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## Unchain My Art – Copyright Implications of Tokenized Artworks Under US and EU Law

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# TTLF Working Papers

**Editors: Siegfried Fina, Mark Lemley, and Roland Vogl**

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## General Note about the Content



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## Copyright

**Abstract**

Non-fungible tokens (NFTs) have received a lot of attention owing to some spectacular digital art sales. This seems that NFTs provide artists with new opportunities to market their works, especially in the case of digital art. Although it remains to be seen whether the hype is short-lived or the art market will change permanently and NFTs will establish themselves as a serious form of marketing for artworks, tokenized artworks give rise to numerous copyright issues, which have been examined under the law of the United States (US) and the European Union (EU) in this paper. The author argues, that even if the creation and transfer of NFTs rarely affect the rights to the copyright-protected content they represent, the introduction of a specific "NFT right" by the legislator is neither advisable nor necessary.

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## I. INTRODUCTION

Non-fungible Tokens or NFTs can be used to represent a wide variety of assets. It is possible to tokenize physical objects (e.g., real estate, paintings) and digital content (e.g., graphics, music), and other benefits (e.g., access to events or communities). While NFTs also raise issues concerning securities law,[1] this paper focuses on their various implications for copyright law. After an overview of the history, technical background, and specific features of NFTs, we examine how the technology can be used for (digital) art and identify the copyright issues that may arise.

### *A. About Monkeys, Cats, and Punks: A Short History of NFTs*

The first major NFT projects were "Cryptopunks" and "CryptoKitties" from 2017. "Cryptopunks"[2] are a collection of 10,000 individual pixel graphics that were automatically generated from a given set of characteristics. The NFTs were initially available for free, but in the meantime individual characters have been traded for millions.[3] The game "CryptoKitties"[4] allows users to acquire virtual cats with unique characteristics that can be collected and paired with each other to create new cats. Some rare kittens were sold for six-figure sums.[5]

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[1] See, e.g. Lauren Au, *Fractionalization to Securitization: How the SEC May Regulate the Emerging Assets of NFTs,* 96 S. CAL. L. REV. 253 (2022).
[2] *CryptoPunks,* LARVA LABS, https://www.larvalabs.com/cryptopunks (last visited Aug. 31, 2023).
[3] Lucas Matney, *CryptoPunks NFT bundle goes for $17 million in Christie's auction*, TECHCRUNCH (May 12, 2021), https://techcrunch.com/2021/05/11/cryptopunks-nft-bundle-goes-for-17-million-in-christies-auction.
[4] CRYPTOKITTIES, https://www.cryptokitties.co/ (last visited Aug. 31, 2023).
[5] Andrew Hayward, *Remember CryptoKitties? Classic Ethereum NFTs Are Soaring in Value,* DECRYPTT (Sept. 3, 2021), https://decrypt.co/80159/cryptokitties-classic-ethereum-nfts-surging-value.

In 2020, the US basketball league NBA began offering short video sequences with highlights from basketball games ("moments") under the name "Top Shots"[6]. Here too, six-figure sums have been paid for individual basketball game plays.[7]

NFTs became known to the general public in March 2021, with the sale of the work "Everydays: the First 5000 Days" by the artist Beeple. The artwork is a collage comprising 5,000 individual images in JPG format, which was auctioned by Christie's for USD 69.3 million.[8] Other spectacular sales from 2021 concern Twitter founder Jack Dorsey's first tweet ("just setting up my twttr") for USD 2.9 million[9] and the source code for the World Wide Web developed by computer scientist Tim Berners-Lee for USD 5.4 million[10]. In April 2021, the "Bored Ape Yacht Club"[11] was launched, a collection of 10,000 individual ape heads that were automatically generated from predefined characteristics, similar to the "Cryptopunks." The holder of a "Bored Ape" also receives access to exclusive events. While the "Apes" were initially available for USD 190 per piece, millions were later paid for individual monkeys from the collection.[12] In November 2021, director Quentin Tarantino announced that he would

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[6] TOP SHOT, https://nbatopshot.com/ (last visited Aug. 31, 2023).
[7] Ben Stinar, *LeBron James NBA Top Shot Sells for Over $387,000,* SPORTS ILLUSTRATED (Apr. 16, 2021), https://www.si.com/nba/pacers/news/lebron-james-nba-top-shot-sells-for-over-387000.
[8] Abram Brown, *Beeple NFT Sells For $69.3 Million, Becoming Most-Expensive Ever*, FORBES (Mar. 11, 2021, https://www.forbes.com/sites/abrambrown/2021/03/11/beeple-art-sells-for-693-million-becoming-most-expensive-nft-ever/.
[9] Todd Haselton, *Twitter CEO Jack Dorsey's first tweet NFT sells for $2.9 million*, CNBC (Mar. 24, 2021), https://www.cnbc.com/2021/03/22/twitter-ceo-jack-dorseys-first-tweet-nft-sells-for-2point9-million.html.
[10] Rashi Shrivastava, *NFT Of The World Wide Web Source Code Sells For $5.4 Million*, FORBES (Jun. 30, 2021), https://www.forbes.com/sites/rashishrivastava/2021/06/30/nft-of-the-world-wide-web-source-code-sells-for-54-million/.
[11] *BAYC*, BORED APE YACHT CLUB, https://boredapeyachtclub.com/#/ (last visited Aug. 31, 2023).
[12] Jacob Kastrenakes, *A bunch of ape NFTs just sold for $24.4 million*, THE VERGE (Sep. 9, 2021), https://www.theverge.com/2021/9/9/22664469/bored-ape-yacht-club-sothebys-auction-amount.

auction off parts of his handwritten screenplay for the film "Pulp Fiction" together with an audio commentary as an NFT.[13]

Even though the NFT hype has slowed down,[14] more and more traditional companies, such as Coca-Cola[15], Adidas and Prada[16], and Porsche[17] were also offering NFTs at the time of study.

*B. Blockchain: The Technology Behind NFTs*

Some technical background is necessary to set the stage for legal analysis. From a technical perspective, an NFT is an entry on a blockchain ("token") created and managed by a smart contract containing certain information on the asset represented, and its current holder.

In simple terms, a blockchain is a highly tamper-resistant and transparent database.[18] Datasets are bundled together into blocks, and each block is time-stamped and linked to the previous block with a hash value, which is comparable to a fingerprint that identifies the content of the

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[13] Shortly after the announcement, Tarantino was sued by the film production company *Miramax* in the Central District of California for copyright infringement, but the lawsuit was settled before the court reached a decision (*see* Sebastian Pech, *"Royale with Cheese" – Copyright Issues Related to NFTs in Miramax v. Tarantino,* STANFORD – VIENNA TRANSATLANTIC TECHNOLOGY LAW FORUM (Oct. 13, 2022), https://ttlfnews.wordpress.com/2022/10/13/royale-with-cheese-copyright-issues-related-to-nfts-in-miramax-v-tarantino/).

[14] Josh Wilson, *With The Decrease In NFT Trading Volumes, Where Does The Sector Go From Here*, FORBES (Dec. 12, 2022), https://www.forbes.com/sites/joshwilson/2022/12/12/with-the-decrease-in-nft-trading-volumes-where-does-the-sector-go-from-here/.

[15] *Coca-Cola to Auction Its First-Ever NFT Collectibles on International Friendship Day*, THE COCA-COLA COMPANY, (Jul. 28, 2021), https://investors.coca-colacompany.com/news-events/press-releases/detail/1032/coca-cola-to-auction-its-first-ever-nft-collectibles-on.

[16] *adidas Originals and Prada Announce a First-of-its-Kind Open-Metaverse & User-generated NFT Project*, ADIDAS (Jan. 20, 2022), https://news.adidas.com/originals/adidas-originals-and-prada-announce-a-first-of-its-kind-open-metaverse---user-generated-nft-project/s/30a29dad-6ded-4302-ae40-f9f2338e7298.

[17] *Porsche unveils entry into virtual worlds during Art Basel in Miami,* PORSCHE (Nov. 29, 2022), https://newsroom.porsche.com/en/2022/innovation/porsche-unveils-entry-into-virtual-worlds-at-art-basel-in-miami-30519.html.

[18] Portions of this section are adapted from Sebastian Pech, *Copyright Unchained: How Blockchain Technology Can Change the Administration and Distribution of Copyright Protected Works*, 18 NW. J. TECH. & INTELL. PROP. 10–11, 36 (2020).

previous block.[19] This leads to a chain of blocks, from which the technology gets its name. As each block contains the hash value of the previous one, the content of every block in the chain cannot be changed without the alteration of every subsequent block.[20]

A new block will only be added to the chain if there is a consensus between the members of the network ("nodes") on its validity.[21] The Bitcoin blockchain uses the energy-intensive "proof of work" consensus mechanism, where certain nodes ("miners") have the opportunity to earn a fee or other rewards by spending computational power to solve complex mathematical problems.[22] The Ethereum blockchain, which was most commonly used for NFTs at the time of study, meanwhile employs the far more energy-efficient "proof of stake" method, where the nodes to validate a block are chosen by their economic stake in the network.[23]

The database is not stored centrally, but is distributed over the network.[24] Every node maintains a complete copy of the database, which is permanently updated when new blocks are added.[25] This mode of distribution creates resilience, because there is no single point of failure.[26] Even in the event that the database kept by one or more network participants becomes corrupt, it will still be available on the network.[27] The decentralized storage of information is an additional

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[19] William Mougayar, The Business Blockchain: Promise, Practice, and Application of the Next Internet Technology 25 (2016); Kevin Werbach & Nicolas Cornell, *Contracts Ex Machina*, 67 Duke L.J. 313, 327 (2017).
[20] PRIMAVERA DE FILIPPI & AARON WRIGHT, BLOCKCHAIN AND THE LAW: THE RULE OF CODE 25 (2018); Werbach & Cornell, *supra* note 19, at 327.
[21] DE FILIPPI & WRIGHT, *supra* note 20, at 42; MOUGAYAR, *supra* note 19, at 20; Werbach & Cornell, *supra* note 19, at 327.
[22] E. Napoletano & Aaron Broverman *Proof Of Work Explained*, FORBES (Jul. 12, 2022), https://www.forbes.com/advisor/ca/investing/cryptocurrency/proof-of-work/.
[23] Proof-of-stake (PoS), ETHEREUM (May 12, 2023), https://ethereum.org/en/developers/docs/consensus-mechanisms/pos/.
[24] DE FILIPPI & WRIGHT, *supra* note 20, at 35; *supra* note 19, at 21, 23; Werbach & Cornell, *supra* note 19, at 327.
[25] DE FILIPPI & WRIGHT, *supra* note 20, at 35; KEVIN WERBACH, THE BLOCKCHAIN AND THE NEW ARCHITECTURE OF TRUST 96 (2018); Werbach & Cornell, *supra* note 19, at 327.
[26] MOUGAYAR, *supra* note 19, at 46, 130.
[27] DE FILIPPI & WRIGHT, *supra* note 20, at 36; *supra* note 19, at 130.

safeguard against tampering, as the change in one or a few copies of the database will be ignored by the other nodes.[28]

A blockchain can not only be used to save data but also to store and run smart contracts. These are computer programs that execute and/or enforce contractual terms automatically.[29] The process is based on "if-then" rules: *if* a predefined condition is met, *then* the smart contract performs a predefined action.

*C. Specific Features of NFTs and their Use in the Art Market*

Tokens can be fungible and non-fungible. Fungible tokens are exchangeable. For example, cryptocurrencies (e.g., Bitcoin, Ether) are fungible tokens, where every individual token has the same value as coins or banknotes. NFTs are unique and cannot be replaced by other tokens.

It is often said that NFTs are like a certificate of authenticity and can be used to create "digital originals." However, an NFT cannot ensure that the asset represented is the original one, as not only can the holder generate multiple NFTs for a single asset, but anyone can create NFTs for someone else's assets.[30] Nevertheless, NFTs can be used to provide a verifiable record of rights to a particular asset and create a traceable transaction history for it. They are therefore less like certificates of authenticity and more comparable to a proof of ownership, such as an invoice or delivery note, which can be used to confirm ownership for a specific person. With NFTs,

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[28] DE FILIPPI & WRIGHT, *supra* note 20, at 2, 36; WERBACH, *supra* note 25, at 101–02.
[29] *See* Max Raskin, *The Law and Legality of Smart Contracts*, 1 GEO. L. TECH. REV. 305, 309 (2017); Werbach & Cornell, *supra* note 19, at 320.
[30] *See* Lois Beckett, *'Huge mess of theft and fraud:' artists sound alarm as NFT crime proliferates*, THE GUARDIAN (Jan. 29, 2022), https://www.theguardian.com/global/2022/jan/29/huge-mess-of-theft-artists-sound-alarm-theft-nfts-proliferates.

however, not only the property in tangible assets can be documented, but also intellectual property rights, such as copyrights.

Particular potential is attributed to NFTs in the art market, especially for digital art. Works in digital form can, in principle, be reproduced as often as desired without loss of quality, which means that the rarity and traceability of ownership (provenance) that is required for the art market is lacking. Linked to an NFT, a digital asset can be uniquely assigned to a specific person in a way that can be verified by anyone, making it tradable and opening a new market for digital artists' works. Artists can also participate in the sales of their works in the secondary market via participation schemes coded into smart contracts. Finally, NFTs can be used to build and intensify relationships between artists and collectors by, for example, giving buyers the opportunity to participate in exclusive events, become members of a community, receive background information, or contribute to future projects by the artist. NFTs also offer advantages for collectors. Owing to tokenization, not only physical or digital artworks can be acquired in their entirety, but also shares in them. Another use case for NFTs is the metaverse, where they can help prove ownership over virtual objects (e.g., real estate, clothing for avatars) or the right to use virtual services (e.g., participation in a concert).

As many assets represented by NFTs are protected by copyright, the question arises as to how the creation (II) and transfer (III) of NFTs should be assessed from a copyright perspective. The assessment is based on US and EU law.[31] The paper concludes with a summary and conclusion (IV).

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[31] As blockchains operate worldwide, other jurisdictions must also be considered. *See generally* DE FILIPPI & WRIGHT, *supra* note 20, at 35.

## II. CREATION OF AN NFT

After an introduction to the technical steps involved in creating an NFT (A), we will look at the exclusive rights in the represented work that are affected by this (B) and examine whether an NFT can enjoy copyright protection (C).

### *A. Technical Background*

An NFT can be created without special technical knowledge directly via the respective NFT trading platform by uploading the work to be represented and adding some information about the work and the NFT.[32]

When an NFT is created in a process called "minting," a smart contract generates an entry on the blockchain. According to the ERC-721 standard used on the Ethereum blockchain, an NFT must contain, besides the address of the underlying smart contract, a unique ID to distinguish it from other tokens.[33] Optionally, additional metadata on the represented work (e.g., author, title, description) can be included. By comparing the hash value with the linked file, it is possible to verify whether or not a given file is the one used by the creator of the NFT.

Some NFT projects, such as the 24x24 pixel "Cryptopunks,"[34] store the represented work itself on the blockchain ("on-chain"). However, as such storage is expensive, especially for larger files, works are usually hosted outside the blockchain ("off-chain"), for example on a central server or a decentralized peer-to-peer (P2P) network, such as the Interplanetary File Storage

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[32] *See, e.g., How do I create an NFT?*, OPENSEA, https://support.opensea.io/hc/en-us/articles/360063498313-How-do-I-create-an-NFT- (last visited Aug. 31, 2023).
[33] *ERC-721 Non-Fungible Token Standard*, ETHEREUM (Apr. 7, 2023), https://ethereum.org/en/developers/docs/standards/tokens/erc-721/.
[34] *On-chain Cryptopunks*, LARVA LABS, https://www.larvalabs.com/blog/2021-8-18-18-0/on-chain-cryptopunks (last visited Aug. 31, 2023).

System (IPFS).[35] In these cases, the metadata contain a hyperlink to the work stored outside the blockchain, as in the case of the "Bored Apes" collection[36] or the artwork "Everydays: the First 5000 Days"[37]. The represented work can either be freely accessible or only retrievable by the holder of the NFT as "unlockable content." Aside from the link, the metadata can also include the hash value of the file, with which it can be uniquely identified. Often, however, the NFT merely includes a link to a file that is stored outside the blockchain, which contains a link of the represented work and detailed information on it.

*B. Rights Concerning the Represented Work*

US copyright law protects "original works of authorship fixed in any tangible medium of expression."[38] A work is original if it "was independently created by the author (as opposed to copied from other works), and . . . possesses at least some minimal degree of creativity."[39] Here, "the requisite level of creativity is extremely low" and "even a slight amount will suffice."[40]

In the EU, apart from a few exceptions like computer programs[41], databases, and photographs, there is no general statutory provision specifying the requirements for copyright protection.[42] However, according to the case law of the Court of Justice of the European Union (CJEU), a

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[35] *The Technical Structure of NFTs Explained*, CRYPTOPEDIA (Mar. 11, 2023), https://www.gemini.com/cryptopedia/what-is-a-non-fungible-token-nft-crypto.
[36] *Welcome to the Bored Ape Yacht Club*, BORED APE YACHT CLUB, https://boredapeyachtclub.com/#/home#buy-an-ape (last visited Aug. 31, 2023).
[37] IPSF GATEWAY, https://ipfsgateway.makersplace.com/ipfs/QmXkxpwAHCtDXbbZHUwqtFucG1RMS6T87vi1CdvadfL7qA.
[38] 17 U.S.C. § 102(a) (2022).
[39] Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 345 (1991).
[40] Id.
[41] *See* discussion *infra* Section II.C.1.
[42] SILKE VON LEWINSKI & MICHEL M. WALTER, EUROPEAN COPYRIGHT LAW: A COMMENTARY, ¶ 11.1.5 (Michel Walter & Silke von Lewinski eds., 2010).

work must be "original in the sense that it is its author's own intellectual creation."[43] This requires that the work "reflect[s] his personality and expressing his free and creative choices."[44] Like under US law, the threshold for protection is low. For example, in *Infopaq International v. Danske Dagblades Forening*, the CJEU held that a text comprising 11 consecutive words may be original.[45]

If the asset represented by the NFT fulfills the requirements for copyright protection, the question arises as to whether the creation of the NFT affects any rights in the respective work. Here, a distinction must be made between the creation of the NFT (1) and the acts accompanying creation (2).

*1. Creation of the NFT*

Under US law, a copyright grants the rights holder the exclusive right to reproduce the work,[46] prepare derivate works based on,[47] publicly distribute,[48] and publicly display[49] the work among other rights. In the EU, except for specific works such as computer programs and databases, the rights of a copyright holder are mostly governed by the Information Society Directive,[50] which

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[43] Case C-5/08, Infopaq Int'l A/S v. Danske Dagblades Forening, 2009 E.C.R. I-6642 ¶ 37; Case C-406/10, SAS Institute Inc. v. World Programming Ltd, ECLI:EU:C:2012:259, ¶ 65 (Nov. 29, 2011); Case C-310/17, Levola Hengelo BV v. Smilde Foods BV, ECLI:EU:C:2018:6181, ¶ 36 (July 25, 2018); Case C-469/17, Funke Medien NRW GmbH v. Bundesrepublik Deutschland, ECLI:EU:C:2018:870, ¶ 19 (Oct. 25, 2018); Case C-683/17, Cofemel – Sociedade de Vestuário SA v. G-Star Raw CV, ECLI:EU:C:2019:363, ¶ 29 (May 2, 2019); Case C-833/18, SI v. Chedech/Get2Get, ECLI:EU:C:2020:461, ¶ 22 (June 11, 2020).
[44] Case C-145/10, Eva-Maria Painer v. Standard VerlagsGmbH, 2011 E.C.R. I–12622 ¶ 89; Case C-161/17, Land Nordrhein-Westfalen v. Dirk Renckhoff, ECLI:EU:C:2018:634, ¶ 14 (Aug. 7, 2018); *Cofemel – Sociedade de Vestuário SA*, ECLI:EU:C:2019:363, ¶ 30; *SI*, ECLI:EU:C:2020:461, ¶ 23.
[45] *Infopaq Int'l A/S*, 2009 E.C.R. I-6644 ¶ 48.
[46] 17 U.S.C. § 106(1) (2022).
[47] *Id.* § 106(2).
[48] *Id.* § 106(3).
[49] *Id.* § 106(5).
[50] Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the Harmonisation of Certain Aspects of Copyright and Related Rights in the Information Society, 2001 O.J. (L 167) 10 [hereinafter Information Society Directive]. In this context, it should be noted that a directive is not a self-executing law but

grants the exclusive right to reproduce,[51] distribute,[52] and communicate the work to the public.[53] Both, in the EU and the US, the moral rights of the author are protected in addition to the aforementioned economic rights.

*a. Reproduction Right*

The reproduction right under Section 106(1) of the Copyright Act is the right to "reproduce the copyrighted work in copies [. . .]"[54] while copies are defined as "material objects […] in which a work is fixed by any method now known or later developed, and from which the work can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device."[55] This includes analog and digital copies such as those on a hard drive or other digital storage media.[56]

The situation in the EU is similar. According to Article 2 of the Information Society Directive, the reproduction right is the right "to authorise or prohibit direct or indirect, temporary or permanent reproduction by any means and in any form, in whole or in part."[57] The term reproduction is understood broadly[58] and includes digital copies, such as copies on a hard drive or other storage medium.[59]

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rather has to be transposed into national law by each EU member state. Nevertheless, the national law that implements the directive has to be interpreted in accordance with the directive.

[51] Information Society Directive, *supra* note 50, at art. 2.

[52] *Id.* art. 4.

[53] *Id.* art. 3.

[54] 17 U.S.C. § 106(1) (2022).

[55] *Id.* § 101.

[56] A&M Records v. Napster, 239 F.3d 1004, 1014 (9th Cir. 2001); 2 PAUL GOLDSTEIN, GOLDSTEIN ON COPYRIGHT § 7.1. (2023).

[57] Information Society Directive, *supra* note 50, at art. 2.

[58] VON LEWINSKI & WALTER, *supra* note 42, ¶ 11.2.17.

[59] Joined cases C-403/08 and C-429/08, Football Association Premier League Ltd v. QC Leisure, 2011 E.C.R. I-9229 ¶ 157; VON LEWINSKI & WALTER, *supra* note 42, ¶ 11.2.19; STAMATOUDI & TORREMANS, EU COPYRIGHT LAW, ¶ 11.06 (Irina Stamatoudi & Paul Torremans eds., 2014).

For NFTs, a distinction must be made as to whether the work represented by the NFT is itself saved on the blockchain or only its metadata. In the former, on-chain storage leads to a fixation of the work on the individual nodes' devices. The work can also be perceived via a web browser by calling certain functions in the underlying smart contract.[60] Therefore, if the represented work is stored on the blockchain, there is a reproduction under Section 106(1) of the Copyright Act[61] and Article 2 of the Information Society Directive[62].

If the NFT is created for resale, the process of "minting" is not covered by the EU's private copying exception under Article 5(2)(b) of the Information Society Directive, which applies for "reproductions on any medium made by a natural person for private use and for ends that are neither directly nor indirectly commercial"[63] as the reproduction is for commercial purposes.

Under US law, a similar result is found under the Fair Use Doctrine set forth under Section 107 of the Copyright Act,[64] which, however, requires a more differentiated analysis than the EU's private copying exception. As factors to be considered in determining whether a specific use is fair, Section 107 of the Copyright Act enumerates:

> (1) the purpose and character of the use . . . ; (2) the nature of the copyrighted work; (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and (4) the effect of the use upon the potential market for or value of the copyrighted work.[65]

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[60] *See, e.g, On-chain Cryptopunks*, LARVA LABS, https://www.larvalabs.com/blog/2021-8-18-18-0/on-chain-cryptopunks (last visited Aug. 31, 2023).
[61] *See* Lital Helman & Ofer Tur-Sinai, *Bracing Scarcity: Can NFTs Save Digital Art?* 32 n. 103 (2023), https://ssrn.com/abstract=4378570.
[62] Katharina Garbers-von Boehm, Helena Haag & Katharina Gruber, *JURI Committee, Intellectual Property Rights and Distributed Ledger Technology with a focus on art NFTs and tokenized art*, 34 (2022), https://www.europarl.europa.eu/RegData/etudes/STUD/2022/737709/IPOL_STU(2022)737709_EN.pdf.
[63] Information Society Directive, *supra* note 50, at art. 5(2)(b).
[64] 17 U.S.C. § 107 (2022).
[65] *Id.*

These factors "may [not] be treated in isolation" but rather "[a]ll are to be explored, and the results weighed together, in light of the purposes of copyright."[66]

Under the first prong of the fair use test, it has to be checked whether the use is non-commercial and/or transformative, both of which would be an argument in favor of fair use.[67] In most cases, the NFT will be for sale, so the reproduction that comes with its creation is for commercial purposes.

A use is transformative if "the new work [not] merely supersedes the objects of the original creation [but rather] adds something new, with a further purpose or different character, altering the first with new expression, meaning or message."[68] Storing a copy of the work on the blockchain is not transformative in this sense. According to the Supreme Court in *Google v. Oracle Am.*, utilizing a work to create a new product can also be transformative when the use is "consistent with that creative 'progress' that is the basic constitutional objective of copyright itself."[69] This refers to the Intellectual Property Clause in the US Constitution, which provides that "Congress shall have power to promote the progress of science and useful arts, by securing for limited times to authors … the exclusive right to their respective writings ..."[70] Therefore, in *Google v. Oracle Am.*, the Supreme Court held that using a copyright-protected application programming interface (API) to create a platform to be employed by programmers as a tool to build new software products was a transformative use.[71] Whereas an NFT may increase the tradability of the represented work, "minting" NFTs for works without permission of the rights

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[66] Campbell v. Acuff-Rose Music, Inc., 510 U.S. 569, 578 (1994).
[67] Google LLC v. Oracle America, Inc., 593 U.S. ___ (2021).
[68] Andy Warhol Found. for Visual Arts, Inc. v. Goldsmith, 598 U.S. ___ (2023) (quoting *Campbell*, 510 U.S. at 579).
[69] *Google v. Oracle*, 593 U.S. ___.
[70] U.S. CONST. art. I, § 8, cl. 8.
[71] *Google v. Oracle*, 593 U.S. ___.

holder is not an incentive to create new works and thus does not promote the progress of science and art.

As for "the amount and substantiality of the portion used," if the represented work is saved to the blockchain, it usually involves the entire work, which generally weighs against a finding of fair use.[72]

The most important factor in the analysis of fair use is the effect such use has on the potential market for the work.[73] This factor examines whether the defendant's work could serve as a substitute for the plaintiff's work.[74] The unauthorized "minting" of an NFT could seriously diminish the value of an NFT created for the same work by its author. Even if the author does not sell his or her works in the form of NFTs, he or she may lose revenues from unauthorized NFTs if potential buyers decide to purchase the work in the form of an NFT from a non-authorized party. Therefore, owing to the associated market harm, a reproduction in the context of the creation of an NFT is not to be treated as fair use.

As a result, in case the work represented by the NFT is itself saved on the blockchain there is a reproduction under Section 106(1) of the Copyright Act and Article 2 of the Information Society Directive which is not covered by any statutory exception. If, on the other hand, the NFT only contains the metadata of the work, there is no copy of the work, as it is not the work itself that is stored on the blockchain, but only its identifying features. Thus, there is no reproduction

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[72] *See Campbell*, 510 U.S. at 587.
[73] Harper & Row, Publishers, Inc. v. Nation Enters., 471 U.S. 539, 566 (1985); 4 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT, § § 13.05[A][4] (2022) [hereinafter NIMMER].
[74] *Campbell*, 510 U.S. at 593; Peter Letterese & Assocs. v. World Inst. of Scientology Enters., 533 F.3d 1287, 1315 (11th Cir. 2008); 4 NIMMER, *supra* note 73, at § 13.05[A][4].

under either Section 106(1) of the Copyright Act[75] or Article 2 of the Information Society Directive[76]. Generating and saving a hash value also does not constitute a reproduction of the work, as it only serves as a "digital fingerprint" allowing the identification of a specific file but neither contains the work itself nor enables its reconstruction.[77]

*b. Adaption Right*

The adaption right, or the right to "prepare derivative works based upon the copyrighted work" is established under Section 106(2) of the Copyright Act.[78] The Information Society Directive does not explicitly mention this right. However, it can be argued that adaptions of a work are covered by the right of reproduction under Article 2 of the Information Society Directive.[79]

Under Section 106(2) of the Copyright Act, a derivative work must meet the requirements for copyright protection.[80] In general, an NFT will only be protected if it contains the represented work, but not if only the metadata of the work are included.[81] In the EU, there is no need for the adaption of the work to itself be protected by copyright.[82]

To qualify as a derivative work under Section 106(2) of the Copyright Act, the work has to "contain[…] a substantial amount of material" from the preexisting work,[83] as it is the case with "translation, musical arrangement, dramatization, fictionalization, motion picture version,

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[75] Emily Behzadi, *The Fiction of NFTs and Copyright Infringement*, 170 U. PENN. L. REV. ONLINE (2022), https://www.pennlawreview.com/2022/04/12/the-fiction-of-nfts-and-copyright-infringement/.
[76] GARBERS-VON BOEHM, ET AL., *supra* note 62, at 33.
[77] *See* Helman & Tur-Sinai, supra note 61, at 33 (regarding the adaption right).
[78] 17 U.S.C. § 106(2) (2022).
[79] VON LEWINSKI & WALTER, *supra* note 42, ¶ 11.2.22.
[80] *See* 1 NIMMER, *supra* note 73, at § 3.03.
[81] *See* discussion *infra* Section II.C.1.
[82] VON LEWINSKI & WALTER, *supra* note 42, ¶ 11.2.22.
[83] Twin Peaks Prods. v. Publ'ns Int'l, Ltd., 996 F.2d 1366, 1373 (2d Cir. 1993); *see* 1 NIMMER, *supra* note 73, at § 3.01 (2022).

sound recording, art reproduction, abridgment, condensation, or any other form in which a work may be recast, transformed, or adapted."[84] Under EU law, it is also required for the adaption to take over substantial parts of the original work.[85] Metadata that only contain information on a work, such as a hyperlink or hash value, cannot be considered a substantive part of that work and are therefore not derivative works in the sense of Section 106(2) of the Copyright Act[86] or an adaption under EU law.

Even if the work represented by the NFT is itself stored on the blockchain, the work is not altered except for the file size which does not constitute a derivate work or an adaption.

*c. Distribution Right*

One of the features of blockchain technology is distributing and updating the blockchain over the network.[87] However, the EU's distribution right set out under Article 4(1) of the Information Society Directive [88] encompasses only the distribution of works in a tangible medium and therefore does not apply to the transmission of digital works over a network.[89]

The situation is different under US law. Section 106(3) of the Copyright Act grants the right holder an exclusive right "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."[90] This encompasses the distribution of works in tangible form, and the transmission over computer

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[84] 17 U.S.C. § 101 (2022).
[85] VON LEWINSKI & WALTER, *supra* note 42, ¶ 11.2.22.
[86] *See* Behzadi, *supra* note 75; Helman & Tur-Sinai, supra note 61, at 33.
[87] *See* discussion *supra* Section I.B.
[88] Information Society Directive, *supra* note 50, at art. 4(1).
[89] Case C-263/18, Nederlands Uitgeversverbond v. Tom Kabinet Internet BV, ECLI:EU:C:2019:1111, ¶ 45 (Dec. 19, 2019); VON LEWINSKI & WALTER, *supra* note 42, ¶ 11.4.6; Information Society Directive, *supra* note 50, at recital 28. *Contra* STAMATOUDI & TORREMANS, *supra* note 59, ¶ 11.42 ("That means that the term 'copy' should also encompass digital copies, which are distributed over the internet").
[90] 17 U.S.C. § 106(3) (2022).

networks such as the Internet.[91] The distribution must be made to the public. However, this does not need to involve a large number of people, rather, the distribution to a single individual is sufficient.[92]

The distribution right requires "to distribute copies . . . of the copyrighted work."[93] Copies are defined as "material objects […] in which a work is fixed by any method now known or later developed, and from which the work can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device."[94]

If only the metadata of the work are saved on the blockchain not the work as such is transmitted between the nodes, but only its identifying features from which the work cannot be perceived.[95] The situation is rather comparable to a hyperlink, where not the work itself, but only the pointer to the work is made available. In *Perfect 10 v. Amazon*, the Court of Appeals for the Ninth Circuit held that posting a hyperlink to a work on the Internet is not a distribution of the work because the person who provides the link just enables others to access the work, and does not "own" a copy of the work by hosting it on his or her server.[96] In this context, it makes no

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[91] New York Times Co. v. Tasini, 533 U.S. 483, 498 (2001) (holding that an online news database violated authors' distribution rights by selling electronic copies of their articles for download); *A&M Records, Inc.*, 239 F.3d at 1014;
*Perfect 10*, 508 F.3d at 1162; U.S. COPYRIGHT OFF., THE MAKING AVAILABLE RIGHT IN THE UNITED STATES 19-22 (2016), https://www.copyright.gov/docs/making_available/making-available-right.pdf; *contra* 4 WILLIAM F. PATRY, PATRY ON COPYRIGHT § 13:11 (2022) (arguing the distribution right only encompasses tangible forms of the copyrighted material).
[92] *See* Ford Motor Co. v. Summit Motor Prod., 930 F.2d 277, 300 (3rd Cir. 1991) ("[A] violation of section 106(3) can also occur when illicit copies of a copyrighted work are only distributed to one person.").
[93] 17 U.S.C. § 106(3) (2022).
[94] *Id.* § 101.
[95] *See* Helman & Tur-Sinai, supra note 61, at 34. *Contra* Lisa Rosenof, *Minted NFT of Someone Else's Artwork? A New Flavor of Copyright Infringement,* U. CIN. L. REV. (2022), https://uclawreview.org/2022/02/11/minted-nft-of-someone-elses-artwork-a-new-flavor-of-copyright-infringement/. ("Given that the value of NFTs is linked to the underlying art, it is doubtful that many courts are going to have much trouble seeing it as a distribution right violation").
[96] *See* Perfect 10, Inc. v. Amazon.Com, Inc., 508 F.3d 1146, 1162 (9th Cir. 2007).

difference whether the work was originally posted on the Internet with or without the permission of the right holder.[97]

The situation is different if the represented work itself is saved on the blockchain. In *A&M Records v. Napster,* the Court of Appeals for the Ninth Circuit held that users who had offered music files on a P2P filesharing network had violated the distribution right.[98] The same applies for data saved on a blockchain, which is also a P2P network because the content is distributed across the network. Therefore, if the work represented by the NFT is stored on the blockchain, the distribution right under Section 106(3) of the Copyright Act is affected.

The buyer of a work embodied in a physical medium is permitted to distribute the work to a third party without the prior authorization of the right holder.[99] This results from the First Sale Doctrine set forth under Section 109(a) of the Copyright Act, which provides that "the owner of a particular copy . . . lawfully made under this title . . . is entitled, without the authority of the copyright owner, to sell or otherwise dispose of the possession of that copy . . ."[100] The rationale behind the First Sale Doctrine is to allow the unlimited circulation of goods in secondary markets.[101]

However, only the "owner of a . . . copy"[102] can rely on the First Sale Doctrine, so it does not "extend to any person who has acquired possession of the copy . . . from the copyright owner,

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[97] *See id.* at 1157 ("Some website publishers republish Perfect 10's images on the Internet without authorization. Once this occurs, Google's search engine may automatically index the webpages containing these images and provide thumbnail versions of images in response to user inquiries.").
[98] A&M Records, 239 F.3d at 1014.
[99] *See,* e.g., Kirtsaeng v. John Wiley & Sons, 568 U.S. 519 (2013).
[100] 17 U.S.C. § 109(a) (2022).
[101] *See* 2 NIMMER, *supra* note 73, at § 8.12[A]; 2 GOLDSTEIN, *supra* note 56, § 7.6.1.
[102] 17 U.S.C. § 109(a) (2022).

by rental, lease, loan, or otherwise, without acquiring ownership of it."[103] To be the owner of the copy requires the transfer of title in the tangible medium that embodies the work.[104] Ownership of the work or of any of the exclusive rights in it is not sufficient.[105] According to the Court of Appeals for the Ninth Circuit, a "user is a licensee rather than an owner of a copy where the copyright owner (1) specifies that the user is granted a license; (2) significantly restricts the user's ability to transfer the [content]; and (3) imposes notable use restrictions."[106] Especially in the case of works in digital form, for example, for a JPG file, often only licenses are granted to the "buyer" according to these criteria. Thus, the First Sale Doctrine does not apply. The situation is not different, however, if someone is the owner of a physical medium containing the work, for example an oil painting or a JPG file saved on a USB stick, because the First Sale Doctrine applies only to the individual copy that was put on the market by the rights holder.[107] From a technical point of view, as storing the work on the blockchain results in a new copy of the work that is then redistributed, this copy is not covered by the First Sale Doctrine.

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[103] *Id.* § 109(d).
[104] *See* 2 NIMMER, *supra* note 73, at § 8.12[B][1][a].
[105] *See id*.; Quality King Distribs. v. L'Anza Research Int'l, 523 U.S. 135, 146-47 ("[T]he first sale doctrine would not provide a defense to . . . any non-owner such as a bailee, a licensee, a consignee, or one whose possession of the copy was unlawful.").
[106] Vernor v. Autodesk, Inc., 621 F.3d 1102, 1111 (9th Cir. 2010); MDY Indus., LLC v. Blizzard Entm't, Inc., 629 F.3d 928, 938 (9th Cir. 2010).
[107] *See* Kirtsaeng v. John Wiley & Sons, Inc., 568 U.S. 519, 524 ("[T]he buyer of *that* copy and subsequent owners are free to dispose of it as they wish").

*d. Display Right and Communication to the Public Right*

*i. Display Right*

The display right set forth under Section 106(5) of the Copyright Act is the right "to display the copyrighted work publicly."[108] It applies to "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."[109] To display a work means "to show a copy of it, either directly or by means of a film, slide, television image, or any other device or process."[110] The display right not only encompasses the exhibition of the work, for example, in a museum or art gallery, but also involves uploading a digital work onto the Internet.[111] Like the distribution right, the display right relates to copies of the work that are defined as "material objects . . . in which a work is fixed by any method now known or later developed, and from which the work can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device."[112]

If the NFT only contains the metadata of the represented work, there is no copy of the work involved but only its identifying features.[113] Here, too, a comparison can be made with providing a hyperlink to the protected work. In *Perfect 10 v. Amazon*, the Court of Appeals for the Ninth Circuit ruled that placing links to works on the Internet does not display the work

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[108] 17 U.S.C. § 106(5) (2022).
[109] *Id.*
[110] *Id.* § 101 (2022).
[111] Perfect 10, Inc. v. Amazon.Com, Inc., 508 F.3d at 1160; Soc'y of the Holy Transfiguration Monastery, Inc. v. Gregory, 689 F.3d 29, 55 (1st Cir. 2012); U.S. COPYRIGHT OFF., *supra* note 91, at 47–48; 2 GOLDSTEIN, *supra* note 56, at § 7.10.1.
[112] 17 U.S.C. § 101 (2022).
[113] *See* Helman & Tur-Sinai, *supra* note 61, at 33–34 ("Expanding the *display* right to apply to NFTs appears to be a very dubious interpretation.").

because the provider of the links merely makes the work accessible to others without storing a copy of it.[114] In this case it also makes no difference whether the work was originally posted on the Internet with or without the permission of the right holder.[115]

The situation is different if the represented work is saved on the blockchain. This results in a perceivable copy of the work,[116] which is transmitted between the nodes in the course of distributing and updating the content of the blockchain.

The display of the work has to be public, which requires

> to transmit or otherwise communicate a . . . display of the work to . . . the public, by means of any device or process, whether the members of the public capable of receiving the performance or display receive it in the same place or in separate places and at the same time or at different times.[117]

Unlike with the distribution right under Section 106(3) of the Copyright Act,[118] displaying the work to a single person is not sufficient. In *Am. Broad. Cos v. Aereo,* the Supreme Court held that with regard the right to performance set forth under Section 106(4) of the Copyright Act[119] "'the public' consists of a large group of people outside of a family and friends."[120] As the rights to performance and display share the definition of the term "public,"[121] this also applies to the display right.[122] Therefore, if the work is only made accessible to the owner of the NFT in the

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[114] *Perfect 10 v. Amazon.Com*, 508 F.3d at 1160–61.
[115] *See id.* at 1157 ("Some website publishers republish Perfect 10's images on the Internet without authorization. Once this occurs, Google's search engine may automatically index the webpages containing these images and provide thumbnail versions of images in response to user inquiries.").
[116] *See* discussion supra Section II.B.1.a.
[117] 17 U.S.C. § 101 (2022).
[118] *See* discussion *supra* Section II.B.1.c.
[119] *Id.* § 106(4).
[120] Am. Broad. Cos., Inc. v. Aereo, Inc, 573 U.S. 431, 491 (2014).
[121] *See* 17 U.S.C. § 101 (2022) ("To perform or display a work 'publicly' means . . .").
[122] *But see* GOLDSTEIN, *supra* note 56, at § 7.10.2 ("Although the Copyright Act employs the same definitions of 'publicly' for both the display and performance rights, the special circumstances surrounding exercises of these two rights may require that the statutory definition be applied different each.").

form of "unlockable content," it is not displayed publicly even if the work is saved on the blockchain. As it is irrelevant "whether the members of the public receive [the display] at the same time or at different times"[123] public display may result not only from simultaneous but also successive access to the work. Thus, if the NFT is frequently resold, even "unlockable content" may be displayed publicly.

Such a public display of the work would not be covered by Section 109(c) of the Copyright Act, which provides that

> the owner of a particular copy lawfully made under this title, or any person authorized by such owner, is entitled, without the authority of the copyright owner, to display that copy publicly, either directly or by the projection of no more than one image at a time, to viewers present at the place where the copy is located.[124]

This is because Section 109(c) of the Copyright Act only covers the direct display or display in which the viewers are physically present at the work's place.[125] Therefore, while the owner of a copy of a physical work, for example an oil painting, is entitled to exhibit it in a museum or gallery,[126] transmitting a digital work over a network is not covered.[127]

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[123] 17 U.S.C. § 101 (2022).
[124] *Id.* § 109(c).
[125] *See* H.R. Rep. No. 94-1476, at 80 (1976) ("The concept of 'the place where the copy is located' is generally intended to refer to a situation in which the viewers are present in the same physical surrounding as the copy, even though they cannot see the copy directly.").
[126] 2 NIMMER, *supra* note 73, at § 8.20.
[127] Bryant v. Gordon, 483 F. Supp. 2d 605, 613 (N.D. Ill. 2007); Video Pipeline, Inc. v. Buena Vista Home Entertainment, Inc., 192 F. Supp. 2d 321, 334–35 (D.N.J. 2002); s*ee* H.R. Rep., *supra* note 125 ("In other words, the display of a visual image of a copyrighted work would be an infringement if the image were transmitted by any method (by closed or open circuit television, for example, or by a computer system) from one place to members of the public located elsewhere."). *But see* Zorikova v. Kineticflix, LLC, No. 219CV04214ODWGJSX, 2022 WL 1266662, at *18 (C.D. Cal. 2022) ("Displaying the front cover of the DVD [on the title listing page . . . on . . .'s website] is no more copyright infringement than a video rental store displaying its physical copy of a videocassette on the shelf to make it available for rental").

The First Sale Doctrine under Section 109(a) of the Copyright Act applies only to distributions in the sense of Section 106(3) of the Copyright Act, but does not limit other rights,[128] such as the display right under Section 106(5) of the Copyright Act.

*ii. Communication to the Public Right*

Whereas the EU's distribution right under Article 4(1) of the Information Society Directive[129] encompasses only the distribution of works in a tangible medium,[130] the communication to the public right as set forth under Article 3(1) of the Information Society Directive refers to "any communication to the public of their works, by wire or wireless means."[131] This includes transmission over a computer network, like the Internet.[132] A typical example is making a work available on a website[133] or P2P file sharing platform[134].

*(a) Act of Communication*

Data on a blockchain are updated and distributed via the network.[135] Therefore, if the represented work is saved on the blockchain, transmitting it between nodes is an act of communication that is comparable to making it available through a P2P file sharing platform.

The question arises as to whether this is also the case if only the metadata of the work are stored on the blockchain. Although metadata allow identification and, in the case of a hyperlink,

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[128] *See* 17 U.S.C. § 109(a) (2022) ("Notwithstanding the provisions of section 106(3) . . ."); 4 NIMMER, *supra* note 73, at § 8.12[F].
[129] Information Society Directive, *supra* note 50, at art. 4(1).
[130] *See* discussion *supra* Section II.B.1.c.
[131] Information Society Directive, *supra* note 50, at art. 3(1).
[132] Case C-607/11, ITV Broadcasting Ltd v. TVCatchup Ltd, ECLI:EU:C:2013:147, ¶ 26 (Mar. 7, 2013).
[133] Case C-161/17, Land Nordrhein-Westfalen v. Dirk Renckhoff, ECLI:EU:C:2021:492, ¶ 21 (Aug. 7, 2018).
[134] Case C-597/19, Mircom Int'l Content Mgmt. & Consulting Ltd. v. Telenet BVBA, ECLI:EU:C:2021:492, ¶¶ 49–50 (Jun. 17, 2021).
[135] *See* discussion *supra* Section I.B.

retrieval of the work as well, the work itself is not contained on the blockchain. According to the CJEU, communication can comprise "any act whereby a user, in full knowledge of the consequences of what he or she is doing, gives access to protected work"[136] which includes the provision of hyperlinks to protected works.[137] Therefore, if the NFT contains a hyperlink to the represented work, an act of communication occurs in the sense of Article 3(1) of the Information Society Directive.

*(b) Communication to the Public*

There is an act of communication if the protected work itself or a link to it is saved on the blockchain. However, for the application of the communication to the public right, the communication has to be made to the public. According to the CJEU, whether or not this is the case is to be determined based on "several complementary criteria, which are not autonomous and are interdependent."[138]

The communication must be made to an "indeterminate number of potential recipients".[139] In addition, the communication has to reach a new audience that is "a public that was not already taken into account by the copyright holder when it authorised the initial communication of its work to the public."[140] Besides reaching a new audience, using "specific technical means, different from those previously used" also constitutes a communication to the public.[141] However, according to the CJEU, providing hyperlinks to works that are already available on

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[136] Case C-392/19, VG Bild-Kunst v. Stiftung Preußischer Kulturbesitz, ECLI:EU:C:2021:181, ¶ 30 (Mar. 9, 2021)
[137] Case C-466/12, Nils Svensson v. Retriever Sverige AB, ECLI:EU:C:2014:7, ¶ 20 (Feb. 13, 2014).
[138] Joined cases C-682/18 and C-683/18, Frank Peterson v. Google LLC, ECLI:EU:C:2021:503, ¶ 67 (Jun. 22, 2021).
[139] *Id.* ¶ 69.
[140] *Id.* ¶ 70.
[141] Id.

the Internet does not employ different technical means compared to the initial posting, as the work is also accessible via the Internet.[142] The communication is also not made to a new audience in this case, as it was already freely accessible beforehand.[143]

However, a new audience is reached when a hyperlink is made to a work that was placed illegally on the Internet, if the person providing the link knew or ought to have known of such illegality.[144] If providing the hyperlink is made for profit, according to the CJEU, "it must be presumed that that posting has occurred with the full knowledge of the protected nature of that work and the possible lack of consent to publication on the Internet by the copyright holder."[145]

Therefore, an NFT that contains a hyperlink to a work that is freely available on the Internet with the permission of the right holder does not constitute a communication to the public. The situation is different if the linked work was posted on the Internet without the right holder's consent. As the creation of an NFT for subsequent sale will be carried out with the intention of making a profit,[146] the person that created the NFT has to rebut the presumed knowledge of illegality.

If the work itself is stored on-chain, its availability on the blockchain is not a new technical measure compared to its accessibility on the "normal" Internet because it can be accessed via a traditional web browser by calling certain functions in the underlying smart contract.[147]

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[142] Case C-160/15, GS Media BV v. Sanoma Media Netherlands BV, ECLI:EU:C:2016:644, ¶ 42 (Sep. 9, 2016).
[143] Case C-527/15, Stichting Brein v. Jack Frederik Wullems, ECLI:EU:C:2017:30, ¶ 48 (Apr. 26, 2017). The situation differs if the link circumvents technological measures within the meaning of Article 6(3) of the Information Society Directive, which the right holder has used to restrict public access to the work (*see* Case C-392/19, VG Bild-Kunst v. Stiftung Preußischer Kulturbesitz, ECLI:EU:C:2021:181, ¶¶ 39 et seq. (Mar. 9, 2021)).
[144] Case C-527/15, Stichting Brein v. Jack Frederik Wullems, ECLI:EU:C:2017:30, ¶ 49 (Apr. 26, 2017).
[145] Id.
[146] *See* Andres Guadamuz, *The treachery of images: non-fungible tokens and copyright*, 16 J. INTELL. PROP. L. & PRACTICE (JIPLP) 1367, 1381 (2021*)*.
[147] *See* discussion *supra* Section II.B.1.a.

However, the work is presented to a new audience as a new group of recipients is reached even if the work was already available elsewhere on the Internet.[148]

In the case of both a work contained on the blockchain and a link to an unlawfully posted work on the Internet, the situation depends on whether the communication is made to an indeterminate number of potential recipients, which requires "a fairly large number of people."[149]

The mere fact that the link is not a common hyperlink on a web page but is saved on a blockchain and is therefore accessible only to people familiar with blockchain technology does not prevent a communication to the public,[150] because entries on a blockchain can be viewed by anyone using a "block explorer," such as "Etherscan"[151] for the Ethereum blockchain. However, if the link to the work is only made accessible to the owner of the NFT in the form of "unlockable content," it does not constitute a fairly large number of people, so the communication is not public.[152] Nevertheless, similar to the display right under US law,[153] a fairly large number of people may not only result from simultaneous but also successive access to the work.[154] Thus, if the NFT is resold frequently, there may be a communication to the public even in the case of "unlockable content."

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[148] *See* Case C-161/17, Land Nordrhein-Westfalen v. Dirk Renckhoff, ECLI:EU:C:2021:492, ¶¶ 29 et seq. (Aug. 7, 2018).
[149] Joined cases C-682/18 and C-683/18, Frank Peterson v. Google LLC, ECLI:EU:C:2021:503, ¶ 69 (Jun. 22, 2021).
[150] *Conra* Guadamuz, *supra* note 146, at 1381; GARBERS-VON BOEHM, ET AL., *supra* note 62, at 33.
[151] *The Ethereum Blockchain Explorer*, ETHERSCAN, https://etherscan.io/ (last visited Aug. 31, 2023).
[152] GARBERS-VON BOEHM, ET AL., *supra* note 62, at 32.
[153] *See* discussion *supra* Section II.B.1.d.i.
[154] *Nederlands Uitgeversverbond*, ECLI:EU:C:2019:1111, ¶ 68.

Comparable to the First Sale Doctrine under US law, [155] the EU's Exhaustion Principle set forth in Article 4(2) of the Information Society Directive provides that "[t]he distribution right shall not be exhausted . . . in respect of the original or copies of the work, except where the first sale or other transfer of ownership . . . of that object is made by the rightholder or with his consent."[156] However, Article 3(3) of the Information Society Directive explicitly excludes the exhaustion for the communication to the public right under Article 3(1) of the Information Society Directive.[157]

*e. Moral Rights*

US law recognizes moral rights under Section 106(A) of the Copyright Act, but only for the author of a work of visual art.[158] A work of visual art includes, according to Section 101 of the Copyright Act, "a painting, drawing, print, or sculpture" and "still photographic image produced for exhibition purposes only," provided it is the original work or up to 200 copies of the work signed and consecutively numbered by the author.[159] Owing to the close connection between the NFT and the represented work, the situation is comparable to a copy that is signed and consecutively numbered by the author. However, as electronic publications of a work are excluded from the definition of a work of visual art,[160] this precludes digital art and thus considerably narrows the scope of application of moral rights' to traditional art.

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[155] *See* discussion *supra* Section II.B.1.c.
[156] Information Society Directive, *supra* note 50, at art. 4(2).
[157] Information Society Directive, *supra* note 50, at art. 3(3). *See* Case C-203/02, The British Horseracing Bd. Ltd. v. William Hill Org. Ltd., 2004 E.C.R. I-10415, ¶ 52 (holding that the right to re-utilize the content of a database protected by the sui generis right, which is comparable to the communication to the public right, is not subject to exhaustion).
[158] 17 U.S.C. § 106(A) (2022).
[159] *Id.* § 101.
[160] Id.

The author's moral rights are not harmonized in the EU, so national law will apply. Unlike under US law, the right is not limited to traditional visual art, but is applicable to any kind of work, whether in analog or digital form.

Under Section 106(A)(a)(1)(A) of the Copyright Act, the author of a work of visual art can "claim ownership of that work"[161] so that he or she can request that his or her name be used in connection with the work.[162] The situation is similar in the EU. For example, according to Section 13 of the German Copyright Act, the author has the right to be recognized as the author of his or her work[163] and is thus protected against someone claiming authorship of his work[164] or denying his or her authorship of a work[165]. "Minting" an NFT for a work created by another person infringes the moral rights of the author if the NFT creator passes off the other's work as his or her own, for example by designating himself or herself as the author in the metadata of the NFT. This applies regardless of whether the work itself is or its metadata alone are stored on the blockchain. In contrast, the situation that occurs far more frequently, where an NFT is created for another person's work and the creator merely claims to be entitled to sell the NFT, does not affect the right to be recognized as the author of the work.

Section 106(A)(a)(2) of the Copyright Act gives the author of a work of visual art the right to "prevent the use of his or her name as the author of the work of visual art in the event of a distortion, mutilation, or other modification of the work which would be prejudicial to his or

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[161] *Id.* § 106(A)(a)(1)(A).
[162] *See* 3 NIMMER, *supra* note 73, at § 8D.06.
[163] § 13 UrhG ("The author has the right to be identified as the author of the work. The author may determine whether the work is to bear a designation of authorship and which designation is to be used.").
[164] ALEXANDER PEUKERT, SCHRICKER/LOEWENHEIM, URHEBERRECHT – KOMMENTAR § 13 mn. 9 (Ulrich Loewenheim, Matthias Leistner & Ansgar Ohly eds., 6th ed. 2020).
[165] *Id.* mn. 10.

her honor or reputation."[166] It is argued that this could be the case with selling a work in the form of an NFT because there are "concerns about the potential environmental impact of blockchain technology and the commodification of art."[167] However, it is questionable whether these concerns are enough to have a negative impact on the author's honor or reputation. Furthermore, "minting" an NFT does not constitute a distortion, mutilation, or other modification of the work,[168] as even if the work is saved on the blockchain, it is used without any alteration except for the potential compression of the file size.

Under Section 14 of the German Copyright Act, the author has the right to prevent the distortion or any other impairment of his or her work that is likely to endanger his or her legitimate intellectual or personal interests in the work.[169] Irrespective of the question whether creating an NFT for a work affects the intellectual or personal interests of the author, the minting process does not result in any distortion or other impairment as it requires either an interference with the physical substance of the work or a change in the context leading to a different overall impression of the work.[170] The digitalization of a work[171] and its miniaturization or compression do not fulfill these requirements, which also applies to the creation of a hash value of a file containing the work.

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[166] 17 U.S.C. § 106(A)(a)(2) (2022).
[167] Helman & Tur-Sinai, *supra* note 61, at 38.
[168] See id.
[169] § 14 UrhG ("The author has the right to prohibit the distortion or any other derogatory treatment of his or her work which is capable of prejudicing the author's legitimate intellectual or personal interests in the work.").
[170] *See* BGH, May 11, 2017, I ZR 147/16 ¶ 11 juris (Ger.) http://juris.bundesgerichtshof.de/cgi-bin/rechtsprechung/document.py?Gericht=bgh&Art=en&az=I%20ZR%20147/16&nr=79670; PEUKERT, *supra* note 164, § 14 mn. 15.
[171] BGH, Mar. 19, 2014, I ZR 35/13 ¶ 60 juris (Ger.) http://juris.bundesgerichtshof.de/cgi-bin/rechtsprechung/document.py?Gericht=bgh&Art=en&Datum=Aktuell&Sort=12288&nr=68718&pos=3&anz=554.

*2. Acts Accompanying the Creation of an NFT*

If the represented work is stored on the blockchain, the creation of an NFT affects the reproduction right under US and EU laws. There is also an infringement of the rights to distribution and display, and to the communication to the public right under US and EU law, respectively. However, if the NFT only contains the metadata of the represented work, these rights are not infringed. The only exception is the right of communication to the public if the NFT contains a link to a work that has been published illegally on the Internet. The moral rights of the author are rarely infringed.

However, the situation may differ in relation to acts accompanying the creation of an NFT. Uploading a work onto the Internet to include its metadata in an NFT is a reproduction under Section 106(1) of the Copyright Act[172] and Article 2 of the Information Society Directive[173]. Comparable to storing the work on the blockchain, such a reproduction is not covered by the private copying exception under Article 5(2)(b) of the Information Society Directive if commercial purposes are pursued.[174] The same applies to the Fair Use Doctrine set forth under Section 107 of the Copyright Act.[175] Making a work available online infringes the distribution right under Section 106(3) of the Copyright Act[176] and the display right under Section 106(5) of the Copyright Act,[177] which is not covered by the First Sale Principle under Section 109(a) of the Copyright Act. The same applies to the communication to the public right under Article

[172] *See* Chelsea Lim, *The Digital First Sale Doctrine in Blockchain World: NFTs and the Temporary Reproduction Exception*, 91 FORDHAM L. REV. 721, 748 (2022); Rosenof, supra note 95.
[173] GARBERS-VON BOEHM, ET AL., *supra* note 62, at 32.
[174] *See* discussion *supra* Section II.B.1.a.
[175] See id.
[176] *See* discussion *supra* Section II.B.1.c.
[177] *See* discussion *supra* Section II.B.1.d.i.

3(1) of the Information Society Directive, which is also not subject to the Exhaustion Principle set forth under Article 4(2) of the Information Society Directive.[178]

If the metadata of a work that is already online are used, there is no reproduction of the work made by the NFT creator. However, there will be a communication to the public under Article 3(1) of the Information Society Directive if the work was posted illegally and the NFT creator knew this, which is, regularly assumed in the case of NFTs owing to the profit-making purposes pursued with the sale.[179] The right to distribution under Section 106(3) of the Copyright Act is not affected even if the linked work was uploaded without the right holder's consent.[180] The same applies for the display right under Section 106(5) of the Copyright Act.[181]

*C. Copyright Protection for NFTs*

We now turn to the issue of whether an NFT is protected by copyright law. A work stored on the blockchain enjoys copyright protection in this form if the given requirements are met. While copyright protection under EU law does not depend on fixation of the work,[182] US law requires fixation in a "tangible medium of expression, now known or later developed, from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device."[183] However, as storage on a hard drive or other digital storage media is sufficient,[184] works saved on the blockchain can also be protected under US law.

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[178] *See* discussion *supra* Section II.B.1.d.ii.
[179] See id.
[180] *See* discussion *supra* Section II.B.1.c.
[181] *See* discussion *supra* Section II.B.1.d.i.
[182] *See* VON LEWINSKI & WALTER, *supra* note 42, § 11.2.5.
[183] 17 U.S.C. § 102(a) (2022).
[184] *See* sources cited *supra* note 56.

A different question is whether an NFT itself can enjoy copyright protection, especially if it only contains the metadata of the represented work.

*1. Copyright Protection*

For copyright protection, both US[185] and EU[186] law require the work to be based on human creation, which excludes machine-made works. Therefore, one could argue, that copyright protection for NFTs is not possible as the token is not created by a human, but rather generated by a smart contract.[187] In this context, under US[188] and EU[189] law, an author may use technical assistance, so that creations by a computer can be protected if a human instructs and controls it. Therefore, even if the NFT is created by a smart contract, it can be the result of a human creation and thus be protected by copyright. Whether this is the case must be assessed based on the circumstances of the individual case.

Section 102(a) of the Copyright Act provides a non-exhaustive list of types of works, among other literary works.[190] These also include computer programs,[191] which are defined as "a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result."[192] In the EU, computer programs are covered under the Computer

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[185] *See* Naruto v. Slater, No. 15-cv-04324-WHO, 2016 WL 362231 (N.D. Cal. Jan. 28, 2016), at *7–10, *aff'd* 888 F.3d 418 (9th Cir. 2018); Kelley v. Chicago Park Dist, 635 F.3d 290, 304 (7th Cir. 2011); U.S. COPYRIGHT OFF., COMPENDIUM OF THE U.S. COPYRIGHT OFFICE PRACTICES, § 313.2 (3d ed. 2021), https://www.copyright.gov/comp3/chap300/ch300-copyrightable-authorship.pdf.
[186] P. Bernt Hugenholtz & Joao Quintais, *Copyright and Artificial Creation: Does EU Copyright Law Protect AI-Assisted Output?*, 52 INT'L. R. INTELL. PROP. COMPETITION L. (IIC) 1190, 1195 (2021)
[187] *See* discussion *supra* Section II.A.
[188] *See* Burrow-Giles Lithographic Co. v. Sarony, 111 U.S. 53, 60 (1884); U.S. COPYRIGHT OFF., *supra* note 185, at § 313.2.
[189] *See* Case C-145/10, Eva-Maria Painer v. Standard VerlagsGmbH, 2011 E.C.R. I–12622 ¶ 91.
[190] *See* 17 U.S.C. § 102(a) (1) (2022).
[191] *See* Williams Elecs., Inc. v. Artic Int'l, Inc., 685 F.2d 870, 875 (3rd Cir. 1982); Atari Games Corp. v. Nintendo of Am., Inc., 975 F.2d 832, 838 (Fed. Cir. 1992); Oracle Am., Inc. v. Google Inc., 750 F.3d 1339, 1354, (Fed. Cir. 2014); 1 NIMMER, *supra* note 73, at § 2A.10[B]; 1 GOLDSTEIN, *supra* note 56, at § 2.15.2.
[192] 17 U.S.C. § 101 (2022).

Program Directive.[193] The Directive does not define the term "computer program" in order not to be outdated by technological innovation.[194] However, it should be interpreted in a broad sense and includes "all kinds of instructions or sequences of instructions intended to operate with a data-processing machine (computer) to perform certain functions or fulfill certain tasks."[195]

An NFT itself comprises a token ID, the address of the underlying smart contract and, if applicable, metadata on the work represented. It does not enclose executable code. Rather, such instructions are contained in the underlying smart contract, which is used to create and manage the NFT. Protecting the NFT as a computer program would therefore not be possible under US and EU law[196].

Given the close connection between the NFT and the underlying smart contract, one could think of considering them a unit for legal assessment. In this case, protection would be possible either as a computer program or another work, such as a literary work, for the combination of NFT and smart contracts. However, this question can be left open, as the requirements for copyright protection are not met even if the smart contract and token are considered together. The threshold for copyright protection under US law is rather low,[197] but a work lacks creativity when it is solely dictated by functional considerations.[198] In the EU, Article 1(3) of the Computer Program Directive provides that "a computer program shall be protected if it is

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[193] Directive 2009/24/EC of the European Parliament and of the Council of 23 April 2009 on the legal protection of computer programs, 2009 O.J. (L 111) 16 (hereinafter Computer Program Directive).
[194] *See* Walter Blocher & MICHEL M. WALTER, EUROPEAN COPYRIGHT LAW: A COMMENTARY, ¶ 5.1.26 (Michel Walter & Silke von Lewinski eds., 2010).
[195] *Id.* ¶ 5.1.26.
[196] GARBERS-VON BOEHM, ET AL., *supra* note 62, at 35.
[197] *See* discussion *supra* Section II.B.1.a.
[198] CMM Cable Rep v. Ocean Coast Props., Inc., 97 F.3d 1504, 1519 (1st Cir. 1996); 1 NIMMER, *supra* note 73, at § 2.01[B][2].

original in the sense that it is the author's own intellectual creation" and that "[n]o other criteria shall be applied to determine its eligibility for protection."[199] This requires the computer program to display its author's creativity.[200] The threshold for protection is low, but computer programs that are "commonplace in the industry and completely banal" do not qualify for protection.[201] Parts of a computer program that are dictated by their technical function are not eligible for protection, either.[202] As mentioned above, the CJEU applies the same criteria for the protectability of other works so that a work in general must reflect the creativity of the author.[203] This is not the case if the creation was determined by technical considerations, rules, or other constraints that have left no room for the exercise of artistic freedom.[204]

For an NFT comprising a token ID, the address of the underlying smart contract and, in some cases metadata on the represented work, the room for creativity is small and protection is usually not possible under both US[205] and EU[206] law. The same applies to the typical smart contract, which contains only a small number of lines of code. In this context, it should also be noted that storing data on the blockchain is expensive, so the NFT and smart contract will typically only contain essential information.

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[199] Computer Program Directive, *supra* note 193, art. 1(3).
[200] *See* BLOCHER & WALTER, *supra* note 194, ¶ 5.1.16.
[201] *See id.* ¶ 5.1.15–16.
[202] *See* MARIE-CHRISTINE JANSSENS, EU COPYRIGHT LAW, ¶ 5.36 (Irina Stamatoudi & Paul Torremans eds., 2014).
[203] *See* discussion *supra* II.B.
[204] Case C-469/17, Funke Medien NRW GmbH v. Bundesrepublik Deutschland, ECLI:EU:C:2018:870, ¶¶ 23–24 (Oct. 25, 2018); Case C-683/17, Cofemel – Sociedade de Vestuário SA v. G-Star Raw CV, ECLI:EU:C:2019:363, ¶¶ 24, 26, 31 (May 2, 2019).
[205] *See* Rebecca Carroll, *NFTs: The Latest Technology Challenging Copyright Law's Relevance Within a Decentralized System*, 32 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 979, 994 (2022); Helman & Tur-Sinai, *supra* note 61, at 32–33. *But see* Megan E. Noh, Sarah C. Odenkirk & Yayoi Shionoiri, *GM! Time to Wake Up and Address Copyright and Other Legal Issues Impacting Visual Art NFTs*, 45 COLUM. J.L. & ARTS 315, 319 (2022)
[206] *See* Balazs Bodo, Alexandra Giannopoulou, Péter Mezei & João Pedro Quintais, *The Rise of NFTs: These Aren't the Droids You're Looking For*, 44 EUR. INTELL. PROP. REV. (EIPR) 267, 275 (2022).

*2. Sui Generis Right Protection*

As discussed above, traditional copyright law requires a work to reflect the author's personality. However, the European legislature established an additional sui generis right for databases,[207] which is essentially a "sweat of the brow" protection for non-original databases. In the US, there is no database protection comparable to the EU sui generis right.[208]

Pursuant to Article 7(1) of the Database Directive,[209] a database is protected by the sui generis right if it "shows that there has been qualitatively and/or quantitatively a substantial investment in either the obtaining, verification or presentation of the contents."[210] The investment can include "the deployment of human, financial or technical resources" whereas "[t]he quantitative assessment refers to quantifiable resources and the qualitative assessment to efforts which cannot be quantified, such as intellectual effort or energy."[211] The creation of elements is not encompassed because "the purpose of the protection by the sui generis right […] is to promote the establishment of storage and processing systems for existing information and not the creation of materials capable of being collected subsequently in a database."[212] Therefore, only investments in obtaining preexisting elements are relevant. In the context of NFTs, this means that investment in the creation of the represented work is not considered, whereas license fees

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[207] *See* Estelle Derclaye, The Legal Protection of Databases: A Comparative Analysis, 51–54 (2008) for the nature of the right.
[208] 2 NIMMER, *supra* note 73, at § 3.04[B][3][c].
[209] Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the Legal Protection of Databases, 1996 O.J. (L 77) 20 [hereinafter Database Directive].
[210] *Id.* art. 7(1).
[211] Case C-444/02, Fixtures Mktg. Ltd. v. Organismos prognostikon agonon podosfairou AE, 2004 E.C.R. I-10549, ¶ 44 (Nov. 9, 2004); Database Directive, supra note 90, at recitals 7, 40.
[212] Case C-203/02, The British Horseracing Bd. Ltd. v. William Hill Org. Ltd., 2004 E.C.R. I-10415, ¶ 31; Case C-338/02, Fixtures Mktg. Ltd. v. Svenska Spel AB, 2004 E.C.R. I-10497, ¶ 24; Case C-444/02, Fixtures Mktg. Ltd. v. Organismos prognostikon agonon podosfairou AE, 2004 E.C.R. I-10549, ¶ 40 (Nov. 9, 2004); VON LEWINSKI, *supra* note 97, ¶ 9.7.7; DERCLAYE, *supra* note 97, at 93–97.

for the represented work are taken into account.[213] However, because of the substantial investments in the verification of information or implementation and maintenance of the blockchain itself, most blockchains will be protected by the sui generis right.[214]

Article 7(1) of the Database Directive provides that the rights holder of the sui generis right has the right "to prevent extraction and/or re-utilization of the whole or of a substantial part […] of the contents of that database."[215] An individual block can represent an essential part of the database, especially in the case of blockchains that use the energy-intensive "proof of work" procedure as a consensus mechanism, like the Bitcoin blockchain.[216] However, this is not the case for a single entry on the blockchain as is the case with an NFT or smart contract written to the blockchain. This applies especially for blockchains, which, like the Ethereum blockchain,[217] do not (any longer) use the "proof of work" procedure, but the significantly less energy-intensive "proof of stake" consensus mechanism. An NFT is therefore not protected as a database or part of it in the sense of Article 7(1) of the Database Directive.

## III. TRANSFER OF AN NFT

After introducing the technical details of transferring an NFT (A), we look at the exclusive rights in the represented work that are affected by this (B). Next, we examine the rights that the buyer of an NFT receives (C) and how the author can participate in proceeds from the transfer of the NFT (D).

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[213] *See* VON LEWINSKI, *supra* note 97, ¶ 9.7.9.
[214] See Sebastian Pech, Who Owns the Blockchain? How Copyright Law Allows Rights Holders to Control Blockchains, 16 J. BUS. & TECH. L. 59, 71–73 (2021).
[215] Database Directive, *supra* note 209, at art. 7(1).
[216] *See* Pech, *supra* note 214, at 75.
[217] *Proof-of-stake (PoS)*, ETHEREUM (May 12, 2023), https://ethereum.org/en/developers/docs/consensus-mechanisms/pos/.

*A. Technical Background*

Upon creation, an NFT is assigned to the creator as its "owner." For transferring the NFT to another person, the token is not transmitted to the buyer in a technical sense; only the assignment of the NFT to a new holder is registered on the blockchain.[218]

NFTs can be traded via project-specific (e.g., NBA Top Shot Marketplace) and general NFT trading platforms (e.g., LooksRare, Makerspace, Nifty Gateway, OpenSea, Rarible, SuperRare), and classic marketplaces (e.g., eBay). NFTs are paid for with cryptocurrencies (e.g., Ether, the currency of the Ethereum blockchain). However, some sales platforms (e.g., MakersPlace) accept payment in fiat currency via traditional payment methods (e.g., credit card).[219]

*B. Rights Concerning the Represented Work*

In relation to the rights concerned in the represented work, a distinction must be made between the transfer of the NFT itself (1) and acts accompanying the transfer (2).

*1. Transfer*

*a. Reproduction Right and Adaption Right*

In *Capitol Records v. ReDigi*, the US District Court for the Southern District of New York noted that "[i]t is simply impossible that the same 'material object' can be transferred over the Internet."[220] This is why the transfer of a file also constitutes a reproduction under Section

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[218] MATHIAS FROMBERGER, LAW OF CRYPTPOASSETS § 19 mn. 20 (Philipp Maume, Lena Maute & Mathias Fromberger eds., 2022).
[219] *See Frequently Asked Questions*, MAKERSPLACE, https://makersplace.com/faq/ (last visited Aug. 31, 2023).
[220] Capitol Records v. ReDigi, 934 F. Supp. 2d 640, 649 (S.D.N.Y. 2013).

106(1) of the Copyright Act.[221] However, if the NFT contains only the metadata of the work, there is no reproduction of the work, as the work itself is not copied. The same applies to the reproduction right under Article 2 of the Information Society Directive. Even if the represented work itself is stored in the NFT, a reproduction either under Section 106(1) of the Copyright Act or Article 2 of the Information Society Directive[222] does not take place, as the NFT is not technically transferred to the new holder but the ownership information alone is updated.

The same applies to the adaption right under Section 106(2) of the Copyright Act and Article 2 of the Information Society Directive, which requires the use of a substantive part of the work.[223]

*b. Distribution Right*

The distribution right under Section 106(3) of the Copyright Act encompasses the distribution of a work in tangible form and its transmission over the Internet; distribution to a single individual is sufficient.[224]

If the NFT contains only the metadata of the represented work, there is no distribution because neither the original nor a copy of the work is transmitted by the transfer of the NFT. Even if the represented work is included in the NFT, changing the information on the ownership of the NFT does not lead to distribution, either.

As mentioned above, the distribution right under Article 4(1) of the Information Society Directive encompasses only the distribution of works in a tangible medium.[225] For computer

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[221] Capitol Records, LLC v. ReDigi Inc., 910 F.3d 649, 657 (2nd Cir. 2018); U.S. COPYRIGHT OFF., DMCA SECTION 104 REPORT 79 (2001).
[222] GARBERS-VON BOEHM, ET AL., *supra* note 62, at 35.
[223] *See* discussion *supra* Section II.B.1.b.
[224] *See* discussion *supra* Section II.B.1.c.
[225] See id.

programs, the CJEU has deemed the transfer of program copies in intangible form over the Internet to be distribution within the meaning of Article 4(1)(c) of the Computer Program Directive.[226] However, given the lack of individuality, protection of the NFT as a computer program will be not possible in most cases.[227]

*c. Display Right and Communication to the Public Right*

*i. Display Right*

The display right under Section 106(5) of the Copyright Act is not infringed by transferring an NFT. Here, too, the NFT itself is not transmitted, only the ownership information is updated.

*ii. Communication to the Public Right*

There is no communication to the public within the meaning of Article 3(1) of the Information Society Directive. If the represented work is freely accessible, the transfer does not open up any previously unavailable access possibility. If, on the other hand, the work is only accessible to the owner of the NFT in the form of "unlockable content," the new owner of the NFT does not constitute a fairly large number of people. However, something else may apply if the NFT is frequently transferred and the represented work is thus made accessible to a large number of persons.[228]

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[226] Case C-128/11, UsedSoft GmbH v. Oracle International Corp., ECLI:EU:C:2012:407, ¶¶ 47 et seq. (Jul. 3, 2012).
[227] *See* discussion *supra* Section II.C.1.
[228] *See* discussion *supra* Section II.B.1.d.ii.(b).

*2. Acts Accompanying the Transfer of an NFT*

Even if the transfer of an NFT in general does not in itself affect any rights of the author of the represented work, the situation could differ for acts accompanying the transfer, especially advertising the NFT and/or the represented work (a) and transferring the represented work to a new owner (b).

*a. Advertising the NFT and/or the Represented Work*

Uploading a work onto the Internet amounts to reproduction under Section 106(2) of the Copyright Act and Article 2 of the Information Society Directive.[229] Posting a digital version of a work on the Internet distributes and displays the work to other users on the Internet in the sense of Sections 106(3) and 106(5) of the Copyright Act.[230] This also constitutes a communication to the public under Article 3(1) of the Information Society Directive.[231] Printing the work in a catalog or other physical advertising material is considered reproduction under Section 106(2) of the Copyright Act and Article 2 of the Information Society Directive, whereas the distribution of such advertising material affects the distribution right under Section 106(3) of the Copyright Act and Article 4(1) of the Information Society Directive. The question is whether these acts are covered by any of the exceptions to the author's exclusive rights.

The First Sale Doctrine under Section 109(a) of the Copyright Act only limits the distribution right, but does not apply to the reproduction right [232] and display right[233]. The exception under

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[229] *See* discussion *supra* Section II.B.2.
[230] *See id.*
[231] GARBERS-VON BOEHM, ET AL., *supra* note 62, at 34.
[232] *Capitol Records*, 910 F.3d at 656; U.S. COPYRIGHT OFF., *supra* note 221, at 80; 4 NIMMER, *supra* note 73, at § 8.12[F]; 4 PATRY, *supra* note 91, at § 13:16.
[233] *See* discussion *supra* Section II.B.1.d.i.

Section 109(c) of the Copyright Act. which permits the public display of a lawful copy, does not cover transmissions over the Internet.[234] Another exception is Section 113(c) of the Copyright Act, which provides that if

> a work lawfully reproduced in useful articles that have been offered for sale or other distribution to the public, copyright does not include any right to prevent the making, distribution, or display of pictures or photographs of such articles in connection with advertisements or commentaries related to the distribution or display of such articles, or in connection with news reports.[235]

However, as the provision is limited to works "reproduced in useful articles" its scope of application is very narrow. A useful article is one with "an intrinsic utilitarian function that is not merely to portray the appearance of the article or to convey information."[236] Even if the work is included in the NFT, it cannot be classified as a useful article, as an NFT is designed to provide information on the work and its owner and therefore has no intrinsic utilitarian function.

However, courts have deemed the presentation of a copyright-protected work on a website to advertise a sale of the work to be fair use under Section 107 of the Copyright Act.[237] Even if the complete work is used for commercial purposes, the fact that the use is transformative as it is "to provide information to legitimate purchasers under the First Sale Doctrine, not for the artistic purpose of [the creator's] original images"[238] and that the posting of thumbnail images of a work is not a substitute for the original work[239] renders the use of the work fair.

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[234] See id.
[235] 17 U.S.C. § 113(c) (2022).
[236] *Id.* § 101.
[237] Stern v. Lavender, 219 F. Supp. 3d 650, 681–83 (S.D.N.Y. 2018); Rosen v. eBay, Inc., No. cv-13-6801-WF-EX, 2015 WL 1600081, at *35–51 (C.D. Cal. 2015).
[238] *Stern* at 681 (citing *Rosen* at *39).
[239] *Id.* at 682 (citing *Rosen* at *48–49).

Although transferring a work in digital form over the Internet is not covered by the First Sale Doctrine,[240] the Fair Use Doctrine applies owing to the similarity in the situation if the author of the represented work has authorized the sale in the form of an NFT. However, in case an unauthorized NFT is sold, the use of the represented work for advertising purposes constitutes an infringement of the author's rights.

The situation is similar under EU law. According to Article 5(3)(j) of the Information Society Directive, there is an exemption to the reproduction and communication to the public right for "use for the purpose of advertising the public exhibition or sale of artistic works, to the extent necessary to promote the event, excluding any other commercial use."[241] The idea behind this provision is that exhibitors and vendors have a legitimate interest in using the work for advertising purposes and the general public in being informed about exhibitions and sales.[242] The author also benefits from the publicity and sale of his works,[243] in the latter case, especially by the resale right under the Resale Right Directive[244].

Article 5(3)(j) of the Information Society Directive does not apply to all copyright-protected works, but only to artistic works, for example, paintings, drawings, and photographs.[245] For the question of whether a work is an artistic work in a specific case, the prevailing public perception in art circles must be taken into account.

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[240] *See* discussion *infra* Section III.B.2.b.
[241] Information Society Directive, *supra* note 50, at art. 5(3)(j). This is not a mandatory limitation, but the Member States are free to transpose it into national law (*see* STAMATOUDI & TORREMANS, *supra* note 59, ¶ 11.67).
[242] See id.
[243] See id.
[244] Directive 2001/84/EC of the European Parliament and of the Council of 27 September 2001 on the resale right for the benefit of the author of an original work of art, 2001 O.J. (L 272) 32 [hereinafter Resale Right Directive].
[245] *See* VON LEWINSKI & WALTER, *supra* note 42, ¶ 11.5.65.

In many cases it is not the work itself that is sold, as required by Article 5(3)(j) of the Information Society Directive, but the NFT representing it. If the represented work is included in the NFT, the transfer of the NFT could be considered a sale of the work itself. If only the metadata are contained in the NFT, the transfer of the NFT alone does not necessarily result in the sale of the represented work. However, irrespective of whether the transfer of the NFT grants the rights of use to the represented work,[246] it could be argued that Article 5(3)(j) of the Information Society Directive can be applied in such cases owing to the close link between the work and the NFT.[247]

As the wording of Article 5(3)(j) of the Information Society Directive does not require that the work be sold with the consent of the author of the work, one can assume that the provision applies even to unauthorized NFTs. However, as the Information Society Directive aims to create a high level of protection for right holders,[248] their interests must be taken into account while interpreting the provisions of the Directive. In general, the resale right does not apply to digital art[249] and only the creator of the NFT who does not have to be its author benefits from the royalties incorporated in the smart contracts. Therefore, when it comes to digital art, only authorized sales of tokenized works are covered by Article 5(3)(j) of the Information Society Directive.

*b. Transferring the Represented Work*

Under US law, the transfer of the represented work constitutes distribution under Section 106(3) of the Copyright Act, regardless of whether the work is transferred in physical form or via the

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[246] *See* discussion *infra* Section III.C.1.
[247] *But see* GARBERS-VON BOEHM, ET AL., *supra* note 62, at 35.
[248] *See* Information Society Directive, *supra* note 50, at recitals 4, 9.
[249] *See* discussion *infra* Section III.D.2.a.

Internet.[250] In the EU, the transfer of the work in a tangible medium is considered distribution under Article 4(1) of the Information Society Directive.[251] This applies to traditional works, such as an oil painting, and to digital works contained on a data carrier, such as a JPG file saved on a USB stick. However, if a digital work is transmitted via the Internet, this is (with the exception of computer programs)[252] not subject to the distribution right under Article 4(1) of the Information Society Directive, but to the communication to the public right under Article 3(1) of the Information Society Directive if the work is made available to a large number of people.[253]

In line with the First Sale Doctrine under Section 109(a) of the Copyright Act[254] and the Exhaustion Principle under Article 4(2) of the Information Society Directive[255], a buyer of a work embodied in a physical medium is permitted to transfer the work to a third party without the prior authorization of the right holder. The First Sale Doctrine[256] and Exhaustion Principle also apply to the transfer of digital works contained in a data carrier, such as a JPG file saved on a USB stick. However, the situation is different if the digital file is not transferred on a physical medium but transmitted over the Internet.

The EU's Exhaustion Principle only applies for distributions in the sense of Article 4(1) of the Information Society Directive and therefore not for transmissions over the Internet, which qualify as communication to the public under Article 3(1) of the Information Society

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[250] *See* discussion *supra* Section II.B.1.c.
[251] See id.
[252] *See* discussion *supra* Section III.B.1.b.
[253] *See* discussion *supra* Section II.B.1.d.ii.
[254] *See* discussion *supra* Section II.B.1.c.
[255] *See* discussion *supra* Section II.B.1.d.ii.
[256] *See* Capitol Records, LLC v. ReDigi Inc., 910 F.3d 649, 659, (2nd Cir. 2018); U.S. COPYRIGHT OFF., DMCA SECTION 104 REPORT 78 (2001); 2 NIMMER, *supra* note 73, at § 8.13[A]; 4 PATRY, *supra* note 91, at § 13.23.

Directive.[257] However, as a communication to the public requires making the work accessible to a large number of people,[258] the right is not affected if the work is transferred to a single person. The situation is different if the work is frequently transferred to other persons in succession, because a fairly large number of people may result not only from simultaneous but also successive access to the work.[259]

As for computer programs, the CJEU ruled in *UsedSoft v. Oracle Int'l* that exhaustion can occur through transmission over the Internet.[260] However, in *Nederlands Uitgeversverbond v. Tom Kabinet* the Court clarified that this only applies to computer programs and not to other types of works and justified this on the grounds that digital, unlike physical copies of works, do not deteriorate through their use, so that a secondary market for "used" digital works would endanger a functioning primary market for "new" ones.[261]

Even if the original file and not only a copy is transferred over the Internet, this inevitably constitutes a reproduction on the recipient's device under Section 106(1) of the Copyright Act[262] and Article 2 of the Information Society Directive[263]. The EU's Exhaustion Principle does not cover reproductions under Article 2 of the Information Society Directive, either.[264]

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[257] *See* discussion *supra* Section II.B.1.d.ii.
[258] See id.
[259] *See* Case C-263/18, Nederlands Uitgeversverbond v. Tom Kabinet Internet BV, ECLI:EU:C:2019:1111, ¶ 68 (Dec. 19, 2019).
[260] Case C-128/11, UsedSoft GmbH v. Oracle International Corp., ECLI:EU:C:2012:407, ¶¶ 47 et seq. (Jul. 3, 2012).
[261] Case C-263/18, Nederlands Uitgeversverbond v. Tom Kabinet Internet BV, ECLI:EU:C:2019:1111, ¶ 54 et seq. (Dec. 19, 2019).
[262] Capitol Records, LLC v. ReDigi Inc., 910 F.3d 649, 657 (2nd Cir. 2018); U.S. COPYRIGHT OFF., DMCA SECTION 104 REPORT 79 (2001).
[263] *See* MICHEL WALTER & LUTZ RIEDE, EUROPEAN COPYRIGHT LAW: A COMMENTARY, ¶ 11.4.53 (Michel Walter & Silke von Lewinski eds., 2010).
[264] *See* WALTER & RIEDE, *supra* note 263, ¶ 11.4.17. *See* Case C-203/02, The British Horseracing Bd. Ltd. v. William Hill Org. Ltd., 2004 E.C.R. I-10415, ¶ 52 (holding that the right to extract content of a database protected by the sui generis right, which is comparable to the reproduction right, is not subject to exhaustion).

The status under US law is comparable. Even if the transfer of a work in physical form or via the Internet is qualified as a distribution in the sense of Section 106(3) of the Copyright Act, the First Sale Doctrine limits the distribution right alone, but does not authorize reproductions of the work that arise in connection with the transfer.[265]

One can think of applying the Fair Use Doctrine under Section 107 of the Copyright Act[266] to these reproductions. However, the main reason the reproduction cannot be considered fair use is its potential market harm: Permitting buyers of digital files to transfer them to third parties can increase the risk of unauthorized copies.[267] Even if the initial copy of the file is deleted during the transfer, physical copies of a work are worn down when they are used, whereas digital files retain their original quality even when they are used extensively.[268] Thus, creating a secondary market for "used" digital works, where they are sold for a lower price than on the primary market, can harm the latter.[269]

If the recipient uses the transferred work for non-commercial purposes, the reproduction that takes place during transmission could be covered by the EU's private copying exception under Article 5(2)(b) of the Information Society Directive. Similar to the Fair Use Doctrine, one can argue here that this could harm the primary market for digital works. Article 5(2)(b) of the Information Society Directive itself does not take into account the impact on the market for the used work. However, the Three-step Test under Article 5(5) of the Information Society Directive provides that "[t]he exceptions and limitations provided for in paragraphs 1, 2, 3 and

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[265] *See* discussion *supra* Section III.B.2.a.
[266] 17 U.S.C. § 107 (2022).
[267] U.S. COPYRIGHT OFF., *supra* note supra note 314, at 83–84.
[268] Capitol Records, LLC v. ReDigi Inc., 910 F.3d 649, 662, 664 (2nd Cir. 2018); U.S. COPYRIGHT OFF., *supra* note 314, at 82.
[269] Capitol Records at 662–64.

4 [of Article 5] shall only be applied in certain special cases which do not conflict with a normal exploitation of the work or other subject-matter and do not unreasonably prejudice the legitimate interests of the rightholder."[270] The Three-step Test can restrict limitations and exceptions provided in the Information Society Directive, especially in the case of the digital use of works.[271] One can therefore argue that reproductions in the context of the transfer of a digital file are not covered by the private copying exception under Article 5(2)(b) of the Information Society Directive because a secondary market for digital works could harm the primary market.

Some commentors have argued that the First Sale Doctrine should be expanded to digital works represented by NFTs because these works can be treated as "digital originals."[272] Another argument for applying the First Sale Doctrine could be that authors are able to participate in the proceeds on the secondary market through smart contracts so that the loss of revenue in the primary market is compensated.[273] With this reasoning, one could also apply the EU's Exhaustion Principle to works represented by NFTs.

In *Disney Enterprises v. Redbox Automated Retail*, the US District Court for the Central District of California held that the First Sale Doctrine does not cover the sale of codes, which can be used to download digital files as this is only "an option to create a physical copy at some point in the future" instead of a "particular, fixed copy of a copyrighted work."[274] This is also the

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[270] Information Society Directive, *supra* note 50, at art. 5(5).
[271] *See* Information Society Directive, *supra* note 50, at recital 44 ("Therefore, the scope of certain exceptions or limitations may have to be even more limited when it comes to certain new uses of copyright works . . .").
[272] *See* Matt Goldman, *Non-Fungible Tokens: Copyright Implications in the Wild West of Blockchain Technology*, CARDOZO ARTS & ENT. L.J. (Apr. 5, 2021), https://cardozoaelj.com/2021/04/05/non-fungible-tokens-copyright-implications-in-the-wild-west-of-blockchain-technology/; Edward Lee, *NFTs as Decentralized Intellectual Property* 31–32, https://ssrn.com/abstract=4023736; Lim, *supra* note 172, at 747–54.
[273] Lee, *supra* note 272, at 32.
[274] Disney Enters. v. Redbox Automated Retail, LLC, 2018 U.S. Dist. LEXIS 69103, *26 (C.D. Cal. February 20, 2018).

case with NFTs that do not contain the represented work, but only its metadata.[275] However, even if the work is included in the NFT, an unlimited number of NFTs for that work can be created even without the author's permission. In this context, it should also be noted that royalties coded in smart contracts can be circumvented.[276] Therefore, as long as these issues are not solved, a secondary market for digital works represented by NFTs would be detrimental to the primary market. Thus, this is not advisable.

### *C. Acquisition of Rights*

As in practice, it is often the NFT and not the work represented by it that is transferred, the question arises as to which rights a buyer acquires in the work (1) and in the NFT (2).

#### *1. Acquisition of Rights in the Represented Work*

Under US law, the copyright in a work can be transferred "in whole or in part,"[277] so that the author of the work can assign either all or only certain sections of rights. According to Section 202 of the Copyright Act "[o]wnership of a copyright, or of any of the exclusive rights under a copyright, is distinct from ownership of any material object in which the work is embodied" and therefore, the "[t]ransfer of ownership of any material object, including the copy […] in which the work is first fixed, does not of itself convey any rights in the copyrighted work embodied in the object."[278] Thus, the buyer of a physical work becomes the owner of the work,

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[275] Desiree Moshayedi, *Does the First Sale Doctrine Apply to NFTs?*, THE CLS BLUE SKY BLOG (Jan. 5 2022), https://clsbluesky.law.columbia.edu/2022/01/05/does-the-first-sale-doctrine-apply-to-nfts/; Simon J. Frankel & Billie Mandelbaum, *What Copyright Lawyers Need to Know About NFTs*, BLOOMBERG LAW (Jul. 16, 2021), https://news.bloomberglaw.com/ip-law/what-copyright-lawyers-need-to-know-about-nfts.
[276] *See* discussion *infra* Section III.D.1.
[277] 17 U.S.C. § 201(d)(1) (2022).
[278] *Id.* § 202.

but not necessarily the owner of the copyright in the work.[279] The same applies when an NFT is involved so that buying an NFT alone does not confer any copyrights in the represented work.[280]

Copyright contract law is only partially harmonized in the EU,[281] so national law must be used to determine whether the author has granted rights in his or her work to another person. For example, under German law, owing to the moral rights involved, the copyright in a work as a whole cannot be transferred pursuant to Section 29(1) of the German Copyright Act,[282] but according to Section 29(2) of the German Copyright Act, the granting of rights for individual uses is possible.[283] The question of whether the transfer of the NFT grants rights of use in the represented work is to be determined based on the so called "Übertragungszwecklehre" set forth under Section 31(5) of the German Copyright Act.[284] This principle takes into account that rights in a work should remain with the author as far as possible, so that he or she can participate financially as fully as possible in the exploitation of the work.[285] Therefore, according to Section 31(5) of the German Copyright Act, if there is no express agreement, no further rights are

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[279] H.R. Rep., *supra* note 125, at 124; 3 NIMMER, *supra* note 73, § 10.09.
[280] *See* Lim, *supra* note 172, at 729; Carroll, *supra* note 205, at 1001; Michael D. Murray, *Transfers and Licensing of Copyrights to NFT Purchasers*, 6 STAN. J. BLOCKCHAIN L. & POL'Y 119, 124–25 (2023).
[281] AGNÈS LUCAS-SCHLOETTER, EUROPEAN COPYRIGHT LAW: A COMMENTARY, ¶ 1.18 (Michel Walter & Silke von Lewinski eds., 2010).
[282] § 29(1) UrhG ("Copyright is not transferrable, unless it is transferred in the execution of a testamentary disposition or to co-heirs as part of the partition of an estate.").
[283] § 29(2) UrhG ("The granting of rights of use (section 31), contractual authorisations and agreements based on exploitation rights, as well as contracts on the moral rights of authors as regulated under section 39 are permitted.").
[284] *See* § 31(5) UrhG ("If the types of use were not specifically designated when a right of use was granted, the types of use to which the right extends is determined in accordance with the purpose envisaged by both parties to the contract. A corresponding rule applies to the questions of whether a right of use has in fact been granted, whether it is a non-exclusive or an exclusive right of use, how far the right of use and the right to forbid extend, and to what limitations the right of use is subject.").
[285] BGH, Mar. 27, 2013, I ZR 9/12 ¶ 32 juris (Ger.) http://juris.bundesgerichtshof.de/cgi-bin/rechtsprechung/document.py?Gericht=bgh&Art=en&az=I%20ZR%209/12&nr=65630; ANSGAR OHLY, SCHRICKER/LOEWENHEIM, URHEBERRECHT – KOMMENTAR § 35 mn. 52–53 (Ulrich Loewenheim, Matthias Leistner & Ansgar Ohly eds., 6th ed. 2020).

granted than necessary to achieve the purpose of the agreement.[286] For the acquisition of a work in its original form, it is expressly stipulated in Section 44(1) of the German Copyright Act that, in case of doubt, no rights of use are granted to the buyer.[287] These restrictions on the transfer of rights apply all the more if not even the work itself is transferred, but only an NFT representing it, so that the acquisition of an NFT alone does not confer any rights of use in the work.[288]

Notwithstanding this, under US and German law, the seller of the NFT is free to expressly grant a buyer rights to the work represented by the NFT. This transfer of rights (respectively, the offer to enter into a corresponding agreement) can be included, for example, in the metadata or description of the NFT, smart contract, or terms of use of the trading platform.[289] For example, purchasers of a "Bored Ape" receive the rights for the commercial use of the ape graphic, especially for the sale of merchandising products.[290] This applies to the "CryptoKitties," but only up to a maximum annual gross revenue of USD 100,000.[291]

Two things should be noted here. The first concerns formal requirements for transferring rights in copyright-protected works. Under US law, as a general rule, contracts do not have to fulfill formal requirements, so they can be executed in writing or oral form, in ways that are expressed or implied.[292] However, Section 204(a) of the Copyright Act requires the transfer of copyright

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[286] § 31(5) UrhG.
[287] § 44(1) UrhG ("If the author sells the original of a work, then, in cases of doubt, he or she is not deemed to have granted a right of use to the buyer.").
[288] *See* Robert Heine & Felix Stang, *Weiterverkauf digitaler Werke mittels Non-Fungible-Token aus urheberrechtlicher Sicht,* 24 ZEITSCHRIFT FÜR IT-RECHT UND RECHT DER DIGITALISIERUNG [MMR] 755, 757 (2021); Nils Rauer & Alexander Bibi, *Non-fungible Tokens – Was können sie wirklich?,* 66 ZEITSCHRIFT FÜR URHEBER- UND MEDIENRECHT [ZUM] 20, 28–29 (2022).
[289] Murray, *supra* note 280, at 127–31.
[290] *Terms & Conditions*, BORED APE YACHT CLUB, https://boredapeyachtclub.com/#/terms (last visited Aug. 31, 2023).
[291] *Terms of Use*, CRYPTOKITTIES, https://www.cryptokitties.co/terms-of-use (last visited Aug. 31, 2023).
[292] Restatement (Second) of Contracts § 4 (Am. L. Inst. 1981).

ownership, which includes the assignment of a copyright and the grant of an exclusive license,[293] to be "in writing and signed by the owner of the rights conveyed or such owner's duly authorized agent."[294] The grant of a non-exclusive license does not have to fulfil these requirements. Notwithstanding this, the requirement set forth under Section 204(a) of the Copyright Act is also met when rights are transferred via smart contracts.[295]

German law is more liberal with respect to formal requirements. Here, no specific form is necessary for the transfer of rights in the copyright-protected work, except for rights for unknown uses when the contract was concluded.[296]

Second, it is not possible to acquire copyrights in good faith under both US[297] and German law.[298] Therefore, a purchaser can only acquire rights from the right holder, and not from an unauthorized third party, even if the latter claims to be the right holder. Although the person who created the NFT and transaction history can be traced on the blockchain, the existence of an NFT is not enough to create a prima facie case regarding the authorization to grant rights to the work represented by the NFT as anyone can create an NFT for a work. Therefore, even in the case of an express transfer of rights, an NFT acquirer only becomes the owner of the rights that the contracting party was entitled to grant.

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[293] 17 U.S.C. § 101 (2022).
[294] *Id.* § 204(a).
[295] Pech, *supra* note 18, at 45–46.
[296] *See* § 31a UrhG ("A contract in which the author grants rights in respect of unknown types of use, or in which the author undertakes to do so, must be drawn up in writing.").
[297] ISC-Bunker Ramo Corp. v. Altech, Inc., 765 F. Supp. 1310, 1331 (N.D. Ill. 1990) ("[T]here is no such thing as a bona fide purchase for value in copyright law.").
[298] BGH, Feb. 3, 2011, I ZR 129/08 ¶ 15 juris (Ger.) https://juris.bundesgerichtshof.de/cgi-bin/rechtsprechung/document.py?Gericht=bgh&Art=en&sid=c240473ce902091a3c31d2b83b53d186&nr=55366&pos=0&anz=1; OHLY, *supra* note 285, § 35 mn. 25.

The same applies to content that is not subject to copyright protection, to which no rights of use can be acquired, either. Many NFT collections, such as the "Bored Ape Yacht Club" or the "Cryptopunks," use individual graphics for each NFT; however, these are automatically generated from predetermined features.[299] Here, the question arises as to whether there is enough human involvement for copyright protection under US[300] and EU[301] law.

*2. Acquisition of Rights in the NFT*

As discussed above, the buyer of an NFT does not acquire any rights in the work represented unless such rights are expressly assigned to him. The question of whether the purchaser of an NFT acquires at least rights in the NFT itself is easy to answer as far as copyrights are concerned. As NFTs are typically not protected by copyright,[302] no rights of use can be acquired. Therefore, under US[303] and EU[304] law, the buyer of an NFT only receives the ability to access the token and transfer it to others.

*D. Participation of the Author in Proceeds from the Transfer*

As very high prices are paid for NFTs in some cases,[305] the question arises as to whether the author can participate in the proceeds of the resales of his or her works. This could be achieved via participation schemes coded into smart contracts (1) and statutory rights of participation (2).

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[299] *See* discussion *supra* I.A.
[300] *See* Michael D. Murray, *Generative and AI Authored Artworks and Copyright Law*, 45 HASTINGS COMM. & ENT. L.J. 27, 32 et seq. (2023).
[301] *See* Andres Guadamuz, *NFTs could have a generative art copyright problem* (Feb. 1, 2022) TECHNOLLAMA, https://www.technollama.co.uk/nfts-could-have-a-generative-art-copyright-problem.
[302] *See* discussion *supra* Section II.C.
[303] Murray, *supra* note 280, at 121.
[304] GARBERS-VON BOEHM, ET AL., *supra* note 62, at 22.
[305] *See* discussion *supra* I.A.

*1. Participation via Smart Contracts*

A smart contract linked to the NFT offers the possibility to include a participation option for the NFT creator in the event of a subsequent transfer of the token. This ensures that the creator automatically receives a share of the proceeds from the sale. For such "built-in royalties," it is not necessary that the buyer of the NFT also acquires any rights of use in the represented work. The creator of the NFT is also free to determine the amount he or she receives in the case of a subsequent transfer, but it may be that the NFT trading platforms set certain limits, as is the case with OpenSea with a maximum participation of 10%.[306] However, problems may arise when the represented work is not transferred using the underlying smart contract, but outside the blockchain. The same applies if the NFT is moved to another trading platform and sold there.[307] In addition, the royalties go to the creator of the NFT, who does not necessarily also have to be the author of the work represented by it.[308] For these reasons, besides the possibility of including participation schemes in smart contracts, statutory rights of participation may become relevant for authors.

*2. Statutory Rights of Participation*

Statutory rights of participation may arise from a resale right (a) or a contract adjustment mechanism (b).

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[306] *How do I set creator earnings on OpenSea?,* OPENSEA, https://support.opensea.io/hc/en-us/articles/14069267158035-How-do-I-set-creator-earnings-on-OpenSea- (last visited Aug. 31, 2023).
[307] *See* Dev, *Can NFT's generate royalties?*, MEDIUM (Nov. 1, 2021), https://medium.com/metapherse/can-nfts-generate-royalties-cc652dd432a9.
[308] GARBERS-VON BOEHM, ET AL., *supra* note 62, at 39.

*a. Resale Right*

In the EU, under Article 1(1) of the Resale Right Directive, the author of an original work of art has the right "to receive a royalty based on the sale price obtained for any resale of the work, subsequent to the first transfer of the work by the author."[309] This is known by the French term "droit de suite," which means the "right of following on." The resale right is an exception to the Exhaustion Principle under Article 4(2) of the Information Society Directive, wherein the author no longer has any control over the work after it has been sold for the first time.[310] The underlying idea is that the author of certain types of works can only exploit the work by selling the original and should therefore participate in the increase in the value of the work, which often only occurs over time.[311] As the author is in a weaker bargaining position, according to Article 1(1) of the Resale Right Directive, the resale right cannot be waived,[312] for example, in the terms of use of NFT trading platforms.

In contrast to participation via smart contracts, the resale right has an upper limit in terms of amount; according to Article 4(1) of the Resale Rights Directive, the participation may not exceed EUR 12,500.[313] Under Article 8(1) of the Resale Right Directive, the resale right is limited to the copyright term,[314] which is generally the life of the author plus 70 years.[315] In

[309] Resale Right Directive, *supra* note 244, at art. 1(1).
[310] *See* MICHEL M. WALTER, EUROPEAN COPYRIGHT LAW: A COMMENTARY, ¶ 10.0.7 (Michel Walter & Silke von Lewinski eds., 2010).
[311] *Id.* ¶ 10.0.5; Resale Right Directive, *supra* note 244, at recital 3.
[312] Resale Right Directive, *supra* note 244, at art. 1(1).
[313] *Id.* art. 4(1).
[314] *Id.* art. 8(1).
[315] Directive 2006/116/EC of the European Parliament and of the Council of 12 December 2006 on the term of protection of copyright and certain related rights, 2006 O.J. (L 372) 12, at art. 1(1).

contrast, the creator of the NFT and his or her heirs are in theory infinitely participating in further sales by resale royalties specified in a smart contract.[316]

According to Article 1(2) of the Resale Right Directive, the Directive applies to "all acts of resale involving as sellers, buyers or intermediaries art market professionals, such as salesrooms, art galleries and, in general, any dealers in works of art."[317] The term "art dealer" is to be interpreted broadly.[318] An own economic interest in the sale, for example in the form of a commission, is sufficient.[319] The resale right is not limited to sales through auction houses and art galleries, but applies to online sales via marketplaces.[320] Therefore, the resale right covers sales via NFT trading platforms, which typically receive a commission for the transactions processed.

Comparable to Article 5(3)(j) of the Information Society Directive,[321] Article 1(1) of the Resale Right Directive requires that the work be resold, whereas in the context of NFTs, it is often not the work itself that is sold, but the NFT representing it. However, irrespective of whether the transfer of the NFT grants the rights of use to the represented work,[322] here too, it could be argued that the provision can be applied in these cases owing to the close link between the work and the NFT.[323]

According to the wording of Article 1(1) of the Resale Right Directive, the original version of the work has to be resold, so that copies are excluded. However, under Article 2(2) of the Resale

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[316] Lee, *supra* note 273, at 35.
[317] Resale Right Directive, *supra* note 244, at art. 2(2).
[318] *See* WALTER, *supra* note 310, ¶ 10.1.7.
[319] *See id.*
[320] *See id.*
[321] *See* discussion *supra* Section III.B.2.a.
[322] *See* discussion *supra* Section III.C.1.
[323] *But see* GARBERS-VON BOEHM, ET AL., *supra* note 62, at 39.

Right Directive, "[c]opies of works of art . . ., which have been made in limited numbers by the artist himself or under his authority, shall be considered to be original works of art for the purposes of this Directive."[324] To be covered by the Directive "[s]uch copies will normally have been numbered, signed or otherwise duly authorised by the artist."[325] Examples include casts, prints, or copies that are offered by the artist in a limited edition.[326] The question as to whether an original exists must be based on the prevailing public perception in art circles.[327] Given the possibility of using NFTs to document the owner of the work and the close connection between an NFT and the work represented by it, one may argue that in this case a digital work could be original in the sense of Article 1(1) of the Resale Right Directive. However, as the author can create an unlimited number of NFTs for a work and works can be tokenized without the author's permission, even the representation by an NFT is not comparable to an original or copy produced in a limited edition.

In addition, Article 1(1) of the Resale Right Directive requires an embodiment of the work.[328] Digitally created works are not generally excluded from the scope of application, but it is necessary that their original be embodied in a physical data carrier. Even if the NFT should contain the represented work, such embodiment is missing.[329] Therefore, the application of the resale right to digital works not stored on a physical data carrier is not possible even if they are represented by an NFT.

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[324] Resale Right Directive, *supra* note 244, at art. 2(1).
[325] *Id.*
[326] *See* WALTER, *supra* note 310, ¶ 10.2.6.
[327] *See id.* ¶ 10.2.8.
[328] *See* Resale Right Directive, *supra* note 244, at recital 2 ("The subject-matter of the resale right is the physical work, namely the medium in which the protected work is incorporated.").
[329] GARBERS-VON BOEHM, ET AL., *supra* note 62, at 39; Bodo, et al., *supra* note 206, at 277.

Notwithstanding this, the resale right applies if a tangible work is represented by the NFT, for which the storage of a digital work on a data carrier is sufficient, for example, a JPG file saved on a USB stick. In this case, the statutory right under Article 1(1) of the Resale Right Directive exists in addition to any royalties stipulated in the relevant smart contract. However, the author is not entitled to both shares, but must have the royalties resulting from the smart contract credited against the resale right share.[330]

In US law, there is no federal resale right for artists. The Berne Convention contains an "inalienable right to an interest in any sale of the work subsequent to the first transfer by the author of the work" for "original works of art and original manuscripts of writers and composers."[331] However, the Berne Convention does not impose any obligation on its signatories to adopt a resale right.[332] Rather, the recognition of such a right is optional, while rewarded with reciprocal rights.[333] In the US, at the time of writing, only California had enacted a resale right through the California Resale Royalty Act (CRRA) in 1977.[334] Under CRRA, a seller of a work of fine art must pay the artist 5% of the sale price if the seller is a resident of or the sale takes place in California.[335] Here, too, the idea behind the provision is that unlike other authors who derive their primary economic return through the sale of multiple copies of their works, artists receive most of their income from the sale of the original work they create.[336]

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[330] GARBERS-VON BOEHM, ET AL., *supra* note 62, at 39.
[331] Berne Convention for the Protection of Literary and Artistic Works art. 14ter(1), Sept. 9, 1886, as amended Sept. 28, 1979, S. Treaty Doc. No. 9927 (1986).
[332] 2 NIMMER, *supra* note 73, at § 8C.15.
[333] *See* Berne Convention, *supra* note 331, at art. 14ter(2).
[334] 2 NIMMER, *supra* note 73, at § 8C.16.
[335] Cal. Civ. Code § 986(a).
[336] 2 NIMMER, *supra* note 73, at § 8C.15.

Regardless of whether California's resale right applies to digital works, CRRA's territorial and temporal scope of application are narrow and thus not relevant for NFTs.

In *Sam Francis Foundation v. Christies*, the Court of Appeals for the Ninth Circuit ruled that the royalty requirement, as far as applied to out-of-state sales by California residents, violates the dormant Commerce Clause.[337] However, because the invalid clause is "grammatically, functionally, and volitionally separable," the Court upheld the remainder of CRRA and applied it to in-state sales alone.[338]

In 2018, only a couple of years later, in *Close v. Sotheby's.* the Court held that California's resale right was not preempted by the Copyright Act of 1909,[339] but by the Copyright Act of 1976, under Section 301(a) of the Copyright Act, because it interferes with the First Sale Doctrine set forth in Section 109(a) of the Copyright Act.[340] Thus, the resale right is only valid for sales in the short period between January 1 and December 31, 1977, and does not apply to the sale of NFTs that took place for the first time in around 2017.[341]

Notwithstanding this, the question arises as to whether a contractual provision containing royalties for subsequent sales could be preempted. The issue of whether participation schemes in smart contracts are contractual rules or just lines of code can be left open here. As contracts are only effective between the contracting parties, they do not create rights that "are equivalent to any of the exclusive rights within the general scope of copyright"[342] and therefore are not

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[337] *See* Sam Francis Found. v. Christies, 784 F.3d 1320, 1323 (9th Cir. 2015).
[338] *Id.* at 1325.
[339] *See* Close v. Sotheby's, Inc., 894 F.3d 1061, 1072–74 (9th Cir. 2018).
[340] *See id.* at 1069-72.
[341] *See* discussion *supra* I.A.
[342] 17 U.S.C. 301(a) (2022).

preempted under Section 301(a) of the Copyright Act.[343] Thus, royalties for sales in the secondary market included in smart contracts are possible.[344]

*b. Contract Adjustment Mechanism*

Article 20(1) of the Digital Single Market Directive[345] provides that "authors […] are entitled to claim additional, appropriate and fair remuneration from the party with whom they entered into a contract for the exploitation of their rights, or from the successors in title of such party, when the remuneration originally agreed turns out to be disproportionately low compared to all the subsequent relevant revenues derived from the exploitation of the works […]."[346] Under US law, there is no contract adjustment mechanism that is comparable to Article 20(1) of the Digital Single Market Directive.

The reason behind the EU's regulation is that authors are often in a weaker negotiating position when they grant rights to their works to companies that exploit them.[347] Therefore, the waiver of the contract adjustment mechanism, for example, in the terms of use of the NFT trading platforms, is not possible under Article 23(1) of the Digital Single Market Directive.

According to Article 20(1) of the Digital Single Market Directive, the use of the work must be based on a contractual basis. Thus, a use covered solely by exceptions and limitations or the acquisition of a copy of the work without any contractual rights of use is not sufficient. In the

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[343] *See* ProCD, Inc. v. Zeidenberg, 86 F.3d 1447, 1454–55 (7th Cir. 1996); Guy A. Rub, *Against Copyright Customization*, 107 IOWA L. REV. 677, 739 (2022).
[344] Helman & Tur-Sinai, *supra* note 61, at 17. Left open by Murray, *supra* note 280, at 134 n. 35.
[345] Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on Copyright and Related Rights in the Digital Single Market and Amending Directives 96/9/EC and 2001/29/EC, 2019 O.J. (L 139) 92 [hereinafter Digital Single Market Directive].
[346] *Id.* art. 20(1).
[347] *Id.* recital 72.

context of NFTs, the contract adjustment mechanism therefore only applies if the purchase of the NFT includes the granting of rights to use the represented work.[348]

In addition, it is necessary for an imbalance between the author's remuneration and revenues derived from the exploitation of the works by the exploiter. The term renumeration should be understood broadly, including any benefits with economic value, so that the payment of the NFT with a cryptocurrency is covered.

Revenues generated by the exploiter must also be understood broadly and include all economic benefits from the use of the work. Article 20(1) of the Digital Single Market Directive is applicable to revenues from the exploitation of the represented work in line with the rights of use granted, for example, in the case of the sale of merchandise. However, the proceeds from the resale of an NFT are only covered if use rights in the represented work are also transferred to the purchaser. This results from the fact that the transfer of an NFT does not itself affect any rights of the author,[349] so there is no use of the work based on the contractual granting of rights of use. Irrespective of whether the possibility of advertising an NFT constitutes a relevant value-creating factor, these acts accompanying the transfer are generally covered by Article 5(3)(j) of the Information Society Directive.[350] Therefore, because these acts are not based on a contractual grant of rights, Article 20(1) of the Digital Single Market Directive does not apply.

## IV. CONCLUSION

NFTs provide artists with new opportunities to market their works, especially in the case of digital art. However, it remains to be seen whether the hype is short-lived or the art market will

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[348] *See* discussion *supra* III.C.1.
[349] *See* discussion *supra* Section III.B.1.
[350] *See* discussion *supra* Section III.B.2.a.

change permanently and NFTs will establish themselves as a serious form of marketing for artworks.

The analysis showed that even if the assets represented by NFTs are copyright protected, the creation of an NFT only affects the exclusive rights in the represented work if the work itself is stored on the blockchain. However, this is the case with very few NFTs, as they typically only contain the metadata of the represented work. Moral rights are not affected in most cases. The situation is different for acts accompanying the creation of the NFT, such as the posting of a work on the Internet to use its metadata for an NFT. The transfer of an NFT does not infringe any exclusive rights, even if the represented work is included in it. Here, too, however, acts accompanying the transfer such as the advertising of the NFT or the work and the transfer of the represented work may affect the rights of the author of the represented work. Although the author can participate in the proceeds of the resale of his works via smart contracts, there is no statutory resale right that applies for digital art. In the EU, a claim to reasonable remuneration only exists if the rights of use to the represented work have been transferred.

The unauthorized creation and transfer of an NFT has a negative impact on the author of the work represented by the token. This can reduce the value of an NFT already created by the author or make the future marketing of an NFT issued by the author tougher. Even if the author does not sell his or her works in the form of NFTs, he or she may lose revenues from unauthorized NFTs if potential buyers decide to purchase the work in the form of an NFT from a non-authorized party. Thus, the question arises as to whether the legislators in the US and EU should add a new right that gives the author an exclusive right to “mint” and transfer an NFT for his or her work.

According to the Intellectual Property Clause of the US Constitution, copyright law should "promote the progress of science and useful arts."[351] In *Twentieth Century Music Corp. v. Aiken*, the Supreme Court clarified that while "[t]he immediate effect of our copyright law is to secure a fair return for an 'author's' creative labor . . . the ultimate aim is, by this incentive, to stimulate artistic creativity for the general public good."[352] Therefore, copyright law must provide incentives for authors to create works and also ensure that the public has access to them. Striking a balance among the different interests is essential, so that the rights granted to the author are neither too narrow, nor too far-reaching.[353] Although EU copyright law is based on the "droit d'auteur" approach, which focuses more on protecting the author's relationship with his or her work than on their commercial exploitation, a utilitarian view is also taken into account.[354]

The creation of an "NFT right" would most likely not impede innovation. Even if only the author of the work has the right to create and transfer an NFT based on the work, access to creative works would not be limited.[355] By contrast, NFTs can provide incentives to create works by increasing their tradability, especially for digital art. [356]

One argument against the creation of an "NFT right" could be that the protection of the author could be achieved by prohibiting acts accompanying the creation and transfer of an NFT, like uploading a file containing the work onto the Internet and using an image of the work for

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[351] U.S. CONST. art. I, § 8, cl. 8.
[352] Twentieth Century Music Corp. v. Aiken, 422 U.S. 151, 156 (1975).
[353] *See* Andy Warhol Found. for Visual Arts, Inc. v. Goldsmith, 598 U.S. ___ (2023).
[354] *See, e.g.,* Information Society Directive, *supra* note 50, recital 4 ("A harmonised legal framework on copyright and related rights, through increased legal certainty and while providing for a high level of protection of intellectual property, will foster substantial investment in creativity and innovation, including network infrastructure, and lead in turn to growth and increased competitiveness of European industry, both in the area of content provision and information technology and more generally across a wide range of industrial and cultural sectors. This will safeguard employment and encourage new job creation.").
[355] Helman & Tur-Sinai, *supra* note 61, at 20.
[356] *Id.;* Carroll, *supra* note 205, at 1007.

advertising the NFT. However, "focusing on the incidental features of a technology tool rather than deciding on the core technology itself may yield an inefficient result."[357] In this context it should also be noted that the aforementioned accompanying acts are not essential for creating and transferring NFTs and can be avoided, for example, by "minting" a work that is already available on the Internet or advertising an NFT by using a hyperlink to the work instead of an image of the work itself.

Copyright law should be technology-neutral so as not to be outdated owing to rapid changes in technology.[358] This could happen with a right that regulates the "minting" and transfer of NFTs as blockchain technology in general and NFTs in particular are fast-evolving areas.[359]

Regulating the creation and transfer of an NFT would be inconsistent with the extant copyright system. The exclusive rights of the author, such as the right to reproduction, distribution, display, or communication to the public, all involve a direct use of the work. If an NFT contains only the metadata of the represented work, the work itself is not used, but only its identifying features. This is illustrated by a comparison with the creation of a proof of ownership for a physical work, such as an oil painting, in which the work is described and identifies the owner of the work. This proof of ownership can create disadvantages for the author in the event of unauthorized use, but its creation and transfer are not subject to any copyright.

However, given the disadvantages of unauthorized NFTs for authors, they should not remain unprotected, and are rightfully not. In the US, there is a possible protection through the

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[357] Helman & Tur-Sinai, *supra* note 61, at 36.
[358] *See, e.g.* Tomas A. Lipinski, *The Myth of Technological Neutrality in Copyright and the Rights of Institutional Users: Recent Legal Challenges to the Information Organization as Mediator and the Impact of the DMCA, WIPO, and TEACH*, 54 J. AM. SOC'Y INFO. SCI. & TECH., 824–825 (2003) ("hallmark of the copyright law").
[359] Helman & Tur-Sinai, *supra* note 61, at 35.

Misappropriation Doctrine,[360] which has been developed by the Supreme Court in *International News Service v. Associated Press*.[361] The case was about a news service taking news from a competitor and selling them to its customers[362] and the Court established a "quasi-property right" for news not protected by copyright law owing to the effort involved in the collection process and the idea of "reaping without sowing."[363] There is also protection against unauthorized NFTs in the EU. Under German law, for example, the right to the author's name and unfair competition law can be invoked to protect authors from the unauthorized tokenization of their works.[364] Thus, introducing an "NFT right" into copyright law that gives the author an exclusive right to "mint" and transfer an NFT for his or her work is neither advisable nor necessary.

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[360] For more, *see id.* at 39–42 ("Unauthorized minting seems to be a good candidate for an application of the misappropriation doctrine.").
[361] Int'l News Serv. v. AP, 248 U.S. 215 (1918).
[362] *See id.*, at 216–218.
[363] *See id.*, at 221 ("In doing this defendant, by its very act, admits that it is taking material that has been acquired by complainant as the result of organization and the expenditure of labor, skill, and money, and which is salable by complainant for money, and that defendant in appropriating it and selling it as its own is endeavoring to reap where it has not sown, and by disposing of it to newspapers that are competitors of complainant's members is appropriating to itself the harvest those who have sown.").
[364] For more *see* Sebastian Pech, *Rechtliche Verteidigungsmöglichkeiten gegen unautorisierte NFTs* (forthcoming).