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XIII The emperor's new collectibles

Balázs Bodó and Joost Poort

I. Introduction

Now that towards the end of 2023, the stardust of the NFT frenzy has settled[1] and many of the virtual NFT millionaires have plunged back to Earth, it is a good moment to take stock of what NFTs and the blockchain can and cannot mean for the cultural and creative industries (CCIs) and for copyright.

Over the past years, NFTs have by some been predicted to revolutionize the markets for arts and copyright protected works. In short, the vision was that on the basis of unique, blockchain based tokens, and through their automated exchange, an extension or even a replacement of the traditional art markets, and the copyright-based system of production, circulation and use of cultural works could emerge. Currently, however, the state of the NFT ecosystem can be summarized as an in some sense failed experiment.

This chapter starts by unpacking what we consider the four broken promises of NFTs vis-à-vis the CCIs and copyright. We briefly describe the technological underpinning of these promises and why they were broken. Subsequently, we discuss whether there may still be a future for NFTs as a new asset class related to creative output.

II. The four broken promises of NFTs

We distinguish four promises with increasing boldness, linked to the technological characteristics of NFTs:

1 *E.g.* Maya Yang, 'The Vast Majority of NFTs Are Now Worthless, New Report Shows' (*The Guardian*, 22 September 2023), available at <www.theguardian.com/technology/2023/sep/22/nfts-worthless-price>. According to a report by dappGambl discussed here, around 95 percent of NFT collections analysed currently have zero market value, while 79 percent of collections have remained unsold.

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1. NFTs, as blockchain based, immutable metadata, could create a digital representation of both tangible artworks and the intangible intellectual property rights associated with them.[2]
2. These digital representations could be automatically exchanged, bought, and sold or licensed via smart-contract-based marketplaces, promising benefits such as low transaction costs, automatic royalties after subsequent sales, automatic licensing, etc.[3]
3. As these smart contracts could be run in a fully decentralized manner, NFTs offered a disintermediated market for arts and copyrighted works, where the power held by the traditional intermediaries, such as auction houses, galleries, art dealers, and collective management organizations (CMOs) would be diminished, their fees eliminated, and their symbolic power over cultural canons reduced.[4]
4. As a corollary, the copyright framework itself would lose significance, as most, if not all of its functions could be taken over by these automated systems, which could handle sales, monitor use, and take care of licensing, remuneration, distribution, and other copyright relevant acts: 'private ordering' via blockchain based systems would gradually replace copyright.[5]

All these aspirations have failed so far. On the first promise: despite several efforts,[6] there are still no comprehensive metadata standards which could in practice adequately represent an artistic creation within the blockchain ecosystem. As we have shown elsewhere, trying to map the complex bundle of rights associated with an artistic creation (sound recording, public performance, movie) onto a metadata schema which then could be used by smart contracts to automate various aspects in the circulation of artistic creations from attribution, via licensing to sales, is an incredibly complex task.[7]

One may argue that such a full mapping of all copyrights into NFTs is not strictly necessary, if, and as long as the artworks represented by NFTs

2 Coala Working Group on Intellectual Property, 'How Blockchains Can Support, Complement, Or Supplement Intellectual Property' [2016], available at <www.intgovforum.org/en/filedepot_download/4307/529>.

3 Balázs Bodó, Daniel Gervais & João Pedro Quintais, 'Blockchain and Smart Contracts: The Missing Link in Copyright Licensing?' [2018] 26 International Journal of Law and Information Technology, 311.

4 Tonya M. Evans, 'De-Gentrified Black Genius: Blockchain, Copyright, and the Disintermediation of Creativity Hindsight Is 2020: A Look at Unresolved Issues in Music Copyright' [2022] 49 Pepp. L. Rev., 649.

5 Michèle Finck & Valentina Moscon, 'Copyright Law on Blockchains: Between New Forms of Rights Administration and Digital Rights Management 2.0' [2019] 50 IIC, 77.

6 Such as the ERC-5554 Ethereum improvement proposal (<https://eips.ethereum.org/EIPS/eip-5554>), or <https://github.com/COALAIP>.

7 Bodó, Gervais & Quintais, footnote 3.

are simple (such as a single-authored image), and the transactions are limited to a few basic types (such as sales). But even if most artworks in the NFT ecosystem are indeed simple in copyright terms, and their uses are also limited to a few basic cases (sales, or communication to the public via the internet without geographic or temporal limitations), NFTs are still lacking a metadata schema which would be able to reliably describe even these simple applications. The currently used ERC-721 NFT standard[8] does not prescribe any artwork relevant metadata (such as author, title, etc.) and as a result, many NFTs are lacking even the most basic information which would help in establishing the link between the physical or digital artwork, and its NFT representation.

The lack of a good metadata-scheme and the lack of quality metadata implies breaking the second promise, as it limits the practical possibilities at the smart contract layer, which could automate and facilitate the circulation, use, and remuneration of both the representations and the actual works. The simplest form of transaction, namely the sales of an NFT, corresponds to the basic functionality of any blockchain-based system, designed to tally the movement of virtual tokens between addresses representing owners, *i.e.*: buyers and sellers. A bit more complex, but still trivial functionality could have been the ability to trace subsequent sales of the same NFT, resulting in an automated, self-enforcing droit de suite, redirecting a certain percentage of subsequent sales to the original creator. However, the lack of a universally accepted metadata schema to register, for example, the actual percentages to be redirected to the creator, resulted in a fragmented landscape in which certain marketplaces implemented such functionality, while others did not. In a recent piece of news, one of the biggest NFT marketplaces, OpenSea announced that it will stop the enforcement of its own resale fee system,[9] citing lack of enforcement from other players, and adding the rather curious libertarian argument that remunerating original authors for each resale presents an unnecessary restriction on buyers' expectations of what NFT ownership means.

This development points to two fundamental issues that shape the implementation of code-based systems regulating decentralized markets of any asset type. On the one hand, rules and standards need to be respected and implemented universally, otherwise those who enforce some rules (however beneficial they may be for some stakeholders) can, and usually will be bypassed by competitors. In a way, bad marketplaces drive out good. On the other hand, it is also clear that such systems act as battlegrounds for different ideological, normative approaches to how such marketplaces should be organized. While the copyright system, with its droit de suite acknowledges that creators should benefit from the growing appreciation of their works

8 See <https://ethereum.org/en/developers/docs/standards/tokens/erc-721/>.
9 See <https://opensea.io/blog/articles/creator-fees-update>.

over time, the libertarian ideology that still permeates the blockchain ecosystem prioritizes the interests of the current owner, and turns a blind eye to the interests of creators.

The announcement of OpenSea mentioned earlier also highlights the limitations of the third theoretical promise of NFT ecosystems, namely disintermediation and decentralization. The issue of disintermediation has been raised and failed to be solved in two distinct arenas: the decentralization of blockchain based marketplaces, and the disintermediation of traditional copyright institutions. Let's visit these two issues separately.

The marketplace of blockchain based assets in practice takes the form of a smart contract. Such a smart contract can be designed in a manner so that anyone who is communicating with the blockchain can initiate transactions at will, and no entity, not even the developer and maintainer of the smart contract, can interfere with how users interact with the system beyond the initial design. There are some smart contracts structured in that way: in the case of some Decentralized Finance services,[10] or services which facilitate dubious uses (such as tumblers[11]) there is a strong incentive to separate the role of the service developer from the role of operator, who exercises direct control over the operation of the smart contract. In the NFT ecosystem such separation of powers never really happened. The big NFT marketplaces are in fact centralized marketplaces, which, while interacting with a decentralized smart contract in the background, conduct most of their operations in a non-blockchain based, and centralized manner. This also means that most of the services they provide, such as fraud detection, metadata validation, or (as in the previous case) resale royalty enforcement, takes place via their centralized services. Only the most necessary transactions are recorded on the blockchain due to cost, speed, and other efficiency reasons. Though it would

10 Permissionless, decentralized exchanges such as Curve (<https://curve.fi/>) or Uniswap (https://uniswap.org/) try to implement fully decentralized architectures, meaning that only the rules encoded in the smart contract apply to the operation of the service, and there is no need to use any centralized service layer or interface to interact with it. Such decentralization reduces the possibility of exercising arbitrary powers at the centralized layer, but of course provides no protection against bugs in the smart contract layer, as curve users learned the hard way when the protocol was hacked and funds were lost due to a bug. See <www.coindesk.com/business/2023/07/30/curve-finance-exploit-puts-100m-worth-of-crypto-at-risk/>.

11 Tumblers, such as Tornado Cash, are services which allow users to mix their funds with the funds of others, thereby erasing the money trail recorded on the blockchain. While such a service has legitimate uses with regards to user anonymity and privacy, it is also used by those who try to erase the trails of their criminal activities. Criminal use of tumblers for money laundering makes tumblers the prime target of law enforcement agencies. Because of such high legal risks, tumblers tend to operate in a completely decentralized manner to sever liability links between criminal uses, the service, and those who developed it. These efforts, however, are not always successful, as we discussed in Tom Barbereau & Balázs Bodó, 'Beyond Financial Regulation of Crypto-Asset Wallet Software: In Search of Secondary Liability' [2023] 49 Computer Law & Security Review, 105829.

be possible to build fully decentralized, disintermediated marketplaces, in practice the NFT ecosystem – just like other parts of the blockchain-based ecosystems – is dominated by a handful of centralized players, who exercise unilateral control over the conditions on the marketplace. This is not the theoretically promised and ideologically desired decentralization and disintermediation, but rather, the complete opposite: the replacement of an established generation of institutions governing art markets by a new, elusive, and potentially even more centralized one.

The second domain in which the question of disintermediation must be raised is the relationship between the blockchain based circulation of artworks and the copyright governed domain. We have already raised elsewhere[12] that unless the blockchain based world can be kept hermetically isolated from the rest of the world, the issue of keeping the on-chain reality in sync with the off-chain reality must be somehow addressed. As long as the same copyrighted work can be transacted both via paper contracts falling under the international copyright regime, and also on-chain, via centralized blockchain marketplaces, or decentralized smart contracts, conflicts might arise: the same rights or uses may be sold exclusively in the two channels to different actors, rightsholders might change, which may or may not get recorded online, etc. The ability to keep the two channels aligned so they reflect the same reality is an absolute must if the new, blockchain based systems hope to have any claim to be a source of authoritative information. However, due to the pre-existence and dominance of the copyright regime, only traditional institutions, such as labels, or collective rights management organizations are in the position to verify and authenticate on-chain information. Rather than disintermediating the art market, the issue of synchronicity requires more complexity and more institutions to be added on top of the emerging blockchain based set of intermediaries. The reluctance of the traditional copyright institutions to act as oracles – external sources of truth in the blockchain ecosystem – is notable and a showstopper for most applications.

This leads us to the fourth and last broken promise: the supposed loss of relevance of the copyright system, and of law in general, in the NFT domain. Much ink has been spilled over how code could replace law in a distributed, smart-contract based techno-social environment.[13] It is only now that blockchain users and developers start to realize that there is no effective conflict

12 Bodó, Gervais & Quintais, footnote 3.

13 See Primavera De Filippi & Samer Hassan, 'Blockchain Technology as a Regulatory Technology: From Code Is Law to Law Is Code' [2018] arXiv preprint arXiv, 1801.02507; Aaron Wright & Primavera De Filippi, 'Decentralized Blockchain Technology and the Rise of Lex Cryptographia' (SSRN, 2015), available at <https://ssrn.com/abstract=2580664>.

Primavera De Filippi & Aaron Wright, *Blockchain and the Law. The Rule of Code* (Harvard University Press 2018); for the most naïve, expositions of that thesis, and a rebuttal at João Pedro Quintais *et al*, 'Blockchain and The Law: A Critical Evaluation' (Book Review) [2019] 2 Stanford Journal of Blockchain Law & Policy João Pedro, available at <https://stanford-jblp.pubpub.org/pub/blockchain-and-law-evaluation>.

resolution regime in the blockchain ecosystem, despite the fact that conflicts constantly arise, often with highly serious financial consequences. If user funds are lost, either because of fraud or because of a simple bug in the code; if the same artwork is minted by two different individuals; if users' private keys are lost, there are no higher authorities to turn to, and there is often no recourse, unless some of the fundamental principles of blockchains, such as transaction immutability or decentralization, are violated. For this reason, it has become more common in recent years to invoke traditional public authorities such as the police and courts to resolve on-chain conflicts and pursue fraud, crime, etc. In an environment where smart contracts cannot handle contract incompleteness, where the malicious exploitation of sub-par code is ubiquitous, where there are high financial stakes, and which lacks effective governance institutions to adjudicate conflicts and enforce resolutions, law can only become more important. This rule also applies to the NFT ecosystem, where courts in the US, UK and in several EU countries see more and more NFT related lawsuits referring to intellectual property regulations.[14]

III. NFTs as a new asset class

Looking at the pieces of the four broken promises described in the previous section, we may ask the following question: does the blockchain ecosystem have anything to offer to the art world and the copyright dependent industries? Or is the NFT ecosystem just another blockchain based asset class, unique in some sense compared to other crypto assets,[15] such as utility tokens or cryptocurrencies, but essentially behaving like any other virtual crypto asset, rather than how the art markets operate? In this section we will analyze whether there may still be a future for NFTs and the blockchain vis-à-vis these markets and industries.

14 Notable cases include a US trademark dispute between Yuga Labs and the artist Ryder Ripps over the latter re-minting the Bored Apes collection as a form of critique (*Yuga Labs, Inc. v. Ripps*, 2:22-cv-04355 (C.D. Cal. 21 April 2023) ECF No. 225); another US trademark dispute between the luxury brand Hermes and the artist Mason Rothschild who created MetaBirkin virtual bags to be used in the Metaverse (*Hermes International v. Rothschild* (1:22-cv-00384)). In Spain a copyright case between the clothing brand Mango and VEGAP, the collecting society representing visual artists, was decided by a Barcelona court about the use of copyright works by Mango in their metaverse exhibition (AJM B 1900/2022 – ECLI:ES:JMB:2022:1900A and SJM B 1/2024 – ECLI:ES:JMB:2024:1). It is notable that in the first case, two crypto-native players took their conflict to court, after having fought their conflict through the NFT marketplaces. Yuga Labs tried and failed to get Ripps' NFTs removed by the platform – highlighting the power centralized marketplaces have, and smart contracts alone are lacking over the circulation of objects, and resolution of conflicts.

15 It is exactly the potential link to art, creativity, and the art world which could have made NFTs unique compared to other blockchain based assets which apart from a few exceptions (such as stablecoins tethered to real world assets, or tokenized financial assets) have no real-world counterpart, or connection.

III.1. Where do NFTs fit in?

So far in this chapter, we have referred to the arts market and the cultural and creative industries as a rather monolithic concept, whereas in fact there is an underlying diversity which is essential to acknowledge in order to understand the role of copyright in these industries, as well as the potential role for NFTs. For our purposes, it is useful to distinguish between the *market for unique works of art* on the one end, and the *market for copies* on the other, even if some types of art, such as lithographs and etches, occupy a space somewhere between these two extremes.

Paintings and sculptures are the typical examples when thinking about the *market for unique works* of art. For such artworks, authenticity is a crucial requirement, particularly in the higher price regions. Surely, a work will in general derive value from its artistic attractiveness or quality and the craftsmanship it shows, but a painting attributed to Rembrandt will lose most of its value if the expert consensus shifts to attributing it to one of his students. To copy a Rembrandt and try to sell it as a Rembrandt is fraud; to sell it under one's own name is no crime but will likely be considered kitsch.

So far, copyright has no role to play here. In their seminal article on the economic foundations of copyright, Landes and Posner identify the crucial relevance of the preference in the market for originals on the one hand, and the cost advantage of the initial creator in comparison to copiers on the other. They write:

> To generalize, when either the cost of making equivalent copies is higher for the copier than for the creator or the copier's product is a poor substitute for the original, the originator will be able to charge a price greater than his marginal cost, even without legal protection. And, obviously, the greater the difference in the costs of making copies and in the quality of copies between creator and copier . . ., the less need there is for copyright protection.[16]

Following this logic, in arts markets where authenticity is highly valued and can be determined, and the costs of reproduction are typically rather high, the need for copyright to protect the work itself is very limited if not entirely absent.

This is different for derivative works. If a painting or sculpture is still under copyright and the owner of the rights is the only one authorized to make and sell posters, mugs, and fridge magnets depicting it, copycats may spoil this market for derivate works by illegally selling their own. For these,

16 William M. Landes & Richard A. Posner, 'An Economic Analysis of Copyright Law' [1989] 18(2) The Journal of Legal Studies, 325–363, available at <www.jstor.org/stable/3085624> (quote on page 329).

the cost advantage for the creator or rightsholder is likely limited while the substitutability of authorized merchandise by counterfeits will be very high.

The *market for copies* is similar in this respect. When thinking about mass market cultural products such as books, recorded music, and audiovisual works, the market value of authenticity is low and may be non-existent for digital versions of works (e-books, music files, or video files). What is worse, there is no cost advantage of the initial creator to produce copies in the digital realm either. Together, this implies that unauthorized reproduction and distribution – aka piracy – can be a serious threat.[17]

What is special about NFTs is that they re-introduce some sort of authenticity – and thereby potentially scarcity – in the digital realm. In itself, this does not add anything to the copyright protection required for unique material works of art (virtually none). Neither does it help against digital piracy in the market for copies: if someone wants to enjoy a digital book, or music or video file without paying for it, trading authentic copies of it on a publicly available blockchain is not exactly going to help. Therefore, at these two extremes of the spectrum, the role and need for copyright is not altered by the introduction of NFTs, while in the previous section we explained that NFTs and the blockchain will not be a substitute for copyright either.

Yet to the extent consumers value a sense of authenticity of digital copies, NFTs can fulfil a (tacit) need that previously has not been met in the digital realm. On the one hand, what most NFTs encapsulate are images, which as such are infinitely reproducible. Usually they are digital native images without a unique physical original, but they can also be derivative works such as video stills from famous movies or digital reproductions of famous works of art. Since the NFT technology stack is not a DRM technology, these images are not unique in a strict technical sense, as was explained earlier. By design they are freely accessible on the internet and circulate exactly as any other image on the web.

On the other hand, the NFT representation of the image is kind of unique. Unique in the sense that an NFT token can be unique, and represent an image, but that needs to be qualified by the fact that the authenticity of an NFT can be hard to establish, and there have been several examples of cloned and fraudulently issued NFT tokens.[18] In a way, NFTs can serve as the digital counterpart of lithographs and etches that were briefly mentioned at the beginning of this section: they feature somewhere between unique works of art and mass market copies and can be thought of as 'authentic copies'. As such, they can be produced and sold as collectibles. In addition to this, they

17 For a broader perspective on the many aspects of digital piracy see Joost Poort & Balázs Bodó, 'Bellwethers of Change: Book Piracy in Context' in C. Bläsi & C. Wolff (eds), *Age of Access? Fundamental Issues of Information Society* (forthcoming 2024).

18 See <www.theverge.com/2021/3/20/22334527/nft-scams-artists-opensea-rarible-marble-cards-fraud-art>.

can serve to support the sale of images – or more generally 'digital works' – whose copyright status is questionable or that are clearly outside the domain of copyright, for instance AI generated images, Virtual Reality items, and sport cards.

An important difference with lithographs and etches, however, is that the latter 'authentic copies' are limited in number, as further copies deteriorate in quality, while the owner of the 'negative' (the original stone or metal plate) controls production. In the NFT world, the number of authentic copies can be practically unlimited, while there is no control over who mints them. Nevertheless, the uniqueness of the *token* has the potential to make the marketplace of NFTs more like the *market for unique works of art*, while the ubiquity of the underlying image rather resembles the *market for copies*.

III.2. Value propositions in NFTs

What makes an NFT valuable? From an economic perspective, the value of an NFT is the outcome of market forces, of supply and demand, and where the twain shall meet. A few years ago, that *market value* was in some cases astronomical, while more recently it fell in many cases to zero. As an extension of that economic perspective, a lower bound to the market value of an asset may be the *use value* in terms of the cash flow it generates for its owner, while an upper bound may be the replacement or *reproduction value*.[19] For truly unique or irreproducible assets, the latter perspective is of no use, while in general an NFT does not generate cash flows or direct use value. As Oscar Wilde had it, 'all art is quite useless',[20] which also rules out the cash flow approach to valuation. From an economic perspective, there is nothing more one can do than to follow a market value approach, in all the volatility markets have shown, without the safety nets of upper or lower bounds constituted by the other approaches and risking meeting Oscar Wilde's definition of a cynic, 'who knows the price of everything and the value of nothing'.[21]

But market values are not just volatile, they are also uncertain and potentially misleading. In theory, there are the price signals of past transactions. Blockchains make most transactions transparent, at least in terms of price, as due to the built-in anonymity features of the technology the personal identities of the buyer and the seller often remain a mystery. The NFT marketplace, however, suffers from the problem of novelty, meaning that most price histories are rather short, and consist of only one or two transactions, which makes individual price signals not very reliable. The creation of NFT

19 For a slightly more extensive discussion of economic perspectives on valuation of (intangible) assets, see Marco Kerste, Joost Poort & Nico van Eijk, 'Valuing Commercial Radio Licences' [2015] 39(2) European Journal of Law and Economics, 331–353, available at <https://doi.org/10.1007/s10657-012-9348-x>.

20 In Oscar Wilde, The Picture of Dorian Gray (1891).

21 Lord Darlington in Oscar Wilde, *Lady Windermere's Fan* (1892).

collections rather than individual artworks (as is very common) offers a solution to this problem. Given sufficient similarity between different unique artworks in a collection, the demand for a new piece can be inferred from the demand for all other pieces in the collection. Several empirical studies have shown that this is indeed the case: the price of an individual item in a collection is best predicted by the prices of the other items.[22] This observation so far has nothing new to offer. But combine that with the possibility of anonymous transactions and an insidious market manipulation opportunity opens up: sellers can and do manipulate price signals by wash trading,[23] or pump and dump schemes by creating a fictious trail of increasing prices in the collection by being simultaneously on the buyer and the seller side of the transactions around a few key items in a collection.

Looking beyond the hard reality of markets, in search for what might be the intrinsic value of an NFT, one must acknowledge that intrinsic value is an intersubjective rather than an objective concept. Nevertheless, one may search for the intrinsic quality that the market value of an NFT may derive from. The NFT discourse likes to stress the uniqueness as a defining factor, even arguing that the value of an NFT of a physical diamond (if destroyed) should be nothing less than that of the original diamond the NFT should represent.[24] From the perspective that both are equally useless and equally unique, there may be a point here. Yet there is more to the value of art beyond its uniqueness. By all accounts, the value of an artwork is defined by all the discourses it is embedded in. Its intrinsic qualities, such as its execution, history, provenance, rarity; its social value, such as its alignment with the naturally emerging and carefully curated social, political, cultural trends of the day, institutional recognition or neglect, local historic relevance, global recognition and popularity, and the status art ownership can convey through

22 Roman Kräussl & Alessandro Tugnetti, 'Non-Fungible Tokens (NFTs): A Review of Pricing Determinants, Applications and Opportunities' (*SSRN*, 2022), available at <https://papers.ssrn.com/abstract=4112429>; Bryan White, Aniket Mahanti & Kalpdrum Passi, 'Characterizing the OpenSea NFT Marketplace' [2022] Companion Proceedings of The Web Conference, 488, available at <https://dl.acm.org/doi/10.1145/3487553.3524629>

23 Victor von Wachter *et al*, 'NFT Wash Trading: Quantifying Suspicious Behaviour in NFT Markets' [2022] Arxiv, available at <http://arxiv.org/abs/2202.03866>; Friedhelm Victor & Andrea Marie Weintraud, 'Detecting and Quantifying Wash Trading on Decentralized Cryptocurrency Exchanges' [2021] 23 Proceedings of The Web Conference, available at <https://dl.acm.org/doi/10.1145/3442381.3449824>; Lucas Matney, 'OpenSea Admits Incident as Top Exec Is Accused of Trading NFTs on Insider Information' (*TechCrunch,* 2021), available at <https://techcrunch.com/2021/09/15/opensea-admits-incident-as-top-exec-is-accused-of-trading-nfts-on-insider-information/>.

24 Sophie Berghueser & Martin Spann, 'The Value of Difference: Uniqueness in Crypto Marketing' (*SSRN*, 2023), available at <https://ssrn.com/abstract=4495156>. See also a tokenized diamond which was purportedly destroyed after being turned into a digital asset, and the background at <https://opensea.io/assets/ethereum/0x2a9e4045185c8d778b85610ca96d79bd8ecdc720/1>.

conspicuous consumption, all play a role in whether an artwork is seen as invaluable, or ephemeral. Value in art is as much organically emerging, as it is produced by various stakeholders in the art world: art critics, dealers, galleries, collectors, curators, and museums.[25]

If we try to approach NFTs from the 'value of art' perspective, first we must note that – to quote Marshall McLuhan – the medium is the message.[26] Buying art as an NFT requires multiple, rather complex steps, from buying cryptocurrency to navigating the complexities of managing software wallets. The blockchain/crypto ecosystem is therefore dominated by a particular demographic: young, white, male, technically adept but rarely deeply familiar with the dominant discourses of art history or aesthetics. The same applies to creators: though there are some genres where art and technical adeptness overlap, especially in digital art, many traditional artists are not computer scientists willing or capable of navigating the technical processes of NFT creation. These conditions favor particular aesthetics: 3D rendering, pixel art, art created by digital tools, photographs, and probably most importantly procedurally generated imagery, in which algorithms of various complexity spew out variations on a theme, often organized into and sold as parts of larger collections. This also means that the aesthetics of art that has chosen NFTs as the medium is defined by the technology, and its most frequent, adept users.

This situation can be interpreted in various different ways. The NFT ecosystem certainly allowed a particular demographic to develop and circulate a particular aesthetic not usually visible, accessible, and monetizable through traditional channels. But we must also note that from the outside (such as the authors of this piece) these forms of art seem to lack most of the intrinsic qualities usually associated with pieces of fine art: first and foremost the materiality, technical mastery, embeddedness in art history, and what Benjamin calls the 'aura', the unique unity of the artwork, its history, its stable presence through the ever shifting contexts it has been seen in, grounded in some semi-religious experience.[27]

25 Michael Findlay, *The Value of Art: Money, Power, Beauty* (Prestel 2012).

26 Marshall McLuhan & Lewis H. Lapham, *Understanding Media: The Extensions of Man* (MIT Press 1964).

27 See Walter Benjamin, 'The Work of Art in the Age of Mechanical Reproduction' in Hannah Arendt (ed), *Illuminations* (Schocken Books 1969). In fact, many hoped that the fact that something has been released to the public as an NFT would make it more valuable, due to the glow of political, ideological, and technological novelty radiating from the blockchain/NFT technology stack and the hype around it. In some sense this would be a radical reversal of Benjamin's suggestion, that mechanical reproduction destroys aura: some, probably the most novel forms of technologies of digital reproduction, actually can create an aura. Since this aura is rooted in the technological environment, rather than in the artwork itself, its fate is tied to the fortunes of the technology. Once the appreciation of the mechanics of reproduction fades, so does any value of the artwork that was produced by its technological environment.

We'll use two examples, two ends of the same spectrum to illustrate what has been said so far. On the one end, the once immensely popular cryptokitties template[28] algorithmically produced variations of cats, where certain characteristics, such as eyes, facial expression, color, fur, and accessories were algorithmically generated. This genre has later produced endless cryptocopykitties (forgive the pun!), such as the Bored Apes Yacht Club,[29] which again, is a collection of slightly different, but fundamentally similar 'apes' with an algorithmically varied, but limited set of features from hats to dresses. On the other end of this spectrum, we find the Botto project,[30] in which a community of humans and an artist work together to guide an AI image generator through the development of images around a theme through voting and curation. The community defines the theme, the artist instructs the AI image generator and pre-selects the output, from which then the community selects, through a voting process, the 'best' image to be sold and to serve as the foundation for the next iteration of the process.

Though Botto certainly produces visually, perceptually, and perhaps conceptually more interesting output, both projects lack much of the intrinsic qualities traditionally associated with art. To make up for this shortcoming both projects stress the *social value* dimension. The strong social component in the value proposition of NFTs is in fact the most important prerequisite to generate market value. Since the value of the NFT is doubly in doubt, first because the NFT's link to the underlying artworks is dubious, second because the value of the underlying artwork is much less grounded in fundamentals than the more traditional art markets, the value is orders of magnitude more uncertain and hence, volatile, than in the case of more traditional tangible art markets. Under such circumstances value becomes a question of speculative assessment, a first order Keynesian beauty contest,[31] where each market participant is trying to assess the value of its holdings by looking at the behavior of others rather than by assessing their own preferences. While the original idea of a Keynesian beauty contest assumed independent market actors, each making their own evaluation of the evaluation of others, it is clear that NFT creators have to gain from some social coordination in this space. Such social coordination can be more or less benevolent, as we'll discuss in a moment, yet both serve the same goal. By creating a community around the artwork and its NFT representation, both by creating collections, or series, or runs of slightly different and slightly similar pieces, creators define a self-contained speculative community. By injecting the right signals at the right time into the community of speculators (for example about the size of the group, or

28 See <www.cryptokitties.co/>.

29 See <https://boredapeyachtclub.com/#/>.

30 See <www.botto.com/>.

31 John Maynard Keynes, *The General Theory of Employment, Interest, and Money* (Palgrave Macmillan 1964).

about future expectations), the speculative process can, to some extent, be steered through the synchronization of its member's expectations vis-à-vis the expectation of the others in the community. Through the creation of a (rather homogeneous) group of buyers, who are in it all together, the social aspects of NFTs create a space in which the other, whose decisions inform my speculative decisions, is not an unknown and unknowable, autonomous entity (as in Keynes envisaged), but someone like myself. Here, market coordination can easily lead to herd behavior.

In fact, many online accessible 'beginners' guide to build your first NFT' manuals emphasize[32] that creating digital art is the first, but certainly not the last step.[33] The artist does not simply channel creative energies into artworks but needs to build and manage a community which unites the isolated individual buyers into a self-conscious group of like-minded people with deep shared interests (both financial and symbolic).[34]

One cannot overstate how high the stakes are in this social game. The 2 trillion USD collapse of the crypto sphere at the end of 2022 affected many who bought NFTs as investments. This has prompted a number of lawsuits in the US against various celebrities,[35] who were secretly enlisted by crypto entrepreneurs to advertise, without proper disclosure about them being compensated, crypto assets, including NFTs, such as the aforementioned Bored Apes collection. The covert use of celebrity influencers serves the same goal as the more honest ways of building a community organically: synchronize expectations around value through the creation of (the semblance of) a community.

32 See for example: 'Fans and holders of an NFT collection are a driving force of a project's culture, popularity, awareness, and success. Successful NFT projects understand that a thriving and active community enables continued growth and interest as a project develops' (available at <www.nft.com/articles/finding-the-right-NFT-community-for-you>).

33 In the guide written by Coindesk, an authoritative news source in the crypto world suggests that creating a community should be done *even before* actually creating the artwork (available at <www.coindesk.com/learn/minting-your-first-nft-a-beginners-guide-to-creating-an-nft/>).

34 On that point, many emphasize the importance of a good 'lore' around the artwork – meaning that has to be an appealing back story to the collection, a mythology, an imaginary from which the artworks come, and to which the buyers can join through consumption.

35 For example: A class action lawsuit filed against a number of celebrities including Madonna, Paris Hilton, Jimmy Fallon, Serena Williams, Justin Bieber, Gwyneth Paltrow, and Kevin Hart, alleging that they misleadingly promoted and sold Yuga Financial Products. Another class action law suit against Shaquille O'Neal alleging that the ASTRALs NFTs Shaq sold were unlicensed securities. The US Securities and Exchange Commission charged Kim Kardashian in October 2022 'for touting on social media a crypto asset security offered and sold by EthereumMax without disclosing the payment she received for the promotion'. In March 2023, the SEC charged another group of celebrities, including Lindsay Lohan, Soulja Boy, and Akon with illegally pushing Tronix and BitTorrent crypto asset securities to their followers without disclosing that they were being compensated.

III.3. From NFTs to other crypto assets

The three aforementioned characteristics of NFTs: (1) lack of intrinsic quality, historical embeddedness, and provenance; (2) strong incentives to create value through social mechanisms; and (3) easy market manipulation, are what inseparably link the NFT ecosystem to other asset classes in the blockchain/crypto sphere, as opposed to the art market.

At the present, almost all crypto assets lack intrinsic value. Most tokens, currencies, whether that be investment tokens, governance tokens, or other, have no links to an underlying physical asset. This also applies to so-called stablecoins like Tether, which despite claims to be fully backed by real world financial assets like treasuries, commercial paper, or gold, to date failed to produce a fully verifiable financial audit. This leaves us with the same value question as with the NFTs: where is the value coming from in the crypto assets space? And the answers are also similar. As both the growth and the crash of the crypto markets have shown, tokens are only valuable as long as they are perceived as valuable by others. An optimistic expectation about the value drives growth, while doubts (called FUD: Fear, Uncertainty and Doubt, the biggest enemy in crypto-speak) lead to sudden and violent market crashes. Well defined communities of believers can certainly stabilize expectations, hence the admirable amount of energy poured 'into community building', but this force is often counteracted by the ease with which one can fake a community. Manipulation through undisclosed influencer advertising or direct price manipulation via wash trading is cheaper, simpler, and easier than building long-term, self-sustaining value communities.

IV. Conclusions

In this chapter we hope to have shown that NFTs have few links to the marketplaces of creative expression, which today are overwhelmingly regulated by copyright. We have also shown that they do not really provide an alternative system of private ordering, which would in and by itself provide a viable alternative to the current modes of organizing the production, circulation, and use of creative works.

The main consequence of these missing links is that the value of NFTs, as digital representations of creative works and as assets, remains fully speculative. We have moved from the stage of 'no one knows what an NFT is' to the stage where 'no one knows what an NFT is worth' – if anything. The way this socio-technical system is currently organized is almost by definition hostile to the embedding of NFTs into those economic, social, cultural, institutional, discursive frameworks, which could provide an anchor of value in this highly speculative environment. The value of individual NFTs has been shown to be driven by hype, deception, and manipulation. It resembles the

Dutch Tulipmania of the 1630s market[36] rather than more traditional arts markets.

After this analysis we have the duty to ask whether the whole concept of NFTs, their general usefulness, and their approach to organizing creative markets is anything more than just speculation. At the moment, the worth of the NFT as a concept is just as much as the worth of almost any individual NFT: maybe millions, maybe nothing, and there is no guidance in sight to say which.

We could conclude this chapter by offering domains in which this concept may gain some usefulness in the future. Maybe the killer application will emerge from domains such as AI, where creations probably won't enjoy traditional copyright protection: collectibles, jokes, recipes which traditionally operate outside and independent of copyright; or Virtual Reality property, which tend to raise trademark, design protection, and general property questions. But this, again, would be pure speculation, something we argued against in the first place.

So let us conclude with Cecil Graham's reply to Lord Darlington's definition of a cynic which as quoted earlier in this chapter: 'And a sentimentalist, my dear Darlington, is a man who sees an absurd value in everything and doesn't know the market price of any single thing'.[37] In NFT markets, where there have been so many sentimentalists, we would rather be a cynic.

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36 See *e.g.* Peter M. Garber, 'Tulipmania' [1989] 97(3) Journal of Political Economy, 535–560, available at <www.jstor.org/stable/1830454>.

37 Cecil Graham in Oscar Wilde, *Lady Windermere's Fan* (Oscar Wilde 1892).