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Artwork circulation and Blockchain:  
a legal overview

Chiara Iorio

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# ARTWORK CIRCULATION AND BLOCKCHAIN: A LEGAL OVERVIEW

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**SOMMARIO:** 1. Introduction – 2. Blockchain and smart contracts: a general framework – 3. Art and blockchain: perspectives and issues – 4. Blockchain: a reliable system for artwork circulation; 4.1 The blockchain air gap; 4.2 The applicable remedies – 5. Non fungible token: a controversial legal nature; 5.1 NFTs and Copyright – 6. The new frontiers: crypto-art and tokenization of a cultural asset – 7. Conclusion: law and technology

**ABSTRACT:** *Among the many sectors using shared ledgers, that of art appears to gain relevance. The present essay gives a general overview of the relevant technologies and aims at putting artwork trading through a distributed ledger into a legal framework. In the first part, Blockchain as a reliable system for artwork circulation will be analyzed. The second part will deal with the legal classification of NFTs and the most relevant issues related to the new frontiers of crypto-art.*

## 1. Introduction

The relationship between law and new technologies has become a central theme within the academic debate<sup>1</sup>. While electronic negotiation has long

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<sup>1</sup> Among the many, F. GALGANO, *I caratteri della giuridicità nell'epoca della globalizzazione*, in AA.VV., *Diritto, politica e realtà sociale nell'epoca della globalizzazione*, a cura di G. Torresetti, Macerata, 2008, p. 183; N. IRTI, *Norma e luoghi. Problemi di geo-diritto*, Roma-Bari, 2006, p. 5; F. DI CIOMMO, *La responsabilità civile in internet. Prove di governo dell'anarchia tecnocratica*, *Resp. civ.*, 2006, p. 550; J. R. REIDENBERG, *Lex Informatica: The formulation of information policy rules through technology*, in *Tex. Law Review*, 1998, vol. 76, p. 553; D. R. JHONSON, *Law and Borders – The rise of Law in Ciberspace*, in *Stan. Law Review*, 1996, vol. 48, p. 1367; M.

been the focus of legal studies, in more recent times blockchain has gained greater relevance<sup>2</sup>. Among the many sectors using shared ledgers, that of art appears to be able to optimize the potentials of these DLTs (Distributed Ledger Technologies)<sup>3</sup>. The new features of the technologies could indeed solve some critical issues related to artwork trading under the existing legal framework, ensuring certainty and authenticity of the purchased item. At the same time, however, the use of blockchain in the art sector raises legal questions – mostly related to the applicability of the traditional remedies – which need to be fully addressed.

The present essay gives a general overview of the relevant technologies and aims at putting artwork trading through a distributed ledger into a legal framework.

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FROOMKIN, *The Internet as a Source of Regulatory Arbitrag*, in AA.VV.: *Borders in Cyberspace*, Cambridge, 1997; C. ROSSELLO, *La governance di Internet tra diritto statale, autodisciplina, soft law e lex mercatoria*, in AA. VV.: *Commercio elettronico*, in *Tratt. dir. priv.* Bessone, Torino, 2007, vol. XXXII, p. 3; G. FINOCCHIARO, *Lex mercatoria e commercio elettronico. Il diritto applicabile ai contratti conclusi su Internet*, *Contr. impr.*, 2001, pp. 571 ss; A. M. GAMBINO, *L'accordo telematico*, Milano, 1997; E. DAMIANI, *Difficulties in adapting the general discipline of the agreement to the phenomenon of the completion through automatised systems in the civil law before and after the codification of 1942*, in *Comparazione dir. civ.*, 2019, 1, p. 1.

<sup>2</sup> A. WRIGHT – P. DE FILIPPI, *Decentralizes Blockchain technology and the rise of Lex Cryptographia*, 2015, <https://ssrn.com/abstract=2580664> or <http://dx.doi.org/10.2139/ssrn.2580664>, p. 45; F. GAMBINO, *The Blockchain technology between the law of contemporaneity and the new power structure*, in AA. VV.: *Legal technology transformation. A practical assessment*, Napoli, 2020, p. 223; F. SARZANA DI SANT'IPPOLITO, M. NICOTRA, *Diritto della blockchain, intelligenza artificiale e IoT*, Milano, 2018, p. 9; R. BATTAGLINI, M. TULLIO GIORDANO, *Blockchain e smart contract. Funzionamento, profili giuridici e internazionali, applicazioni pratiche*, Milano, 2019, p. 15; M. GIULIANO, *La blockchain e gli smart contracts nell'innovazione del diritto nel terzo millennio*, in *Dir. inf.*, 2018, p. 989.

<sup>3</sup> See G. MAGRI, *La Blockchain può rendere più sicuro il mercato dell'arte?*, in *Aedon*, 2, 2019, p. 302; G. FREZZA, *Blockchain, autenticazioni e arte contemporanea*, in *Diritto di famiglia e delle persone*, 2, 2020, p. 489; E. DAMIANI, *Cripto-arte e non fungible tokens: i problemi del civilista*, in *Rass. dir. moda e arti*, 2022, 2, p. 1; G. VULPIANI, *Non fungible tokens, smart contracts e blockchain nell'arte e nella moda: crypto arte e digital fashion*, in *Cammino diritto*, 2021, 11, p. 2; G. TROVATORE, *L'opera d'arte e il suo valore nell'epoca della blockchain*, in *Arte e Diritto*, 1, 2022, p. 81; A. DIGNANI, *Gli ambiti di applicazione della Blockchain nel settore dei beni artistici e culturali*, in *Dir. mercato tecnologia*, 20 luglio 2021, p.1.

## 2. Blockchain and smart contracts: a general framework

The blockchain is in broad terms a database of transactions recorded by a network of computers, which appears to be a self-sufficient and fully disintermediated system.

It is made up of a chain of blocks (hence the name “blockchain”), where each block contains a certain number of transactions, a time stamp and the reference to the preceding block through a hash function. The ledger is therefore considered immutable, since any unauthorized change would be immediately visible, because it would cause a modification of the hash.

The innovation introduced by this technology consists in the fact that the ledger is fully decentralized, distributed, permanent and resistant to tampering. The ledger is indeed shared and replicated between different users of the network (the so called “nodes”) and is fully disintermediated.

The validation of transactions is subject to the approval by the majority of the blockchain clients. In this way, the functioning of the ledger does not rest on the user’s trust towards a central authority, but on the so-called “trustless trust”, that is to say, on the shared consensus between equals.

We can consider the first application of the blockchain: the bitcoin<sup>4</sup>. Bitcoin is a cryptocurrency accepted on a conventional basis as a means of

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<sup>4</sup> S. NAKAMOTO, *Bitcoin: A Peer-to- Peer Electronic Cash System*, 2008, in <https://bitcoin.org/bitcoin.pdf>.

Bitcoin’s legal qualification is discussed. Against its reconstruction as a currency it should be noted that Bitcoin performs only one of the three functions traditionally attributed to the currency, namely that of means of payment. On the other hand, neither the “unit of account” (since the cryptocurrency is still accepted by a small user entity) nor the “value reserve”, given the volatility of its value in the market (See Trib. Firenze, 19 dicembre 2018, in *Contratti*, 2019, n. 6, while App. Brescia, sez. I, decr. 24 ottobre 2018, in *Società*, 2019, 1, p. 26 qualifies Bitcoin as a currency). Thus premised, someone qualifies Bitcoin in terms of “intangible asset” (T.a.r. Lazio of 28 January 2020, n. 1077, in [giustizia.amministrativo.it](http://giustizia.amministrativo.it)), of financial product (Trib. Verona 24 January 2017, in *Banca, borsa e tit. cred.*, 2017, p. 467). See also R. BOCCHINI, *Lo sviluppo della moneta virtuale: primi tentativi di inquadramento e disciplina tra prospettive economiche e giuridiche*, *Dir. inf.*, 2017, p. 27; G. RINALDI, *Approcci normativi e qualificazione giuridica delle criptomonete*, *Contr. impr.*, 2019, n. 1, p. 257; C. PERNICE, *Digital Currency e obbligazioni pecuniarie*, ESI, Napoli, 2018; E. CALZOLAIO, *La qualificazione del bitcoin: appunti di comparazione giuridica*, in *Danno resp.*, 2021, 2, p. 188; V. DE STASIO, *Verso un concetto europeo di moneta legale: valute virtuali, monete*

payment, as an alternative to legal tender. It is not issued by a Central Bank, but extracted (the so-called “mining”) by the nodes of a blockchain as a result of complex logarithmic resolution. The value of the cryptocurrency, therefore, does not rely on the trust towards a central issuing institution. Rather, it is based on the user’s trust towards the technological architecture of the ledger (“peer to peer system”).

The shared consensus lies in the “digital uniqueness” of the “currency”, which is granted by the cryptographic system with asymmetric key that ensures the traceability and immutability of transactions and prevents double spending.

The trust generated by the certainty of the transaction characterizes, moreover, the functioning of smart contracts.

Smart contracts are basically computer protocols operating according to a conditional mechanism (“if-then”), so that, given the recurrence of a condition, an automatic execution is triggered<sup>5</sup>.

The “smart” contract challenges the traditional law of contracts<sup>6</sup>. First of all, it should be clarified whether the protocol can be qualified as a “contract” and, if so, what the applicable discipline is.

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complementari e regole di adempimento”, *Banca borsa tit. cred.*, 2018, p. 747; M. SEMERARO, Moneta legale, moneta virtuale e rilevanza dei conflitti”, *Riv. dir. banc.*, 2019, II, p. 239; M. RUBINO DE RITIS, *Obbligazioni pecuniarie in criptomoneta*, in *Giustiziacivile.com*, 2018; M. CIAN, *La criptovaluta - Alle radici dell’idea giuridica di denaro attraverso la tecnologia: spunti preliminari*, in *Banca, borsa, tit. cred.*, 2019, p. 315; A. M. GAMBINO - C. BOMPRESZI, *Blockchain e criptovalute*, in *Fintech: diritti, concorrenza, regole. Le operazioni di finanziamento tecnologico*, Bologna, 2019, p. 277.

<sup>5</sup> A. STAZI, *Automazione contrattuale e «contratti intelligenti»*. *Gli smart contracts nel diritto comparato*, Roma, 2019, p. 130; D. FAUCEGLIA, *Il problema dell’integrazione dello smart contract*, in *Contr.*, 2020, n. 5, p. 591; P. CUCCURU, *Blockchain ed automazione contrattuale. Riflessioni sugli smart contract*, in *NGCC*, 2017, n. 1, p. 107; G. FINOCCHIARO – C. BOMPRESZI, *A legal analysis of the use of blockchain technology for the formation of smart legal contracts*, in *MediaLaws*, 2020, 2, p. 111; C. BOMPRESZI, *Implications of Blockchain-based smart contracts and consumer protection*, Baden.Baden, 2021; A. U. JANNSEN-F. P. PATTI, *Demistificare gli smart contracts*, in *Orizz. dir. civ. comm.*, 2020, p. 31; G. REMOTTI, *Blockchain smart contract. Un primo inquadramento*, *ivi*, p. 189; F. RAMPONE, *Smart contract»: né «smart», né «contract»*, in *Riv. dir. priv.*, 2020, p. 241; S. CERRATO, *Appunti su smart contract e diritto dei contratti*, *Banca borsa tit. cred.*, 2020, p. 370; F. GAMBINO, *Blockchain, smart contract e diritto sradicato*, in *Tecnologie dir.*, 2021, 2, p. 28.

Different types of smart contracts can be identified, depending on whether the protocol aims at performing the terms of an existing contract (a), or whether it represents the contractual will itself (b).

In the first case (a), the smart contract cannot be deemed a contract according to the legal categories, as it is just a means of execution of an already completed agreement<sup>7</sup>. A case in point is a computer protocol attached to an airplane ticket which, in case of a delay or cancellation of the flight, automatically indemnifies the traveler, pursuant to Reg. EU 261/2004<sup>8</sup>. Another example could be the protocol linked to an insurance contract which, in the event of a road accident, triggers the automatic reimbursement of the insured sum to the insured party's bank account<sup>9</sup>.

In the second given hypothesis (b), we could further ascertain whether the smart contract is the result of the negotiation conducted by the parties through the programming language (b1), or whether it is the result of an algorithmic determination (b2).

In case (b1), the smart contract represents the electronic document<sup>10</sup> through which the parties express their intent to bind themselves to an automatic execution. Therefore, we could designate it as an agreement according to the traditional classification<sup>11</sup>.

In the (b2) hypothesis, it is the self-learning algorithm itself that chooses the “an” and “quomodo” of the agreement. Hence the problem of identifying the legal consequences in the event that the algorithm makes unpredictable

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<sup>6</sup> See G. FINOCCHIARO, *Il contratto nell'era dell'intelligenza artificiale*, in *Riv. trim. dir. proc. civ.*, 2018, p. 441; A. MUSIO, *La storia non finita dell'evoluzione del contratto tra novità tecnologiche e conseguenti esigenze di regolazione*, in *NGCC*, 2021, 1, p. 226.

<sup>7</sup> F. DI CIOMMO, *Smart contract e (non-) diritto. Il caso dei mercati finanziari*, in *Nuovo diritto civile*, 2019, n. 1, p. 257; A. STAZI, *Automazione contrattuale e “contratti intelligenti*, cit., p. 144.

<sup>8</sup> A. U. JANSSEN – F. P. PATTI, *Demistificare gli smart contracts*, cit. p. 31.

<sup>9</sup> E. BATTELLI, *Le nuove frontiere dell'automatizzazione contrattuale tra codici algoritmici e big data: gli smart contracts in ambito assicurativo, bancario e finanziario*, in *Giust. civ.*, 2020, 4, p. 681.

<sup>10</sup> Pursuant to Article 1, paragraph 1, of CAD, electronic document is the “document that contains the computer representation of legally relevant acts, facts or data”; the electronic document, pursuant to Reg. 910/2014 is “any content stored in electronic form, in particular text or sound, visual or audiovisual recording”. See V. BELLOMIA, *Il contratto intelligente*, cit., p. 6.

<sup>11</sup> G. FINOCCHIARO, *Il contratto nell'era dell'intelligenza artificiale*, cit., p. 440.

decisions. Some authors have proposed qualifying the algorithm as the party's representative<sup>12</sup>, in order to attribute the contractual will to the human agents. However, this thesis does not comply with the Italian civil code, which requires the natural capacity of the representative<sup>13</sup>.

Moreover, it is important to notice that in this case it is still the human agent who configures the software (establishing the conditions of bargaining). As a consequence, the party's will is preserved, so that the minimum elements for the existence of the agreement can be found<sup>14</sup>.

More precisely, the agreement consists in the parties' will to make use of the "intelligent" algorithm.

### 3. Art and blockchain: perspectives and issues

As mentioned above, the art sector has become one of the most promising fields for the application of blockchain.

Generally speaking, an artwork can be qualified as a "good", as it is a "thing" which can be a subject of rights, as provided for by Article 810 of the Italian civil code. As such, its legal transaction shall be governed by the relevant provisions laid down in respect of "goods": first of all, rules relating to "property" (Article 832 c.c.) and "possession" (Art. 1140 c.c.) will apply. As far as the relevant contract types are concerned, the "purchase agreement" (Art. 1470 c.c.), the "lease" (Art. 1571 c.c.) and the "loan" (Art. 1803 c.c.) could be configured<sup>15</sup>.

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<sup>12</sup> See A. M. BENEDETTI, *Contratto, algoritmi e diritto civile transnazionale: cinque questioni e due scenari*, in *Riv. dir. civ.*, 2021, 3, p. 411, who speaks about a "robotic representation"; G. TEUBNER, *Soggetti giuridici digitali? Sullo status privatistico degli agenti software autonomi*, Napoli, 2019, spec. p. 125 suggests that robots should be granted a partial legal capacity.

<sup>13</sup> G. FINOCCHIARO, *Il contratto nell'era dell'intelligenza artificiale*, cit., p. 441.

<sup>14</sup> See A. M. BENEDETTI, *Contratto, algoritmi e diritto civile transnazionale: cinque questioni e due scenari*, cit., p. 410; A. STAZI, *Automazione contrattuale e "contratti intelligenti"*, cit., pp. 149.

<sup>15</sup> For a legal overview of the artwork circulation see: S. ALBERTI, *Profili patologici e rimedi civilistici nella circolazione delle opere d'arte nel diritto italiano; qualche utile spunto dal diritto francese*, in F. BOSETTI, *Arte e diritto privato. Teoria generale e problemi operativi*, Pisa, 2021, p. 229; A. DONATI, *Law and Art: diritto civile e arte*



Moreover, the Code of cultural heritage could also be relevant<sup>16</sup>. This framework lays down a special regulation for “cultural goods”, intended as the “immovable and movable objects of artistic, historical, archaeological, ethno-anthropological, archival and bibliographical interest and other assets identified by law as testimonies having the value of civilization” (Art. 2 Code of Cultural Heritage). Works by a living author or which are less than fifty years old are excluded from the scope of the Code. Once the declaration of cultural interest has been made, limitations to the power of disposition of the asset will apply: prohibition of that use which is not consistent with the cultural nature of the good (Article 20); right of pre-emption in favor of the State in case of sale; prohibition of permanent export or shipment abroad and permission for the movement of the good within the national territory.

#### 4. Blockchain: a reliable system for artwork circulation

As mentioned above, the blockchain could be a reliable system for granting security to artwork circulation.

Generally speaking, the blockchain ensures certainty in relation to the provenance of the good. Once a set of information is recorded in the ledger

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*contemporanea*, Milano, 2012; G. CONSIGLIO – F. CLERICI – G. CAVAGNA DI GUALDANA, *La vendita di opere d'arte*, in G. Negri-Clementi and S. Stabile, *Il diritto dell'arte*, 2, *La circolazione delle opere d'arte*, Milano, 2014, p. 137; A. GREGORI, *Rilievi critici connessi alla circolazione delle opere d'arte*, *ivi*, p. 211; M. FRIGO, *La circolazione internazionale delle opere d'arte*, *ivi*, p. 181.

<sup>16</sup> See M. GRAZIADEI, voce *Beni culturali (Circolazione dei)*, *dir. int. priv.*, in *Enc. dir.*, annali, II, Milano, 2009; A. PISCHETOLA, *La “nuova” autorizzazione all'alienazione di beni culturali*, in *Notariato*, 2008, p. 695; ID., *Profili di criticità nella circolazione dei beni culturali*, in *Imm. e propr.*, 2006, p. 413; M. PLASMATI, *La negoziazione dei beni culturali*, in *Vita not.*, 2007, p. 440, nonché in *Contr. impr.*, 2007, p. 771; G. CASU, *Il nuovo codice dei beni culturali: aspetti generali e problematiche*, in *Notariato*, 2005, p. 203; A. VENDITTI, *Il codice dei beni culturali e del paesaggio: prime considerazioni*, in *Notariato*, 2004, p. 302; A. FUSARO, *La circolazione giuridica dei beni immobili culturali nella prassi notarile: un inventario di questioni*, in <https://elibrary.fondazione-notariato.it/articolo.asp?art=27/2703&mn=2&arg=119>.

(such as ownership, location, nature or history of the good), every transfer would be immutably visible and timestamped<sup>17</sup>.

Therefore, the blockchain could be useful for tracking the circulation of the artwork and proving the authenticity of the purchased item, providing a chained record of ownership that is dependent on the validity of the starting point of the blockchain record, and thus combining provenance and authentication<sup>18</sup>.

The system could enable artists to register their artwork and their connected rights, thus obtaining a digital sealing of the data inserted that cannot be modified. In this way, the artist is protected from the risk of illicit circulation of the artwork, as well as from its counterfeiting, or from the unauthorized exercise of any IP rights<sup>19</sup>. The distributed ledger thus seems to guarantee the authenticity of the artwork.

The blockchain authentication could serve for both traditional artworks (that are created and exist in the physical realm) and for the fully digital ones. Moreover, it could be used for that form of contemporary artwork

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<sup>17</sup> G. MAGRI, *La Blockchain può rendere più sicuro il mercato dell'arte?*, cit., p. 182; E. BUFANO, *Blockchain e mercato delle opere di interesse artistico: piattaforme, nuovi beni e vecchie regole*, in *Aedon*, 2021, p. 100; E. DAMIANI, *The notarchain case. A blockchain application in private law*, in *Cammino diritto*, 2022, 1, p. 7: "Such a register could be used either by auction houses or by the single collectors to know the legitimate origin of a work of art, the previous transference of the same one with the related quotation and so on".

D. FINCHAM, *Assessing the Viability of Blockchain to Impact the Antiquities Trade*, in *Cardozo Arts & Entertainment Law Journal*, 37(3), 2019, p. 605; T. MOSKOWITZ, *The Illicit Antiquities Trade as a Funding Source for Terrorism: Is Blockchain the Solution?*, in *Cardozo Arts & Entertainment Law Journal*, 37(1), 2019, p. 193.

<sup>18</sup> The theme of the right to authenticity of the artwork is one of the most controversial within the art sector. More specifically, there is debate about the admissibility of the action of mere ascertainment of the authenticity of the work of art: See G. FREZZA, *Arte e diritto tra autenticazione e accertamento*, Napoli, 2019, p. 15; R. DONZELLI, *Sull'azione di mero accertamento dell'autenticità dell'opera d'arte*, in *Rass. dir. moda arti*, 2022, 1, p. 31; A. BARENGHI, *L'attribuzione di opere d'arte. Vero o falso?*, in *Corr. giur.*, 2019, 8-9, p. 1093; ID., *Attribuzioni contestate di opere d'arte e limiti alla tutela giurisdizionale*, in *Giur. it.*, 2022, p. 60; ID., *Considerazioni sulla tutela dell'opera d'arte nel mercato*, in *Rivista del diritto commerciale*, 2019, p. 433; A. DONATI, *Autenticità, Authenticité, Authenticity dell'opera d'arte. Diritto, mercato, prassi virtuose*, in *Riv. dir. civ.*, 2015, p. 987.

<sup>19</sup> G. FREZZA, *Blockchain, autenticazione e arte contemporanea*, cit., p. 489.

which exists in the form of a certificate containing the instructions for installing or performing the artistic creation<sup>20</sup>.

There are, however, some critical issues, mostly related to the controversial legal framework of the blockchain technology<sup>21</sup>.

First of all, there is uncertainty about the legal value of the registered data, especially with reference to the interference with the legal provisions regarding possession, and to the applicable remedies.

Then, there is the so called “blockchain air gap”, that is to say, the problem of how to vouchsafe the correspondence between the real work and its digital representation in the ledger.

Finally, there is the risk of an unauthorized tokenization of an existing artwork.

#### **4.1 The blockchain air gap**

The central question is understanding the legal value of the data recorded onto a blockchain.

Art. 8-ter of the “Decreto semplificazioni”<sup>22</sup> defines the blockchain as “computer technologies and protocols using a shared, distributed, replicable, simultaneously accessible, architecturally decentralised register on a cryptographic basis to allow recording, validation, update and storage of unencrypted and further encrypted data that can be verified by each participant, cannot be altered and cannot be modified”<sup>23</sup>.

Moreover, the article clarifies that the storage of an electronic document through the use of blockchain technologies produces the legal effects of

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<sup>20</sup> *Ibidem*.

<sup>21</sup> For a critical evaluation about the existing regulations, see M. MAUGERI, *Smart contracts e disciplina dei contratti*, Bologna, 2021, p. 41; V. BELLOMIA, *Il contratto intelligente: questioni di diritto civile*, [www.judicium.it](http://www.judicium.it), p. 4; C. IORIO, *Blockchain e diritto dei contratti: criticità e prospettive*, in *Actualidad Juridica Iberoamericana*, 2022, p. 666.

<sup>22</sup> *Legge 11 febbraio 2019, n. 12, di conversione del decreto legge 14 dicembre 2018, n. 135, recante disposizioni urgenti in materia di sostegno e semplificazione per le imprese e la pubblica amministrazione* (Law no. 12 of 11 February 2019 converting Decree no. 135 of 14 December 2018).

<sup>23</sup> See V. BELLOMIA, *Il contratto intelligente: questioni di diritto civile*, [www.judicium.it](http://www.judicium.it), p. 4.

electronic time validation, pursuant to Article 41 of EU Regulation No. 910/2014 (the so called “Eidas”).

As it is a decentralized and private form of record, the blockchain cannot be compared to the legal form of notice: possession (for movable asset) and real estate records (for immovable assets).

It follows that, at present, data recorded on the blockchain cannot be the source of legal knowledge.

We can ponder the interference between DLT and the traditional “*acquisti a non domino*”<sup>24</sup>. In respect of movable assets, the rule of “*possessiono vale titolo*” (as stated by Article 1153 c.c.) applies. If the seller transfers in the physical realm an asset already sold (without being delivered) through a smart contract into the blockchain, will Article 1153 c.c. apply?

As is well known, this rule requires the buyer’s good faith which, under Art. 1147 c.c., “does not help if it depends on gross negligence”.

In the case examined, we could argue that the second purchaser’s behavior does not breach the good faith obligation. In fact, the lack of consultation of the register cannot constitute a form of “gross negligence”, since that conduct is not enforceable by the average man, at least at present.

Then, there is the risk of the above mentioned “blockchain air gap”<sup>25</sup> between the blockchain listing and the physical artwork<sup>26</sup>. How is it possible to be sure that the on-chain registration corresponds to the physical artwork?

Some authors suggest linking blockchain records to physical artworks through a QR code to be affixed on the physical object, as well as a *Near-field communication (NFC)* tag<sup>27</sup>.

On the other hand, there are companies (such as “Artory”)<sup>28</sup> which offer certified NFTs of physical works (by both old masters and emerging artists).

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<sup>24</sup> L. MENGONI, *Gli acquisti a non domino*, Milano, 1993; M. CENINI, *Gli acquisti a non domino*, Milano, 2009;

For the application of this rule to artworks, See Court of Cassation, 4.2.2021, n. 2612, in *DeJure*.

<sup>25</sup> E. BUFANO, *Blockchain e mercato delle opere di interesse artistico*, cit., p. 103.

<sup>26</sup> D. WHITAKER, *Art and Blockchain. A Primer, History, and Taxonomy of Blockchain Use Cases in the Arts*, *Artivate: a journal of entrepreneurship in the arts*, 2019, vol. 8(2), p. 21 ss.

<sup>27</sup> G. MAGRI, *op. cit.*, p. 185;

In this case, the authenticity, provenance or condition of the artworks are certified by trusted and independent institutions.

## 4.2 The applicable remedies

The blockchain could have an effect on the available remedies in case of sale of a fake artwork.

As is widely known, the sale of a counterfeit work of art qualifies as a delivery of “*aliud pro alio*”, which gives rise to the contractual action of termination, pursuant to Article 1453 c.c.<sup>29</sup> This remedy is applicable whenever the sold good is completely different from the one agreed because, as it belongs to a different kind, it is not functionally able to fulfill the economic-social purpose of the contract and, therefore, to provide the required utility<sup>30</sup>.

As the sale of “*aliud pro alio*” constitutes a case of breach of contract, the contract termination requires the fault of the seller. The fault is generally presumed, but that presumption can be overcome if the debtor proves that, despite the use of normal diligence, he was unable to perform his due obligation for reasons not attributable to him. It follows that, even in the

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<sup>28</sup> *Ibidem*.

<sup>29</sup> L. CASTELLI, *Opera d'arte priva di autenticità: rimedi a disposizione dell'acquirente e disciplina della prescrizione*, in *Contr.*, 2022, 4, p. 417; G. DE CRISTOFARO, *La tutela degli acquirenti di opere d'arte contemporanea non autentiche*, in G. Liberati Buccianti, *L'opera d'arte nel mercato. Principi e regole*, Torino, 2019, p. 73.

About the warranty for defects in the sale, C. M. BIANCA, *La vendita e la permuta*, in *Trattato dir. civ. Vassalli*, VII, Torino, 1993, p. 699; D. RUBINO, *La compravendita*, in *Trattato dir. civ. comm. Cicu e Messineo*, Milano, 1971, p. 634; L. MENGONI, *Profili di una revisione della teoria sulla garanzia per i vizi nella vendita*, in *Studi in onore di De Gregorio*, Città di Castello, 1955, p. 14; ID., *Gli acquisti a non domino*, cit.; A. LUMINOSO, *La Compravendita: corso di diritto civile*, 7, Torino, 2011, p. 233; F. PIRAINO, *Adempimento e responsabilità contrattuale*, Napoli 2011, p. 245; F. MARTORANO, *La tutela del compratore per i vizi della cosa*, Napoli 1959; R. CALVO, *Vendita e responsabilità per vizi materiali. Dai fondamenti storico-comparativi alla disciplina codicistica sulle garanzie*, I, Napoli, 2007.

<sup>30</sup> See Cass., 23.03.2017, n. 7557, *ibidem*.

event of a proven *aliud pro alio*, the termination cannot be ruled out, if the breaching buyer proves the non-imputability<sup>31</sup>.

The existence of an artwork chain of transfer into a blockchain and the existence of an authenticity certificate released by a trusted institution could serve as proof of the seller's bona fides, even though the work turns out to be false<sup>32</sup>.

The remedy of contract voidability due to unilateral mistake has a narrow scope of application in the context of blockchain<sup>33</sup>, as the existence of a recorded chain of transfers restricts the possibility of a mistake concerning the nature of the work. On the other hand, in the case of recording of erroneous data, the mistake would be bilateral, thus the contract could be annulled<sup>34</sup>. However, if the seller party was aware of the erroneous recording, voidness for willful misconduct could be actioned<sup>35</sup>.

Anyway, due to the immutability of the ledger, the real problem concerns the means for applying the relevant remedies within the blockchain<sup>36</sup>. Some authors have suggested setting up a "self-destruction" function on the smart contract, which can be activated only by the node that created the contract itself. Nevertheless, in the absence of a similar setting, the only feasible remedy would have a restitutory and compensatory nature.

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<sup>31</sup> G. AFFERNI, *La tutela del compratore in caso di opera d'arte contraffatta*, in P. Costanzo, *Le opere d'arte sotto lo sguardo del giurista (scultura, pittura, fotografia, cinematografia)*, Genova, 2022, p. 5; E. GABRIELLI, *La consegna di cosa diversa*, Napoli, 1987, p. 46; R. CALVO, *La consegna di cosa diversa*, in Studi in onore di Davide Messinetti, Napoli, 2008, p. 189; E. RUSSO, *Consegna di aliud pro alio e vizio del diritto acquistato*, in *Riv. dir. civ.*, 2013, p. 531; P. GRECO - G. COTTINO, *Della vendita*, in *Comm. Codice Civile* A. Scialoja - G. Branca, Bologna-Roma, 1972, p. 197; M. FRANZONI, *Il contratto annullabile*, in A. DI MAJO- G.B. FERRI - M. FRANZONI, *Il contratto in generale*, VII, Torino, 2002, p. 260.

<sup>32</sup> See E. BUFANO, *Blockchain e mercato delle opere di interesse artistico*, cit., p. 102.

<sup>33</sup> About the compatibility between traditional remedies and the blockchain, see A. STAZI, *op. cit.*, p. 143.

<sup>34</sup> E. BUFANO, *Blockchain e mercato delle opere di interesse artistico*, cit., p. 102.

<sup>35</sup> See E. BUFANO, *Blockchain e mercato delle opere di interesse artistico*, cit., p. 102.

<sup>36</sup> About the applicable remedies in the context of blockchain, see A. STAZI, *Automazione contrattuale e "contratti intelligenti". Gli smart contracts nel diritto contrattuale comparato*, Torino, 2019, p.182

## 5. Non fungible token: a controversial legal nature

In order to transfer artworks through the use of blockchain, their tokenization is necessary. Tokenization refers to the process of conversion of the rights of an asset into a digital token registered on a blockchain, where the real good and the token are connected by a smart contract.

The token which represents an artwork is “non fungible” (NFT), meaning it univocally represents a certain object. It differs from fungible tokens, which are interchangeable, representing a certain amount of a generic object (like the bitcoin)<sup>37</sup>.

A “non fungible token” consists of a series of encrypted data that are recorded on a blockchain attesting the ownership right of a certain asset and the certificate of authenticity of the token itself<sup>38</sup>.

It thus makes it possible to identify precisely the owner of the digital asset. The token is publicly and anonymously stored on a blockchain, so that its record is constantly up-to date and cannot be altered. The NFTs include the smart contracts which specify the rights of the parties (seller and buyer) and may provide the creator or the first seller of an NFT with a certain percentage of revenue for each sale after the first.

It must be clarified that both a digital native work of art and a digital transformation of a material work of art can be “minted” in an NFT. The non-fungible token is indeed not the work of art itself, but the certificate of the work of art.

The legal nature of NFTs is highly debated<sup>39</sup>.

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<sup>37</sup> For the legal classifications of tokens, see C. PERNICE, *I modelli di valuta virtuale: sistematica e definizione*, in *MediaLaws*, 2020, 12, p. 46.

<sup>38</sup> See G. VULPIANI, *Non fungible tokens, smart contracts e blockchain nell'arte e nella moda: crypto arte e digital fashion*, cit., p. 2; F. ANTONACCHIO, *Criptoarte e Non Fungible Token alla ricerca di nuove regole* in *Il fisco*, n. 21/2021, p. 2023; P. DE FILIPPI, *Blockchain-based Crowdfunding: what impact on artistic production and art consumption?*, in *Observatório Itaú Cultural*, n.19/2015; R. MATULIONYTE, *Can Copyright be tokenized?*, in *Eur. Intell. Prop. Rev.*, n. 02/2020, p. 101; E. RULLI, *Incorporazione senza res e dematerializzazione senza accentratore: appunti sui token*, in *Orizzonti del dir. comm.*, 2019, p. 121.

<sup>39</sup> See E. DAMIANI, *Cripto-arte e non fungible tokens: i problemi del civilista*, cit., 1; G. VULPIANI, *Nfts e crypto-fashion: profili giuridici*, in *Rass. dir. moda arti*, 2022, 1, p. 47; M. GIULIANO, *Le risorse digitali nel paradigma dell'art. 810 cod. civ. ai tempi della*

According to a first approach, NFTs should be qualified as a “good” pursuant to Article 810 c.c. This thesis is widely followed by the US doctrine, which defines tokens as “digital personal property”. If transposed into our Civil law system, however, this interpretation gives rise to some issues<sup>40</sup>.

It should be pointed out that, according to the traditional point of view, a “good” in the legal sense is characterized by materiality<sup>41</sup>.

In order to qualify an NFT as a good, a more modern thesis should be followed which extends the “good” classification also to the incorporated entities<sup>42</sup>. As a consequence, the NFT should be the subject of property or of a different “right in rem”. However, the result would be a right characterized by elements of specialty: due to their intangible nature, the possession-based discipline (let us think of the rules pertaining to “double alienation” or of the “possession is valid title”) could not be applicable to crypto assets. But more importantly, their circulation would be ruled according to a new and conventional system of declarative registry, which is outside the control of a central authority<sup>43</sup>.

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*blockchain. Parte prima*, in *Nuova giur. civ. comm.*, 2021, p. 1214 ss.; P. CARRIÈRE, *La cripto-arte e i non fungible tokens (NFTs): tentativi di inquadramento giuridico*, in *dirittobancario.it*, 2021.

<sup>40</sup> S. REIS, *Toward a Digital transfer doctrine? The first sale doctrine in the digital era*, 10 NW U.R.R. 173, 2015; M J. Fairfield, *The law of non fungible tokens and unique digital property*, in *Indiana law journal*, 7 aprile 2021.

<sup>41</sup> See A. GAMBARO, *I beni*, Milano, 2012, p. 16; M. COMPORZI, *Le cose, i beni ed i diritti reali*, in Bessone, *Manuale di diritto privato*, Torino, 2007, p. 323; S. PUGLIATTI, voce *Cosa in senso giuridico (teoria generale)*, in *Enc. dir.*, X, Milano, 1962, p. 19; O. T. SCOZZAFAVA, *I beni e le forme giuridiche di appartenenza*, Milano, 1982, p. 29; ID., *I beni*, in *Trattato dir. civ. CNN*, Napoli, 2007, p. 12.

<sup>42</sup> See F. PIRAINO, *Sulla nozione di bene giuridico in diritto privato*, in *Riv. crit. dir. priv.*, 2012, p. 470; G. DE NOVA – B. INZITARI, G. TREMONTI, G. VISINTINI, *Dalle res alle new properties*, Milano, 1991; O. CLARIZIA, *Il diritto di proprietà dal codice civile alle nuove forme di appartenenza*, in S. PAGLIANTINI – E. QUADRI – D. SINESIO, *Scritti in onore di Marco Comporti*, Milano, 2008, p. 787; U. MATTEI, voce *Proprietà (nuove forme di)*, in *Enc. del dir.*, Annali, V, Milano, 2012, p. 1118; A. ZOPPINI, *Le ‘nuove proprietà’ nella trasmissione ereditaria della ricchezza (note a margine della teoria dei beni)*, in *Riv. dir. civ.*, 2000, p. 191; G. RESTA, *Nuovi beni immateriali e numerus clausus dei diritti esclusivi*, Torino, 2010; V. ZENO ZENCOVICH, voce *Cosa*, in *Dig. Disc. priv., sez. civ.*, IV, Torino, 1989, p. 438.

<sup>43</sup> See E. DAMIANI, *Cripto-arte e non fungible tokens*, cit., p. 3.



A different point of view defines NFTs as an atypical negotiable security. More specifically, it would be a technological evolution of the securities representative of goods (Article 1996 c.c.) or of the deposit certificates (Article 1790 c.c.)<sup>44</sup>. It means that the NFT itself does not incorporate any right, being a mere “title” that allows access to a digital content. The nature of the rights linked to the digital asset would be defined by an already existing contract, to which the smart contract gives execution.

Another point of view qualifies NFTs as financial products, given the fact that they are often the object of exchange, offering to the public, either investment or financing. As a consequence, the T.U.F. discipline should apply<sup>45</sup>.

Thus premised, it is hard to consider NFTs in a unified manner. The multiplicity of uses NFTs are put to indeed leads us to follow a case-by-case assessment.

This approach has been suggested also by the EU regulator. As is the case in most countries, there is no specific regulation or legal definition of NFTs in the EU and no harmonized regulatory regime across the member states. The European Commission’s proposal for a “Markets in Crypto-assets Regulation” (MiCA) specifically excludes NFTs from its scope<sup>46</sup>. Nevertheless, it is clearly specified that MiCA should apply if the NFT falls under existing crypto-asset categories, thus suggesting the manifold nature

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<sup>44</sup> See P. CARRIÈRE, *La crypto-arte e i non fungible tokens (NFTs): tentativi di inquadramento giuridico*, cit.; G. NAVA, *I non fungible token*, in AAVV *Il diritto nell’era digitale*, Milano, 2022, p. 237.

<sup>45</sup> P. CARRIÈRE, *La crypto-arte e i non fungible tokens (NFTs): tentativi di inquadramento giuridico*, cit. According to article 1, par. 1, let. U of the T.U.F. financial products are the financial instruments, as well as any other form of investment of a financial nature.

<sup>46</sup> On June 30<sup>th</sup> 2020 the Council presidency and the European Parliament reached a provisional agreement on the markets in crypto-assets (MiCA). That agreement reaffirms NFT’s exclusion from the scope of application of the MiCA. Anyway, it specifies that within 18 months the European Commission will be tasked to prepare a comprehensive assessment and, if deemed necessary, a specific, proportionate and horizontal legislative proposal to create a regime for NFTs and address the emerging risks of such new market. <https://www.consilium.europa.eu/en/press/press-releases/2022/06/30/digital-finance-agreement-reached-on-european-crypto-assets-regulation-mica/>

See also: P. CARRIÈRE, *Il regolamento Mica e il rebus NFT*, in [www.dirittobancario.it](http://www.dirittobancario.it); R. LENER, *Cripto-attività: prime riflessioni sulla proposta della commissione europea. Nasce una nuova disciplina dei servizi finanziari “crittografati”?*, *ibidem*.

of NFTs. So, if the NFT gives the holder specific rights such as those of financial instruments (like profit rights or other entitlements), it may be treated as a “security token”.

Therefore we can conclude that digital tokens could fall into different categories, depending on their individual use.

More specifically, as far as the art sector is concerned, a preliminary distinction could be drawn between non-fungible tokens which are used as a means for granting security to artwork circulation (para. 4), and tokens which have a purely speculative function (para. 6).

In the first case NFTs could be assimilated to a title representative of goods, whereas in the second case as being a financial instrument.

## 5.1 NFTs and Copyright

The tokenization carries the risk of an unauthorized tokenization of the artwork<sup>47</sup>.

It should be clarified that the ownership of the NFT does not attribute the copyright of the underlying work. In fact, ownership of a copyright is distinct from ownership of any material object (i.e., a painting) or digital asset (i.e., a non-fungible token or “NFT”) in which the work is embodied<sup>48</sup>.

Therefore, there is the risk of acquirers or creators of NFTs being liable for copyright infringement if the NFT was created without due regard for the

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<sup>47</sup> According to the SuperRare Community: “*SuperRare is a marketplace for authentic and original digital art. Our Terms of Service expressly forbid artists from posting unauthorized, copied, or otherwise unoriginal content. SuperRare artists should especially refrain from posting, repurposing, or remixing the work of other SuperRare artists without permission. If you are unsure as to whether or not an artwork is a prohibited reproduction of someone else’s work, then do not tokenize it*”.

Let’s consider also the terms of service of OpenSea: “*OpenSea reserves the right to remove content without prior notice. OpenSea will take down works in response to formal infringement claims and will terminate a user’s access to the Services if the user is determined to be a repeat infringer*”.

<sup>48</sup> See the SuperRare Terms of service: “*Artists do not lose copyright protection over works when they are sold on the SuperRare Labs marketplace unless the parties expressly agree in writing to convey a copyright interest as part of the transfer. As further explained in our Terms of Service, Collectors only have a property interest in lawfully purchased NFTs, but they do not have a copyright interest in the underlying artworks. The Artist reserves all exclusive copyrights to the underlying copyrights*”.

intellectual property rights subsisting in the source material. What are the legal consequences in this case?

The “Metabirkin” and “Quentin Tarantino vs Miramax” cases are relevant examples.

In the first case, Hermès sued the artist Mason Rothschild for trademark infringement of his luxury handbag Birkin. The artist has indeed created MetaBirkins NFTs, which represent digital images of the Birkin handbags but covered in fur instead of leather<sup>49</sup>. The NFTs has been subsequently sold using blockchain.

The second case derives from the decision of Director Quentin Tarantino to mint as NFTs some parts of the original handwritten screenplay of Pulp Fiction.

Consequently, the production company Miramax has filed proceedings against Tarantino for copyright infringement and breach of contract asserting that they own the rights to Tarantino’s screenplay<sup>50</sup>, as well as to the film.

First of all, it should be excluded that an NFT can be considered in itself an intellectual work, being made up of an alphanumeric string generated through the copying of a given digital content<sup>51</sup>. Nonetheless, it is not possible to exclude that the fact of reproducing a work through a token can constitute copyright infringement.

It should be considered that, pursuant to Article 13 of the Italian Copyright Law, the author has the “exclusive right to reproduce” his/her work, meaning the “total or partial multiplication in direct or indirect copies, in a temporary or permanent way, in any way or form, such as hand copying, printing, lithography, engraving, photography, phonography, cinematography and any other reproduction process”. Moreover, according to Article 4 of the same Law, “without prejudice to existing rights to the

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<sup>49</sup> <https://www.nortonrosefulbright.com/en/knowledge/publications/844123f5/hermes-challenge-of-metabirkins-nfts-to-continue>.

<sup>50</sup> L. DAFFARRA, *Inglorious NFT: perché la causa di Miramax a Tarantino è importante per il diritto d'autore*, in *agendadigitale.eu*.

<sup>51</sup> About relation between NFTs and Copyright, see P. LIBERANOME, *Criptoarte e nuove sfide alla tutela dei diritti autorali*, in *Contr.*, 2022, 1, p. 93; C. SANDEI, *Blockchain e sistema autorale: analisi di una relazione complessa per una proposta metodologica*, in *Nuove leggi civ. comm.*, 2021, 1, p. 194.

original work, the creative elaborations of the original work shall also be protected”.

As a consequence, the artist is entitled to sue those who violated his/her rights by minting a NFT, if s/he did not transfer the copyright selling his/her work.

This conclusion shall not affect all the cases which constitute an exception to the Copyright Law. In particular, as stated by Article 70 of the Italian Copyright Law, the reproduction of artwork and its communication to the public are free only “if carried out for the use of criticism or discussion, within the limits justified by those purposes and provided that they do not constitute competition to the economic use of the work”<sup>52</sup>.

It follows that the tokenization of an artwork shall be illegal when it is not a new and creative intellectual work, able to be protected as an original work by copyright law; when it reproduces an artwork without its creator’s consent and with a lucrative intent; when it is aimed at competing with the original work.

Therefore, NFTs are not exempt from the same intellectual property restrictions placed on traditionally tangible goods.

## **6. The new frontiers: crypto-art and tokenization of a cultural asset**

The phenomenon of CryptoKitties, launched in 2017 by the Canadian study Axiom Zen, was the first case of *cryptocollectible*<sup>53</sup>. This initiative has stimulated the spread of platforms for the exchange and custody of these digital assets. As a consequence, platforms such as Rarible and Open Sea were born, becoming a meeting point between collectors and creators.

Even the traditional auction houses have started to negotiate the new form of crypto art. An example is the cryptowork “*Everydays: the first 5.000 Days*” of the crypto-artist Mike Winkelmann (Beeple), sold at auction by the

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<sup>52</sup> Moreover, paragraph 1-*bis* states that “It is allowed the free publication through the internet network, free of charge, of low resolution or degraded images and music, for educational or scientific use and only if such use is not for profit”.

<sup>53</sup> L. LOTTI, *Contemporary art, capitalization and the blockchain: On the autonomy and automation of art's value*, in *Finance and Society*, 2016, 2, p. 96.

famous Christie's for the impressive sum of \$69 million, thus becoming the most highly paid artist ever, after Jeff Koons and David Hockney<sup>54</sup>.

Works of crypto art only exist in a digital form. A crypto artwork is basically a jpeg file, associated with an encrypted certificate (the NFT) that attests its authenticity and uniqueness. This certificate is then connected via a link to an off-chain site where the digital product, object of the transaction, is stored<sup>55</sup>.

The use of a non-fungible token guarantees the authenticity of the file, which due to the digital nature of the artwork could be easily copied.

It should be pointed out that the NFT is not the work of art itself, but the certificate of the work of art that can exist in the digital form or be the digital transformation of a material work of art (e.g. a painting or a sculpture or a collectible object)<sup>56</sup>.

First of all, it should be noted that a crypto work could be considered as a form of art and protected under copyright law, thanks to the broad definition given by the Italian Copyright Law. According to Article 1, intellectual works belonging to literature, music, visual arts, architecture, theater and cinematography are protected under this law "whatever their form or form of expression is". Moreover, Article 2 grants copyright protection also to computer programs or electronic databases.

However, the speculative intent connected with the crypto art trade leads to attributing to it the nature of a financial instrument<sup>57</sup>. As a consequence, the related NFTs might qualify as "investment products" as per Article 1, paragraph 1, letter u) of the Italian Consolidated Financial Act, which defines them as a broad category of instruments which includes "any other form of investment of financial nature".

The elements qualifying the notion of investment of a financial nature can be found in the co-existence of: the use of capital; the expectation of a return; and the risk involved.

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<sup>54</sup> P. LIBERANOME, *Criptoarte e nuove sfide alla tutela dei diritti autorali*, cit., p. 95.

<sup>55</sup> G. VULPIANI, *Non fungible tokens, smart contracts e blockchain nell'arte e nella moda*, cit., p. 5.

<sup>56</sup> F. ANTONACCHIO, Non Fungible Token e altre crypto-attività in attesa del Regolamento europeo MiCA, in *Fisco*, 2021, p.4265.

<sup>57</sup> C. SANDEI, *Blockchain e sistema autorale*, cit., p. 215.

Besides, the Supreme Court of Cassation expressly recognized transactions promoted by financial promoters on works of art as having the nature of a financial investment<sup>58</sup>.

This financial nature also characterizes the so-called Fractionalized NFTs (F-NFTs). In this case, a single NFT is divided into multiple fractions that can be sold as separate tokens, which provide the holders with a percentage of ownership of the original NFT<sup>59</sup>.

An example is “Maecenas”<sup>60</sup>, which collects investments in the primary and secondary art market, promoting the ownership of fractional works of art. The work is stored in a safe place and the right of ownership over it is divided into transactions, which can circulate via the blockchain so that the owner can decide whether to keep or sell it when in need of liquidity. Among the many, the platform offered shares in “14 Small Electric Chairs” by Warhol, valued at 5.6 million dollars and partially sold (for a total share of 31.5%) for a total amount of 1.7 million dollars.

The declared objective of the F-NFTS was the democratizing access to the art world, encouraging inclusion and participation in art ownership by lowering the risk and barriers to digital collecting<sup>61</sup>.

However, their analysis reveals that fractionalization of tokens constitutes an investment activity.

In fact, the similarity of the F-NFT with the institute of co-ownership (pursuant to Article 1100 c.c.) is only apparent. Both the physical possession of the work and the right of enjoyment are excluded, since the asset remains

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<sup>58</sup> Cass. 12.3.2018, n. 5911, in *DeJure*, ruled that “*other forms of investment of a financial nature*” [therefore] include, according to the case law and specialized doctrine, all those forms of employment of a capital in the expectation of a return whose achievement is not decisively influential for the investor and which involve the assumption of a risk of a financial nature; this definition must therefore include any instrument, however denominated, that is representative of the employment of capital”.

<sup>59</sup> A. SYED, *NFTs: Sharks and Shards: What Are Fractional Nonfungible Tokens and Are They Subject to Securities Regulation?*, in *Illinois Bar Journal*, Vol. 110, Issue 3 (March 2022), p. 18.

<sup>60</sup> [www.maecenas.com](http://www.maecenas.com)

<sup>61</sup> A. DIGNANI, *Gli ambiti di applicazione della Blockchain nel settore dei beni artistici e culturali*, cit., p. 10; M. GIACCAGLIA, *Brevi note in tema di tecnologia, tutela del patrimonio culturale e sistema tributario. Ovverosia: il patrimonio culturale al tempo della blockchain*, in *Foro Amm.*, 2020, p. 1584.

in the custody of the platform manager or is physically displayed in galleries.

Participation is exercised in a similar way to the operation of investment companies. The owner of the F-NFT gets a digital certificate attesting his ownership and other benefits, such as a say in where the physical work is to be exhibited, and that he can visit the site for access to the artwork. After an agreed period, the platform sells the painting and distributes the profits or provides the co-owners with opportunities to trade their own shares<sup>62</sup>.

F-NFT projects are being used as a means of investment also by museums. The Belvedere Museum, for example, tokenized and fractionalized Gustav Klimt's "The Kiss" into 10,000 NFTs, selling each of them at €1,850. 2,415 FNFTs were sold and €3.2 million raised<sup>63</sup>.

## 7. Conclusion: law and technology

The digital revolution leads the interpreter to wonder whether the existing legal categories are still able to regulate the new phenomena.

It is easy to note that the traditional categories have always been closely linked to technological development, and have, up to now, manifested their resilience, both adapting to and supporting innovations.

Let us think of the rules governing the conclusion of the contract, which - although designed to regulate negotiations that are quite different from those made possible by technological development - have been considered applicable first to the purchase by means of automatic machines, and then to electronic negotiations<sup>64</sup>. Even in the specificity deriving from the use of the

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<sup>62</sup> J. MIRZA, *Decoded: Fractionalized NFTs In The Art And Cultural Sector*, in <https://jingculturecommerce.com/decoded-fractionalized-nfts-art/>.

<sup>63</sup> <https://www.belvedere.at/en/digital-declaration-love>

<sup>64</sup> A. MUSIO, *La storia non finita dell'evoluzione del contratto tra novità tecnologiche e conseguenti esigenze di regolazione*, in *NGCC*, 2021, n. 1, p. 226; A. CICU, *Gli automi nel diritto privato*, *Il Filangieri*, 1901, p. 561; A. SCIALOJA, *L'offerta a persona indeterminata ed il contratto concluso mediante automatico*, Città di Castello, 1902, p. 150; G. FINOCCHIARO, *Il contratto nell'era dell'intelligenza artificiale*, in *Riv. trim. dir. proc. civ.*, 2018, p. 441.

Internet, therefore, it seemed easy to trace also electronic agreements back to the traditional legal categories.

The massive spread of NFTs in the art sector would seem to undermine the legal theory that considers them as a “good”, since the rules regarding “possession” and movable asset circulations are hardly applicable.

However, a case-by-case assessment has revealed the possibility of subsuming the digital tokens to different existing categories: from securities representative of goods to financial products.

It is a fact that the issue of the applicable remedy in case of illicit conduct still remains, since the immutability of blockchain is not consistent with “maintenance” and “ablative” remedies.

Moreover, the impossibility of modifying the recorded information challenges the application of important GDPR provisions, such as the right to erasure and the right of rectification of personal data, pursuant to Article 16 and 17<sup>65</sup>.

The discussion, therefore, is still open and still requires the need to balance the effectiveness of the technology with the human-centric values<sup>66</sup> of our legal system.

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<sup>65</sup> Among the many, see A.M. GAMBINO, C. BOMPRESZI, *Blockchain e protezione dei dati personali*, in *Dir. inf.*, n2019, 3, p. 619; F. FAINI, *Blockchain e diritto. La «catena del valore» tra documenti informatici, smart contracts e data protection*, in *Resp. civ. prev.*, 2020, 2, p. 297.

<sup>66</sup> See “Ethics Guidelines for trustworthy AI” (8th April 2019) published by the High-Level Expert Group on Artificial Intelligence appointed by the European Commission. See also A. Alpini, *Sull’approccio umano-centrico all’intelligenza artificiale. Riflessioni a margine del «Progetto europeo di orientamenti etici per una ia affidabile*, in *Comp. dir. civ.*, 2019, p. 1.



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