

The Non-Fungible Token (NFT), Origin of the Third Digital Revolution in the Art Market

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▶ To cite this version:

Siavash Shahrjerdi. The Non-Fungible Token (NFT), Origin of the Third Digital Revolution in the Art Market. International Journal of Digital and Data Law / Revue internationale de droit des données et du numérique, 2022. halshs-03791436

HAL Id: halshs-03791436 https://shs.hal.science/halshs-03791436v1

Submitted on 29 Sep 2022

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INTERNATIONAL JOURNAL OF DIGITAL AND DATA LAW

REVUE INTERNATIONALE DE DROIT DES DONNÉES ET DU NUMÉRIQUE



Vol. 8 - 2022



International Journal of Digital and Data Law Revue internationale de droit des données et du numérique

Direction : Irène Bouhadana & William Gilles

ISSN: 2553-6893

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2) la Revue internationale de droit des données et du numérique (RIDDN)/International Journal of Digital and Data Law [ISSN 2553-6893].



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The International Journal of Digital and Data Law / Revue Internationale de droit des données et du numérique (RIDDN) is an academic journal created and edited by Irène Bouhadana and William Gilles at IMODEV, the Institut du monde et du développement pour la bonne gouvernance publique.

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THE NON-FUNGIBLE TOKEN (NFT): ORIGIN OF THE THIRD DIGITAL REVOLUTION IN THE ART MARKET

by **Siavash SAHRJERDI**, PhD Candidate in Law at the University Paris 1 Panthéon-Sorbonne, Lawyer and Teacher

In recent years, the art market has undergone two revolutions thanks to *digital* and *artificial intelligence* technologies. These are respectively the "launch of the first online marketplace for fine art as well as the virtual art auctions"¹ and "the creation and marketing of auto-created art works, made by the artificial intelligence"². In 2020, the *blockchain* technology brought about "the third revolution". This resulted in the emergence of the concept of "crypto-art", which is an artwork created and certified by a non-fungible token (NFT)³. This third step is likely to be more important than the first and the second revolutions, because it transforms the structural basis of this market, especially its business model and valuation logic⁴ (§ 1). This article aims to

^{*} In December 2021, the draft of this paper was minted as an NFT (ERC-1155) under the following contract address: 0x2953399124F0cBB46d2CbACD8A89cF0599974963.

¹ J. SHURVELL, "The World's First Online Auction House Exclusively Selling Emerging Artists' Work", *Forbes*, 31 March 2019:

https://www.forbes.com/sites/joanneshurvell/2019/03/31/the-worlds-first-onlineauction-house-exclusively-selling-emerging-artists-work/?sh=54b459325b67 (retrieved 7 December 2021).

² Christie's, "Is artificial intelligence set to become art's next medium?", 12 December 2018, [https://www.christies.com/features/A-collaboration-between-two-artists-onehuman-one-a-machine-9332-1.aspx?sc_lang=en] (retrieved 8 December 2021). ; cf. C. QUACKENBUSH, "A Painting Made by Artificial Intelligence Has Been Sold at Auction for \$432,500", *Times*, 26 October 2018, [https://time.com/5435683/artificialintelligence-painting-christies/] (retrieved 8 December 2021) ; cf. P. ABRY, H. WENDT, S. JAFFARD, "When Van Gogh Meets Mandelbrot: Multifractal classification of painting's texture", Signal Processing, vol. 93, no. 3, 2013, pp. 554-572 ; cf. M. MAZZONE, A. ELGAMMAL, "Art, Creativity, and the Potential of Artificial Intelligence", Artnodes [online], nº 26, 2020, pp. 1-8, [https://doi.org/10.7238/a.v0i26.3366] (retrieved 8 December 2021). ; S. COLTON, J. HALSKOV, D. VENTURA, I. GOULDSTONE, M. COOK, B. PEREZ-FERRER, "The Painting Fool Sees! New Projects with the Automated Painter", Proceedings of the Sixth International Conference on Computational Creativity, June 2015, pp. 189-196. ; Sh. YANISKY-RAVID, L. A. VELEZ-HERNANDEZ, "Copyrightability of Artworks Produced by Creative Robots and Originality: The Formality-Objective Model", Minnesota Journal of Law, Science & Technology, vol. 19, nº 1, 2018, pp. 1-53. ; J.-W. HONG, N. M. CURRAN, "Artificial Intelligence, Artists, and Art: Attitudes Toward Artwork Produced by Humans vs. Artificial Intelligence", ACM Transactions on Multimedia Computing, Communications, and Applications, vol. 15, nº 2, 2019, Art. nº 58, pp. 1-16.

³ An NFT can also be created by the artificial intelligence and certified by a blockchain system.; cf. J. ZHOU, "NFT digital artwork by humanoid robot Sophia up for auction", *Reuters*, 22 mars 2021, [https://www.reuters.com/article/us-hongkong-robot-idUSKBN2BE0HM] (retrieved 6 December 2021).

⁴ Cf. M. NADINI, L. ALESSANDRETTI, F. DI GIACINTO, M. MARTINO, L. M. AIELLO, A. BARONCHELLI, "Mapping the NFT revolution: market trends, trade networks, and visual features", *Scientific Reports*, vol. 11, article no. 20902, 2021,

present an overview on its background and a new reflection on the technical and legal issues raised by this technology (§ 2).

$\$ 1 – The Emergence of a New Configuration of the Art Market

Before analyzing the legal issues of the NFTs, it's important to understand the particularities of lexical and technical characteristics of this technology (A) as well as its revolutionary presence in the art market (B).

A) The Lexical and Technical Characteristics of NFTs

The word "digital art" is massively used by art market professionals to describe NFTs. However, this usage is neither technical nor precise, since it also can be used to describe all the works created automatically by the artificial intelligence or even those created by humans using digital tools. That's why the term "crypto-art" is more appropriate, because NFT is not only digital but also a part of the blockchain system.

Technically, its system of production is similar to the cryptocurrencies. Yet unlike the latter, the NFTs are "non fungible" and can only be created on one person's initiative and can only be exchanged with "other cryptocurrencies" and not fiat (ordinary or paper) currencies. NFTs are created on the *Ethereum* blockchain network⁵. That's why since its emergence, they have been always exchanged with this cryptocurrency⁶. That is a unique characteristic of this market. Additionally, they are characterized by their rarity and originality, which is a common characteristic with classical artworks. The creators of NFTs are essentially the content creators. The NFT enables them to protect its copyright, trace its ownership and collect royalties from future sales of the NFT⁷. They could be sold or transferred as a gift. In both cases, the payment of a transaction fee (known as gas fee) will be required⁸.

[[]https://doi.org/10.1038/s41598-021-00053-8] (retrieved 6 December 2021). ; M. MAZUR, "Non-Fungible Tokens (NFT). The Analysis of Risk and Return", *IESEG School of Management*, 31 October 2021, [http://dx.doi.org/10.2139/ssrn.3953535] (retrieved 7 December 2021).

⁵ Ethereum, *Non-fungible tokens (NFT)*, [https://ethereum.org/en/nft/] (retrieved 6 December 2021). ; O. HOLLAND, "Sophia the Robot 'self-portrait' NFT sells for almost \$700K, 25 mars 2021", *CNN Style*, [https://edition.cnn.com/style/article/nft-art-sophia-robot-self-portrait-scn/index.html] (retrieved 6 December 2021). ⁶ *Ibidem.*

⁷ Cf. P. TAN, "NFTs and the IP conundrum", *Asia Business Law Journal*, 3 November 2021, [https://law.asia/nfts-ip-conundrum/] (retrieved 6 December 2021).

⁸ The creation of NFTs is not subject to a payment.

B) A Revolutionary Presence in the Art Market

The important point about NFTs is that they can be either used for certifying "existing artworks" or it can be created and marketed itself as "an artwork or an asset". As such, it can be a *certificate of authenticity* and *a record of ownership* (or a title deed)^{9,10} at the same time.

Thanks to the traceability provided by the blockchain system, this type of certification can potentially reduce not only the risk of art *theft*¹¹ but also the risk of *counterfeiting*. Nevertheless, situation can be more complicated when pre-existing (physical or digital) art works are tokenized and transformed in NFT. In this case, it is possible to transform a material or digital art into a defined number of tokens. In this hypothesis, the total value of the work could be shared between the tokens. Then each one is considered as a single asset with a distinct value. In this case, one is not actually co-owning the original artwork but only the (the separated) tokens made from it¹². That's what distinguishes the NFT market from the crypto-currency one. Because unlike the latter, the value of one NFT would not necessarily impact the value of other NFTs made from the same artwork, while all the tokens of a single cryptocurrency (like all other fungible tokens) have the same and equal value. That's why NFTs create a very specific market. This system can lead to the creation of "cryptoarts serial-buyers on the same model as serial-investors in the crypto-currency market". In this context, investors can buy them either because of their artistic and intellectual value or simply as an asset with financial value, even without seeing it (exactly like the stock market). An NFT artwork can also be generated in one or multiple editions¹³.

Before being in the art market, NFTs were used in other sectors. For the first time, in 2017, it was initially used by the *CryptoKitties*

⁹ In this regard, it seems to be perfectly in accordance with the articles 1353 and 2453 of French Civil code.

¹⁰ It could also be considered as an ideal tool for certifying and protecting and selling the innovative ideas. In France, it could be also recognized by the *Institut national de la propriété industrielle* (INPI) as an official certification tool.

¹¹ The artificial intelligence technology could also have the same usage in the art market. ; S. SHIRODKAR, "Can AI Truly Give Us a Glimpse of Lost Masterpieces?", *Wired*, 24 november 2021, [https://www.wired.com/story/artificial-intelligence-reviving-lostart/] (retrieved 6 December 2021).

¹² For example, in July 2021, a Picasso painting was tokenized in the same way. So now, the buyers are not co-owning the Picasso's work, but they own only a part of its NFT version. ; B. HUGHES NEGHAIWI, "Shares in Picasso painting go up for grabs at \$6,000 in blockchain sale", *Reuters*, 15 July 2021, [https://www.reuters.com/lifestyle/shares-picasso-painting-go-up-grabs-6000-blockchain-sale-2021-07-15/] (retrieved 7 December 2021).

¹³ G. ADAM, "NFTs: a new disruptor in the art market?", *The Art Newspaper*, 27 January 2021, [https://www.theartnewspaper.com/2021/01/27/nfts-a-new-disruptor-in-theart-market] (retrieved 6 December 2021). For example, the *NBA Top Shots*, have been created and sold in numbered editions. (Cf. I. VERGARA, « NFT sportifs : l'éditeur de NBA Top Shot valorisé plus de 7 milliards de dollars », *Le Figaro*, 23 septembre 2021, [https://www.lefigaro.fr/secteur/high-tech/nft-sportifs-l-editeur-de-nba-top-shot-valorise-plus-de-7-milliards-de-dollars-20210923] (retrieved 6 December 2021).

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platform for selling digital icons, and then by Gamedex for selling the digital card games. Because of its incredible commercial success, it was subsequently used by Nike to certify and sell its patents. In 2021, Jack DORSEY, the co-founder of Twitter, certified and sold his first post on Twitter as an NFT¹⁴. On 4th of March 2021, a \$100,000 Bansky screen print was burned by a cryptocurrency group and sold as an NFT for \$382,000¹⁵. A few days later, on 11th March 2021, at Christie's initiative, a digital painting by Mike WINKELMANN (Beeple) sold for 69.3 million dollars, although its initial price was \$100. This work brings together 5,000 of his drawings, each separately certified by an NFT¹⁶. This is how he became the third most expensive living artist in the world. According to the Christie's, 22 million people participated in this sale, which is known as "the first public auction of an NFT". After these events, it became the opium of art collectors especially in the United-States¹⁷, the United Kingdom¹⁸ and China^{19,20}.

According to the ArtPrice Agency, the NFT transactions represent "a third of the value of online sales, or 2% of the global Art Market in 2021"²¹. The NFT aims to decentralize the art market, since they are currently in full trade through different platforms dedicated to their creation and marketing. This can be interpreted as a kind of

transformation] (retrieved 6 December 2021).

¹⁴ E. HOWCROFT, "Twitter boss Jack Dorsey's first tweet sold for \$2.9 million as an NFT", *Reuters*, 22 March 2021, [https://www.reuters.com/article/us-twitter-dorsey-nft-idUSKBN2BE2KJ] (retrieved 6 December 2021).

¹⁵ More precisely, it was the video of burning which has been transformed in NFT and has been sold.; C. CRIDDLE, "Banksy art burned, destroyed and sold as token in money-making stunt", *BBC*, 9 March 2021, [https://www.bbc.com/news/technology-56335948] (retrieved 6 December 2021).

¹⁶ Christie's, *Beeple (b. 1981)*, 11 March 2021, [https://onlineonly.christies.com/s/firstopen-beeple/beeple-b-1981-1/112924] (retrieved 8 December 2021). ; R. RIEGELHAUPT, "RESULTS: Beeple's Purely Digital NFT-Based Work of Art Achieves \$69.3 Million at Christie's", *Christie's*, 11 March 2021, [https://www.christies.com/about-us/press-

archive/details?PressReleaseID=9970&lid=1] (retrieved 8 December 2021). ; K. CHAYKA, "How Beeple Crashed the Art World", *Nenyorker*, 22 March 2021, [https://www.newyorker.com/tech/annals-of-technology/how-beeple-crashed-the-art-world (retrieved 8 December 2021).

¹⁷ For knowing more about the legal issues of the NFT in the United-States, *see*. Jones Day, "NFTs: Key U.S. Legal Considerations for an Emerging Asset Class", April 2021, [https://www.jonesday.com/en/insights/2021/04/nfts-key-us-legal-considerations-for-an-emerging-asset-class/] (retrieved 6 December 2021).

¹⁸ ArtPrice, "Artprice analyses the art market's dazzling recovery from the health crisis in H1 2021, fortified by its digital transformation", 4 August 2021, [https://www.artprice.com/artmarketinsight/artprice-analyses-the-art-marketsdazzling-recovery-from-the-health-crisis-in-h1-2021-fortified-by-its-digital-

¹⁹ Cf. Sh. ESCALANTE-DE MATTEI, Christie's Hong Kong is the First to Auction Profile Pic NFTs, *ArtNews*, 11 August 2021, [https://www.artnews.com/artnews/market/avatar-nfts-featured-christies-hong-kong-1234601227/] (retrieved 6 December 2021).

²⁰ Agence France-Presse in Paris, "NFTs drive sales of contemporary art to record £2.7bn This article is more than 2 months old Non-fungible tokens boost postpandemic recovery as Hong Kong emerges to challenge New York", *The Gaurdian*, 4 october 2021, [https://www.theguardian.com/artanddesign/2021/oct/04/nfts-drivesales-of-contemporary-art-to-record-27bn] (retrieved 6 December 2021).

²¹ Artprice, *3. Trends*, [https://www.artprice.com/artprice-reports/the-contemporary-art-market-report-2021/3-trends] (retrieved 6 December 2021).

uberisation of the art market. The *DappRadar*'s analyses show that, in the second quarter of 2021 NFTs, the amount of transactions "outside auction houses" was about \$2.4 billion²². These platforms can gradually replace the traditional auction houses, even if by the end of august 2021, the Sotheby's has also launched its own NFT platform²³. It also leads the art and IT investors as well as the museums to study the possibility of launching the specific museums for NFT works (especially in New York City²⁴ and Seattle²⁵). Despite all interests provided by this technology, its system of production has been massively criticized for its negative impacts on the environment and its potentially dangerous effects on climate change²⁶.

§2 – THE EMERGENCE OF ORIGINAL LEGAL ISSUES

From a legal point of view, NFTs present various and significant legal issues related to *intellectual property*, *notary* and *taxation*. In Europe, and more specifically in France, the NFTs are not subject to any "specific" legal regulation. It is very difficult to judge the adequacy of the current legal framework of NFT which is principally ruled by the general rules applicable on blockchain and not necessarily the cryptocurrencies²⁷.

The originality of the technical characteristics of this technology brings us to rethink over the adequacy of current applicable legal regime on this technology (A) and the necessity of creating a new legal framework regulating its issues (B).

²² Sh. ESCALANTE-DE MATTEI, "With \$2.4 Billion in Transactions, NFT Market Defies Expectations in Second Quarter of 2021", *ArtNews*, 21 July 2021, [https://www.artnews.com/art-news/news/nft-market-defies-expectations-second-quarter-2021-1234599372/] (retrieved 6 December 2021).

²³ Sotheby's, *Metaverse*, [https://metaverse.sothebys.com/hackatao-queens-and-kings] (retrieved 6 December 2021).

²⁴ H. HOLMES, "The World's Largest NFT Museum Could Soon Reshape the New York City Skyline", Observer, 25 May 2021, [https://observer.com/2021/05/toddmorley-nft-museum/[https://metaverse.sothebys.com/hackatao-queens-and-kings]

⁽retrieved 8 December 2021). ; S. KIDERLIN, "Guggenheim's cofounder is building a blockchain tower that will host the world's largest NFT museum", *Business Insider*, 25 May 2021, [https://markets.businessinsider.com/news/currencies/nft-museum-guggenheim-todd-morley-blockchain-tower-crypto-2021-t] (retrieved 8 December 2021).

²⁵ Sh. ESCALANTE-DE MATTEI, "NFTs Will Get a Dedicated Physical Museum in Seattle Next Month", *Artnews*, 3 December 2021, [https://www.artnews.com/artnews/news/seattle-nft-museum-opening-1234612211/] (retrieved 8 December 2021).

²⁶ R. BRUNER, "Environmental Concerns Have Cast Doubt on NFTs—But That's Changing", *Times*, 18 November 2021, [https://time.com/6120237/nfts-environmental-impact/] (retrieved 6 December 2021). ; G. BARBER, "NFTs Are Hot. So Is Their Effect on the Earth's Climate", *Wired*, 3 June 2021, [https://www.wired.com/story/nfts-hot-effect-earth-climate/] (retrieved 6 December 2021).

²⁷ Cf. P. MASON, "The looming legal and regulatory questions NFT collectors and sellers should prepare for", *The Art Newspaper*, 22 March 2021, [https://www.theartnewspaper.com/2021/03/22/the-looming-legal-and-regulatory-

questions-nft-collectors-and-sellers-should-prepare-for] (retrieved 6 December 2021).; Cf. D. L. CONCANNON, Y. D. VALDEZ, S. P. WINK, "The yellow brick road for consumer tokens: The path to SEC and CFTC compliance", In. J. DEWEY (dir.), *Blockchain & Cryptocurrency Regulation*, Global Legal Insights, first edition, 2019, pp. 101-120.

A) The Uncertain Adequacy of the Current Legal Framework

In France, the NFT may be considered as a *digital asset*²⁸ under the article 86 of the French PACTE law of 22 May 2019 which created the article L. 54-10-1 of the Monetary and Financial Code. Its second paragraph defines the digital asset as "any digital representation of a value which is not issued or guaranteed by a central bank or by a public authority, which is not necessarily attached to a currency having legal tender and which does not have the legal status of a currency, but which is accepted by natural or legal persons as a medium of exchange and which can be transferred, stored or exchanged electronically". The article L. 552-2 of the Monetary and Financial Code can also be applicable on NFTs. It recognizes and defines the tokens as "any intangible asset representing, in digital form, one or more rights that can be issued, registered, stored or transferred by means of an shared electronic recording device allowing to identify, directly or indirectly, the owner of the property".

It also could be recognized as a *minibon*²⁹ (a kind of a cash voucher)³⁰ by the article L. 223-6 of the Monetary and Financial Code, article 168 of French law on growth, activity and equal economic opportunities of 6 august 2015 and the governmental act of 28 April 2016 *relating to cash vouchers*. According to the article L223-12 of the Monetary and Financial Code, this second hypothesis could be only possible when there is the possibility of authentication of transactions, under the conditions defined by a decree of the Council of State. These conditions seem to be compatible with the characteristics of NFTs.

Once it is sold, and the seller received a cryptocurrency, the article 150 VH bis of the French tax code would be applied. However, in France, there is no any clear position on the applicable taxation system on NFT, especially while it's created but not sold or exchanged with another NFT³¹. It totally depends on if it's considered as an *artwork* or a *financial asset*³². In France, it can be considered as a fundamental legal problematic. Because in any of these two hypotheses, the applicable legal regulation will

²⁸ Cf. W. HINMAN, "Digital Asset Transactions: When Howey Met Gary (Plastic)", U.S. Securities and Exchange Commission, 14 June 2018,

[[]https://www.sec.gov/news/speech/speech-hinman-061418] (retrieved 6 December 2021).

²⁹ Cf. F. GOMEZ, "Le minibon, nouvel outil de financement participatif des entreprises", *Les Echos Entrepreneurs*, 21 July 2016,

[[]https://business.lesechos.fr/entrepreneurs/financer-sa-creation/le-crowdlending-se-dote-d-un-nouvel-outil-212370.php] (retrieved 6 December 2021).;

cf. French National Assembly, *Proposition de loi visant à faciliter le financement des entreprises via les intermédiaires en investissement participatif*, doc. no. 3571, submitted on 17 November 2020.

³⁰ Cf. Regulation (EU) 2020/1503 of the European Parliament and of the Council of 7 October 2020 on European crowdfunding service providers for business, and amending Regulation (EU) 2017/1129 and Directive (EU) 2019/1937.

³¹ Even if the Creation of an asset by itself is not necessarily subject to tax, its creation could be treated as a capital asset that may be subject to capital asset tax.

³² In the United-States, the *Visual Artists Rights Act of 1990* would be only applicable on NFTs only when they are recognized as the "real visual art works". It could depend on the approach of the American courts and tribunal toward its status.

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be different (especially, from the point of view of tax law). In the first hypothesis (if they are considered as the real artworks), some tax exonerations or deduction could be granted by the article 238 bis AB of the French general tax law³³. This article applies exclusively to acquisition of artworks created by "living artists". Now, in the NFT market, (compared to the traditional art market) its scope of applicability might be significantly larger, because all these works are created since 2020.

B) The Uncertain Necessity of Creating a New Legal Regulation

When a NFT is made, it becomes totally separated from the original work. consequently, the artistic characteristics and the intellectual property rights associated with the original work will not be automatically transferred to the NFT. That's why its legal status remains uncertain and, in the absence of a specific legislation, should be analyzed and defined on a case-by-case basis. It highlights the necessity of clarifying a legal framework for this technology. Considering this particularity, in order to better protect the intellectual property rights associated with NFTs, we can apply the *deep image mining* techniques³⁴, on the sell and collection platforms, for identifying the similarities between them and tracking the counterfeit trends. Because the NFTs are also protected under the copyright law.

CONCLUSION

These considerations bring us to conclude that the legal issues of this new phenomena are particularly different than the classical art works and the fungible tokens. That highlights not only the

³³ Cf. French official bulletin of public finances – taxes, BIC - Frais et charges d'exploitation – Dépenses non liées à l'objet de l'entrprise rendues déductibles par la loi : mesures en faveur du mécénat – Dépenses d'acquisition d'œuvres d'artistes vivants ou d'instruments de musique, legal reference code : BOI-BIC-CHG-70-10, 3 février 2021 ;

cf. French National Assembly, *The question asked by Mme. Annie Genevard*, question no. 22584, the question asked on 3 September 2019 (the answer has been published on 12 January 2021), [https://questions.assemblee-nationale.fr/q15/15-22584QE.htm] (retrieved 6 December 2021) ;

cf. M. BEUREL, « Déduction fiscale pour acquisition d'une œuvre d'art », Les Échos Entrepreneurs, 19 février 2020,

[[]https://business.lesechos.fr/entrepreneurs/juridique/17137148-deduction-fiscalepour-acquisition-d-une-uvre-d-art-342346.php] (retrieved 6 December 2021) ;

cf. Boursorama, *Quelle fiscalité s'applique à une œuvre d'art?*, 27 October 2021, [https://www.boursorama.com/patrimoine/fiches-pratiques/quelle-fiscalite-s-applique-a-une-oeuvre-d-art-edbe674adedeb97ab491a2467997e75d] (retrieved 6 December 2021).

³⁴ Cf. A. J. DHAMEA, M. H. MURTADHA, A. T. H. ALRAWI, "Deep image mining for convolution neural network", *Indonesian Journal of Electrical Engineering and Computer Science*, vol. 20, nº 1, october 2020, pp. 347-352. ; W. HSU, L. L. MONG, "Image Mining: Trends and Developments", *Journal of Intelligent Information Systems*, 2002, vol. 19, nº 1, pp. 7-23. ; A. MORDVINTSEV, Ch. OLAH, M. TYKA, "Inceptionism: Going Deeper into Neural Networks", *Google AI Blog*, 17 June 2015 (updated on 13 July 2015), [https://ai.googleblog.com/2015/06/inceptionism-going-deeper-into-neural.html] (retrieved 9 December 2021).

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question of regulating the NFTs reinforcing the ethical behavior and performance in its market, but also the necessity of forming a new generation of experts for resolving these complicated issues. This requires a solid knowledge in various fields such as the intellectual property and copyright law, the art market, the history of art and the Information Technology (especially the blockchain system). The launch of the specialized interdisciplinary programs for training these experts at universities and art market training centers might be a pertinent idea. It would be also possible to create the national, regional or international authorities for regulating its market. Because of the original character of each NFT, its legal framework and the control of governmental and independent authorities should be more delicate than what already applies to other blockchain systems (like the cryptocurrencies). Furthermore, because of its digital and supranational character, a strong international cooperation between the Sates and providers of NFT platforms is necessary for reinforcing the financial investigation and control on the transactions made in this market.

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