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All roads lead to tokens - The impact of NFTs on galleries and museums¹

Péter Mezei² & Ioanna Lapatoura³

Abstract: Non-fungible tokens were a buzzword throughout 2021 and continue to thrive. NFTs are uniquely identifiable digital representations of structured metadata referring to physical or digital items. They are predominantly used to transfer certain interests and rights (including intellectual property) over the fandom, profile pictures or born-digital artworks. While NFTs might be primarily used in for-profit settings, with numerous artists and brands reaping the benefits of marketing their creations on NFT platforms, they have profound relevance for organisations active in the field of the digital preservation and dissemination of cultural heritage. This paper discusses how NFTs might be approached by the GLAM sector. It especially focuses on the possible changes to the financing and the professional role of galleries and museums, the potential of NFTs to revolutionise access to digitised or born-digital artworks from a much wider audience, the fate of ownership of “real-world” artworks, the possible collaborations of cultural organisations and NFT platforms, and whether NFTs can serve as an optimal solution for the preservation and dissemination of cultural heritage hosted by cultural organisations. It also presents the findings of a survey-based empirical analysis of the perceptions of people interested in NFTs related to the relevance of NFTs in the galleries and museums sector.

Keywords: non-fungible tokens (NFTs), copyright law, galleries and museums, cultural preservation, accessibility

1. Introduction

Non-fungible tokens (or NFTs) were a buzzword throughout 2021. They sparked constant social media discussions and generated robust media coverage as well as academic literature. This is equally true for the copyright aspects of NFTs.⁴ The minting, sale, and resale of tokens are in a

¹ The authors are grateful for the comments of Bernd Justin Jütte, Giulia Priora, Ioannis Revolidis, Cristiana Sappa, Benjamin Weil on the content of this paper, as well as for Bhoomika Nim’s excellent research assistantship. All internet sources were last accessed 2 February 2023.

² Professor of Law, University of Szeged, Faculty of Law and Political Sciences, Institute of Comparative Law and Legal Theory. Adjunct Professor (dosenti) of the University of Turku (Finland). Member of the European Copyright Society. Email: mezei.peter@szte.hu.

³ Ph.D. researcher, University of Nottingham, School of Law, Faculty of Social Sciences. Postgraduate Teaching Assistant in Intellectual Property Law, Industrial Property Law and European Union Law, University of Nottingham. Lecturer in Law, Nottingham Trent University. Member of the University of Nottingham Commercial Law Centre (UNCLC) and of the University of Nottingham Law and Technology Research Group. Email: ioanna.lapatoura1@nottingham.ac.uk.

⁴ See especially: Lapatoura, I. (2021). Creative digital assets as NFTs: a new means for giving artists their power back? *Entertainment Law Review*, 32(6), 169–172; Gibson, J. (2021). The thousand-and-second tale of NFTs, as foretold by Edgar Allan Poe. *Queen Mary Journal of Intellectual Property*, 11(3), 249–269; Aksoy, P. Ç., & Üner, Z. Ö. (2021). NFTs and copyright: challenges and opportunities. *Journal of Intellectual Property Law & Practice*, 16(10), 1115–1126; Guadamuz, A. (2021a). The Treachery of Images: Non-fungible Tokens and Copyright. *Journal of Intellectual Property Law & Practice*, 16(12), 1367–1385; Idelberger, F., & Mezei, P. (2022). Non-fungible tokens. *Internet Policy Review*, 11(2) <<https://policyreview.info/glossary/non-fungible-tokens>>; Bodó, B., Giannopoulou, A., Mezei, P., & Quintais, J. P. (2022). The Rise of NFTs: These Aren't the Droids You're Looking For. *European Intellectual Property Review*, 44(5), p. 267–282; Fairfield, J.A.T. (2022). Tokenized: The Law of Non-Fungible tokens and Unique Digital Property, *Indiana Law Journal*, 97(4), p. 1261–1313; Trautman, L. J. (2022). Virtual Art and Non-Fungible Tokens. *Hofstra Law Review*, 50(2), p. 361–426; Carroll, R. (2022). NFTs: The Latest Technology

certain overlap with the existing copyright norms (e.g., related to authorship, originality, economic rights, limitations and exceptions, platform liability or resale royalty). The smart contracts on NFTs (especially the terms and conditions of the license agreements of NFT trading platforms) shall also abide by the copyright status quo. Similarly, the number of reports, court cases, and legislative preparatory work has risen sharply, necessitating academia, policy-makers, and judges to address questions related to rights (who can tokenize a work),⁵ ownership interests (is an NFT a proprietary asset),⁶ platform liability (are platforms liable for tokens sold by users over their systems),⁷ or jurisdiction (do courts have jurisdiction over sales of NFTs via global trading platforms).⁸

So far, IP legal literature has been very limited on why and under what circumstances GLAM institutions (“galleries, libraries, archives, museums”) can tokenize the cultural heritage that they curate. This silence is even more compelling in light of the ever-growing involvement of museums in both the collection of NFTs as expressions of art⁹ as well as the dissemination of curated artworks in the form of NFTs.¹⁰ This paper intends to fill this gap of legal literature.

Challenging Copyright Law’s Relevance within a Decentralized System. *Fordham Intellectual Property, Media and Entertainment Law Journal*, 32(4), p. 979–1009;; Noh, M.E., Odenkirk, S.C., & Shionoiri, Y. (2022). GM! Time to Wake Up and Address Copyright and Other Legal Issues Impacting Visual Art NFTs. *The Columbia Journal of Law & the Arts*, 45(3), p. 315–340; Frye, B.L. (2022). After Copyright: Pwning NFTs in a Clout Economy. *The Columbia Journal of Law & the Arts*, 45(3), p. 341–352.

⁵ See e.g. *Miramax, LLC v. Quentin Tarantino, et al.*, U.S. District Court for the Central District of California, Case No. 2:21-cv-08979-FMO-JC (pending); *Roc-A-Fella Records Inc v. Dash*, U.S. District Court for the Southern District of New York, No. 1:21-cv-05411 (settled).

⁶ See e.g. *Osbourne v Persons Unknown & Anor* [2022] EWHC 1021 (Comm) (10 March 2022) para 13 <<https://www.bailii.org/ew/cases/EWHC/Comm/2022/1021.html>>; *Janesh s/o Rajkumar v. Unknown person (“Chefpierre”)* [2022] SGHC 264. In July 2022, the Law Commission of England and Wales proposed to introduce a new type of proprietary category under English law: “data objects”. See Law Commission (2022). *Digital Assets: Consultation paper. Consultation paper 265* <<https://www.lawcom.gov.uk/project/digital-assets/>>. In August, Galaxy, “a digital asset and blockchain pioneer”, launched its report on the empirical analysis of the top-25 NFT collections’ terms and conditions. According to the report, none but one collection offered any proprietary access to the respective tokens. See Thorn, A., Marcantonio, M., & Parker, G. (2022). *A Survey of NFT Licenses: Facts & Fictions* <<https://www.galaxy.com/research/insights/a-survey-of-nft-licenses-facts-and-fictions/>>.

⁷ See e.g. Xiao, B. (2022). Chinese court rules on NFT transactions and responsibility of trading platforms. *Journal of Intellectual Property Law & Practice*, 17(8), 604–606.

⁸ *Osbourne v Persons Unknown & Anor* (2022) at para 14 et seq.; *Rajkumar v. Unknown person* (2022) at para 31 et seq.

⁹ Museums that attract visitors with NFTs include, to name a few, Uffizi Galleries (Florence, Italy); British Museum (London, United Kingdom); Hermitage Museum (Saint Petersburg, Russia); Moco Museum (Amsterdam, the Netherlands); Institute of Contemporary Art (Miami, USA).

¹⁰ See e.g. Khomami, N. (2021). British Museum enters world of NFTs with digital Hokusai postcards. *The Guardian* (September 24, 2021) <<https://www.theguardian.com/technology/2021/sep/24/british-museum-nfts-digital-hokusai-postcards-lacollection>>; Reyburn, S. (2022). Museums Are Cashing in on NFTs. *The New York Times* (March 25, 2022) <<https://www.nytimes.com/2022/03/25/arts/design/museums-nfts.html>>; Khomami, N. (2022). Egon Schiele painting of his uncle rediscovered after over 90 years. *The Guardian* (May 5, 2022) <<https://www.theguardian.com/artanddesign/2022/may/05/egon-schiele-painting-uncle-rediscovered-90-years>>; Guadamuz, A. (2022). August Sander’s photographic archive in NFT copyright dispute. *TechnoLlama* (May 10, 2022) <<https://www.technollama.co.uk/august-sanders-photographic-archive-in-nft-copyright-dispute>>; Harris, G., & Munster, B. (2022). Italian government plans to halt digital sales of masterpieces from its major museums. *The Art Newspaper* (July 8, 2022) <<https://www.theartnewspaper.com/2022/07/08/italian-government-weighs-in-on-digital-copies-fracas>>; Nayeri, F. (2022) NFTs, on the Decline Elsewhere, Are Embraced by Some Museums. *The New York Times* (November 30, 2022) <<https://www.nytimes.com/2022/11/30/arts/design/nfts-museums.html>>.

We focus both on cultural and copyright-related aspects of this topic. The copyright perspective is evident: GLAM institutions host both in-copyright works and public domain artworks; the use of in-copyright works (via e.g., the display or public lending of the copies) are governed by the existing copyright statutes. Furthermore, these institutions are frequently subject to licensing agreements, which clarify the boundaries of their privileges and allow (or limit) them to use the works in the digital domain. The cultural dimension of the issue is similarly clear: these institutions are predominantly founded to collect, preserve and provide access to our common cultural heritage. Whether these goals are in line with the tokenization (and hence monetization) of the said cultural heritage, is a question worth discussing.

The most important technical features of NFTs in the domain of copyright are the following.¹¹ NFTs represent a bifurcated system, where the token itself is more about the authentication (proof) of a certain act over the blockchain with respect to e.g. an artwork rather than about the work itself. In other words, the token is separate from the underlying work, and, hence, distinct rights and rules might apply to the two. For copyright, this means that rights holders might independently use or license the use of their works irrespective of the token generated for the work.¹² Specifically related to the galleries and museums (hereinafter GM) sector,¹³ ownership of the token and/or the digital asset is immutably documented and visible on the blockchain. Transparency as to the ownership and history of an artwork, be it an in-copyright or a public domain work, may effectively authenticate art and may serve to showcase the GM institution's ethics, i.e. in relation to the process and circumstances of acquiring a work of art.¹⁴ Hundreds of individual creators have decided to turn their artworks into NFTs so far and, from this perspective, it is no wonder why GM institutions have an interest in doing so, too. Furthermore, contrary to the contemporary art world order, dominated by art brokers, the absence of any intermediary in a blockchain, the relatively low NFT minting cost¹⁵, and the immediate public exposure to a worldwide audience on freely accessible NFT platforms, potentially make access to artistic content via NFTs even easier than before. Digitisation of art and blockchain tokenisation presents a unique opportunity for anyone to enjoy and even own (or co-own) cultural assets, irrespective of their financial situation or previous engagement with art.

Based on all these, the present paper addresses the specific GM-dimension of the NFT ecosystem. First, we highlight the potential cultural and economic effects of trading with NFTs on the GM sector (Section 2). In Sections 3 and 4, our practical experiences will be introduced. We will show a collection of case studies of how GM institutions exploit their repertoire via NFTs, as well as the findings of our survey on the awareness and perception of respondents on the use of NFTs by GM institutions. In sum, we argue that NFTs are far from being embedded in the daily routine of the

¹¹ Compare to Valeonti, F., Bikakis, A., Terras, M., Speed, C., Hudson-Smith, A. & Chalkias, K. (2021). Crypto Collectibles, Museum Funding and OpenGLAM: Challenges, Opportunities and the Potential of Non-Fungible Tokens (NFTs). *Applied Sciences*, 11, 9931, 4–7 <<https://doi.org/10.3390/app11219931>>; Chalmers, D., Fisch, C., Matthews, R., Quinn, W. & Recker, J. (2022). Beyond the Bubble: Will NFTs and Digital Proof of Ownership Empower Creative Industry Entrepreneurs? *Journal of Business Venturing Insights*, 17, e00309, 2. <<https://doi.org/10.1016/j.jbvi.2022.e00309>>.

¹² This might not be true for those NFTs that are minted and disseminated via Creative Commons 0 (CC0) licenses, where the content behind the token goes effectively into public domain. See Thorn, Marcantonio & Parker (2022).

¹³ We do believe that our findings have relevance for libraries and archives, too, but we did not include these organizations in our research.

¹⁴ On this perspective see in great details Cristiana Sappa's chapter in the present book.

¹⁵ See, e.g., OpenSea, 'Help Center: What are Service and Creator fees?', <<https://support.opensea.io/hc/en-us/articles/1500011590241-What-are-Service-and-Creator-fees->>.

GM sector. Besides the multiple useful features of this blockchain-based model, various arguments speak against the reliance on this technology on a broader scale. This seems to be confirmed by our empirical findings which indicate a rather skeptical attitude amongst those people who attended our NFT-related specific events.

2. The potential effects of NFTs on the GM sector

At this point, it is hard to judge whether NFTs will affect the GM sector more or less positively. Various effects can visibly help the GM sector to recalibrate their professional role (their mission and goals) or affect their daily routine (how to use certain artworks); and some of these effects have direct financial relevances as well.

First, NFTs and the metaverse(s) in general can help GM institutions make the cultural heritage objects curated by them accessible to the public in an easy and trendy way. This shift both in the role of such institutions and their practices has already been visible before the emergence of the NFT craze.¹⁶ This shift might be even more true for extraordinary periods. Just as the pandemic pushed NFTs into the frontline around the turn of 2020 and 2021, so did the various lockdowns limit people visiting brick-and-mortar institutions and made them eager to discover new ways of media (including art) consumption. Creating a digital twin of tangible objects is an alternative way of disseminating information to a broad(er) audience. As the artistic director of ICA Miami noted in 2022, “[o]ur collection, as well as our exhibitions and programs, seek to take on some of the most pressing and topical art and ideas that are happening today. Over the last two or three years, one of the most ubiquitous and transformative conversations has been around how artists explore and develop their creativity through NFTs”.¹⁷ This digital shift is further supported by the authentication feature of blockchain in general. While artworks have been regularly authenticated by various means in the analogue world,¹⁸ blockchain might prove the validity of certain information more effectively and on a global scale.

Second, using NFTs almost inevitably necessitates the forming of brand-new collaborations between GM institutions and businesses across the world. Such public-private partnerships seem to be the most effective form of minting, exhibition, and also the sale of NFTs. They make the whole process less costly for public organisations by the cost-sharing between the parties, they facilitate the organisation of original and otherwise impossible exhibitions by the GM institutions themselves; and they allow parties to circumvent the logistic challenges with artworks in the offline world, whilst supporting low-cost cultural preservation. More specifically, GM institutions could substantially save on fees associated with temporarily hosting the same artwork in physical

¹⁶ Benhamou, Y. & Ferland, J. (2022). Digitization of GLAM Collections and Copyright: Policy Paper. *GRUR International*, 71(5), 404–406.

¹⁷ Nayeri, F. (2022) NFTs, on the Decline Elsewhere, Are Embraced by Some Museums. *The New York Times* (November 30, 2022) <<https://www.nytimes.com/2022/11/30/arts/design/nfts-museums.html>>.

¹⁸ Compare to e.g. Yves Klein’s “zones de sensibilité picturale immatérielle” or Sol Lewitt’s certificates for wallpapers. While Klein’s concept was a protest against consumerism in the art world, it also offered a cheque-like authentication about the actual sale (of, by the way, “nothing” in exchange of gold). Lewitt’s certificate was an individual documentation to represent the resale right of the acquirer of Lewitt’s drawing more precisely, the instructions on how to create the drawing on the wall. On Klein’s zones see Takac, B. (2019). Before Maurizio Cattelan’s Banana, There Was Yves Klein’s Zone de Sensibilité Picturale Immatérielle. *Widewalls* (December 13, 2019) <<https://www.widewalls.ch/magazine/yves-klein-zone-of-immaterial-pictorial-sensibility>>. On Lewitt’s certificates see Lydiate, H. (2012). Authenticity Certificates Value. *Artquest* <<https://artquest.org.uk/artlaw-article/authenticity-certificates-value/>>.

form, including fees relating to the artwork's loan, insurance, shipping, handling, and installation, as well as preservation fees, i.e., associated with special temperature and humidity conditions for different kinds of artworks. Equally, real-world fragile artworks, as well as art masterpieces, would not be subject to travel among different galleries and museums and by not being put at risk, their longevity would be better preserved¹⁹.

Third, tokenized artworks might be traded, borrowed, and curated between institutions, collectors, and the private (ranging from professional collectors to digital-oriented) audience²⁰ over the blockchain. As such, NFTs allow the creation of a new form of ecosystem between museums and the public. Furthermore, the sales of NFTs can offer a potential (but hardly predictable) digital revenue stream for museums.²¹ From a technological perspective, it is possible for contractual terms addressed to buyers to become implemented in the blockchain – in the form of automatically executed ‘if-then’ instructions –, by means of ‘smart contracts’.²² As such, revenue may be generated at least in two ways: first, when the initial sale takes place as a one-off payment, and second, supposed the smart contract used for the execution of the sale says so, by the exercise of an alternative “digital resale royalty”, i.e. for the duration of the copyright that exists in an artwork associated with an NFT. The latter essentially is an income-sharing scheme designed to mimic the *droit de suite* system in the blockchain, where automatic micro-payments to the GM institution's (or any other right holder's) digital wallet would be triggered, whenever the NFT would change hands on the blockchain. In a GM context, uses that could trigger micro-payments could take the form of the temporary licensing of a work to an exhibition or, as we have commonly seen so far, the sale of artworks as NFTs, or digital art tokens, digital collectibles, and merchandise.²³

The monetization of cultural heritage artworks generates, however, certain negative echoes. As we will show below, the financial aspects of the public-private collaborations clearly overshadow the otherwise non-negligible cultural effects. As of now - slightly more than 2 years in the NFT craze - it is hard to understand what kind and what volume of financial investments are needed for a thriving market of tokenized cultural heritage, whether public resources are also needed to rely on the still contested blockchain technology, and whether there is any real chance for a financial return for the “sell-out” of cultural heritage. It is hard to judge whether such monetization of cultural heritage fits the mission of the GM sector. Although GM institutions are proponents of providing access to artworks freely and openly, the monetisation of cultural assets as NFTs, provided that it is at a low price point, may serve to relieve the financial pressure that (public?) cultural institutions have experienced amidst the Covid-19 pandemic.²⁴ Long-term museum closures and the prioritization of government funding elsewhere, have caused museums to proceed to budget cuts, such as Victoria & Albert Museum's plan to save approximately £10 million yearly, by imposing

¹⁹ Dickson, A., (2019) How to move a masterpiece: the secret business of shipping priceless artworks, *The Guardian* (21 March 2019) <<https://www.theguardian.com/artanddesign/2019/mar/21/how-to-move-a-masterpiece-secret-business-shipping-priceless-artworks-art-handling>>.

²⁰ Khomami (2021).

²¹ Valeonti et al. (2021) 8; Jung, Y. (2022). Current use cases, benefits and challenges of NFTs in the museum sector: toward common pool model of NFT sharing for educational purposes. *Museum Management and Curatorship*, 7 <<https://doi.org/10.1080/09647775.2022.2132995>>.

²² On smart contracts see De Filippi, P., Wray, C. & Sileno, G. (2021). Smart contracts. *Internet Policy Review*, 10(2) <<https://doi.org/10.14763/2021.2.1549>>.

²³ USEUM Collectibles, <<https://collectibles.useum.org/>>.

²⁴ Valeonti et al. (2021) 2–3; A. Marshall (2021). British Museums Face Covid's Long-Term Effects, *The New York Times* (October 14, 2021) <<https://www.nytimes.com/2021/10/14/arts/design/british-museums-recovery.html>>.

up to 20% budget cuts to its departments. Following the public outcry, the initial plan was abandoned, but the museum's departments have still witnessed cuts of 10 to 12 percent.²⁵

The recent EU copyright reform expressly stated that faithful reproductions of public domain artworks cannot lead to the “resurrection” of copyright law unless the copy of the said work itself fulfills the originality requirement of EU copyright law.²⁶ While this new rule might look to out rule any commercial tokenization of public domain art, the way how NFTs are predominantly used (the authentication of a digital copy of the artwork is sold rather than the copy of the work itself) does not seem to contradict to the new EU rules.

NFTs may contribute to the financial recovery of GM institutions, without the need to resort to budget cuts and/or employing less staff, which could hinder the enjoyment of the museums' collections, as in the pre-Covid 19 era. Nonetheless, whether promoting the sale of NFTs for fundraising purposes is compliant with GMs' mission of providing free access to our common cultural heritage and being in the service of society is worth looking at in Section 3. NFTs produced by GMs do not necessarily have to be of a primarily commercial nature, i.e. in the form of digital merchandise. One suggestion would be for the GMs to charge a fee to visitors by means of an NFT purchase, which would unlock access to 3D virtual reality interactive exhibitions in the metaverse, targeted to learning, and possibly appealing to educational institutions and students. By investing in the creation of this kind of digital educational content, GMs could communicate their collections, history, and legacy, while the NFTs' underlying content could be accessed in the classroom, from anywhere in the world. As such, their mission of disseminating cultural content and enriching educational curriculums in a new way could be met. Nevertheless, as we will show in Section 3, only a limited number of institutions could so far effectively rely on the selling of NFTs. Their successes can nowhere be generalized for the whole GM sector.²⁷ This is even more true in light of the lack of proper experience to use blockchain technology by the majority of cultural heritage institutions.²⁸

We are neither familiar with the contractual framework of any such collaborations yet. As we'll indicate later on, the media has occasionally reported on the financial terms of certain collaborations. Irrespective of the fairness of such financial conditions, the cloudy nature of contracting is worrisome from a copyright perspective. As museums and galleries frequently curate in-copyright works, their use is clearly regulated by copyright laws and contracts. Whether the new agreements on the tokenization of selected artworks are in line with the formerly existing contracts or respect statutorily guaranteed user rights, is hard to judge in the lack of proper information on the relevant contracts.

Fourth, the NFT ecosystem, compared with the traditional role of the GM sector, represents a partially new and partially different hybrid landscape for the public to explore, collect and influence our common cultural heritage. Auctions and exhibitions of digitized or born-digital

²⁵ Ibid.

²⁶ Article 14, 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, OJ L 130, 17.5.2019, p. 92–125. Compare to Giannopoulou, A. (2019). The New Copyright Directive: Article 14 or when the Public Domain Enters the New Copyright Directive, Kluwer Copyright Blog (June 27, 2019) <<https://copyrightblog.kluweriplaw.com/2019/06/27/the-new-copyright-directive-article-14-or-when-the-public-domain-enters-the-new-copyright-directive/>>.

²⁷ Jung (2022) 8.

²⁸ Mittendorf, B. & Smith, S. S. (2021). 4 Reasons Why Museums Are Steering Clear of the NFT Craze, *The Conversation* (November 19, 2021) <<https://theconversation.com/4-reasons-why-museums-arent-cashing-in-on-nfts-yet-171993>>.

artworks might be offered in brick-and-mortar buildings,²⁹ creating a new way of interacting with art. Vice versa, metaverse museums can allow visitors to enjoy the digital twins of tangible cultural heritage in a non-traditional way.³⁰ No doubt, encountering art in the digital age is not new at all. We could have visited both exhibitions curated completely in the digital environment, e.g. Muzeum Dezentral's 3D virtual exhibition that simulates a real-world visit to a museum's facilities;³¹ or transformative digital exhibitions in physical space, e.g. the Immersive Van Gogh Exhibit.³² This hybrid landscape allows museums and audiences alike to build a brand new type of community.³³

Fifth, it is equally premature to foresee whether the 'ownership' of NFTs will replace the interest in creating and/or owning physical 'real-world' artworks. It is more than plausible to believe that born-digital art will not be able (or would ever target) to completely replace tangible artworks; instead, it is more probable that digital artworks can only supplement traditional art.³⁴ A new - mainly young - generation of audiences are more inclined to blend between digital and physical. Property and ownership come just as naturally to the average Fortnite player as buying a designer vase for their parents. Needless to say, viewed from a copyright perspective, the same question deserves a much deeper analysis, viewed from the buyer's/collector's; the artist's/creator's; as well as the museum's/gallery's perspective.

What motivates anyone to *buy/collect artwork*? Among the various reasons for such activity, we can list the desire to own aesthetic content, to support the artists, affordability (collectors, typically aged between 45-55, have the resources to use for such purposes) and to invest in goods that can generate some extra income due to the increase of the value of the given work.³⁵ For that purpose, collectors shall purchase authentic and secure pieces of artwork. The majority of these purposes and features are present in the NFT ecosystem as well. While far from certain that a specific NFT will generate any profit on the side of the collector, they are evidently capable to function as an investment commodity. Likewise, there are numerous people who have the crypto-resources to invest in tokenized digital artworks. And NFTs, due to their inherent connection to the blockchain, embody the requisite authenticity. They also provide a more flexible means of storing the artwork - an issue which is a challenging one for collectors of tangible works, like aged paintings or big-sized sculptures. Whether a token is, however, secure enough, is more questionable due to the possibilities and risks associated with "link rot",³⁶ "pull the rug" risk,³⁷ or fraudulent minting ("copyfraud").³⁸ Such vulnerabilities could undermine the authenticity and ultimate value of the

²⁹ Brown, K. (2021). NFTs Make Their Debut at Art Basel, Where Collectors Are Curious—And a Bit Confused—About the New Art Medium, *Artnet News* (September 21, 2021) <<https://news.artnet.com/market/nfts-art-basel-2011438/amp-page>>.

³⁰ I.e. Museum of Crypto-art, <<https://museumofcryptoart.com/museum/>>.

³¹ Museum Dezentral, <<https://musee-dezentral.com/museum>>.

³² Visit <https://www.immersivevangogh.com/>.

³³ Jung (2022) 7.

³⁴ Small, Z. (2022). After Pak and Beeple, What's Next for NFT Collectors? Art Made With a Paintbrush. *The New York Times* (12 February 2022) <<https://www.nytimes.com/2022/02/12/arts/design/nft-collectors-artwork.html>>.

³⁵ Artsy (2019). 6 Key Factors Driving Art Collectors - from Aesthetics to Investment. Artsy (23 September 2019) <<https://www.artsy.net/article/artsy-editorial-drives-art-buyers>>. See further Deloitte Private's empirical report on the art market: Deloitte Private (2021). *Art & Finance Report 2021*, 7th edition, 104 and 121.

³⁶ Idelberger & Mezei (2022).

³⁷ Valeonti et al. (2021) 6.

³⁸ Guadamuz, A. (2021b). Copyfraud and copyright infringement in NFTs. *Technollama Blog* (14 March 2021) <<https://www.technollama.co.uk/copyfraud-and-copyright-infringement-in-nfts>>.

NFT and GM institutions may wish to carefully consider how secure and/or how viable their digital storage solutions are. The inability to guarantee protection or, at least, the ability to act upon copyfraud, given the anonymity of minters, could tarnish the reputation of GMs. They would no longer be viewed as trusted mediums for exhibiting one's work, while their long-standing relationships with artists could suddenly become fragile. Ideally, GM institutions could introduce harmonised standards to address those issues, so that more museums can confidently invest in tokenised digital collections in the long term, and for the public to rest assured that access to their NFTs' protected content will not vanish.

There might be other similarly important risks associated with NFTs that might lead to a decrease of interest in their collection. Namely, criminal law concerns (including speculative trading or money laundering) and environmental anxiety.³⁹ More specifically, concerns have been raised on the environmental impact from the minting and transacting of NFTs, primarily on the Ethereum blockchain and its 'Proof of Work' consensus mechanism. While NFTs are responsible for significant amounts of carbon dioxide emissions in the atmosphere⁴⁰, in September 2022 Ethereum announced its shift to a 'Proof of Stake' consensus engine through a project called 'The Merge'. The astonishing expected results of this new minting model are the reduction of the network's energy consumption by over 99.988%, 'from nearly 23 million megawatt-hours per year to just over 2,600' and its carbon footprint by over 99.99%, 'from over 11 million tons annually to under 870, which is the equivalent of less than the annual energy use for a hundred homes in the United States'⁴¹. This shift certainly contributes to alleviating skepticism that GM institutions might have had in the past and could lead to increased engagement with NFTs in this sector. On the other hand, the uncertainty borne by the terms and conditions embedded within NFTs, which are minted by the NFT platforms that currently dominate the market is an equally important disincentive for GMs to engage with NFTs. Finally, the complete anonymity of acquirers of artworks, as often desired by some collectors, is unlikely in the world of NFTs.

Nevertheless, NFTs also offers a brand-new way of collecting art. Although art creation does not necessarily revolve around profit, NFTs make a strong case for experimenting with art and breaks the ceiling of the particularly selective conventional art market,⁴² enabling anyone to acquire art at the click of a button, without any intermediaries involved. At the same time, NFTs enable multiple art admirers and collectors to acquire NFTs over the same piece of art, possibly accompanied by certain limited rights to the work itself. A striking example is the NFT sale of crypto-artist Pak's 'The Merge', to 28,893 collectors, in the form of 312,686 units of mass, selling as single NFTs for as little as \$299⁴³. This notion of co-sharing interests in an artwork, among

³⁹ Valeonti et al. (2021) 11-12; Chalmers et al. (2022) 7.

⁴⁰ Truby, J., Brown R.D., Dahdal A., Ibrahim I., (2022). Blockchain, climate damage, and death: Policy interventions to reduce the carbon emissions, mortality, and net-zero implications of non-fungible tokens and Bitcoin, 88 *Energy Research & Social Science*, 102499 <<https://doi.org/10.1016/j.erss.2022.102499>>.

⁴¹ Crypto Carbon Ratings Institute (CCRI). The Merge - Implications on the Electricity Consumption and Carbon Footprint of the Ethereum Network Report, (September 2022) <<https://carbon-ratings.com/eth-report-2022>>; ConsenSys, Ethereum Blockchain Eliminates 99.99% of its Carbon Footprint Overnight After a Successful Merge According to New Report, (15 September 2022) <<https://consensys.net/blog/press-release/ethereum-blockchain-eliminates-99-99-of-its-carbon-footprint-overnight-after-a-successful-merge-according-to-new-report/>>.

⁴² Sussman, A., L. (2018). Why You Can't Always Buy a Work of Art Just Because You Have the Cash, *Artsy* (December 12, 2018) <<https://www.artsy.net/article/artsy-editorial-buy-work-art-cash>>. See also *Robins v. Zwirner*, 713 F. Supp. 2d 367 (S.D.N.Y. 2010) – a US lawsuit example concerning the blacklisting of a collector from buying artworks.

⁴³ Nifty Gateway, 'Merge by Pak' <<https://www.niftygateway.com/collections/pakmerge>>.

more than one individual, breaks the art market's norm that only a handful of collectors may enjoy this privilege, and for the first time, gives even laypersons the chance to get involved with art, while strengthening a sense of community among different groups of people. The user-friendly NFT marketplaces, the straightforward presentation and access to the artworks – that can be parallelised to Amazon product listings –, as well as the ease at which NFTs can be bought – on a first-come-first-serve basis, rather than based on a gallery's strict selection criteria –, all contribute to a more seamless art acquisition experience by anyone. And this diversification of the art industry actors made possible with NFTs, potentially contributes to the growth of the creative economy, as artists are more likely to be rewarded for their creations. Indeed, NFTs have helped several emerging crypto-artists and 'outsider' artists to make a career breakthrough and gain recognition for their talent⁴⁴, including the remarkable example of a 15-year-old boy, named Jaiden Stipp, who sold his tokenised astronaut-themed artwork for 20 ETH, equivalent to \$30,000 at the time of sale⁴⁵.

From an artist's/creator's perspective, presenting their art via NFTs to the world has certain advantages over marketing a work through the traditional 'real-world' GM exhibition route. This is because, unless one gets discovered by some talent-hunter, or their work is endorsed by a public figure and/or on social media nowadays, their work would in no way be displayed at the walls of a gallery or museum in the early stages of their artistic career. Exclusivity is a long-standing quality of the conventional art sector and despite one's creativity and the quality of their work, making it as an emerging artist is extremely tough.

NFTs have responded to this art market exclusivity norm, by making it easier for artists to present and market their work to a world-over audience, irrespective of endorsement, connections, or pure luck. The openness of NFT marketplaces, allowing anyone to easily mint NFTs associated with their creations with no dependence on an art broker or any other intermediary, and for a relatively low cost⁴⁶, has opened the floodgates of the art market to substantially more artists than before. The aftermath is a plethora of NFT platforms, flooded with thousands of tokenised art pieces, which can now act as an artist's catalogue raisonné, publicly and freely available. An unprecedented opportunity to build a career is now given to a wide range of artists, who were overlooked by the art establishment in the past: from the digital art community, who were previously unable to present their work in GM-compliant form, to non-established artists, in the first steps of their career, and more. For instance, other than the tokenisation of existing physical artworks that are part of a museum's or gallery's collection, NFTs have the potential to commodify cultural works that cannot traditionally become commodified: from digitally-born artworks, and the sale of digitally scarce versions of them, to conceptual and generative art pieces. For instance, 'Chromie Squiggles' by NFT artist Snowfro are only created at the time of minting and due to their embedded generative algorithm, the buyer is actively involved in the art creation process⁴⁷.

⁴⁴ Ables, K. (2021). Crypto artists have been building a rebellious, underground community of outsiders for years. Now they're making a living selling NFTs. *Washington Post* (8 May 2021) <https://www.washingtonpost.com/entertainment/museums/beeple-crypto-art-sales-nfts/2021/05/05/cecf3452-ac0d-11eb-acd3-24b44a57093a_story.html>.

⁴⁵ Bove, T. (2022). A 15-year-old whose NFT art sales over the past year are now worth more than \$1 million breaks down how he did it, *Fortune* (January 19, 2022), <<https://fortune.com/2022/01/19/teen-nft-artist-1-million/>>; (no named author) (2022) 5 Successful NFT Stories to Inspire, *Medium* (July 13, 2022) <<https://art-wallet.medium.com/5-successful-nft-stories-to-inspire-14627edee5e5>>.

⁴⁶ OpenSea (n 13).

⁴⁷ Sotheby's Metaverse. Chromie Squiggle: MINT IT! (6 December 2021) <<https://metaverse.sothebys.com/chromie-squiggle-mint-it>>.

NFTs may also commodify a whole range of artistic performances, previously overlooked by the art market⁴⁸, i.e., captured in video clips, enabling dancers⁴⁹, mimes, stand-up comedians⁵⁰, theatre performers, or circus performers to present their art forms within GMs for the first time. Particularly for the latter, enjoyment typically takes place by a live audience and a mere video recording would not make them qualify for becoming part of a gallery exhibition. However, the scarcity of an NFT associated with such work captured on camera, and approved by the artistic performers themselves, much like an authentic signed copy of a book by its author, could potentially change this. For instance, the US-based Firehouse Theatre has tokenised a series of short clips of a live theatre performance called ‘The Zombie Life’⁵¹. Even though only a segment of those works would meet the EU copyright originality standard, and despite that uncopyrightable works can be displayed without permission, the acquisition of their respective NFTs by GM institutions would indirectly give credit to and support their creators. Thereby, such institutions would enrich their archives in full transparency as to the origin of the artworks, whilst GM visitors would get exposed to a more wholesome cultural heritage.

Finally, even though GM institutions are not concerned with art sales, the creation of cultural works is at the core of GM institutions. But, art sales inevitably have an impact on encouraging or discouraging art creation and innovation. More specifically, the increased possibility of making money out of an artistic creation that is marketed as an NFT, irrespective of whether one is an established artist in the traditional sense, is undoubtedly a strong incentive to pursue a career in art for many. As a result, NFTs may indirectly encourage the enrichment of cultural content that GM institutions may be able to present.

Moreover, blockchain enables artists to mint more than one unique token of their underlying artwork, meaning that, unlike single-piece real-world art, several authenticity certificates of an artwork may become available. What this effectively means for GM institutions that purchase such NFTs, is that more than one institution will have the right to display tokenised artworks in digital form concurrently, enabling the public to enjoy the exact same piece of art from different locations. This revolutionary means of communicating cultural content also supports low-cost cultural preservation. Other than helping overcome logistic challenges with handling real-world artworks, an NFT artwork becomes part of a GM institution’s repository and can be exhibited indefinitely, or for as long as stipulated by the smart contract, without any additional hidden fees, other than the one-off payment upon the sale. Given the NFTs’ popularity, they may also consider producing digital merchandise and collectibles based on the tokenised art, as a new and promising stream of revenue.⁵²

3. NFTs in the practice of museums and galleries

A number of galleries and museums across the world have already embarked on collaborations with NFT platforms. The NFT platform LaCollection has partnered with the likes of the British

⁴⁸ Boscheri C., Being a performing artist in the NFTs era: an overview of what is out there, *The Medium* (23 January 2022) <<https://medium.com/@crinspires/being-a-performing-artist-in-the-nfts-era-an-overview-of-what-is-out-there-ab159db32545>>.

⁴⁹ Ballet dance performances as NFTs: Bonhams auction house, Encore! Modern Art on Stage: Natalia Osipova: Triptych (10 December 2021) <https://www.bonhams.com/press_release/33503/>.

⁵⁰ Stand-up comedy clips as NFTs: NiftyComedians, <<https://www.niftycomedians.io/>>.

⁵¹ OpenSea, ‘The Zombie Life’ NFT collection, by FirehouseTheatre <<https://opensea.io/collection/thezombielife>>.

⁵² USEUM Collectibles (n 20).

Museum, the Leopold Museum, the Museum of Fine Arts Boston, and the Annka Kultys Gallery⁵³. Another historical museum, the Vienesse Belvedere Museum, was seen collaborating with NFT platform artèQ⁵⁴. London's Serpentine Gallery has also engaged in this field, hosting digital art exhibitions on the metaverse⁵⁵. The concept is the provision of online exhibition space for their digitised artworks that users can navigate, as well as the ability to collect unique tokens associated with the artworks, that bear the approval from the GM institutions themselves. The services provided by some of the galleries and museums in this sphere have further been adjusted to the conventional art scene's practices, valuing the norm of exclusivity. NFT platforms have introduced different types of NFTs selling for different prices, depending on their NFT 'rarity', or else, how limited in number they are, being sold either as part of collections or individually. For instance, LaCollection offers several editions of tokenized artworks, from 'super rare', where only 2 editions are produced, to 'common', where the artwork comes in 10,000 editions. According to the art world's norms, exclusivity is what makes art desirable by many, and therefore, the rarest the token collected, the highest the expected value it may hold in the future. While selling NFT art appears as an exciting fund-raising opportunity for museums, questions are raised as to their compatibility with GMs' mission of providing free access to our common cultural heritage and being in the service of society. For instance, the US Association of Art Museum Directors has set out rules explicitly prohibiting museums from selling artworks from their collections, unless they do so for the sole purpose of buying different works⁵⁶. Whether or not using the proceeds from NFT sales for any other purposes would stand in European countries would depend upon national law⁵⁷, though this rule is currently under revision in the US⁵⁸. One could argue that the same digitised artworks that are available for sale as NFTs, are also freely accessible for anyone to view and even download through the museum's or NFT platform's website. Purchasing the NFT is only optional and does not preclude access to the works. The sale of tokenised artworks could be viewed as purchasing official merchandise from the museum or as paying a fee to the museum for an official affiliation with the work, similar to the long-standing official licensing model in this sector, gaining exclusive rights to *'to use the institution's trademarks with your product that incorporates works from the open collection, [or] some sort of certification that the use or reproduction of the work is in line with curatorial standards'*⁵⁹.

Nevertheless, these considerations on NFTs and their compliance with the GM mission must have played their role when the Italian government abruptly halted the sale of tokenized renaissance masterpieces by all major Italian museums. What triggered this decision was the sale of Michelangelo's Doni Tondo by Uffizi Gallery in collaboration with tech company Cinello, with the gallery only receiving less than 1/3 of the sale price, while a significant amount being labelled

⁵³ LaCollection <<https://lacollection.io/>>.

⁵⁴ artèQ, The Kiss NFTs at the Belvedere Museum (15 April 2022) <<https://arteq.io/happening/projects/the-kiss-nfts-at-the-belvedere-museum>>.

⁵⁵ Serpentine, Acute Art Presents KAWS: New Fiction (18 January 2022) <<https://www.serpentinegalleries.org/whats-on/acute-art-presents-kaws-new-fiction/>>.

⁵⁶ Frye, B. L., Should Art Museums Collect NFTs?, *Right Click Save* (9 January 2023) <<https://www.rightclicksave.com/article/should-art-museums-collect-nfts>>.

⁵⁷ Wijsmuller, D., Legislation on deaccessioning and disposal, *Museums and Deaccessioning in Europe* <<https://www.museumsanddeaccessioning.com/parameter/legislation/>>.

⁵⁸ Goldstein, C., In a Major Shift, Museums Can Now Use the Proceeds From Deaccessioning for More Than Just Buying Art, *Artnet* (3 October 2022) <<https://news.artnet.com/art-world/aamd-museum-deaccession-rules-2185274>>.

⁵⁹ Weinberg, M., Are NFTs Compatible with OpenGLAM? (25 January 2022) <<https://michaelweinberg.org/blog/2022/01/25/nft-open-glam/>>.

as ‘production costs’ and ‘fees’, that some viewed as a form of the sell-out of Italy’s cultural heritage, whilst enabling private companies to reap off massive profit⁶⁰. Likewise, the tokenization and sale of art are not the primary concern for other GM institutions, including the first-ever brick-and-mortar NFT museum, which opened its gates in 2021. The Seattle NFT Museum hosts curated exhibitions featuring NFT art on high-resolution screens at the gallery’s walls but do not engage in the sale of NFT art or in receiving a commission from their sales. Its mission is to educate the public on digital culture, blockchain technology, smart contracts, and tokenised ownership, and is supported by admission fees, donations and proceeds from its online merchandise store⁶¹.

Other than exhibiting NFT art through NFT platforms or physical spaces, a small, yet growing, number of museums’ and galleries’ exhibitions are being hosted at the metaverse, a compilation of 3D virtual worlds which allows users’ real-time interactions. The State Hermitage Museum in St. Petersburg was the first institution to create digital twins of its entire collection on the metaverse, while Ozerkov, the head of the contemporary art department, predicted that each museum will have a digital twin of its collection in the metaverse back in 2021⁶². Although this is far from reality, a number of other GM institutions have engaged in this space. The Museum of Crypto-art also hosts exhibitions across the metaverse and has showcased their NFT art across 15 physical locations⁶³. Another example of a hybrid NFT art exhibition is Schachter’s ‘NFT-ism: No Fear in Trying’ in collaboration with the NFT platform Institut⁶⁴. Visitors could visit both the exhibition’s real-world facilities and engage with the digital artwork via interactive VR headsets, as well as experience the virtual exhibition on Arium’s metaverse, where they could interact with artists and art enthusiasts in real time and immerse themselves in the global community. Other completely digital NFT museums include Museum Dezentral⁶⁵ and VOMA⁶⁶, offering a unique digital experience that resembles a real-life visit to GM facilities.

NFT museums pose an opportunity to embrace all this diversity of in-copyright and non-copyright works and showcase them to a growing global – and technology literate – audience. So, who should establish and run them? Those most experienced in this field are institutions and curators of current traditional museum establishments. The question is, how many of those different types of artworks would actually reach the walls of a virtual (or physical) NFT museum if the selection committee consisted of the same people who oversee conventional museum collections, often considered traditional art gate-keepers?

If exposure to a more inclusive and wholesome cultural heritage is to be achieved, then diversity should exist among those who run NFT museums and who decide what kind of art should be minted and exhibited in those. An example where diversity was achieved can be drawn from ‘Spaces’, a popular NFT platform’s SuperRare virtual community-curated galleries⁶⁷. Remarkably, Arkive, the world’s first decentralised museum enables its patrons and members to

⁶⁰ Italy: government blocks NFT sale of Uffizi masterpieces, *Crypto News* (13 July 2022) <<https://cryptonews.net/news/nft/9193675/>>.

⁶¹ Hope, J., The Seattle NFT Museum, *Hedgehog* (3 November 2022) <<https://blog.hedgehog.app/the-seattle-nft-museum/>>.

⁶² Rosen, P., All museums will build a metaverse copy using NFTs, predicts contemporary art chief at world’s largest museum, *Market Insider* (13 December 2021) <<https://markets.businessinsider.com/news/currencies/museum-metaverse-twin-digital-art-nfts-state-hermitage-museum-russia-celestial-hermitage>>.

⁶³ Museum of Crypto-art, (n 26).

⁶⁴ Institut, NFTism: No Fear in Trying, (27 September 2021) <<https://institut.co/drops/nftism/>>.

⁶⁵ Museum Dezentral (n 27).

⁶⁶ VOMA, <<https://www.voma.space/>>.

⁶⁷ SuperRare, ‘Spaces’, <<https://superrare.com/spaces>>.

co-curate exhibitions by purchasing an NFT, giving them the ability to vote on artwork acquisition and the building of collections⁶⁸. Likewise, community-curated NFT museums, consisting of a diverse group of experts, artists from different artistic disciplines, and even ordinary people interested in the art could be a good starting point for pursuing the GM mission⁶⁹ of serving society, fostering diversity and involving communities to educate on tangible and intangible heritage to its fullest potential.

4. Survey on the awareness on NFTs and cultural preservation

Our discussion of the selected topic in sections 2-3 is based on solid academic papers and news reports - but sources are missing regarding the empirical treatment of NFTs in the GM sector. For that purpose, we designed a very simple questionnaire and circulated that among the participants of three events dedicated to NFTs and/or cultural preservation.⁷⁰ All events were organized with the purpose to bring together people interested in this new phenomenon, hence, it could be assumed that they have a solid level of understanding of NFTs and, to a certain degree, with cultural preservation. The questionnaire was designed to get basic information on the demographics of the sample; as well as information on the 'openness' and 'optimism' of the respondents towards NFTs and their use in the GM sector.

Our questionnaire was filled out by a total of 74 respondents, from which 10 responses had to be filtered out due to their incomplete nature. From them, 39 respondents were females, and 22 were males. One person declared to be non-binary, and 2 did not want to disclose this information. From the 64 respondents, 13 were students and 40 were lawyers. Four people identified themselves to come from the GM sector; 8 people were 'mere' end-users, and 8 further people indicated to represent the creative industry. 35,9% of the sample (23 respondents) were 'juniors' (0-5 years of work experience); 25% (16 respondents) had intermediate experience; and 39,1% (25 respondents) were seniors with more than 10 years of experience.

We raised various questions related to the respondents' 'openness' toward NFTs and digitised art. Our results show a really interesting mix of answers. First, the majority (53,1%; 34 respondents) answered positively on the question whether they have ever visited any online marketplace of NFTs for mere browsing purposes, however, only 14 people (21,9% of the sample) stated that they visited the NFT marketplaces with the purpose to purchase NFT art, and only 23 people (35,9% of the sample) claimed to consider buying an NFT from a museum or gallery. These latter numbers indicate a visible lack of interest in acquiring NFTs, but they do not mean that there is no interest in such content at all. More tellingly, our final question, whether respondents would be interested in exploring an NFT exhibition in a museum, was answered highly positively: 75% of the sample (48 persons) showed sympathy towards this idea. This reiterates this Chapter's outlook that NFTs may serve different purposes, other than focusing on mere monetization and the art market. As indicated by our sample, GM institutions' active engagement with immersive physical or virtual NFT exhibitions could appeal to a diverse audience of different ages and from different disciplines, from students, to professionals, to GM experts and more.

⁶⁸ Arkive, <<https://arkive.net/>>.

⁶⁹ See footnote 70 and accompanying text.

⁷⁰ These events were the *Sixth Annual Workshop on Intellectual Property Rights* of the University of Szeged (Hungary) on June 9, 2022; the *WhatNextLaw Series* of Vieira de Almeida and Universidade Nova de Lisboa (Portugal) on July 11, 2022; and the *Mine? Yours? Theirs? What are the copyright implications of NFTs?* workshop of Aston University (United Kingdom) on October 19, 2022.

We further inquired about the respondents' opinion towards the future of NFTs.⁷¹ Based on the five questions raised, we found two main tracks of beliefs: 'artistic optimism' and 'financial skepticism'.

Under 'artistic optimism' we mean the following. The survey inquired whether respondents "would not personally buy an NFT of a digital image, because people can copy and paste it and this would make my NFT worthless"; and we also asked them to reflect on the following statement: "Beeple's digital animated collage should not sell as much as a Van Gogh painting as NFTs". Both of these questions could be answered on a 3-point Likert scale, where 'agree' valued 1 point (as it meant agreement with a negative statement), 'neither agree nor disagree' equaled 2 points, and 'disagree' was transformed into 3 points. Based on this, we found some disagreement with both negative statements (in the first case, the average score was 2,25; in the latter, it was 2,12). In light of this, we conclude that the majority of the sample believes that NFTs have a solid place in modern art.

Such 'artistic optimism' was, however, supplemented with an equally clear 'financial skepticism'. Here, we asked our respondents to express their opinion regarding the following statements: "NFTs in the art sector is just a bubble that will burst, sooner or later"; "if I invest some money and buy an NFT artwork for 100\$ today, it will always hold this value or more"; and "I would be more inclined to buy an artwork, if I could just pay for it with my regular bank card, instead of cryptocurrency". Based on the answers of respondents on a 3-point Likert scale,⁷² we found a clear distrust in the financial future of NFTs. More people believe that NFTs represent a bubble (1,90 points on average); NFTs will not hold the value of investment (1,41 points) and more people would be happy to pay for NFTs with regular currency than cryptocurrency (2,06 points).

If we combine the average scores for the five questions into a single 'optimism score', we find a final 9,74-point score which is slightly below the mean.

The questionnaire also included two basic questions to self-evaluate the respondents' understanding (knowledge) of NFTs preceding and following the workshops. The average score of understanding preceding the respective events was exactly 5,00 (with a median of 5); and following the events was 6,98 (with a median of 8). This increase in knowledge might mean that the events organized for this purpose reached their goals. More importantly, they might also indicate that public education in this field is necessary to offer a proper picture of the issue to interested audiences; and also to give some feedback to the GM sector by showing that people have some interest in accessing NFTs in a GM environment.

5. Conclusion

While it is clear from our review of publicly available sources on the NFTs/GM overlap as well as our survey that there is some lack of interest in acquiring NFT art, this does not mean that the public is not interested in exploring NFT art. And what better way to do so, than in a gallery or

⁷¹ Here we have to stress that the time frame of the collection of responses was cca. 4 months. While these exact months - from June to October 2022 - did not bring any significant changes in the concept of NFTs, NFT sales were plummeting that period, so there could have been a natural 'pessimism' among those having greater knowledge of the field.

⁷² Here, the answers for the first question were evaluated the same way as earlier, since the statement was rather negative. Hence an agreement with such a statement means more skepticism, and hence values only 1 point versus disagreement that valued 3 points. For the last two questions, however, the answers were transformed into points just the opposite way: since the statements were rather positive, and agreement with them had to mean more points.

museum setting. Nonetheless, we conclude that there are currently some clearly detectable reasons for the non-embeddedness of NFTs in the GM sector.

First, the International Council of Museums (ICOM) has recently accepted a novel definition of museums, according to which “[a] museum is a not-for-profit, permanent institution in the service of society that researches, collects, conserves, interprets and exhibits tangible and intangible heritage. Open to the public, accessible and inclusive, museums foster diversity and sustainability. They operate and communicate ethically, professionally and with the participation of communities, offering varied experiences for education, enjoyment, reflection and knowledge sharing.”⁷³ Various elements of this definition simply do not match with the NFT ecosystem; and unless convincingly clarified how museums might capitalize their repertoire digitally, the majority of institutions will be either reluctant or expressly prohibited - like in Italy - to explore the possibilities of NFTs.

Second, closely connected to the previous, there are various controversial issues related to image licensing and NFTs. Tokenizing artworks of local communities that museums acquired during colonisation or war times is something that must be carefully considered by GM institutions. A recent legal battle that sparked among a Congolese local community and the Virginia Museum of Fine Arts concerning a Congolese sculpture, acquired during the war, sheds light on this possibility. The artwork is currently part of the US museum’s collection. After years of refusals to loan the sculpture to a Congolese museum, the local community pulled an image of the artwork from the museum’s website, protected by copyright, and tokenised it for profit. They relied on ‘fair use’, claiming that the NFT was a form of reappropriation of the work, as there was no other possible access to their cultural heritage, from which the artwork originated. The copyright lawsuit is yet to be resolved and the Congolese community has minted over 300 NFTs of the sculpture’s image⁷⁴. The underlying question borne from this case revolves around control and ultimately, who should be able to tokenise and benefit from such works. In the local community’s latest statement, they request “shared ownership and governance of cultural goods with [them], on equal footing”⁷⁵ by means of a temporary loan. Perhaps, NFTs may be able to offer a middle solution: the possibility of a co-ownership agreement among the parties via smart-contract code, under which profits from the sales of NFTs are to be evenly distributed to the museum’s and the local community’s digital wallets. Though far from certain, NFTs might revolutionise collaborations and resolve disputes in previously unknown ways, enabling GM institutions and communities to enjoy co-ownership interests in a transparent and ICOM-compliant manner⁷⁶, that is beneficial to all involved and to society as a whole.

Finally, digital preservation is closely connected to modern technologies, the use of which necessitates high skills and funding. Indeed, the technology available to GM institutions - or their contractual partners - directly affects what and how can be reproduced and preserved. Also, format-shifting is constantly needed, the legal basis of which has become much clearer under the newly

⁷³ Seymour, T. (2022a). What is a museum? Icom finally decides on a new definition. *The Art Newspaper*, August 24, 2022 <<https://www.theartnewspaper.com/2022/08/24/what-is-a-museum-icom-finally-decides-on-a-new-definition>>.

⁷⁴ Seymour T. (2022b). Congolese artists mint NFTs to challenge US museum's ownership of indigenous sculpture. *The Art Newspaper*, June 15, 2022 <<https://www.theartnewspaper.com/2022/06/15/congolese-artists-mint-nfts-to-challenge-us-museums-ownership-of-indigenous-sculpture>>; Boffey D. (2022). Row about Congolese statue loan escalates into legal battle over NFTs. *The Guardian*, February 19, 2022 <<https://www.theguardian.com/artanddesign/2022/feb/19/congolese-statue-loan-legal-battle-nfts-colonial-rule-us-museum>>.

⁷⁵ Seymour (2022b).

⁷⁶ Seymour (2022a).

introduced CDSM Directive⁷⁷; still, no one can predict whether NFTs and blockchain will stay with us or whether they will be replaced by some new form of technology.

Bibliography

- (no named author) (2022) 5 Successful NFT Stories to Inspire, Medium (July 13, 2022) <https://art-wallet.medium.com/5-successful-nft-stories-to-inspire-14627edee5e5>.
- Ables, K. (2021). Crypto artists have been building a rebellious, underground community of outsiders for years. Now they're making a living selling NFTs. Washington Post (8 May 2021) https://www.washingtonpost.com/entertainment/museums/beeple-crypto-art-sales-nfts/2021/05/05/ecef3452-ac0d-11eb-acd3-24b44a57093a_story.html.
- Aksoy, P. Ç., & Üner, Z. Ö. (2021). NFTs and copyright: challenges and opportunities. *Journal of Intellectual Property Law & Practice*, 16(10), 1115–1126.
- artèQ. (2022, April 15). The Kiss NFTs at the Belvedere Museum. <https://arteq.io/happening/projects/the-kiss-nfts-at-the-belvedere-museum>.
- Artsy (2019). 6 Key Factors Driving Art Collectors - from Aesthetics to Investment. Artsy (23 September 2019) <https://www.artsy.net/article/artsy-editorial-drives-art-buyers>.
- Benhamou, Y., & Ferland, J. (2022). Digitization of GLAM Collections and Copyright: Policy Paper. *GRUR International*, 71(5), 404–406.
- Bodó, B., Giannopoulou, A., Mezei, P., & Quintais, J. P. (2022). The Rise of NFTs: These Aren't the Droids You're Looking For. *European Intellectual Property Review*, 44(5), 267–282.
- Boffey D. (2022). Row about Congolese statue loan escalates into legal battle over NFTs. *The Guardian*, February 19, 2022 <https://www.theguardian.com/artanddesign/2022/feb/19/congolese-statue-loan-legal-battle-nfts-colonial-rule-us-museum>.
- Bonhams. (2021, December 10). Ballet dance performances as NFTs: Bonhams auction house, Encore! Modern Art on Stage: Natalia Osipova: Triptych. https://www.bonhams.com/press_release/33503/.
- Boscheri C., Being a performing artist in the NFTs era: an overview of what is out there, *The Medium* (23 January 2022) <https://medium.com/@crinspires/being-a-performing-artist-in-the-nfts-era-an-overview-of-what-is-out-there-ab159db32545>.
- Bove, T. (2022). A 15-year-old whose NFT art sales over the past year are now worth more than \$1 million breaks down how he did it, *Fortune* (January 19, 2022), <https://fortune.com/2022/01/19/teen-nft-artist-1-million/>.
- Brown, K. (2021). NFTs Make Their Debut at Art Basel, Where Collectors Are Curious—And a Bit Confused—About the New Art Medium, *Artnet News* (September 21, 2021) <https://news.artnet.com/market/nfts-art-basel-2011438/amp-page/>.
- Carroll, R. (2022). NFTs: The Latest Technology Challenging Copyright Law's Relevance within a Decentralized System. *Fordham Intellectual Property, Media and Entertainment Law Journal*, 32(4), 979–1009.

⁷⁷ Article 6 CDSM Directive.

- Chalmers, D., Fisch, C., Matthews, R., Quinn, W. & Recker, J. (2022). Beyond the Bubble: Will NFTs and Digital Proof of Ownership Empower Creative Industry Entrepreneurs? *Journal of Business Venturing Insights*, 17, e00309, 2. doi:10.1016/j.jbvi. 2022.e00309
- Chalmers, L., et al. (2022). Authentication and provenance in blockchain-based art: An analytical framework. *Telematics and Informatics*, 65, 7.
- ConsensSys. Ethereum Blockchain Eliminates 99.99% of its Carbon Footprint Overnight After a Successful Merge According to New Report, (15 September 2022) <https://consensys.net/blog/press-release/ethereum-blockchain-eliminates-99-99-of-its-carbon-footprint-overnight-after-a-successful-merge-according-to-new-report/>.
- Crypto Carbon Ratings Institute (CCRI). The Merge - Implications on the Electricity Consumption and Carbon Footprint of the Ethereum Network Report, (September 2022) <https://carbon-ratings.com/eth-report-2022>.
- Crypto News. (2022, July 13). Italy: government blocks NFT sale of Uffizi masterpieces. <https://cryptonews.net/news/nft/9193675/>.
- De Filippi, P., Wray, C., & Sileno, G. (2021). Smart contracts. *Internet Policy Review*, 10(2) <https://doi.org/10.14763/2021.2.1549>.
- Dickson, A., (2019) How to move a masterpiece: the secret business of shipping priceless artworks, *The Guardian* (21 March 2019) <https://www.theguardian.com/artanddesign/2019/mar/21/how-to-move-a-masterpiece-secret-business-shipping-priceless-artworks-art-handling>.
- Fairfield, J.A.T. (2022). Tokenized: The Law of Non-Fungible tokens and Unique Digital Property. *Indiana Law Journal*, 97(4), 1261–1313.
- Frye, B. L. (2023, January 9). Should Art Museums Collect NFTs? Right Click Save. <https://www.rightclicksave.com/article/should-art-museums-collect-nfts>.
- Frye, B.L. (2022). After Copyright: Pwning NFTs in a Clout Economy. *The Columbia Journal of Law & the Arts*, 45(3), 341–352.
- Giannopoulou, A. (2019). The New Copyright Directive: Article 14 or when the Public Domain Enters the New Copyright Directive, *Kluwer Copyright Blog* (June 27, 2019) <https://copyrightblog.kluweriplaw.com/2019/06/27/the-new-copyright-directive-article-14-or-when-the-public-domain-enters-the-new-copyright-directive/>.
- Gibson, J. (2021). The thousand-and-second tale of NFTs, as foretold by Edgar Allan Poe. *Queen Mary Journal of Intellectual Property*, 11(3), 249–269.
- Goldstein, C. (2022, October 3). In a Major Shift, Museums Can Now Use the Proceeds From Deaccessioning for More Than Just Buying Art. *Artnet*. <https://news.artnet.com/art-world/aamd-museum-deaccession-rules-2185274>.
- Guadamuz, A. (2021a). The Treachery of Images: Non-fungible Tokens and Copyright. *Journal of Intellectual Property Law & Practice*, 16(12), 1367–1385.
- Guadamuz, A. (2021b). Copyfraud and copyright infringement in NFTs. *Technollama Blog* (14 March 2021) <https://www.technollama.co.uk/copyfraud-and-copyright-infringement-in-nfts>.

- Guadamuz, A. (2022). August Sander's photographic archive in NFT copyright dispute. TechnoLlama (May 10, 2022). <https://www.technollama.co.uk/august-sanders-photographic-archive-in-nft-copyright-dispute>
- Harris, G., & Munster, B. (2022). Italian government plans to halt digital sales of masterpieces from its major museums. The Art Newspaper (July 8, 2022). <https://www.theartnewspaper.com/2022/07/08/italian-government-weighs-in-on-digital-copies-fracas>
- Hope, J. (2022, November 3). The Seattle NFT Museum. Hedgehog. <https://blog.hedgehog.app/the-seattle-nft-museum/>.
- Idelberger, F., & Mezei, P. (2022). Non-fungible tokens. Internet Policy Review, 11(2), 5. <https://doi.org/10.14763/2022.2.1660>
- Jung, D. (2022). "NFTs and the Future of Digital Art." Harvard Business Review (June 28, 2022).
- Jung, Y. (2022). Current use cases, benefits and challenges of NFTs in the museum sector: toward common pool model of NFT sharing for educational purposes. Museum Management and Curatorship, 7 <https://doi.org/10.1080/09647775.2022.2132995>.
- Khomami, N. (2021). British Museum enters world of NFTs with digital Hokusai postcards. The Guardian (September 24, 2021). <https://www.theguardian.com/technology/2021/sep/24/british-museum-nfts-digital-hokusai-postcards-lacollection>
- Khomami, N. (2022). Egon Schiele painting of his uncle rediscovered after over 90 years. The Guardian (May 5, 2022). <https://www.theguardian.com/artanddesign/2022/may/05/egon-schiele-painting-uncle-rediscovered-90-years>
- Lapatoura, I. (2021). Creative digital assets as NFTs: a new means for giving artists their power back? Entertainment Law Review, 32(6), 169–172.
- Lydiate, H. (2012). Authenticity Certificates Value. Artquest <https://artquest.org.uk/artlaw-article/authenticity-certificates-value/>.
- Marshall, A. (2021). British Museums Face Covid's Long-Term Effects, The New York Times (October 14, 2021) <https://www.nytimes.com/2021/10/14/arts/design/british-museums-recovery.html>.
- Mittendorf, B. & Smith, S. S. (2021). 4 Reasons Why Museums Are Steering Clear of the NFT Craze, The Conversation (November 19, 2021) <https://theconversation.com/4-reasons-why-museums-arent-cashing-in-on-nfts-yet-171993>.
- Nayeri, F. (2022). NFTs, on the Decline Elsewhere, Are Embraced by Some Museums. The New York Times (November 30, 2022). <https://www.nytimes.com/2022/11/30/arts/design/nfts-museums.html>
- Nayeri, F. (2022, November 30). NFTs, on the Decline Elsewhere, Are Embraced by Some Museums. The New York Times. <https://www.nytimes.com/2022/11/30/arts/design/nfts-museums.html>.
- Noh, M.E., Odenkirk, S.C., & Shionoiri, Y. (2022). GM! Time to Wake Up and Address Copyright and Other Legal Issues Impacting Visual Art NFTs. The Columbia Journal of Law & the Arts, 45(3), 315–340.

- Reyburn, S. (2022). Museums Are Cashing in on NFTs. *The New York Times* (March 25, 2022). <https://www.nytimes.com/2022/03/25/arts/design/museums-nfts.html>
- Rosen, P. (2021, December 13). All museums will build a metaverse copy using NFTs, predicts contemporary art chief at world's largest museum. *Market Insider*. <https://markets.businessinsider.com/news/currencies/museum-metaverse-twin-digital-art-nfts-state-hermitage-museum-russia-celestial-hermitage>.
- Sappa, C. (2022). The role of libraries and archives in the NFT ecosystem. In M. Ricciardi (Ed.), *The NFT Ecosystem: Markets, Practices, and Legal Issues* (pp. 183-198). Springer International Publishing.
- Serpentine. (2022, January 18). Acute Art Presents KAWS: New Fiction. <https://www.serpentinegalleries.org/whats-on/acute-art-presents-kaws-new-fiction/>.
- Seymour T. (2022a). What is a museum? Icom finally decides on a new definition. *The Art Newspaper*, August 24, 2022 <https://www.theartnewspaper.com/2022/08/24/what-is-a-museum-icom-finally-decides-on-a-new-definition>.
- Seymour T. (2022b). Congolese artists mint NFTs to challenge US museum's ownership of indigenous sculpture. *The Art Newspaper*, June 15, 2022 <https://www.theartnewspaper.com/2022/06/15/congolese-artists-mint-nfts-to-challenge-us-museums-ownership-of-indigenous-sculpture>
- Small, Z. (2022). After Pak and Beeple, What's Next for NFT Collectors? Art Made With a Paintbrush. *The New York Times* (12 February 2022) <https://www.nytimes.com/2022/02/12/arts/design/nft-collectors-artwork.html>.
- Sotheby's Metaverse. Chromie Squiggle: MINT IT! (6 December 2021) <https://metaverse.sothebys.com/chromie-squiggle-mint-it>.
- Sussman, A. L. (2018). Why You Can't Always Buy a Work of Art Just Because You Have the Cash. *Artsy* (December 12, 2018) <https://www.artsy.net/article/artsy-editorial-buy-work-art-cash>.
- Takac, B. (2019). Before Maurizio Cattelan's Banana, There Was Yves Klein's Zone de Sensibilité Picturale Immatérielle. *Widewalls* (December 13, 2019) <https://www.widewalls.ch/magazine/yves-klein-zone-of-immaterial-pictorial-sensibility>.
- Thorn, A., Marcantonio, M., & Parker, G. (2022). A Survey of NFT Licenses: Facts & Fictions. *Galaxy*. <https://www.galaxy.com/research/insights/a-survey-of-nft-licenses-facts-and-fictions/>
- Thorn, M., Marcantonio, R., & Parker, R. (2022). What do we really mean by 'public domain' when we talk about CC0-licensed NFTs?. *First Monday*, 27(2). <https://doi.org/10.5210/fm.v27i2.11945>
- Thorn, M., Marcantonio, S., & Parker, C. (2022). Non-Fungible Tokens and Creative Commons 0. *Law, Innovation and Technology*, 14(1), 22-43.
- Trautman, L. J. (2022). Virtual Art and Non-Fungible Tokens. *Hofstra Law Review*, 50(2), 361–426.
- Truby, J., Brown, R.D., Dahdal, A., & Ibrahim, I. (2022). Blockchain, climate damage, and death: Policy interventions to reduce the carbon emissions, mortality, and net-zero implications of non-

fungible tokens and Bitcoin. *Energy Research & Social Science*, 88, 102499. <https://doi.org/10.1016/j.erss.2022.102499>.

Valeonti, F., Bikakis, A., Terras, M., Speed, C., Hudson-Smith, A. & Chalkias, K. (2021). Crypto Collectibles, Museum Funding and OpenGLAM: Challenges, Opportunities and the Potential of Non-Fungible Tokens (NFTs). *Applied Sciences*, 11, 9931, 4–7. doi: 10.3390/app11219931

Valeonti, F., et al. (2021). Blockchain for Cultural Heritage: A Study on the Potential of Decentralization for the Protection of Endangered Digital Assets. *Frontiers in Blockchain*, 4, 11-12.

Valeonti, F., Markaki, V., & Giannopoulou, A. (2021). Intellectual Property Rights and Non-Fungible Tokens: Current Issues and Future Prospects. *Oxford Journal of Intellectual Property Law & Practice*, 16(2), 1-13.

Valeonti, F., Snijders, C., Georgi, F., van der Graaf, S., & van der Molen, P. (2021). How museums adopt and use digital technologies: a systematic review of literature. *Heritage Science*, 9(1), 1-23.

Weinberg, M. (2022, January 25). Are NFTs Compatible with OpenGLAM? <https://michaelweinberg.org/blog/2022/01/25/nft-open-glam/>.

Wijsmuller, D. (n.d.). Legislation on deaccessioning and disposal. Museums and Deaccessioning in Europe. <https://www.museumsanddeaccessioning.com/parameter/legislation/>.

Xiao, B. (2022). Chinese court rules on NFT transactions and responsibility of trading platforms. *Journal of Intellectual Property Law & Practice*, 17(8), 604–606.