

II. NFTS AS COLLECTIBLES: THE LEGAL ISSUES

Collectible NFTs are verifiable digital certificates of authenticity for art, music, or trading cards. The reason digital creators have embraced this technology is that they provide a mechanism to sell their work directly to the public without an intermediary. Traditionally, collectors have undervalued digital art because of the ease with which it can be copied off the internet. By creating a system in which each collectible has a unique identifier and each collectible's creators and owners are documented, NFTs create scarcity.

NFTs now enable buyers to purchase ownership of tokenized creative works in any form (image, animation, video, music).⁸¹ Circulating fake or replica versions of specific art is pointless, as any user can trace the art back to its rightful owner, confirming authenticity and ownership.⁸² As a result, buyers of NFTs are protected from falling prey to sellers that purport to sell fake art as authentic.⁸³ Previously, digital art had to be authenticated by an expert, which proved costly and burdensome for collectors and sellers alike. With an NFT, authenticity is assured.⁸⁴ As an additional benefit, because artists can sell their work directly through an NFT platform, no intermediary art gallery is necessary.⁸⁵

Beyond art, NFTs also find form as other collectibles, like trading cards. For example, NBA Top Shot amassed \$600 million in sales between their release in

⁷⁸ Levi & Lipton, *supra* note 76. See also Jeremy M. Sklaroff, Comment, *Smart Contracts and the Cost of Inflexibility*, 166 U. PA. L. REV. 263, 267 (2017) (arguing that smart contracts will make transactions more expensive and inefficient).

⁷⁹ See Levi & Lipton, *supra* note 76.

⁸⁰ Shaanan Cohny & David A. Hoffman, *Transactional Scripts in Contract Stacks*, 105 MINN. L. REV. 319, 324–25 (2020). See also Sklaroff, *supra* note 72, at 291–98.

⁸¹ Blake Gopnik, *The NFT Craze Encapsulates the Absurdity of the Art World—and Its Obsession with Authenticity*, ART NEWSPAPER (Mar. 1, 2021), <https://www.theartnewspaper.com/comment/the-nft-craze-encapsulates-the-absurdity-of-the-art-world-and-its-obsession-with-authenticity> [<https://perma.cc/5XQU-NN8R>].

⁸² Ryan Waddoups, *Why More Digital Artists Are Embracing Cryptocurrency*, SURFACE (Feb. 27, 2021), <https://www.surfacemag.com/articles/non-fungible-tokens-cryptocurrency-digital-artists/#:~:text=For%20artists%2C%20using%20NFTs%20to,of%20a%20transformative%20economic%20model.&text=Royalties%20can%20be%20programmed%20into,sold%20to%20a%20new%20owner> [<https://perma.cc/E9R6-QJJ7>].

⁸³ *Id.*

⁸⁴ Chevet, *supra* note 56, at 40.

⁸⁵ *Id.*

October 2020 and May 2021.⁸⁶ These collectible NBA highlight videos (a digital take on collectible basketball cards) can be purchased in packs that contain different rarities and prices.⁸⁷

Overall, the current NFT frenzy appears less motivated by genuine collectors and more by speculators hoping to resell their NFTs for a quick profit.⁸⁸ As the popularity and availability of collectible NFTs grows, however, several legal issues present themselves. This Part will explore how the enormous dollar amounts recently paid for some NFTs, in what seems to be speculative purchasing, has triggered concerns over the applicability of federal and state laws relating to (A) gambling and (B) copyright.

A. Gambling Law

While speculation has long been frowned upon in financial markets, it has historically been differentiated from gambling.⁸⁹ While modern securities law is within the federal government's purview, gambling regulations have traditionally been left to the states.⁹⁰ Under most state laws, a specific activity is considered gambling, if it contains three elements: (1) some degree of chance, (2) a prize, and (3) the payment of some consideration.⁹¹ The key determinant in deciding whether an act is gambling rests on the first element—the degree to which chance determines

⁸⁶ By May 2021, Dapper Labs recorded \$600 million in Top Shot sales. A.J. Perez, *Dapper Labs Faces Lawsuit over NBA Top Shot*, FRONT OFFICE SPORTS (May 17, 2021), <https://frontofficesports.com/nba-top-shot-lawsuit-calls-for-nft-regulations/> [<https://perma.cc/7CR9-6YWB>].

⁸⁷ NBA TOP SHOT, <https://www.nbaTopShot.com/> [<https://perma.cc/D2FE-VB7Q>] (last visited June 16, 2022).

⁸⁸ For a discussion of a comparable frenzy, the 1836 Tulipmania bubble, 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/R9WL-VKPD>].

⁸⁹ See Miranda Marquit, *Is It Investing, Speculation or Gambling?*, U.S. NEWS & WORLD REP. (Dec. 11, 2019, 11:46 AM), <https://money.usnews.com/money/blogs/the-smarter-mutual-fund-investor/articles/is-it-investing-speculation-or-gambling> [<https://perma.cc/8JVR-NX5N>] (describing the nuances between investing, speculation, and gambling).

⁹⁰ See G. Robert Blakey & Harold A. Kurland, *The Development of the Federal Law of Gambling*, 63 CORNELL L. REV. 923, 925–58 (1978) (noting that while more than 50 federal gambling laws existed at the time of their article, these laws were scattered across the U.S. Code, and states historically played the primary role in determining which activities were permitted within their own borders). Historically, the federal government has stepped in to regulate gambling when issues have become interstate, or when state law enforcement is unwilling or unable to enforce their own laws. See John T. Holden, *Regulating Sports Wagering*, 105 IOWA L. REV. 575, 577 (2020).

⁹¹ John T. Holden, *Trifling and Gambling with Virtual Money*, 25 U.C.L.A. ENT. L. REV. 41, 80 (2018).

the outcome.⁹² Although the application of gambling laws to all NFTs is unlikely, some subsets of the collectibles market, such as card packs, may implicate gambling laws. This Section explores how state and federal gambling laws could be relevant to the regulation of NFTs.

1. State Law

State laws on gambling are relevant to NFTs because states have historically regulated what activities constitute gambling.⁹³ The three most prominent tests used by states to determine whether an activity involves an impermissible level of chance are the predominant factor test, the material element test, and the any chance test.⁹⁴ The *predominant factor test* is applied most widely and provides that an activity is not gambling if the dominant factor in determining an outcome is the gambler's skill.⁹⁵ This comprehensive yet largely subjective test is employed in a plurality of states.⁹⁶ The second most widely applied test is the *material element test*, where an activity is determined to be gambling if chance is a material element deciding the wager's outcome.⁹⁷ Finally, some jurisdictions use the *any chance test*, in which an activity is considered gambling if chance plays any role in determining the outcome.⁹⁸ This highly restrictive test captures some of the most widely accepted activities within its scope.⁹⁹

Although the application of gambling laws to all NFTs is unlikely, gambling law might be implicated where the contents of a package containing NFTs are unknown and the value unascertainable at the time of purchase.¹⁰⁰ In many ways,

⁹² John T. Holden & Simon A. Brandon-Lai, *Advertised Incentives for Participation in Daily Fantasy Sports Contests in 2015 and 2016: Legal Classification and Consumer Implications*, 15 ENT. & SPORTS L.J. 1, 3–4 (2017).

⁹³ Blakey & Kurland, *supra* note 90, at 925–58; *see also* John T. Holden & Marc Edelman, *A Short Treatise on Sports Gambling and the Law: How America Regulates Its Most Lucrative Vice*, 2020 WIS. L. REV. 907, 917–18 (2020).

⁹⁴ Holden, *supra* note 91, at 79–81.

⁹⁵ John T. Holden, Christopher M. McLeod & Marc Edelman, *Regulatory Categorization and Arbitrage: How Daily Fantasy Sports Companies Navigated Regulatory Categories Before and After Legalized Gambling*, 57 AM. BUS. L.J. 113, 130 (2020).

⁹⁶ Stan Fox, *US State-By-State Gambling Laws*, LET'S GAMBLE USA (June 16, 2022), <https://www.letsgambleusa.com/state-gambling-laws/> [<https://perma.cc/GQ7L-LURM>].

⁹⁷ Holden, *supra* note 91, at 80.

⁹⁸ *Id.* at 130–31.

⁹⁹ *Id.* The “any chance test” is restrictive enough to result in things like spelling bees or golf tournaments being considered illegal gambling if there is a prize involved.

¹⁰⁰ *See* Vikas Chokshi, *What Is NBA Top Shot? Everything You Need to Know*, AUDACY (Feb. 26, 2021, 1:07 PM), <https://www.radio.com/sports/sports-betting/what-is-nba-top-shot-everything-you-need-to-know> [<https://perma.cc/EVH9-WZL9?view-mode=server-side>] (describing the Top Shot concept as “as a mix of collecting cards, gambling, DFS, and the stock market, with a bunch of strategies involved”).

purchasing a package of digital trading cards like NBA Top Shot appears to contain an element of chance.¹⁰¹ Whether packages of trading cards involve an element of chance is a question that has followed traditional sports card collecting for some time.¹⁰² For example, lawsuits in the 1990s alleged that trading card companies that had randomly inserted autographed cards into packages met the three elements of gambling.¹⁰³ Criminal law professor G. Robert Blakely opined at the time that the critical question for a court to decide is whether the purchaser is paying consideration for a package of cards or whether they are paying for the chance to obtain a rare card.¹⁰⁴ The practice of inserting “chase” cards, or cards that collectors would seek, ignited a debate around card collecting and gambling.¹⁰⁵

Between 1996 and 2003, at least seventeen lawsuits were filed alleging that trading card companies and their licensing partners had violated the Racketeer Information and Corrupt Organization (“RICO”) Act by engaging in illegal gambling.¹⁰⁶ Although each of these lawsuits was dismissed,¹⁰⁷ they did not resolve the issue of whether cards with inserts or trading card sales, generally, are a form of gambling.¹⁰⁸ Thus, the question of legality persists. While some gambling commentators have suggested that the idea that all purchasers receive cards of some value may not eliminate the element of chance and render the activity permissible,¹⁰⁹

¹⁰¹ See Charles Curtis, *An NBA Top Shot Premium Pack Drop Has Fans and Users Buzzing* (UPDATE), USA TODAY SPORTS: FOR THE WIN (Feb. 26, 2021), <https://ftw.usatoday.com/2021/02/nba-top-shot-pack-drop-premium> [<https://perma.cc/2X8V-B5DS>] (describing the process for purchasing Top Shot packages).

¹⁰² See Stefan Fatsis, *Sports Trading Cards: Wholesome Fun or Gambling?*, WALL ST. J. (Oct. 25, 1996, 2:30 AM), <https://www.wsj.com/articles/SB846202501868224000> [<https://perma.cc/WLP4-A48A>] (observing that several federal lawsuits were filed against trading card manufacturers in the 1990s alleging that the randomness of receiving certain high value cards rendered the purchase of cards a form of gambling).

¹⁰³ *Id.* See also *Dumas v. Major League Baseball Props., Inc.*, 104 F. Supp. 2d 1220, 1224 (S.D. Cal. 2000) (dismissing plaintiffs’ claims alleging violation of the Racketeer Influenced and Corrupt Organizations Act involving the insertion of autographed “chase” cards into baseball card packs).

¹⁰⁴ See Fatsis, *supra* note 102.

¹⁰⁵ Sara A. Elliott & Daniel S. Mason, *Emerging Legal Issues in the Sports Industry: Are Trading Cards a Form of Gambling?*, 13 J. LEGAL ASPECTS SPORT 101, 101–02 (2003).

¹⁰⁶ *Id.* at 113.

¹⁰⁷ See, e.g., *Dumas*, 104 F. Supp. 2d at 1224; see also Elliott & Mason, *supra* note 105, at 115–16 (explaining that plaintiffs failed to show an economic harm to business or property, as require by RICO, which led to their cases being dismissed).

¹⁰⁸ Elliott & Mason, *supra* note 105, at 113.

¹⁰⁹ Paul Lesko, *A Q&A on the Legality of Box Breaks with Sweepstakes Law Blog’s Dale Joerling*, CARDBOARD CONNECTION, <https://www.cardboardconnection.com/qa-legality-box-breaks-sweepstakes-law-blogs-dale-joerling> [<https://perma.cc/YV9F-TB86>] (last visited Mar. 19, 2021) (“[T]he fact that ‘everyone could win something’ is not enough to remove the element of chance. However, if everyone wins the same prize or, in some

the question surrounding the permissibility of traditional card packs under gambling law remains murky.¹¹⁰

Despite the lack of enforcement in the traditional trading card industry, the digital nature of NFTs may raise new concerns. For example, there is ongoing debate over so-called “loot boxes”—a significant feature of some video games.¹¹¹ Loot boxes are features built into video games where users seek to gain the contents of a sealed box. Opportunities to open loot boxes can come from in-game achievements, elapse of time, or purchase.¹¹² The slot machine-like nature of loot boxes is mirrored by some NFT products like NBA Top Shot, where users make a purchase not knowing what they will receive. A *Bloomberg Businessweek* article published in 2016 brought the concept of loot boxes¹¹³ to mainstream audiences after the article revealed that virtual weapons and skins in the game, *Counter-Strike: Global Offensive*, were fueling black market online casinos.¹¹⁴ By 2018, it was estimated that the loot box component of video games was valued at more than \$30 billion.¹¹⁵ The random nature and perceived age of video gamers led numerous countries worldwide to ban loot boxes.¹¹⁶ The United Kingdom sought to regulate loot boxes as a gambling activity, while other countries like Australia, New Zealand, Denmark, and Ireland, declined.¹¹⁷ While various U.S. jurisdictions have introduced legislation to target loot boxes by classifying them as gambling games, little action has been

cases, the same prize value, it could be found that the element of chance has been eliminated because the participants know the value of what they will receive before they make their purchase.”).

¹¹⁰ See Emma Baccellieri, *How the Internet Created a Sports-Card Boom—and Why the Pandemic Is Fueling It*, SPORTS ILLUSTRATED (May 4, 2020), <https://www.si.com/mlb/2020/05/04/breaking-the-fall-sports-cards-and-the-pandemic> [https://perma.cc/F8YE-8DLC] (describing an element of gambling in the practice of box breaking where individuals pay for the opportunity to gain certain cards from a pack owned by another person).

¹¹¹ See Sheldon Evans, *Pandora’s Loot Box*, 90 GEO. WASH. L. REV. 376, 378 (describing loot boxes as “a mix between pulling a slot machine lever and buying a pack of trading cards. Players spend real-world money to buy a virtual box without knowing its contents”).

¹¹² *Loot Boxes Linked to Problem Gambling in New Research*, BBC (Apr. 2, 2021), <https://www.bbc.com/news/technology-56614281> [https://perma.cc/4HF5-BWKN].

¹¹³ Loot boxes are generally found in video games involving a mystery “box” that can be opened either through meeting certain objectives in the game or the payment of money. The boxes contain items like weapons or costumes for the player’s avatar known as skins. *See id.*

¹¹⁴ See John T. Holden, Ryan M. Rodenberg & Anastasios Kaburakis, *Esports Corruption: Gambling, Doping, and Global Governance*, 32 MD. J. INT’L L. 236, 237–38 (2017).

¹¹⁵ Evans, *supra* note 111, at 388.

¹¹⁶ *Id.* at 382–83 n.34.

¹¹⁷ *Id.* at 382–83.

taken against game makers.¹¹⁸ Still, many game makers have voluntarily removed loot boxes from their games.¹¹⁹

The critical obstacle to imposing existing gambling laws to loot boxes centers on the items' perceived value in the box—for gambling laws to be implicated, a prize must constitute something of value.¹²⁰ The antiquated nature of state gambling laws may not recognize virtual items as having value, and thus may allow them to escape regulation.¹²¹ Thus, despite their apparent relevance, antiquated state gambling laws are ill-suited to regulate NFTs.

2. Federal Law

Federal law provides a supplement to state gambling law, mainly when transactions occur across state lines.¹²² As an illustration, there are three primary sections of the federal criminal code relevant to NFTs like Top Shot.¹²³ The Wire Act prohibits, amongst other things, the interstate transmission of bets or wagers or information assisting in the placing of bets or wagers on a sporting event or wager.¹²⁴

¹¹⁸ Jasmine Henry, *Gamers Will Hate Washington's Proposals for Loot Box Gambling Laws*, CCN: GAMING NEWS & OPS. (Jan. 28, 2020, 8:32 AM), <https://www.ccn.com/gamers-will-hate-washingtons-proposals-for-loot-box-gambling-laws/> [https://perma.cc/6CZ2-P3U3]. The Federal government, in addition to California, Hawaii, and Washington all took an interest in regulating loot boxes. See Teddy Amenabar, *Video Game 'Loot Boxes' Are Going Away and It Could Crush Rocket League's Black Market*, WASH. POST (Aug. 27, 2019, 7:00 AM), <https://www.washingtonpost.com/video-games/2019/08/27/video-game-loot-boxes-are-going-away-it-could-crush-rocket-leagues-black-market/> [https://perma.cc/4Z4J-8C6A]. Note that even if NFTs avoid gambling laws, they might not wholly avoid regulation. For instance, while loot boxes have largely escaped U.S. gambling laws, that has not stopped the Federal Trade Commission ("FTC") from keeping a keen eye on the video game content. Lesley Fair, *Loot Boxes: What's in Play?*, FED. TRADE COMM'N: BUS. BLOG (Aug. 14, 2020), <https://www.ftc.gov/news-events/blogs/business-blog/2020/08/loot-boxes-whats-play> [https://perma.cc/HX6D-HQBK]. In a 2020 FTC "Staff Perspective Paper," although the agency ultimately recommended that the industry try self-regulation first, they did not discount the future need for government intervention. FED. TRADE COMM'N, FTC VIDEO GAME LOOT BOX WORKSHOP 6 (2020), https://www.ftc.gov/system/files/documents/reports/staff-perspective-paper-loot-box-workshop/loot_box_workshop_staff_perspective.pdf [https://perma.cc/7UF3-4Y2Z].

¹¹⁹ See, e.g., Patricio Kobek, *Bungie Is Removing Loot Boxes from Destiny 2*, GAMER (Mar. 3, 2020), <https://www.thegamer.com/destiny-2-loot-boxes-removal-season-10/> [https://perma.cc/2UWS-4426].

¹²⁰ Evans, *supra* note 111, at 404–05.

¹²¹ *Id.* at 394–98.

¹²² See generally John T. Holden, *Prohibitive Failure: The Demise of the Ban on Sports Betting*, 35 GA. ST. U. L. REV. 329, 365–70 (2019) (describing the ancillary role of federal statutes in regulating gambling in the United States). See also Blakey & Kurland, *supra* note 90, 925–5890.

¹²³ 18 U.S.C. § 1084; 18 U.S.C. § 1955; 31 U.S.C. §§ 5361–5367.

¹²⁴ 18 U.S.C. § 1084(a).

While the opening of Top Shot packages is unlikely to be considered a sporting event, there is an open question of whether the purchase of one of these packs constitutes a game of chance.¹²⁵ The question of whether a contest exists is likely two-fold. First, the inquiry requires examining the virtual queue and random drawing to purchase the pack. As long as the process for queueing does not involve consideration, it likely would not trigger gambling laws because consideration is an essential element for an activity to meet the definition of gambling.¹²⁶ Second, the act of opening the package itself in search of “chase” cards or cards of value may implicate the Wire Act.¹²⁷ The limited case law surrounding the phrase “contest” alongside “sporting events” makes the Wire Act’s application to this scenario uncertain.

Unlike the Wire Act, which applies to a narrow scope of activity, the Illegal Gambling Business Act (“IGBA”) is a broad statute for targeting gambling activity.¹²⁸ The IGBA relies on a predicate violation of state law to allow for the federal government to usurp traditional areas of state oversight.¹²⁹ With a violation of state gambling law, the IGBA criminalizes gambling businesses that employ more than five individuals and are in substantially continuous operation for 30 days (or more) or accept gross transactions over \$2000 in a single day.¹³⁰ The IGBA effectively allows for the federal enforcement of state gambling law.¹³¹ The broad scope of the IGBA, coupled with the uncertain nature of some NFTs under state gambling laws, could leave sellers vulnerable to federal enforcement.¹³²

Lastly, under federal law, NFTs risk potential exposure to the Unlawful Internet Gambling Enforcement Act (“UIGEA”).¹³³ The UIGEA is a federal banking statute passed as a rider to an unrelated port security bill.¹³⁴ The UIGEA prohibits accepting or processing various banking transactions by gambling companies or payment processors serving gambling companies.¹³⁵ Unlike the Wire Act, the UIGEA is not

¹²⁵ Despite being enacted in 1961, the contours of the Wire Act have been the subject of debate for many years. *See generally* John T. Holden, *Through the Wire Act*, 95 WASH. L. REV. 677, 716–26 (2020) (describing some of the questions surrounding the scope of the Wire Act).

¹²⁶ Holden & Brandon-Lai, *supra* note 92 at 3.

¹²⁷ *Black’s Law Dictionary* defines only the verb “contest” and not the noun, thus we have resorted to the *Merriam-Webster Dictionary*. *See Contest*, BLACK’S LAW DICTIONARY (11th ed. 2019).

¹²⁸ 18 U.S.C. § 1955.

¹²⁹ *Id.*

¹³⁰ *Id.*

¹³¹ Holden & Edelman, *supra* note 93, at 917–18.

¹³² *See id.* (noting the broad scope of the IGBA).

¹³³ 31 U.S.C. §§ 5361–5367.

¹³⁴ John T. Holden, *The Unlawful Internet Gambling Enforcement Act and the Exemption for Fantasy Sports*, 28 J. LEGAL ASPECTS SPORT 97, 102 (2018).

¹³⁵ Holden & Edelman, *supra* note 93, at 953.

just limited to sports betting.¹³⁶ Under the UIGEA, a transaction is illegal as a matter of federal law if it is illegal in the jurisdiction where a bettor is located.¹³⁷ Despite several exemptions, the UIGEA has been successfully employed against various gambling operations.¹³⁸ The online nature of transacting NFTs, like NBA Top Shot, could mean that sellers and those purchasing a package from a state with strict gambling laws could face exposure to the UIGEA.

B. Copyright Law

The internet has created much confusion as to how copyright law should apply to digital works.¹³⁹ Because of the lack of clarity and the U.S. government's failure to keep up with advances in technology, creators have found it very challenging to locate infringers who copy works made available online and even more difficult to enforce their intellectual property rights.¹⁴⁰ Although NFTs raise a new set of issues, they also provide some advantages to creators. As discussed earlier, NFTs can provide proof of ownership and provenance. Not only does this provide a buyer with assurance that they are purchasing the assets described, but the creator can also easily identify a counterfeit because the original work is traceable.

With NFTs that represent digital creative works/collectibles, the main legal questions that arise are: what exactly is the buyer purchasing, what rights does the buyer obtain, and how are infringement issues addressed? Typically, when buying an NFT, a buyer is purchasing a digital certificate of ownership (the NFT) linked to a digital asset. The buyer owns the exact digital asset linked to the purchased NFT—not the underlying creative work from which the digital assets were created. The specific rights obtained will either be defined by the marketplace terms of use from where the buyer purchased the creative work/collectible or set out in an embedded smart contract. For example, when you buy an NBA Top Shot, the terms of the marketplace state that the buyer receives a non-exclusive license to “use, copy and display” the NFT for personal use.¹⁴¹

¹³⁶ *Id.* UIGEA does contain an exemption for certain fantasy sports games, however, it is unlikely, as currently constructed, NFTs satisfy this exemption. 31 U.S.C. § 5362(1)(E)(ix).

¹³⁷ Holden & Edelman, *supra* note 93, at 953.

¹³⁸ *See, e.g.*, United States v. Rubin, 743 F.3d 31 (2d Cir. 2014) (applying UIGEA to online poker companies).

¹³⁹ Michael P. Goodyear, *Fair Use, the Internet Age, and Rulifying the Blogosphere*, 61 IDEA 1, 3–4 (2020).

¹⁴⁰ Harrison Jacobs, *The Counterfeit NFT Problem Is Only Getting Worse*, THE VERGE (Feb. 8, 2022), <https://www.theverge.com/22905295/counterfeit-nft-artist-ripoffs-opensea-deviantart> [<https://perma.cc/D7G9-EZ34>].

¹⁴¹ *Top Shot Terms of Use*, <https://nbatopshot.com/terms> [<https://perma.cc/E5LF-XAKT>] (last visited June 25, 2021).

Traditional copyright law grants an owner certain exclusive rights: (1) to reproduce the copyrighted work in copies or phonorecords; (2) to prepare derivative works based upon the copyrighted work; (3) to distribute copies or phonorecords of the copyrighted work to the public by sale or other transfer of ownership, or by rental, lease, or lending; (4) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and motion pictures and other audiovisual works, to perform the copyrighted work publicly; (5) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and pictorial, graphic, or sculptural works, including the individual images of a motion picture or other audiovisual work, to display the copyrighted work publicly; and (6) in the case of sound recordings, to perform the copyrighted work publicly using a digital audio transmission.¹⁴² Under copyright law, only the owner of the copyright has the authority to create a derivative work.¹⁴³ Likewise, the buyer of an NFT would be unable to make copies of or modify and resell the modified digital work. NFTs present two main questions under copyright law: (1) what rights the NFT owner obtains and (2) what happens when a digital asset infringes on another's work.

1. NFT Ownership and Rights

Copyright law with respect to ownership operates fundamentally the same on the primary NFT market,¹⁴⁴ but differently on the secondary NFT market.¹⁴⁵ On the primary market, the creator of the original work owns a newly minted NFT. If the owner then sells the NFT, in most cases, the copyright to the original work does not transfer. Rather, just the rights to the NFT transfer, and these rights can then be sold on the secondary market by the new owner who purchased the NFT.

On the secondary market, however, an NFT creator retains the ability to receive royalties. Traditionally, under current copyright law, if someone paints a painting and sells it, they receive 100% of the proceeds. Once they sell it, however, the painter does not have the ability to receive royalties on any further sales by the buyer.¹⁴⁶ This is known as the first sale doctrine.¹⁴⁷

The first sale doctrine of the Copyright Act of 1976 applies a limitation on the right of distribution to the owner of a copyright.¹⁴⁸ The limitation provides that once

¹⁴² 17 U.S.C. § 106.

¹⁴³ U.S. COPYRIGHT OFF., COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES § 101, § 507.1 (3d ed. 2021).

¹⁴⁴ When an NFT is minted and sold by the creator, such as Beeple's sale of his NFT, this is considered the primary market.

¹⁴⁵ When a purchaser buys an NFT on the primary market and then seeks to resell it, this is considered the secondary market.

¹⁴⁶ This concept is known as the first-sale doctrine. See R. Anthony Reese, *The First Sale Doctrine in the Era of Digital Networks*, 44 B.C. L. REV. 577, 577 (2003).

¹⁴⁷ 17 U.S.C. § 109(a), (c).

¹⁴⁸ *Id.*

the creator passes ownership to another, the subsequent owner of the copyrighted work can resell it to others.¹⁴⁹ The first sale doctrine, however, only applies to tangible works.¹⁵⁰ For instance, in *Capitol Records, LLC v. ReDigi Inc.*, the United States Court of Appeals for the Second Circuit held that the first sale doctrine did not protect a website operator (ReDigi), which resold digital music files uploaded by the website's users.¹⁵¹ The court reasoned that the ReDigi user had ownership of the digital music file, but in order to sell the file on ReDigi's website, the user had to make a copy of that file on ReDigi's server.¹⁵² On account of this process, ReDigi users were just selling reproductions of the copyrighted work, which was not protected by the first sale doctrine and was an infringement of the copyright owner's rights.¹⁵³ Overall, the Second Circuit found that the first sale doctrine could not apply to digital files because transferring a digital file is impossible without first making a copy.¹⁵⁴

Returning to the painting example, if instead of selling a painting, a painter were to create and sell an NFT of their painting, any secondary sale by the purchaser could result in a royalty payment to the original painter provided that the royalty payment requirement was added to a smart contract linked to the NFT. This result is attractive to artists and musicians who want to monetize their art and music and continue receiving royalties downstream.¹⁵⁵ Because the copyright in the underlying work does not in most cases transfer to the buyer of an NFT, the creator is able to create additional NFTs and continue to receive royalties for additional sales.¹⁵⁶

2. Copyright Infringement

One of the unsettled legal issues involving NFTs occurs when a creator includes an unlicensed image or music into an NFT that they have minted. As with any use of another artist's creation, someone may not incorporate it into one's work without

¹⁴⁹ *Id.*

¹⁵⁰ Phillip Shaverdian, *Blockchain-based Digital Assets and the Case for Revisiting Copyright's First Sale Doctrine*, UCLA L. REV.: LAW MEETS WORLD (Feb. 19, 2019), https://www.uclalawreview.org/blockchain-based-digital-assets-and-the-case-for-revisiting-copyrights-first-sale-doctrine-2/#_ftn64 [<https://perma.cc/3XTE-QKD9>].

¹⁵¹ *Capitol Records, LLC v. ReDigi Inc.*, 910 F.3d 649, 659 (2d Cir. 2018).

¹⁵² *Id.* at 657.

¹⁵³ *Id.*

¹⁵⁴ *Id.*

¹⁵⁵ Christine K. Au-Yeung, *The World of NFTs and Their Implications in Intellectual Property Law*, LAW.COM (May 3, 2021), <https://www.law.com/2021/05/03/the-world-of-nfts-and-their-implications-in-intellectual-property-law/> [<https://perma.cc/7G97-FY8L>].

¹⁵⁶ *NFTs in Art and Music. How to Create Them, Where to Find Them, But Most Importantly: Are They a Bubble?*, THE I (Nov. 10, 2021), <https://www.thei.it/en/nfts-in-art-and-music-how-to-create-them-where-to-find-them-but-most-importantly-are-they-a-bubble/> [<https://perma.cc/URM6-5LC9>].

permission or by qualifying under the fair use exception.¹⁵⁷ Because NFTs are generally created as a commercial product, fair use would likely not apply. There have been many cases involving YouTube and Instagram in which users of these sites post videos and images with background music or graphics they do not own and subsequently become liable for copyright infringement.¹⁵⁸ Another infringement risk stems from the ability of someone to simply copy an online image and mint it on an NFT platform creating the impression that it is authentic.¹⁵⁹ For example, a scammer copied images of CryptoPunks and minted them on the Rarible marketplace.¹⁶⁰ To make matters worse, the fake NFTs were sold at similar prices to the real NFTs.¹⁶¹ Unfortunately, it took the platform three weeks to remove the fake listings.¹⁶²

This issue persists because when a work of art or music is minted into an NFT, the relevant marketplace does not verify that the creator owns every element of the NFT. The marketplace only verifies that the creator is the “owner” in the sense that they are the person minting the token.¹⁶³ The verification is of the ownership of the token itself, not a verification that the attached asset does not violate intellectual property law.¹⁶⁴ Instead, marketplaces generally puts the burden on the creator to protect themselves against infringement claims and on the buyer to conduct due diligence.¹⁶⁵ Dapper Lab’s license, for example, requires creators to represent that they “own all legal right, title and interest in and to the Art, and all intellectual property rights therein.”¹⁶⁶ The license further states that to “own” means “with

¹⁵⁷ Fair use is an exception to infringement. “In determining whether your use was a fair use under the law, the courts will examine the following: (1) purpose: is it commercial or informational, (2) nature: is it fictional or nonfiction, (3) amount: large versus small amount of original work, and (4) effect on market for original work: does the infringing work compete with the original work in terms of sales?” KIMBERLY A. HOUSER, *LEGAL GUIDE TO SOCIAL MEDIA* 53 (2nd ed., 2022). It permits the copying of copyrighted materials for the purposes of commentary, criticism, parody, and teaching. *Id.*

¹⁵⁸ *Id.* at 34.

¹⁵⁹ *7 Ways Scammers Are Stealing Your NFTs + NFT Weaknesses Exposed?*, NFT PLAZAS (Nov. 10, 2020) [hereinafter *7 Ways*], <https://nftplazas.com/7-nft-scams/> [<https://perma.cc/A5QJ-HR6G>].

¹⁶⁰ *Id.*

¹⁶¹ *Id.*

¹⁶² *Id.*

¹⁶³ Ghaith Mahmood, *NFTs: What Are You Buying and What Do You Actually Own?*, THE FASHION LAW (Mar. 18, 2021), <https://www.thefashionlaw.com/nfts-what-are-you-buying-and-what-do-you-actually-own/> [<https://perma.cc/QW9Y-K3JM>].

¹⁶⁴ *Id.*

¹⁶⁵ “[On the] AtomicAssets marketplace, . . . the user [must accept [the following notice] to move forward with the purchase: ‘Anyone can create AtomicAssets NFTs and freely choose attributes such as name and image, including fake versions of existing NFTs or stolen intellectual property. Before buying an NFT, always do your own research about the collection and double check the collection name to ensure that you are buying genuine NFTs.’” *Id.*

¹⁶⁶ *Id.*

respect to an NFT, an NFT that you have purchased or otherwise rightfully acquired from a legitimate source, where proof of such purchase is recorded on the relevant blockchain.”¹⁶⁷ Each marketplace has its own license agreement.¹⁶⁸ These provisions suggest that if music or an image was used in an NFT without the consent of the owner of the music or image, such owner might have to locate the creator of the NFT and sue them directly. Because the NFT is permanently located on the applicable blockchain, the original creator’s identity could technically be discovered, but a handle or avatar might shield their true persona.¹⁶⁹

It is currently uncertain if the Digital Millennium Copyright Act (DMCA) will protect these marketplaces.¹⁷⁰ The DMCA was passed in 1998 to protect copyright-protected material from internet piracy.¹⁷¹ The law provides that if a copyright holder finds pirated material, the holder must contact the hosting entity to make a DMCA takedown request.¹⁷² The entity must expeditiously act to remove or block the material once notice is received.¹⁷³ The DMCA also gives third-party websites “safe harbors” from litigation so long as they remove user access to any infringing material and otherwise comply with the DMCA’s requirements.¹⁷⁴ To claim protection, the entity cannot receive direct financial benefit from the infringing material, must have an agent that copyright holders can contact, and must have a policy for terminating repeat offenders.¹⁷⁵ Accordingly, popular websites like YouTube, Facebook, and Amazon have implemented automated processes to remove infringing material.¹⁷⁶

Whether it is even technically possible for an NFT marketplace to comply with the DMCA is not entirely clear.¹⁷⁷ Because the burden is often on the copyright holder to find and identify fakes of their work, enforcing intellectual property rights

¹⁶⁷ 7 *Ways*, *supra* note 159.

¹⁶⁸ Jim McNelis, *The Digital Asset Ownership License*, TOKENSMART (Feb. 4, 2020), <https://nft.substack.com/p/the-digital-asset-ownership-license> [https://perma.cc/9ZYM-ELVE].

¹⁶⁹ *Fake NFT, Where Is the Way Forward?*, BCA NETWORK (Feb. 8, 2021), <https://blockcreateart-2621.medium.com/fake-nft-where-is-the-way-forward-69a856ca86bc> [https://perma.cc/CTV5-YSR9].

¹⁷⁰ *NFT Risks and Opportunities in the IP, Advertising, and Brand Management Spaces*, CROWELL & MORING (Apr. 16, 2021), <https://www.crowell.com/NewsEvents/AlertsNewsletters/all/NFT-Risks-and-Opportunities-in-the-IP-Advertising-and-Brand-Management-Spaces> [https://perma.cc/9TGT-PZ2W]. However, it is unclear with current technology how an NFT can be removed once it is created in a block on the blockchain.

¹⁷¹ Adam Eakman, *The Future of the Digital Millennium Copyright Act: How Automation and Crowdsourcing Can Protect Fair Use*, 48 IND. L. REV. 631, 632 (2015).

¹⁷² *Id.* at 637.

¹⁷³ *Id.*

¹⁷⁴ *Id.* at 636.

¹⁷⁵ *Id.*

¹⁷⁶ *Id.* at 632.

¹⁷⁷ Moish E. Peltz, *IP and Non-Fungibility: The Intersection of Intellectual Property and NFTs*, FALCON RAPPAPORT & BERKMAN PLLC (Mar. 15, 2021), <https://frblaw.com/2021/03/15/intellectual-property-and-nfts/> [https://perma.cc/AP42-KV6A].

may be difficult.¹⁷⁸ Further, most NFT platforms work on a decentralized system, so there may not be an avenue for copyright holders to make a formal complaint or DMCA request, nor does every NFT hosting platform have an automated process for removal.¹⁷⁹ There are websites that claim to be able to remove infringing NFTs and perform due diligence prior to hosting the works on their platforms.¹⁸⁰ Thus, if a creator does have valid copyright in an NFT and there is a venue to file a request, DMCA's may be a way to fight off fakes and unauthorized NFTs.¹⁸¹ Although sites like OpenSea include takedown procedures from the DMCA, it is unclear if (1) an NFT can be removed from all blockchain due to their immutable nature and (2) if the DMCA even covers NFT platforms.¹⁸²

In sum, use of NFTs as collectibles currently raises several unresolved legal issues. There appears to be a possibility that some NFT sales could implicate gambling law; however, the main legal issue with the use of NFTs as collectibles created from creative works revolves around intellectual property law. The internet and digital works are not adequately addressed with traditional intellectual property law application. The complexity regarding the technology underlying NFTs further obscures its application. The legal issues with respect to NFTs created from creative works, however, are vastly different than those regarding their use in gambling or as financial instruments.

III. NFTS AS FINANCIAL INSTRUMENTS

While Part II dealt with some legal issues resulting from the use of NFTs as collectibles, Part III discusses some legal implications of the use of NFTs as financial instruments. According to the United States Financial Accounting Standards Board's (FASB) Generally Accepted Accounting Principles (GAAP), a financial instrument includes (1) cash or (2) evidence of an ownership interest in a company or other entity.¹⁸³ Although GAAP does not consider cryptocurrencies, such as Bitcoin and Ether, to be financial instruments,¹⁸⁴ the European Union has

¹⁷⁸ *Id.*

¹⁷⁹ *Id.*

¹⁸⁰ Jonathan Bailey, *NFTs and Copyright*, PLAGIARISM TODAY (Mar. 16, 2021), <https://www.plagiarismtoday.com/2021/03/16/nfts-and-copyright/> [<https://perma.cc/77HQ-N82Y>].

¹⁸¹ Nikhilesh De, *People Keep Tokenizing Other Users' Art. Here's How Artists Can Protect Their Work*, COINDESK (Sept. 14, 2021), <https://www.coindesk.com/stop-tokenizing-art-you-dont-own> [<https://perma.cc/T7PH-2DYL>].

¹⁸² Peltz, *supra* note 177.

¹⁸³ FIN. INSTRUMENTS—OVERALL, ACCT. STANDARDS UPDATE (Fin. Acct. Standards Bd.), Jan. 2016, at 48–49, <https://asc.fasb.org/imageRoot/33/77884633.pdf> [<https://perma.cc/3W4M-UGCZ>] (last visited June 10, 2021).

¹⁸⁴ FIN. STANDARDS ACCT. BD., BOARD MEETING HANDOUT AGENDA PRIORITIZATION, at 8 (Oct. 21, 2020), <https://financialaccountingfoundation.org/cs/BlobServer?blobkey=id&>

proposed classifying them as such.¹⁸⁵ The United States' rationale is that a cryptocurrency is not backed by the U.S. government or a central bank and therefore cannot serve as cash.¹⁸⁶ While NFTs do not serve as cash, certain NFTs *could* serve as an ownership interest in a company or other entity.¹⁸⁷ But not all NFTs should be classified as financial instruments because not all uses qualify. This Part discusses the circumstances in which (A) securities, (B) finance, and (C) tax regulations could apply to NFTs.

A. Securities Laws

The use of NFTs as financial instruments raises legal concerns regarding the purview of securities, finance, and tax laws. The Securities Act of 1933 defines securities as notes, stocks, bonds, and investment contracts.¹⁸⁸ In *SEC v. W.J. Howey Co.*, a 1946 United States Supreme Court case, the Court clarified that an investment contract is a contract, transaction, or scheme where a person invests money in a common enterprise and is led to expect profits solely from the efforts of the promoter or a third party.¹⁸⁹ The *Howey* test focuses on the substance of the asset and the circumstances surrounding it, such as how the asset is offered, sold, or resold. The

blobnocache=true&blobwhere=1175836196895&blobheader=application%2Fpdf&blobheadername2=Content-Length&blobheadername1=Content-Disposition&blobheadervalue2=238463&blobheadervalue1=filename%3DAGENDAPRI-bmho-20201021.pdf&blobcol=url data&blobtable=MungoBlobs [https://perma.cc/9WSA-QAFA] (“The Practice Aid states that cryptocurrencies (a subset of digital assets) would meet the definition of intangible assets and would generally be accounted for under Topic 350, Intangibles—Goodwill and Other, and asserted that cryptocurrencies did not meet the definitions for cash or cash equivalents, financial instruments or financial assets, or inventory.”).

¹⁸⁵ See *Legal and Regulatory Framework for Blockchain*, EUR. COMM’N, <https://digital-strategy.ec.europa.eu/en/policies/regulatory-framework-blockchain> [https://perma.cc/7CQD-9AU8] (last visited July 9, 2021); Jacek Czarnecki, *Cryptocurrency a Financial Instrument? A New Proposal in the EU*, NEWTECH.LAW (Oct. 1, 2018), <https://newtech.law/en/cryptocurrency-a-financial-instrument-a-new-proposal-in-the-eu/> [https://perma.cc/QK3W-9CV8].

¹⁸⁶ See Heather Morton, *Cryptocurrency 2021 Legislation*, NAT’L CONF. STATE LEGISLATORS (May 14, 2021), <https://www.ncsl.org/research/financial-services-and-commerce/cryptocurrency-2021-legislation.aspx> [https://perma.cc/94AD-F5AF]. While many jurisdictions are still exploring how cryptocurrencies fit into their financial regulations and monetary policy, El Salvador recently named Bitcoin as legal tender. See Nelson Renteria, Tom Wilson & Karin Strohecker, *In a World First, El Salvador Makes Bitcoin Legal Tender*, REUTERS (June 9, 2021, 9:24 PM), <https://www.reuters.com/world/americas/el-salvador-approves-first-law-bitcoin-legal-tender-2021-06-09/> [https://perma.cc/7L9F-4ADW].

¹⁸⁷ Max Dilendorf, Bari Zahn & Kareem Tabba, *Security Token Offerings (STOs) for NFTs?*, DILENDORF (May 25, 2021), <https://dilendorf.com/resources/security-token-offerings-for-nfts.html> [https://perma.cc/2QNY-VT4J].

¹⁸⁸ 15 U.S.C. § 77b(a)(1).

¹⁸⁹ *S.E.C. v. W.J. Howey Co.*, 328 U.S. 293, 298–99 (1946).

Howey case is significant because it sets forth the framework for determining whether a certain transaction qualifies as an “investment contract” and, thereby, whether the transaction is subject to securities laws. In looking to see whether a transaction constitutes an investment contract, the *Howey* test asks: (1) whether there is an investment of money; (2) whether the investment of money is in a common enterprise; (3) whether there is an expectation of profits from the investment; and (4) whether the profits come from the efforts of a promoter or third party.¹⁹⁰

Notably, if a particular NFT were determined to be a security, it would subject those offering and selling the NFT to registration and disclosure requirements.¹⁹¹ The facts of a recent case involving NBA Top Shot, *Friel v. Dapper Labs, Inc.*,¹⁹² however, illustrates why collectible NFTs, like those created by the NBA, are likely not securities. In *Friel*, the purchaser of an NBA Top Shot sued Dapper Labs, alleging that the NFTs were unregistered securities.¹⁹³ A sample analysis of *Friel* under the *Howey* test¹⁹⁴ reveals that not all of the required elements are met: Prong 1: an investment of money—met because Friel paid for the NFT; Prong 2: investment in a common enterprise—met because investing in digital assets is typically considered investment in a common enterprise; Prong 3: an expectation of profit—probably not met because investing in speculative assets carries risks of both gain and loss; and Prong 4: profits derived from the efforts of a promoter or third party—not met as Dapper Lab’s terms of use state that the value of a Moment is subjective and subject to factors outside of the control of Dapper Labs.¹⁹⁵ Regarding

¹⁹⁰ *Id.*

¹⁹¹ Unless an offering qualifies for an exemption, all securities offered in the U.S. must be registered with the SEC under the Securities Act of 1933. 15 U.S.C. § 77a. Regardless of whether registered or not, all securities transactions are subject to the anti-fraud provisions of the Securities Act of 1933 and for secondary sales the Securities Exchange Act of 1934, 15 U.S.C. § 78a.

¹⁹² Complaint, *Friel v. Dapper Labs, Inc.*, No. 653134/2021 (N.Y. Sup. Ct. filed May 12, 2021). See also Jamie Crawley, *Dapper Labs Sued on Allegations NBA Top Shot Moments Are Unregistered Securities*, COINDESK (May 14, 2021, 10:31 AM), <https://www.coindesk.com/dapper-labs-sued-on-allegations-nba-top-shot-moments-are-unregistered-securities> [<https://perma.cc/MA5E-3387>].

¹⁹³ Complaint, *Friel v. Dapper Labs, Inc.*, No. 653134/2021 (N.Y. Sup. Ct. filed May 12, 2021).

¹⁹⁴ Strategic Hub for Innovation and Financial Technology, *Framework for “Investment Contract” Analysis of Digital Assets*, U.S. SEC. & EXCH. COMM’N (Apr. 3, 2019), <https://www.sec.gov/corpfin/framework-investment-contract-analysis-digital-assets> [<https://perma.cc/B9QN-66JY>] [hereinafter SEC Framework] (“The U.S. Supreme Court’s *Howey* case and subsequent case law have found that an ‘investment contract’ exists when there is the investment of money in a common enterprise with a reasonable expectation of profits to be derived from the efforts of others.”).

¹⁹⁵ “Each Moment has no inherent or intrinsic value. We cannot guarantee that any Moments purchased will retain their original value, as the value of collectibles is inherently

Prong 4, there would not seem to be a management aspect nor an expectation that the marketplace will exert some effort to cause the value of an NFT to increase.¹⁹⁶ It is more likely that a change in value would stem from factors like scarcity, the popularity of an athlete, and the general supply and demand market.¹⁹⁷

There are, however, some situations where the transactions involving NFTs could implicate securities law because of their *function*—not *substance* (as illustrated above). The first use that would likely result in an enforcement action by the SEC for unregistered securities would involve the sale of NFTs to fund a startup. The SEC has brought enforcement actions against entities raising capital by issuing coins or tokens known as initial coin offerings (ICOs) or initial token offerings (ITOs) as unregistered securities offerings.¹⁹⁸ Although these actions were against

subjective and factors occurring outside of the NBA Top Shot ecosystem may materially impact the value and desirability of any particular Moment.” *Top Shot Terms of Use*, *supra* note 141. See also Diana Qiao, *This Is Not a Game: Blockchain Regulation and Its Application to Video Games*, 40 N. ILL. U. L. REV. 176, 179 (2020). To determine whether a common enterprise exists, courts can employ the vertical commonality approach or the horizontal commonality approach, or a combination of both. The first approach, vertical commonality, requires that there be some connection between the promotor’s efforts and the investor’s success or loss. As for the horizontal commonality approach, the focus is on whether multiple investors pool their money or assets and receive pro-rata profits. See *Stenger v. R.H. Love Galleries, Inc.*, 741 F.2d 144, 146 (2d Cir. 1984).

¹⁹⁶ According to the SEC Framework, “[t]he inquiry into whether a purchaser is relying on the efforts of others focuses on two key issues: Does the purchaser reasonably expect to rely on the efforts of an AP? Are those efforts ‘the undeniably significant ones, those essential managerial efforts which affect the failure or success of the enterprise,’ as opposed to efforts that are more ministerial in nature?” SEC Framework, *supra* note 194, at 3; see also Stephen P. Wink, Miles P. Jennings, Shaun Musuka & Deric Behar, *Latham & Watkins Discusses Whether NFTs Are Securities*, THE CLS BLUE SKY BLOG (Mar. 19, 2021), <https://clsbluesky.law.columbia.edu/2021/03/19/latham-watkins-discusses-whether-nfts-are-securities/> [https://perma.cc/7T28-TV9D].

¹⁹⁷ See, e.g., Bram Berkowitz, *I Bought 4 NBA Top Shot Highlights – Here’s What I Learned About the New Crypto-Collectible*, MOTLEY FOOL (Mar. 3, 2021, 11:14 AM), <https://www.fool.com/investing/2021/03/03/i-bought-4-nba-top-shot-highlights-heres-what-i-le/> [https://perma.cc/E338-VH28].

¹⁹⁸ Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934: The DAO Release No. 81207, 117 S.E.C. Docket 745 (July 25, 2017), <https://www.sec.gov/litigation/investreport/34-81207.pdf> [https://perma.cc/PPS8-VPV9]. In 2018, the SEC started bringing actions for the sale of cryptocurrencies as unregistered securities. See Michael Dicke & Alexis Caloza, *Takeaways from SEC’s First Ever Enforcement Actions Against Cryptocurrency Firms for Failing to Register as a Broker-Dealer and Investment Company*, FENWICK (Sept. 26, 2018), <https://www.fenwick.com/insights/publications/takeaways-from-secs-first-ever-enforcement-actions-against-cryptocurrency-firms-for-failing-to-register-as-a-broker-dealer-and-investment-company> [https://perma.cc/YD7Q-G48L].

companies pre-selling tokens to fund their cryptocurrency platform or application,¹⁹⁹ the issue was not the sale of the tokens itself but the failure to comply with the SEC's registration requirements prior to selling the tokens.²⁰⁰ Where an NFT is created to represent ownership in a business or other entity with an expectation of profit from the efforts of that business or other entity, it would likely meet the *Howey* test.²⁰¹

Another way the sale of NFTs could implicate and violate securities laws is through the selling of fractional shares of ownership in an asset.²⁰² Several companies have created platforms for the purpose of investing in expensive works of art through the sale of NFTs as fractional shares.²⁰³ This use would also appear to meet the *Howey* test. Both uses involve the sale of NFTs for the express purpose of investing in a common enterprise with the expectation of profit.²⁰⁴ Although the SEC has not issued official guidance on fractional shares as of yet, SEC Commissioner Pierce stated that such use would appear to qualify as an investment contract.²⁰⁵

As we have discussed, the application of securities laws is likely to play a significant role in the future regulation of NFTs. Securities laws, however, are not

¹⁹⁹ Brian D. Feinstein & Kevin Werbach, *The Impact of Cryptocurrency Regulation on Trading Markets*, 7 J. FIN. REG. 48 (2021). In the spate of 2017 ICOs, the purchasers of the pre-sold tokens expected to use the tokens to pay for services once the platform or app went live or to make a profit by reselling the tokens at a later date. *See id.* at 53.

²⁰⁰ Unless the sales fall within an exemption, the startup would need to register its offering. *See* Will Gottsegen, *Some NFT Sales Could Be Illegal: SEC Commissioner Hester Peirce*, DECRYPT (Mar. 26, 2021), <https://decrypt.co/62989/sec-hester-peirce-nfts> [<https://perma.cc/6QZ3-T3VX>] (“[SEC Commissioner] Peirce explained that certain kinds of fundraising efforts tied to NFTs might ‘raise the same kinds of questions that ICOs have raised.’”). For a full explanation of the legalities to be considered in an ITO or Security Token Offering (STO), *see* Dilendorf et al., *supra* note 187.

²⁰¹ *See* Robert Heim, *NFTs and Securities Laws: How to Create and Sell Compliant Non-Fungible Tokens*, JD SUPRA (Mar. 30, 2021), <https://www.jdsupra.com/legalnews/nfts-and-securities-laws-how-to-create-2017505/> [<https://perma.cc/57C4-A8ZV>] (noting the article was one of the “first ever legal articles to be minted as an NFT”).

²⁰² For example, SEC Commissioner Hester Peirce noted fractionalized NFTs or investible NFT baskets, composed like an index fund, may become an investment product, whereas the single NFT does not qualify as a security. *See* Samuel Haig, *SEC's 'Crypto Mom' Warns Selling Fractionalized NFTs Could Break the Law*, COIN TELEGRAPH (Mar. 26, 2021), <https://cointelegraph.com/news/sec-s-crypto-mom-warns-selling-fractionalized-nfts-could-break-the-law> [<https://perma.cc/PT6E-H2LF>].

²⁰³ *See* Sophie Chung, *Fractionalized Art Ownership and Securities Law*, CTR. FOR ART L. (Feb. 20, 2018), <https://itsartlaw.org/2019/11/19/fractionalized-art-ownership-intersection-of-art-and-securities-law/> [<https://perma.cc/J8LN-B39F>].

²⁰⁴ *See id.* Masterworks, a business that sells fractional ownership of art, has filed an offering circular with the SEC according to their website. MASTERWORKS (last visited June 18, 2022), <https://www.masterworks.io/> [<https://perma.cc/8XQD-LUJS>]. *See also* Securities Exchange Act of 1934, 15 U.S.C. § 78 (1976).

²⁰⁵ Letter from Vincent R. Molinari, Chief Executive Officer and President, Sustainable Holdings, to Hon. Vanessa Countryman, Secretary, SEC (Apr. 12, 2021), <https://www.sec.gov/rules/petitions/2021/petn4-771.pdf> [<https://perma.cc/E853-5BP7>] (asking SEC to issue guidance on when and if NFTs constitute a security).

the only area of financial regulation that could impact how NFTs are regulated. These additional areas of financial regulation are described in the following Section.

B. Finance and Tax Regulation

The second area of law potentially impacting NFT purchases and sales, as well as marketplaces, relates to monetary regulations. Two of the main responsibilities of the Treasury Department are to enforce finance and tax laws.²⁰⁶ The IRS recently updated its 2014 guidance regarding cryptocurrencies but has yet to address NFTs specifically.²⁰⁷ The recently signed Infrastructure Investment and Jobs Act (HR 3684)²⁰⁸ does include a provision requiring cryptocurrency exchanges to report the sale of “digital assets” in excess of \$10,000.²⁰⁹ Because it is still unclear if NFTs will qualify as a digital asset when purchased and sold with cash, further guidance may be necessary.

One of the main problems with potential NFT regulation is that it appears that very few regulators have technical backgrounds and many simply do not understand what an NFT is or how it is different from a cryptocurrency.²¹⁰ The view of many regulators seems to be that NFT marketplaces are being used for nefarious purposes without any evidence demonstrating that this is an actual risk.²¹¹ For example, a Joint

²⁰⁶ See *Role of the Treasury*, U.S. DEP’T TREASURY (last visited June 18, 2022), <https://home.treasury.gov/about/general-information/role-of-the-treasury> [<https://perma.cc/E8SZ-JWVY>].

²⁰⁷ Despite the IRS Notice 2014-21 guidance, “the IRS has found that many taxpayers engaging in taxable cryptocurrency transactions have not in fact reported those transactions.” Michael Sardar, *New IRS Cryptocurrency Enforcement Efforts and Opportunities to Become Compliant*, CPA J. (Feb. 2020), <https://www.cpajournal.com/2020/02/04/new-irs-cryptocurrency-enforcement-efforts-and-opportunities-to-become-compliant/> [<https://perma.cc/KA6H-56VS>]. Most recently, however, “The IRS’s enforcement efforts and its issuance of substantial guidance with respect to cryptocurrency are clear indications that it takes the issue seriously and will more aggressively pursue taxpayers who continue to be noncompliant regarding cryptocurrency income.” *Id.*

²⁰⁸ Infrastructure Investment and Jobs Act, Pub. L. No. 117-58 (codified at 23 U.S.C. § 101).

²⁰⁹ Nelson Hsieh, *New Crypto Tax Reporting Requirements in the 2021 Infrastructure Bill*, VOLT EQUITY (Dec. 8, 2021), <https://www.voltequity.com/post/new-crypto-tax-reporting-requirements-in-the-2021-infrastructure-bill> [<https://perma.cc/5LF5-DKM6>].

²¹⁰ See *infra* notes 273–285 and accompanying text.

²¹¹ Jeffrey Gogo, *Banks in Mexico Pose Greater Money Laundering Risk than Crypto Firms, Says Report*, BITCOIN NEWS (Aug. 28, 2020), <https://news.bitcoin.com/banks-in-mexico-pose-greater-money-laundering-risk-than-crypto-firms-says-report/> [<https://perma.cc/SSZ3-GXWM>] (“Commercial banks, by far, pose the greatest risk of money laundering in Mexico, compared to crypto-related companies, according to a new report by the country’s Financial Intelligence Unit (FIU).”); see also Arjun Bisen, *Will Digital Currencies Dethrone or Cement the US Dollar?*, THE HILL (May 16, 2021, 6:00 PM), <https://thehill.com/opinion/finance/553771-will-digital-currencies-dethrone-or-cement-the->

Statement issued by the SEC, CFTC, and Treasury in October 2019 stated: “persons engaged in activities involving digital assets [are reminded] of their anti-money laundering and countering the financing of terrorism (AML/CFT) obligations under the Bank Secrecy Act (BSA).”²¹² By using the term “digital assets” rather than the more specific “cryptocurrencies,” this type of broad-brush statement could be interpreted to include NFTs. Further, it is likely legally incorrect. Section 6102(d) of the Anti-Money Laundering Act (AMLA) defines “financial institutions” as businesses involved in the exchange of “value that substitutes for currency or funds,” which would apply to cryptocurrency exchanges²¹³ but should not apply to NFT marketplaces selling collectible NFTs, like Top Shot.²¹⁴

Bitcoin and other cryptocurrencies can be used as a medium of exchange.²¹⁵ As explained above, cryptocurrencies are fungible as one bitcoin is equal to another bitcoin like one dollar is equal to another dollar. An NFT is an encrypted unit of data stored on a digital ledger created and verified on a blockchain representing a unique asset.²¹⁶ NFTs are non-fungible. The Bepple NFT, which sold for \$69 million, is not equal in value to a \$9 Top Shot NFT. Financial regulations also serve to provide a

us-dollar [<https://perma.cc/5QVZ-MYGP>] (“In reality, however, only an estimated 0.34 percent of all cryptocurrency activity in 2020 related to criminal activity, according to Chainalysis’ 2021 report, significantly less than the UN’s estimate of the proportion of money laundering in the global economy. This is because while cryptocurrencies appear anonymous, chain analysis methodologies can often reveal who owns a wallet in order to identify illicit activities and sanctioned entities. Furthermore, Know Your Client (KYC) style regulatory requirements force intermediaries and exchanges to collect tax and identity data to ensure compliance.”).

²¹² Heath Tarbert, Kenneth A. Blanco, & Jay Clayton, *Leaders of CFTC, FinCEN, and SEC Issue Joint Statement on Activities Involving Digital Assets*, U.S. SEC. & EXCH. COMM’N, (Oct. 11, 2019), https://www.sec.gov/news/public-statement/cftc-fincen-secjointstatementdigitalassets#_ftn4 [<https://perma.cc/KCS6-9P5Y>].

²¹³ Matthew Hanson, Daniel Kahan, Katherine Kirkpatrick, Read Mills, Steven Rizzi & Luke Roniger, *The Anti-Money Laundering Act and Crypto Collide: Non-Fungible Tokens*, JD SUPRA (May 19, 2021), <https://www.jdsupra.com/legalnews/the-anti-money-laundering-act-and-3117511/> [<https://perma.cc/5FU7-GRKE>] (“FinCEN’s longstanding position that cryptocurrency exchanges—which convert fiat currency such as the U.S. dollar into cryptocurrency and vice versa—are ‘money services businesses’ subject to BSA reporting requirements.”).

²¹⁴ A cryptocurrency exchange would be a money services business because it accepts cash in exchange for cryptocurrencies, similar to how a currency exchange will convert dollars into Euros. Being defined as a money services business requires the exchanges to identify their customers and file suspicious activity reports. *See* 31 C.F.R. § 1010.100.

²¹⁵ Today most people buying cryptocurrencies are not using them as a medium of exchange, but rather as a speculative investment.

²¹⁶ This likely has to do with Bitcoin, a crypto-currency, operating on blockchain technology, which is also used to authenticate NFTs (through the Ethereum blockchain). The Ethereum blockchain also permits smart contracts to be embedded with the NFT, which the Bitcoin blockchain does not.

mechanism to identify money laundering, terrorist funding, and tax avoidance.²¹⁷ The IRS has recently moved to more strongly regulate cryptocurrencies to require more transparency into cryptocurrency transactions.²¹⁸ While traditionally, these financial regulations generally did not apply to art galleries, baseball trading card stores, or digital shops like iTunes, that may soon change. The following Subsections explain recent actions to bring certain digital assets within the purview of banking and tax laws.

1. Anti-Money Laundering Laws

The new Anti-Money Laundering Act of 2020 (AMLA) expressly applies to cryptocurrencies and contains certain reporting requirements, such as suspicious activity reports (SARs) required under the Bank Secrecy Act (BSA).²¹⁹ A FinCEN notice in connection with the AMLA suggests that it could cover trade-in “works of art.”²²⁰ At this point, it is unclear if NFT marketplaces selling NFTs would be required to comply. This could have the effect of drastically increasing the cost of using such marketplaces. One of the issues that impacts the transparency of these sites is that many buyers of NFTs use cryptocurrencies to pay for the NFT. But given that these marketplaces also sell NFTs that would not necessarily be considered “art,” like sports trading cards, it is unclear how new reporting requirements would work. Some might, however, argue that NFTs would not be covered at all as art because they are simply digital *certificates of ownership* and not actual works of art.²²¹

Currently, at least one country has sought to address the potential regulation of NFTs. In 2019, Liechtenstein established regulations for the tokenization of digital

²¹⁷ See generally ORG. ECON. COOP. & DEV., MONEY LAUNDERING AND TERRORIST FINANCING AWARENESS HANDBOOK FOR TAX EXAMINERS AND TAX AUDITORS (2019), <https://www.oecd.org/tax/crime/money-laundering-and-terrorist-financing-awareness-handbook-for-tax-examiners-and-tax-auditors.pdf> [<https://perma.cc/H8ER-VB5M>].

²¹⁸ U.S. DEP’T OF THE TREASURY, THE AMERICAN FAMILIES PLAN TAX COMPLIANCE AGENDA 20–21 (2021), <https://home.treasury.gov/system/files/136/The-American-Families-Plan-Tax-Compliance-Agenda.pdf> [<https://perma.cc/K4XE-H6AE>].

²¹⁹ Hanson et al., *supra* note 213.

²²⁰ U.S. TREASURY FIN. CRIM. ENF’T NETWORK, *FinCEN Informs Financial Institutions of Efforts Related to Trade in Antiquities and Art*, (Mar. 9, 2021), https://www.fincen.gov/sites/default/files/2021-03/FinCEN%20Notice%20on%20Antiquities%20and%20Art_508C.pdf [<https://perma.cc/4GQ8-A4HH>].

²²¹ It is well established that NFTs are not the underlying work of art. The purchaser of the NFT does not receive the copyright in the underlying work. As such, it is possible to argue that the AMLA would not apply. See Jacob Kastrenakes, *Your Million-Dollar NFT Can Break Tomorrow If You’re Not Careful*, VERGE (Mar. 25, 2021), <https://www.theverge.com/2021/3/25/22349242/nft-metadata-explained-art-crypto-urls-links-ipfs> [<https://perma.cc/LN5H-9ERM>] (“Ultimately, you’re buying a collection of metadata defining what you own.”).

assets, which became effective January 1, 2020.²²² Known as the “Blockchain Act,” the Token and TT Service Provider Act (“TVTG”) is designed to protect users and strengthen Liechtenstein’s role as an innovation hub for blockchain.²²³ It expressly applies to the tokenization of physical assets (which would include some NFTs).²²⁴ The TVTG requires TT Service Providers to register with Liechtenstein’s Financial Market Authority.²²⁵ The TVTG provides for the registration and supervision of ten categories of service providers, including Physical Validators and TT Verifying Authorities.²²⁶ Because the TVTG is not subject to Liechtenstein’s financial market law, which applies to banks, TT Service Providers are not required to hold a European license.²²⁷ The money laundering provisions of the Due Diligence Act (DDA) still apply, however.²²⁸

The European Commission’s proposed Regulation on Markets in Crypto-assets (MiCA) defines a crypto-asset as “a digital representation of value or rights which may be transferred and stored electronically, using distributed ledger technology or similar technology.”²²⁹ This definition would likely cover NFTs, but MiCA also exempts the issuer of crypto-assets that “are unique and not fungible with other crypto-assets” from the requirement to provide a white paper, which is like a

²²² *Liechtenstein’s Parliament Approves Blockchain Act Unanimously*, Embassy of Principality of Liechtenstein, <http://www.liechtensteinusa.org/index.php/article/liechtensteins-parliament-approves-blockchain-act-unanimously> [<https://perma.cc/VKD4-8973>] (last visited July 26, 2022).

²²³ LCX, *Liechtenstein Government Approves Blockchain Act* (May 10, 2019), <https://www.lcx.com/liechtenstein-government-approves-blockchain-act/> [<https://perma.cc/AJ85-ZAP8>].

²²⁴ Todd Ehret, *Insight: U.S. Cryptocurrency Regulatory Path Appears Long and Complex*, REUTERS (Apr. 6, 2021, 11:25 AM), <https://www.reuters.com/article/bc-finreg-cryptocurrency-regulatory-path/insight-u-s-cryptocurrency-regulatory-path-appears-long-and-complex-idUSKBN2BT211> [<https://perma.cc/D5AH-ZA8H>].

²²⁵ *TVTG: Registration Required*, FIN. MKT. AUTH. LICHTENSTEIN (Jan. 8, 2021), <https://www.fma-li.li/en/news/20210108-tvtg-registration-required.html> [<https://perma.cc/N82M-7HC2>]. The registration requirement applies to those whose registered office or residence is in Liechtenstein and to token issuers who intend to create less than CHF 5 million worth of tokens within 12 months.

²²⁶ *TVTG: FAQs*, FIN. MKT. AUTH. LICHTENSTEIN, <https://www.fma-li.li/en/fintech-and-tvtg/tvtg.html> [<https://perma.cc/LS2P-7QYQ>] (last visited July 26, 2022). A physical validator ensures “the enforcement of rights in accordance with the agreement, in terms of property law, to goods represented on TT systems.” *Id.* A TT Verifying Authority verifies “the legal capacity and the requirements for the disposal over a token.” *Id.*

²²⁷ *Id.* (“The TVTG is not part of Liechtenstein financial market law. TT Service Providers are therefore in principle not considered financial intermediaries and are not subject to the European requirements governing licensing/registration and supervision, unlike a bank, for instance, even if they may preform similar activities.”).

²²⁸ *Id.*

²²⁹ *Id.*

technical prospectus.²³⁰ It does provide that Crypto-Asset Service Providers (CASPs), which would likely include NFT marketplaces, be registered. The proposed MiCA regulations intend to accelerate blockchain innovation and harmonize crypto-asset licensing regimes across EU member states.²³¹ Despite some reports that NFTs would be covered under the EU's financial regulations, however, the reasoning does not square with the actual use of NFTs. In draft guidance by the Financial Action Task Force (FATF),²³² there is a proposal to amend the definition of "virtual assets" to include "certain virtual items that act as a store of value and in fact accrue value or worth, and that can be sold for value in the VA space."²³³ By that reasoning, because beanie babies can be purchased, accrue value, and then sold for a profit, they should also be subject to financial regulations. Some states have begun to address the use of blockchain technologies, but most of these regulations relate to cryptocurrencies rather than NFTs.²³⁴

2. *The Internal Revenue Code*

There is also much confusion regarding how proceeds from the sale of NFTs will be taxed. Because the IRS does not consider cryptocurrency to be money but rather considers it "property," the spending or exchange of a cryptocurrency is a taxable event.²³⁵ The cryptocurrency owner would need to pay taxes on the profit, if any, from its appreciation when the cryptocurrency is sold or exchanged.²³⁶ The

²³⁰ *Id.* The MiCA Proposal (a white paper setting out specified information on the issuer, the relevant crypto-asset and the offer to the public) does not require the issuer to issue a prospectus.

²³¹ Neil Wilkof, *Impact of the Proposed EU Regulation on Markets in Crypto-Assets for IP Applications*, IPKAT (Jan. 26, 2021), <https://ipkitten.blogspot.com/2021/01/impact-of-proposed-eu-regulation-on.html> [<https://perma.cc/WX7E-88QP>].

²³² FIN. ACTION TASK FORCE, DRAFT UPDATED GUIDANCE FOR A RISK-BASED APPROACH TO VIRTUAL ASSET AND VASPs 30 (2020), <https://www.fatf-gafi.org/media/fatf/documents/recommendations/March%202021%20-%20VA%20Guidance%20update%20-%20Sixth%20draft%20-%20Public%20consultation.pdf> [<https://perma.cc/Z7V4-QKDH>].

²³³ Daniel Klingenbrunn & Alexander Glos, *Non-Fungible Tokens—A Case for German or European Financial Regulation?*, LEXOLOGY (Apr. 20, 2021), <https://www.lexology.com/library/detail.aspx?g=7deb600c-67d3-4150-bf99-e639117a23f9> [<https://perma.cc/T7PV-RCYY>].

²³⁴ DAVID J. KAPPOS, D. SCOTT BENNETT & MICHAEL E. MARIANI, THE LEGAL 500 COUNTRY COMPARATIVE GUIDES 8, <https://www.legal500.com/guides/chapter/united-states-blockchain/?export-pdf> [<https://perma.cc/6KQX-FNVX>] (last visited Jun. 8, 2022) ("Some states, including Arizona, Florida, West Virginia, Wyoming and Utah, have also enacted legislation to create regulatory sandbox initiatives related to cryptocurrency and more states are actively considering similar legislation.").

²³⁵ See INTERNAL REV. SERV., Notice 2014-21, 2014-16 I.R.B. 938 (Apr. 14, 2014), <https://www.irs.gov/pub/irs-drop/n-14-21.pdf> [<https://perma.cc/2SKF-9VVJ>].

²³⁶ *Id.* The gain would be the difference between the price you paid for the crypto and the value it was assessed at the time you sold it or exchanged it. If you hold it for less than 1

application of IRS Notice 2014-21, which provides guidance on how cryptocurrencies are treated under the I.R.C., gets a bit muddled when it comes to NFTs. Although it does not specifically mention NFTs, it appears that if you were to pay for an NFT with cryptocurrency, this would be a taxable event because the use of the cryptocurrency would be considered a “disposition of an asset.”²³⁷ In other words, you are not purchasing an NFT—you are exchanging one asset (Bitcoin) for another (NFT).²³⁸ Additionally, if the purchaser later sold the NFT for a profit, and it was considered a collectible, like the artist Beeple’s \$69.3 million NFT, you would be taxed at the higher capital gains tax rate assessed on the sale of collectible.²³⁹ Interestingly, the IRS includes a work of art in its definition of a “collectible,” which would not include a virtual trading card like an NBA Top Shot. This means that two NFTs selling on the same platform would have completely different tax consequences.²⁴⁰

The tax analysis becomes even more convoluted when defining whether the transfer of an NFT is a “sale” for tax purposes. As discussed previously, a purchaser of an NFT representing a digital version of a work of art does not receive copyright ownership of the original piece but obtains what would more appropriately be considered a license. If a creator mints an NFT of a work they created and sells the NFT but maintains ownership of the original work (and potentially creates more NFTs from that work), the IRS will most likely view that as granting a license to the purchaser.²⁴¹ The creator would then report the proceeds as ordinary income and any

year the tax rate would be your income tax rate. If you owned the crypto for more than 1 year, you would be taxed at the applicable capital gains rate.

²³⁷ Currently the maximum capital gains tax rate is 20%. Shehan Chandrasekera, *How Are Non-Fungible Tokens (NFTs) Taxed?*, BLOOMBERG TAX (May 26, 2021), <https://news.bloombergtax.com/daily-tax-report/how-are-non-fungible-tokens-nfts-taxed> [<https://perma.cc/U8PV-DCHS>].

²³⁸ There would be no taxable event if the cryptocurrency did not appreciate between the time you obtained the cryptocurrency and the time you used it to purchase an NFT.

²³⁹ Defining a collectible in part as “any work of art.” I.R.C. § 408(m)(2)(A). The collectible capital gains tax is currently 28%. Topic No. 409 Capital Gains and Losses, INTERNAL REV. SERV. (May 19, 2022), <https://www.irs.gov/taxtopics/tc409> [<https://perma.cc/2NJ8-SNFT>].

²⁴⁰ James Creech, *NFTs: An Existential Question*, BLOOMBERG TAX (May 11, 2021, 2:00 AM), <https://news.bloombergtax.com/daily-tax-report/nfts-an-existential-question> [<https://perma.cc/6HBA-FJ64>].

²⁴¹ Nathan W. Giesselman, Carl R. Erdmann, David Berke & Martin de Jong, *Proliferation of NFT Transactions Raises Numerous US Tax Questions*, SKADDEN (May 17, 2021), <https://www.skadden.com/insights/publications/2021/05/proliferation-of-nft-transactions>. In the case of a Top Shot NFT, although the website has a “buy” button, the terms of use make clear that you are receiving a limited license and cannot use the NFT for commercial purposes. See *NBA Top Shot Explained – A Definitive Primer*, HEDONOVA, <https://www.hedonova.io/blog/a-definitive-primer-to-nba-top-shots> [<https://perma.cc/9W77-TBZS>] (last visited June 21, 2022).

continuing royalties received. If the purchaser were then to sell the NFT on the secondary market, they would be taxed as though it were a sale and be subject to one of the two types of capital gains referred to above.²⁴² For a creator to be able to deduct the expenses involved in creating an NFT, they would first need to decide on whether they are in the business of selling NFTs or if it is a one-off.²⁴³ Those who are in the business of selling NFTs would be able to deduct or capitalize on the costs of creating the NFT.²⁴⁴ If it were a one-off, taxes would likely be paid on the entire proceeds.²⁴⁵

As explained, the use of NFTs as financial instruments presents some unresolved legal issues. While the federal government is moving ahead with regulations on cryptocurrencies, their application to NFTs is unclear, creating a great deal of uncertainty for creators, buyers, sellers, and NFT marketplaces.²⁴⁶ In Part IV, we discuss one of the most promising areas of use for NFTs.

IV. NFTS AS IDENTIFICATION AND RECORDS

This penultimate Part turns to the use of NFTs as more than just a record of ownership of a digital asset (collectible) or business (investment contract) and explores the vast potential of NFTs to revolutionize identification and record-keeping. Essentially, any data or record can be tokenized and minted into an NFT, creating proof of ownership, possession, and identity that is verified and recorded on a ledger that cannot be altered or deleted.²⁴⁷ These uses will provide solutions to some of the most sticky problems in record-keeping and potentially alter the way we conceptualize property law in this country.²⁴⁸ Overall, to understand the value of

²⁴² Giesselman et al., *supra* note 241.

²⁴³ *Id.*

²⁴⁴ *Id.*

²⁴⁵ *Id.*

²⁴⁶ Jacob S. Sherkow, *Regulatory Sandboxes and the Public Health*, 2022 ILL. L. REV. 357, 364 (2022) (“[D]evelopers of new technologies are often uncomfortable experimenting with their wares in the open under the fear that they may incur unforeseeable regulatory penalties or—perhaps even more damningly—establish a precedent that an older, creakier regulatory model covers a pathbreaking product.”).

²⁴⁷ *Non-Fungible Tokens from a Legal Perspective*, IURICORN (Feb. 26, 2019), <https://www.iuricorn.com/non-fungible-tokens-from-a-legal-perspective/> [<https://perma.cc/KRC9-ZSKW>].

²⁴⁸ NFTs could serve as certificates documenting transfers of intellectual property rights or real estate, verification of documents such as birth certificates and passports, records of invoices and payments, but perhaps most interesting, for the verification of voting a number of states, such as West Virginia, use blockchain voting via a mobile app for military personnel serving overseas. *See, e.g.*, Terry Nguyen, *West Virginia to Offer Mobile Blockchain Voting App for Overseas Voters in November Election*, WASH. POST. (Aug. 10, 2018), <https://www.washingtonpost.com/technology/2018/08/10/west-virginia-pilots-mobile-blockchain-voting-app-overseas-voters-november-election/> [<https://perma.cc/2E6A->

NFTs as identification and record-keeping mechanisms, this Part explores the way NFTs intersect with property law, both in the physical and digital sense.

A. Physical Property Rights

In addition to providing a record of ownership and provenance for a digital asset, an NFT can also represent a physical asset. Because nearly 70% of the world's population does not have secure property rights,²⁴⁹ a movement towards the tokenization of records of ownership can solve many real-world problems in the property law sphere. For example, if someone who owns real estate dies without a will, intestate succession laws pass the property to that person's heirs.²⁵⁰ But if the transfer is never documented, especially if this occurs for multiple generations, such heirs could be prevented from claiming ownership due to a family member's undisclosed sale of the property without all heirs signing the deed.²⁵¹ If a developer can persuade one family member to sell, the sale is often discovered too late by the other heirs.²⁵² Without a probate order or evidence of "heirship" deed language, proving ownership is next to impossible.²⁵³ In the United States, this is an especially significant issue regarding land granted to or purchased by former slaves after the Civil War.²⁵⁴

The World Bank has called for improvement in land registries acknowledging that: "Land and housing are the most important assets of the poor Insecure tenure and lack of up-to-date land records have a direct impact on financing and implementation of public infrastructure investments, impacting safety, public health,

J64L]. *But see* Michael A. Specter, James Koppell & Danile Weitzner, *The Ballot Is Busted Before the Blockchain: A Security Analysis of Voatz, the First Internet Voting Application Used in U.S. Federal Elections*, INTERNET POLICY MIT (Feb. 2021), https://internetpolicy.mit.edu/wp-content/uploads/2020/02/SecurityAnalysisOfVoatz_Public.pdf [<https://perma.cc/7KSA-AB52>]; Sunoo Park, Michael Specter, Neha Narula & Ronald L. Rivest, *Going from Bad to Worse: From Internet Voting to Blockchain Voting*, 7 J. CYBERSECURITY 1 (Feb. 16, 2021), <https://doi.org/10.1093/cybsec/tyaa025> [<https://perma.cc/YKK3-8ZJZ>] (disputing the belief that voting on the blockchain would increase election security due to the potential of malware, zero day, and denial-of-service attacks).

²⁴⁹ *Why Secure Land Rights Matter*, WORLD BANK (Mar. 24, 2017), <https://www.worldbank.org/en/news/feature/2017/03/24/why-secure-land-rights-matter> [<https://perma.cc/9W8R-WALW>].

²⁵⁰ *Id.*

²⁵¹ *Id.*

²⁵² *Id.*

²⁵³ *Id.*

²⁵⁴ *See* Leah Douglas, *African Americans Have Lost Untold Acres of Land Over the Last Century*, NATION (June 26, 2017), <https://www.thenation.com/article/archive/african-americans-have-lost-acres/> [<https://perma.cc/SZB7-B6XT>].

access to energy solutions and extractives, and access to markets and trade.”²⁵⁵ Improving the system to verify land ownership can help prove ownership in the event of a disaster or attempted eviction. As such, the World Bank encourages policymakers and governments to take action to help their citizens secure their land and property rights.²⁵⁶ Currently, deeds must be recorded with a governmental entity to document ownership.²⁵⁷ There is, however, always the risk of fraud and human mistakes. NFTs are a way in which governments can overcome these challenges. According to Washington and Lee Law School Professor Joshua Fairfield,

Tying a token to a legal right is common in property law. For example, while land itself cannot be conveyed in a ledger, it is legally uncontroversial to tie the right to land to a token—a deed—that can be cheaply and quickly transferred, and that can be recorded in a ledger of interests. If there is a dispute as to the ownership of a plot of land, courts refer to the land records ledger, at least as a starting point. To give another example, a stock certificate has no intrinsic value. The certificate serves as a token that conveys certain rights; for example, the right to vote or the right to receive dividends.²⁵⁸

Public ledgers containing real estate represented by an NFT instead of a paper deed could reduce fraud due to the immutable placement on a blockchain. Because many property recording offices do not verify the legitimacy of the deeds they record, a title can become clouded if two competing deeds are recorded conveying the same property.²⁵⁹ This would not happen on a public blockchain ledger because the second deed would be immediately rejected.

Moreover, a report by Deloitte indicates that with respect to real estate, the use of blockchain technology could not only improve efficiency but also prevent fraud.²⁶⁰ For example, in 2015, Honduras contracted with a Texas-based blockchain

²⁵⁵ *Land*, WORLD BANK (last updated Apr. 16, 2020), <https://www.worldbank.org/en/topic/land> [<https://perma.cc/J2QJ-98Q7>].

²⁵⁶ *Why Secure Land Rights Matter*, *supra* note 249.

²⁵⁷ Klaus Deininger & Gershon Feder, *Land Registration, Governance, and Development: Evidence and Implications for Policy*, 24 WORLD BANK RES. OBS. 233, 234 (2009).

²⁵⁸ Joshua A.T. Fairfield, *Bitproperty*, 88 S. CAL. L. REV. 805, 826–27 (2015) (citations omitted).

²⁵⁹ Nir Kshetri & Richard Rogers, *Blockchain-Based Property Registries May Help Lift Poor People Out of Poverty*, THE CONVERSATION, <https://theconversation.com/blockchain-based-property-registries-may-help-lift-poor-people-out-of-poverty-98796> [<https://perma.cc/E9SA-J6BB>] (last visited May 23, 2021).

²⁶⁰ Peter Drucker, *Blockchain Applications in the Public Sector*, DELOITTE (2016), <https://www2.deloitte.com/content/dam/Deloitte/ch/Documents/innovation/ch-en-innovation-deloitte-blockchain-app-in-public-sector.pdf> [<https://perma.cc/L7BX-MYDZ>].

company to create a secure digitized land registry due to the significant title fraud occurring there.²⁶¹ It was reported that government officials were altering records in the country's unsecured land registry to falsely document their ownership of valuable beachfront properties, effectively stealing from legitimate owners.²⁶² Not unexpectedly, government officials were unwilling to go through with the measures, and the program was dropped after that year.²⁶³ Currently, both Sweden and Cook County, Illinois are testing similar blockchain-based real estate recording systems.²⁶⁴

As the technology underlying NFTs continues to advance, NFT-enabled smart contracts could facilitate the payment of real estate taxes, the release of mortgages, and prevent real estate sales in contravention of heir deeds. By digitizing immutable property ownership records, the legal issues that often surround deeds and rightful ownership could be mitigated altogether.

B. Permanent Digital Identification

Not only can NFTs represent digital and physical goods, but they can also be used for identification and the maintenance of permanent records. "Occupation-specific credentials like medical licenses, law degrees, and other certifications are unique to an individual and can be issued, maintained, and tracked as NFTs on blockchain networks."²⁶⁵ The European Union is currently exploring the use of digital identities (as well as digital passports) as a way to ensure privacy, security, and authentication.²⁶⁶ The utility of the digital identity (e-wallet) could provide identification and maintain important documents, such as a driver's license.²⁶⁷

²⁶¹ John Andrikos, *Blockchain-Based Land Registry in Honduras*, THE BORGEN PROJECT (Jan. 7, 2021), <https://borgenproject.org/blockchain-based-land-registry/> [<https://perma.cc/4TU4-XHWR>].

²⁶² Kshetri & Rogers, *supra* note 259. According to Carolyn Lord, of Anglia Research, title fraud is also increasingly common even in advanced economies like the U.K. *Forget Bitcoin – Think Blockchain, Think Assets, Think Registries*, ANGLIA RSCH., <https://www.angliaresearch.co.uk/forget-bitcoin-think-blockchain-think-assets-think-registries/> [<https://perma.cc/6ZVG-9ER7>] (last visited July 11, 2021).

²⁶³ See Andrikos, *supra* note 261.

²⁶⁴ Carla L. Reyes, *Conceptualizing Cryptolaw*, 96 NEB. L. REV. 384, 386 (2017).

²⁶⁵ Andrew Beal, *How Non-Fungible Tokens Can Create Value for Enterprises*, EY (Feb. 19, 2019), https://www.ey.com/en_us/financial-services/how-non-fungible-tokens-can-create-value-for-enterprises [<https://perma.cc/H9BJ-4CHG>].

²⁶⁶ IGNACIO ALAMILLO DOMINGO, SSI EIDAS LEGAL REPORT: HOW EIDAS CAN LEGALLY SUPPORT DIGITAL IDENTITY AND TRUSTWORTHY DLT-BASED TRANSACTIONS IN THE DIGITAL SINGLE MARKET (2020), https://joinup.ec.europa.eu/sites/default/files/document/2020-04/SSI_eIDAS_legal_report_final_0.pdf [<https://perma.cc/UYZ2-Q69Q>].

²⁶⁷ Oliver Noyan, *European Commission Proposes 'Digital Identity Wallet'*, EURACTIV (Jun. 4, 2021), <https://www.euractiv.com/section/digital/news/eu-commission-announces-intention-to-introduce-digital-ids/> [<https://perma.cc/UFT6-FPBB>]. Although this digital identity would not be required of either EU citizens, the European Commission desires to enact law requiring countries accept such e-wallets as identification.

Likewise, the Ethiopian government is also looking to create digital identities.²⁶⁸ For example, in April 2021, Ethiopia signed a deal to create a national database of five million student IDs using a decentralized digital identity solution containing each student's educational records.²⁶⁹ Ethiopia's proposed program is especially significant because it is difficult in many African countries to obtain a bank account without a verifiable identity.²⁷⁰

Overall, with an increasing number of personal data leaks resulting from both negligent data security practices and malicious actors targeting governments and private firms, more secure methods of holding personal data are being sought across the globe.²⁷¹ Due to their underlying blockchain technology, NFTs allow for secured digital identities because they are permanently stored and immutable. Significantly, the U.S. Department of Health and Human Services is even investigating the feasibility of NFTs to represent health data.²⁷²

NFTs as permanent records or identification on a blockchain could create enormous governmental efficiencies as well as address social ills involving a lack of access to technology and legal understanding, resulting in the poor forfeiting ownership of their assets or inability to prove their identity, school records, or credentials. However, these issues would require enabling legislation different from the regulations needed to address NFTs as collectibles or financial instruments.

V. TOKENIZATION LAW AND POLICY

As NFT uses expand and the underlying technology rapidly advances, there is a limited window of time to get tokenization law and policy right. While the main focus of this Article is to provide clarity on what NFTs are, what they are not, and how their different uses implicate different legal issues, the authors would be remiss not to discuss the future of NFTs from a regulatory perspective.

In brief, much more work needs to be done to create a regulatory framework surrounding NFTs that serves to promote innovation while protecting against potential harms. Such regulation will mandate a new way of thinking about regulating technology. Specifically, to navigate the future of NFTs, technical and

²⁶⁸ Iwa Salami, *Ethiopia's Blockchain Deal Is a Watershed Moment – For the Technology, and for Africa*, WORLD ECON. F. (Jun. 4, 2021), <https://www.weforum.org/agenda/2021/06/what-does-ethiopia-s-blockchain-deal-mean-for-africa/> [<https://perma.cc/8SKG-7CHJ>].

²⁶⁹ *Id.*

²⁷⁰ *Id.*

²⁷¹ See Scott J. Shackelford & Steve Myers, *Block-by-Block: Leveraging the Power of Blockchain Technology to Build Trust and Promote Cyber Peace*, 19 YALE J. L. & TECH. 334, 334 (2017) (explaining that “the potential impact of blockchain technology on advancing the cybersecurity of firms across an array of sectors and industries with a particular focus on certificate authorities and the critical infrastructure context”).

²⁷² Mark Barley, *Health Department Invests \$7 Million in AI/Blockchain Initiative*, LEDGER INSIGHTS (Mar. 19, 2019), <https://www.ledgerinsights.com/health-department-invests-7-million-in-ai-blockchain-initiative/> [<https://perma.cc/FB3H-XUYE>].

legal input must be sought out and incorporated into potential guidance. This Part explores the areas of technological and legal guidance in turn.

A. Technological Expertise Required

Those in the federal government seem to have very little understanding of what an NFT is or how it is different from a cryptocurrency.²⁷³ In addition to the lack of Congressional understanding of modern technology,²⁷⁴ governmental agencies are making inconsistent statements on how these digital assets should be regulated.²⁷⁵

²⁷³ See, e.g., ROBERT ROSENBLUM, AMY CAIAZZA, & TAYLOR EVENSON, CONDUCTING A TOKEN OFFERING UNDER REGULATION 2 (2019) (“William Hinman, Director of the Securities and Exchange Commission’s (“SEC”) Division of Corporation Finance, in June 2018, confirmed that the SEC viewed virtually all tokens besides Bitcoin and Ether to be securities.”); U.S. DEPT. OF JUSTICE, ASSET FORFEITURE POLICY MANUAL 29 (2021), <https://www.justice.gov/criminal-afmls/file/839521/download> [https://perma.cc/TCY7-5BBB] (“Any liquidation of cryptocurrency should be executed according to established written policies of the seizing agency and the USMS. Prosecutors may contact MLARS or USMS’ headquarters Asset Forfeiture Division (AFD) for guidance regarding disposition of any alternative cryptocurrencies (e.g., cryptocurrency other than Bitcoin), including anonymity enhanced cryptocurrencies (commonly referred to as privacy coins) and tokens.”) The U.S. Department of Justice makes no distinction between fungible and non-fungible tokens.

²⁷⁴ The lack of understanding is readily apparent from viewing Congressional hearings with tech company leaders, with one reporter quipping: “These hearings were live-streamed to the general populace, more than half of whom are younger than 40, many of whom were horrified to discover that a country being revolutionized by technology is apparently overseen by people whose worldview calcified in the previous century.” Avi Selk, *There’s so Many Different Things!’: How Technology Baffled an Elderly Congress in 2018*, WASH. POST (Jan. 2, 2019), https://www.washingtonpost.com/lifestyle/style/theres-so-many-different-things-how-technology-baffled-an-elderly-congress-in-2018/2019/01/02/f583f368-ffe0-11e8-83c0-b06139e540e5_story.html [https://perma.cc/6UHL-VR2G]. See also Max de Haldevang, *The US Desperately Needs Tech-Savvy Lawmakers but the Midterms Are Unlikely to Deliver*, QUARTZ (Nov. 4, 2018), <https://qz.com/1449521/us-needs-tech-savvy-lawmakers-midterms-unlikely-to-deliver/> [https://perma.cc/S8JQ-65S7].

²⁷⁵ Tim Fries, *SEC Chairman Lays Concerns to Rest: “Ethereum Is Definitely Not a Security,”* TOKENIST (Apr. 29, 2021), <https://tokenist.com/sec-chairman-lays-concerns-to-rest-ethereum-is-definitely-not-a-security/> [https://perma.cc/YQA6-WRT9] (“Jay Clayton, the [former] Chairman (sic) of the United States Securities and Exchange Committee (SEC), has formally denied any concerns over Ethereum being a security. In a letter of clarification made to Coin Center, the Chairman made clear that Ethereum would never be considered a security in terms of regulations.”). Cf. Chris Prentice & Pete Schroeder, *Analysis: Biden’s SEC Chair Nominee Signals More Regulation for Cryptocurrencies*, REUTERS (Mar. 2, 2021, 5:45 PM), <https://www.reuters.com/article/us-usa-crypto-currency-gensler-analysis/analysis-bidens-sec-chair-nominee-signals-more-regulation-for-cryptocurrencies-idUSKCN2AV02H> [https://perma.cc/B2H3-Q2U5] (“But there is a ‘strong case’ that digital currencies created and issued by companies have likely violated securities law, [current Chair of the

Much of this confusion stems from the complexity of the technology²⁷⁶ combined with the lack of legal scholarship, regarding NFTs. As a result, expanding interdisciplinary research in both law and technology is needed. As discussed in Urs Gasser’s Commentary on the context of privacy regulation in the Harvard Law Review Forum, “employ[ing] a hybrid of legal *and* technical reasoning” can be a paradigm shift to “embracing the multifaceted, functional role of law and reframing technology, broadly defined, no longer (only) as a threat to privacy [and other harms], but as part of the *solution space*.”²⁷⁷

Although no federal agency has issued guidance specific to NFTs, it is likely that jurisdiction will be spread across multiple agencies.²⁷⁸ The problem is that the

SEC Gary] Gensler said at a conference in 2018. These include the second and third most widely used virtual currencies, which were created by Ripple Labs and Ethereum.”). *See also* Jeff John Roberts, *Ripple Says It Will Be Sued by the SEC, in What the Company Calls a Parting Shot at the Crypto Industry*, FORTUNE (Dec. 21, 2020, 6:01 PM), <https://fortune.com/2020/12/21/ripple-to-be-sued-by-sec-cryptocurrency-xrp/> [<https://perma.cc/3TN5-3D6J>] (explaining the hotly contested SEC action against Ripple claiming that XRP is a security, not a cryptocurrency); Jamie Crawley, *SEC Causing ‘Confusion’ over Digital Currencies in Legal Case with Ripple: WSJ Editorial Board*, COINDESK (Sept. 14, 2021, 6:42 AM), <https://www.coindesk.com/sec-causing-confusion-over-digital-currencies-in-legal-case-with-ripple-wsj-editorial-board> [<https://perma.cc/3TN5-3D6J>] (explaining how the inconsistent treatment of cryptoassets is a danger for investors).

²⁷⁶ *See* Gary Stern, *Can Regulators Keep Up with Fintech?*, YALE INSIGHTS (Dec. 13, 2017), <https://insights.som.yale.edu/insights/can-regulators-keep-up-with-fintech> [<https://perma.cc/GC8N-QHXR>].

²⁷⁷ Urs Gasser, *Recoding Privacy Law: Reflections on the Future Relationship Among Law, Technology, and Privacy*, 130 HARV. L. REV. F. 61, 65, 68 (2016).

²⁷⁸ *See* David Gura, *A Big Fight Is Brewing over Cryptocurrencies. These Are Some Key Players to Watch*, NPR (Nov. 6, 2021, 5:00 AM), <https://www.npr.org/2021/11/06/1050430801/cryptocurrencies-bitcoin-elizabeth-warren-gary-gensler> [<https://perma.cc/E8SP-MNYE>] (comparing statements made by federal officials on the regulation of cryptocurrencies).

SEC,²⁷⁹ CFTC,²⁸⁰ IRS,²⁸¹ and Treasury²⁸² all have different levels of technological understanding.²⁸³ While it is true that an NFT can be considered a digital asset, it is not a cryptocurrency, and this distinction seems to be absent in many discussions.²⁸⁴ Several governmental agencies have used the term “digital tokens” in their definition of digital assets without making a distinction between a fungible and non-fungible

²⁷⁹ It should be noted that the current Chair of the SEC, Gary Gensler, actually taught a course at MIT on blockchain which is the technology underlying NFTs. Author, Kimberly A. Houser, took this course on *MIT Open Courseware, Blockchain and Money*, MIT OPEN COURSEWARE, <https://ocw.mit.edu/courses/sloan-school-of-management/15-s12-blockchain-and-money-fall-2018/index.htm> [<https://perma.cc/68TG-8Z5B>] (last visited July 8, 2021).

²⁸⁰ Although the CFTC has indicated that cryptocurrencies such as Bitcoin can constitute commodities, their jurisdiction is limited to derivative contracts and fraud. *Bitcoin Basics*, CFTC, https://www.cftc.gov/sites/default/files/2019-12/oceo_bitcoinbasics0218.pdf [<https://perma.cc/3PQB-WBRC>]. NFTs would also not likely be considered commodities under the CFTC because they “are not ‘pure mediums of exchange.’” Diane Qiao, *This Is Not a Game: Blockchain Regulation and Its Application to Video Games*, 40 N. ILL. U. L. REV. 176, 220–21 (2020).

²⁸¹ IRS Commissioner Charles Rettig does not seem to understand exactly what NFTs are or how they relate to cryptocurrencies. He states that tax evasion using cryptocurrencies is “replicating” with non-fungible tokens. He also seems to believe that NFTs are being sold on the dark web. Robert Frank, *IRS Is Probing the Dark Web to Look for Cryptocurrency and NFT Tax Evasion, Says IRS Commissioner*, CNBC (Apr. 14, 2021, 10:41 AM), <https://www.cnbc.com/2021/04/14/irs-is-probing-the-dark-web-to-look-for-cryptocurrency-nft-tax-evasion.html> [<https://perma.cc/RF8M-2KAW>]. However, NFTs are primarily purchased through online marketplaces and can be purchased with unappreciated cryptocurrencies as well as credit cards. *Circle Launches Platform to Let NFT Marketplaces Accept Credit Card Payments*, FINEXTRA (Mar. 30, 2021), <https://www.finextra.com/news-article/37760/circle-launches-platform-to-let-nft-marketplaces-accept-credit-card-payments> [<https://perma.cc/4GMS-FVM7>].

²⁸² U.S. Treasury Secretary Janet Yellen seems to believe that cryptocurrencies are used for “illicit finance,” but the data does not support this. In fact, “[a]ccording to blockchain tracking firm Chainalysis, criminal activity accounted for 0.34% of cryptocurrency transaction volume, down from 2.1% in 2019. And a Rand Corporation report noted that ‘an estimated 99 percent of cryptocurrency transactions are performed through centralised exchanges, which can be subject to AML/CFT regulation similar to traditional banks or exchanges.’” Jeff Benson, *What Janet Yellen Gets Wrong About Bitcoin*, DECRYPT (Feb. 22, 2021), <https://decrypt.co/58618/janet-yellen-wrong-about-bitcoin> [<https://perma.cc/MYZ5-5CJQ>].

²⁸³ CFTC Commissioner Dan Berkovitz made a keynote address regarding decentralized finance repeatedly citing Wikipedia as the authoritative source of his speech. Kollen Post, *CFTC Commissioner Criticizes DeFi, Decries Lack of Intermediaries*, THE BLOCK (June 9, 2021, 11:53 AM), <https://www.theblockcrypto.com/linked/107769/cftc-commissioner-criticizes-defi-decries-lack-of-intermediaries> [<https://perma.cc/6BX8-RTWM>].

²⁸⁴ As explained above, cryptocurrencies, such as Bitcoin, are fungible tokens or coins which serve as a medium of exchange. You could technically purchase a pizza with Bitcoin if the pizza place accepted it. You would not be able to use NFTs, such as a Top Shot Moment, to pay for a pizza.

token.²⁸⁵ Relying on terms like “digital asset” or “digital token” when speaking about potential regulation is very dangerous and adds to the frustration and confusion facing the industry.

The issue is not just a technical understanding of what an NFT is or is not; it is also the ability to anticipate the technological issues that may arise. When legislators do not understand a technology, there are often calls to ban it²⁸⁶ or to punish anticipated harms without understanding the consequences of doing so.²⁸⁷ These misguided acts have the effect of inhibiting innovation.²⁸⁸ Additionally, these knee-

²⁸⁵ See, e.g., CONG. RESEARCH SERV., R46208, DIGITAL ASSETS AND SEC REGULATION (2020), <https://crsreports.congress.gov/product/pdf/R/R46208> [<https://perma.cc/P32R-YZB3>] (making no distinction between fungible and non-fungible tokens, “Digital assets, which include crypto-assets, cryptocurrencies, or digital tokens, among others, are digital representations of value made possible by cryptography and distributed ledger technology”). See also CONG. RESEARCH SERV., IF11004, FINANCIAL INNOVATION: DIGITAL ASSETS AND INITIAL COIN OFFERINGS (2018), <https://crsreports.congress.gov/product/pdf/IF/IF11004> [<https://perma.cc/V2SM-AH62>] (referring to digital assets as cryptocurrency, crypto commodity and crypto token).

²⁸⁶ For example, several states and multiple cities in the U.S. have banned the use of facial technology by the government. James Andrew Lewis, CTR. FOR STRATEGIC & INT’L STUD., FACIAL RECOGNITION TECHNOLOGY: RESPONSIBLE USE PRINCIPLES AND THE LEGISLATIVE LANDSCAPE (Sept. 29, 2021), <https://www.csis.org/analysis/facial-recognition-technology-responsible-use-principles-and-legislative-landscape> [<https://perma.cc/4JTA-M36E>]. By banning the use of facial recognition, beneficial uses such as locating missing children and fighting sexual exploitation on the dark web are also banned. See Kimberly A. Houser, *Artificial Intelligence and the Struggle Between Good and Evil*, 60 WASHBURN L. J. 475, 486–89 (2021).

²⁸⁷ While there is much haranguing around DLT and blockchain, most of the concerns coming out of the federal government relate to cryptocurrencies and fears of money-laundering and the funding of domestic terrorism. In fact, so far, the few bills that have been introduced are fear-based. “The Blockchain Innovation Act would require the Department of Commerce and the Federal Trade Commission, or FTC, to put together a report on blockchain’s use in trade and, especially, to *fight fraud* The Digital Taxonomy Act . . . mandates that the FTC assemble a *report on unfair and deceptive practices in crypto markets*.” Kollen Post, *Two Blockchain Bills Pass in the US House, Head for Senate*, BLOCK (June 23, 2021, 2:40 PM), <https://www.theblockcrypto.com/linked/109371/two-blockchain-bills-pass-in-the-us-house-head-for-senate> [<https://perma.cc/DXX4-U8DQ>] (emphasis added). “In a June 9 Senate hearing on central bank digital currencies, Subcommittee Chairwoman Elizabeth Warren opened up her commentary with a *salvo against cryptocurrencies*, calling on lawmakers to face the *problem* ‘head on’ [emphasis added].” Kollen Post, *Senator Elizabeth Warren Attacks Cryptocurrency over Ransomware, Energy Use*, BLOCK (June 9, 2021, 2:59 PM), <https://www.theblockcrypto.com/linked/107983/senator-elizabeth-warren-attacks-cryptocurrency-over-ransomware-energy-use> [<https://perma.cc/D38Y-BYCC>] (emphasis added). None of the bills support innovation in these fields.

²⁸⁸ Ryan Muldoon, *Don’t Ban New Technologies – Experiment with Them Carefully*, CONVERSATION (Aug. 22, 2019, 8:36 AM), <https://theconversation.com/dont-ban-new-technologies-experiment-with-them-carefully-120277> [<https://perma.cc/ZS7H-MANG>].

jerk reactions are unnecessary as many times there are technological fixes available for the harms feared.²⁸⁹

B. Legal Expertise Required

As new uses for NFTs emerge, businesses are operating in the dark with no guidance. Regulators and legislators must take the time to understand the technical aspects of NFTs in relation to other digital assets in order to make informed regulatory decisions. In addition to providing guidance, however, there must also be a desire to encourage innovation and reduce governmental inefficiencies. This will require both enabling legislation and funding. For example, with respect to advancing a blockchain-based land registry where deeds are tokenized, the transition would be costly and messy. There are 3,142 counties in the U.S., most of which maintains a recorder's office.²⁹⁰ The current records in each office, going back over 100 to 200 years,²⁹¹ would first need to be digitized. Then a private blockchain would need to be created, permitting only authenticated nodes to verify transactions (while the transaction records themselves would be publicly available and searchable). From a legal perspective, the law in each of the fifty states would need to change to permit the tokenization of deeds and other real estate documents as well as allow for the recording and transfer of such NFTs.²⁹² Similar issues would arise for any type of omnibus ownership ledger, such as automobile titles, copyrights, or patents.

With respect to the use of NFTs to represent products and components in a supply chain, Canada's pilot of a blockchain-based cannabis tracking system is instructive. Canada, like several states in the U.S., requires seed-to-sale tracking of cannabis when sold through retail markets.²⁹³ Rather than having to file numerous reports to various agencies, Canada is developing a single, real-time distributed

²⁸⁹ For example, there are technological fixes for artificial intelligence's "garbage in - garbage out" and "black box" problems. See Kimberly A. Houser, *Can AI Solve the Diversity Problem in the Tech Industry? Mitigating Noise and Bias in Employment Decision-Making*, 22 STAN. TECH. L. REV. 290, 332-45 (2019).

²⁹⁰ *US County Map of the United States*, GIS GEOGRAPHY (Nov. 2, 2021), <https://gisgeography.com/us-county-map/> [<https://perma.cc/L55G-V64H>]. Note that some cities and states use a Torrens land registry utilizing title certificates rather than deeds.

²⁹¹ Chicago Title and Trust Co., for example, began keeping track of recorded deed in 1847. *160 Years and Beyond*, CHI. TITLE TR. CO., <https://www.ctic.com/History.aspx> [<https://perma.cc/7K7A-5ZCJ>] (last visited June 20, 2022). For a thorough explanation of the history of recording and registration systems in the U.S., see John L. McCormack, *Torrens and Recording: Land Title Assurance in the Computer Age*, 18 WILLIAM MITCHELL L. REV. 61, 80-114 (1992) (explaining why the superior Torrens recording system was never fully adopted in the U.S.).

²⁹² See generally Griffin P. Heil, Note: *Blockchain's Impact on Real Estate and the Future*, 18 J. INT'L. BUS & L. 237, 254 (2019).

²⁹³ Brian Abelseth, *Blockchain Tracking and Cannabis Regulation: Developing a Permissioned Blockchain Network to Track Canada's Cannabis Supply Chain*, 14 DALHOUSIE J. INTERDISC. MGMT. 1 (2018).

ledger technology tracking system.²⁹⁴ By utilizing multiple nodes, verifying each transaction, which permanently resides on the blockchain, and associating each plant with metadata embedded into the applicable NFT, the system is essentially tamperproof, limiting potential illegal transactions.²⁹⁵ This is much different than, for example, Colorado's central database architecture. Should a server disruption take down the central database, Colorado retailers would be unable to process transactions, as happened on April 20, 2021.²⁹⁶ A distributed database eliminates that problem. Some of the challenges with the implementation of a blockchain-based tracking system mentioned with respect to Canada's pilot include high costs, uncertain transition time, involvement of multiple agencies to ensure each will receive the data they require, and the need for new regulations addressing privacy, data security, and network access.²⁹⁷

Finally, the emerging category of NFTs as records creates an entirely different set of concerns. If a permissioned blockchain was created to hold academic records, for example, the Family Educational Rights and Privacy Act (FERPA) would need to be amended to account for such use and provide additional privacy and access requirements. While some legislative and regulatory discussion has focused on how cryptocurrencies should be treated, NFTs have not received nearly the same attention.²⁹⁸ The concern is that regulating NFTs without understanding how collectibles, investments, and records of ownership and identification present different legal issues will result in inappropriate restrictions.²⁹⁹ In terms of guidance, the legal literature regarding NFTs is fairly sparse and very recent.³⁰⁰ Some articles discuss NFTs as they relate to a single category of law, such as securities law,³⁰¹

²⁹⁴ See *id.*

²⁹⁵ *Id.* at 4.

²⁹⁶ See Tiney Ricciardi, *System Crash Snarls Dispensary Sales on 4/20*, DENVER POST (Apr. 20, 2021), <https://www.denverpost.com/2021/04/20/flowhub-crash-420/> [<https://perma.cc/BJ7S-B8RN>].

²⁹⁷ *Id.* See also Kimberly A. Houser & Janine Hiller, *Medical Marijuana Registries: A Painful Choice?*, 57 AM. BUS. LAW J. 827 (2020) (explaining the privacy risks of marijuana registries).

²⁹⁸ See, e.g., Letter from Vincent R. Molinari, *supra* note 205.

²⁹⁹ For example, treating utility tokens and security tokens differently ignores the fact that utility tokens could serve the same function as a security token. A report by the Cambridge Center for Alternative Finance suggests that regulation should be based on the function of the token rather than the form. JASON G. ALLEN, MICHEL RAUCHS, APOLLINE BLANDIN & KEITH BEAR, LEGAL AND REGULATORY CONSIDERATIONS FOR DIGITAL ASSETS 11 (2021), <https://www.jbs.cam.ac.uk/wp-content/uploads/2020/10/2020-ccaf-legal-regulatory-considerations-report.pdf> [<https://perma.cc/PM7U-QFYU>].

³⁰⁰ See e.g., *supra* text accompanying note 10.

³⁰¹ See generally Ruoke Yang, *When Is Bitcoin a Security Under U.S. Securities Law?*, 18 J. TECH. L. & POL'Y 99 (2014) (explaining when federal securities law would apply); Kelsey L. Penrose, *Banking on Bitcoin: Applying Anti-Money Laundering and Money Transmitter Laws*, 18 N.C. BANKING INST. 529 (2014) (discussing how anti-money-laundering laws would apply).

copyright,³⁰² or ownership rights.³⁰³ Additionally, as with any new technology, issues of discrimination, privacy, security, and consent need to be considered.³⁰⁴ Rather than trying to rely on old law to address the legal issues, regulators should be proactive in discovering how these persistent legal problems may arise and explore possible solutions as a part of the development of the regulatory framework.

Overall, it is impossible to underestimate the impact on society that a shift to tokenization will have.³⁰⁵ Regulators must fully grasp the technology underlying NFTs in order to set both guardrails and incentives around its development properly. The failure of the U.S. to establish long-term policies and promote innovation due to their lack of understanding of modern technology has resulted in their loss of global leadership in AI,³⁰⁶ multiple abuses by the federal government of citizens' data due to the failure to update the Privacy Act of 1974,³⁰⁷ the largest data breach in history due to the failure to create national data security laws and standards,³⁰⁸ a decline in funding for the sciences and the overall lack of a cohesive strategy to protect its citizens from technological harm.³⁰⁹ The time is now to change the narrative and navigate the world of NFTs properly.

³⁰² See generally Brian L. Frye, *NFTs & the Death of Art 1* (Apr. 20, 2021) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3829399 [<https://perma.cc/6C4K-7RB6>] (addressing NFT's, art, and fraud); Ifeanyi E. Okonkwo, *NFT, Copyright; and Intellectual Property Commercialization*, 29 INT'L J. L. & INFO. TECH. 296 (2021) (selling copyright works using digital currency is disruptive).

³⁰³ See Joshua Fairfield, *Tokenized: The Law of Non-Fungible Tokens and Unique Digital Property*, 97 IND. L. J. 1262, 1267 (2022) (arguing that NFTs should be considered personal property subject to the laws of the sale of goods, rather than contract or intellectual property law); João Marinotti, *Possessing (Digital) Property*, 116 NW. U. L. REV. 1227 (2022).

³⁰⁴ See generally Scott R. Peppet, *Regulating the Internet of Things: First Steps Toward Managing Discrimination, Privacy, Security, and Consent*, 93 TEX. L. REV. 85 (2014).

³⁰⁵ Carla Reyes, *Moving Beyond Bitcoin to an Endogenous Theory of Decentralized Ledger Technology Regulation: An Initial Proposal*, 61 VILL. L. REV. 191, 192–93 (2016) (“Academics predict that the blockchain and similar technologies will revolutionize the way people order their affairs and conduct transactions through the evolution of smart contracts, decentralized autonomous organizations, distributed property registries, and distributed and secure data stores. Although similarly captivated by these developing technologies, governments, individual regulators, and various policy makers remain less optimistic that the good contributions of the technology will outweigh the way bad actors use the technology for illicit purposes.”).

³⁰⁶ See Kimberly A. Houser, *The Innovation Winter Is Coming: How the U.S.-China Trade War Endangers the World*, 57 SAN DIEGO L. REV. 549, 561–63 (2020).

³⁰⁷ See Kimberly A. Houser & Debra Sanders, *The Use of Big Data by the IRS: Efficient Solution or the End of Privacy as We Know It?*, 19 VAND. J. ENT. & TECH. L. 817, 866–70 (2017).

³⁰⁸ Houser, *supra* note 286.

³⁰⁹ See Kimberly A. Houser & Anjanette H. Raymond, *It Is Time to Move Beyond the “AI Race” Narrative: Why Investment and International Cooperation Must Win the Day*, 18 NW. J. TECH. & INTELL. PROP. L. 129, 130–31 (2021).

CONCLUSION

The promise of NFTs extends to virtually every industry; however, our present system is ill-equipped to regulate their use. Existing gambling laws were drafted long before NFTs were ever envisioned, and our copyright system has been slow to evolve in a way that allows for the optimal use of NFTs. Similarly, existing laws regarding securities, finance, and tax did not contemplate NFTs, leaving a great deal of uncertainty for those who create, sell, buy, and market them.

Policymakers must promote innovation in this field and gain an understanding of how the different functions of NFTs require different legal schemes. NFTs and their underlying technologies offer incredible opportunities, which could make government more efficient, make food and drug products safer, and provide a method to create immutable records while protecting the data contained therein. Those who discount NFTs as a fad are missing the bigger picture. NFTs are the driver behind one of the fastest-growing industries in the world.³¹⁰

What is needed now is a “solution space.”³¹¹ Rather than bringing inconsistent enforcement actions, relying on a misunderstanding of technology, creating law prematurely, creating law after the technology is entrenched,³¹² or worse yet, failing to provide guidance at all, a joint committee made up of diverse representatives from the SEC, CFTC, FTC, Justice Department, Treasury Department, academia, the tech industry, and social science fields should organize to create a regulatory sandbox framework specifically for NFT development and use.³¹³ A regulatory sandbox would serve to provide invaluable lessons for both the industry and government.

³¹⁰ See, e.g., Taylor Locke, *NFT Trading Volume Hit \$10.7 Billion Last Quarter—Here Are 2 Reasons Why People Are Spending Thousands on Digital Assets*, CNBC (Oct. 6, 2021, 10:29 AM), <https://www.cnbc.com/2021/10/06/nft-trading-volume-hit-10-billion-2-reasons-why-people-are-buying.html> [<https://perma.cc/B9RM-FN3W>]; Arnav Yadav, *Can NFT Games Become Mainstream in the Future?*, TOTALKRYPTO (Sept. 1, 2021), <https://totalkrypto.com/can-nft-games-become-mainstream-in-the-future> [<https://perma.cc/M6SL-46WR>].

³¹¹ See Gasser, *supra* note 277, at 65.

³¹² Richard M. Re & Alicia Solow-Niderman, *Developing Artificially Intelligent Justice*, 22 STAN. TECH. L. REV. 242, 286 (2019).

³¹³ Due to space limitations, a discussion of the details of a sandbox proposal is beyond the scope of this paper. However, “[f]irms within the sandbox usually receive some combination of reduced regulatory burdens, limitations on regulatory liability, increased communication with and advice from regulators, and expedited regulatory decisions.” Brian R. Knight & Trace E. Mitchell, *The Sandbox Paradox: Balancing the Need to Facilitate Innovation with the Risk of Regulatory Privilege*, 72 S.C. L. REV. 445, 446 (2020). The following articles are instructive in describing examples of sandboxes, as well as how the design impacts the benefits and risks: Sherkow, *supra* note 246; Hilary J. Allen, *Regulatory Sandboxes*, 87 GEO. WASH. L. REV. 579 (2019); Chris Brummer & Yesha Yadav, *Fintech and the Innovation Trilemma*, 107 GEO. L.J. 235, 291–97 (2019).

Acting now and with a sense of urgency would help the U.S. regain its position as a global tech leader.

To conclude, this Article serves as a jump-off point to help inform policymakers of the myriad issues in this promising field. Largely misunderstood, and all but ignored by legal scholars, NFTs with their attendant blockchain and smart contract technologies can create entirely new paradigms around ownership and identification and inspire completely new business models.³¹⁴ Although there are still many challenges to overcome, the U.S. must act with alacrity to better understand this technology, encourage interdisciplinary study and cooperation, and create a safe regulatory space to enable tokenization to fulfill its vast potential.

³¹⁴ Additionally, as businesses move into the metaverse, these digital assets will become incredibly important. “A metaverse is a digital environment operating on the blockchain. Here, technologies such as VR and AR act as the visual component providers, while the decentralized medium provides unlimited social interaction and business opportunities.” *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/Z8WB-87HQ>].