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(doi: 10.7390/113665)

Aedon (ISSN 1127-1345)
Fascicolo 1, gennaio-aprile 2024

Ente di afferenza:
()

Aedon

Rivista di arti e diritto *on line*

numero 1, 2024, issn 1127-1345 Home Indice Ricerca Risorse web

Il patrimonio culturale al tempo degli NFT e del Metaverso

Preserving identities in the "Digital Realm": safeguarding cultural heritage in the Metaverse

di *Fabio Zambardino* [*]

This article delves into the complex legal landscape surrounding cultural heritage within the burgeoning realm of the metaverse. After analysing, in a nutshell, the concept of metaverse, the discussion shifts to the legal implications, particularly regarding the protection and ownership of digital assets representing cultural heritage. Traditional forms of cultural preservation are contrasted with the digitization process, raising questions about authenticity and ownership rights. Furthermore, the transient nature of digital artworks in the metaverse presents novel challenges for legal frameworks, due to the inherent fluidity and replicability of virtual assets. The article, finally, examines existing legal mechanisms for safeguarding cultural property and evaluates their applicability in the virtual domain emphasizing the need for adaptive legal frameworks that reconcile the preservation of cultural heritage with the innovative landscape of the metaverse.

Keywords: metaverse; cultural heritage; law; art digitization.

1. Introduction

The appreciation of art, in recent years, has opened up to the great visual and experiential potential offered by technology. Digital applications, in this perspective, have revealed their capacity to bring the public closer to culture, in the strict sense of the word, through a consolidation of the mere observation of the good in its physical space of conservation, augmenting it with information and virtual reconstructions relating to the time of its creation or the site of its discovery [1].

In some cases, this allows the user to establish a relationship with an asset that is not present in a material sense - or no longer intact - because it has been destroyed or deteriorated. The bidimensional - or tridimensional - image favours a mode of fruition that is no less involving than the real one, even though it is an exquisitely virtual experience.

Technological contribution, in this sector, can be useful for the activities of cataloguing, reproducing, recovering, digitizing and making works available to the public, thus making the cultural heritage (starting from the submerged one) more evident, comprehensible and usable to visitors [2].

This peculiar combination of art and technology has reached significant and socially significant dimensions, the highest point of which, to date, is the reproduction of cultural heritage in the metaverse.

Without definitional pretensions, in a nutshell, the "metaverse" [3] represents a digital universe in which real and virtual worlds merge, a space in which users can interact, work, socialize and perform various activities through immersive and interconnected environments.

The realization of such a space involves the interconnected use of various elements, including augmented reality (Ar), virtual reality (Vr), artificial intelligence (Ai), blockchain technology and other technological "structures" [4].

Composed in this way, the metaverse allows users to create and customize their own avatars, explore virtual worlds, conduct business meetings, participate in events and even build entire virtual economies [5]. Its applications range across sectors, from entertainment and gaming to education, healthcare and commerce.

Although there are many definitions of the metaverse, most of them encompass the different technologies discussed in the previous lines, redefining the way we interact with the virtual world.

A new multidimensional and shared immersive experience, therefore, that will affect all aspects of society, from the collective to the economic dimension, from the political to the emotional, even affecting the world of art and its enjoyment.

With reference to cultural heritage and its protection, through the creation and sharing thereof within this digital space, the need arises to develop solid legal protection to preserve heritage - artistically understood - in this innovative form.

Given the premises, this contribution, after analyzing the legal implications arising from the use of the metaverse, *latu sensu*, will focus on cultural heritage and the "transition" from the traditional to the virtual dimension, with specific reference to the challenges and opportunities in the legal protection of the same within this virtual space.

2. The legal implications of the metaverse

One of the main advantages of the metaverse lies in the increased possibilities of interconnection between people and experiences. In particular, this is made possible through the ability to make its spaces interoperable [6].

This interoperability, *expressis verbis*, allows for a continuous transformation into a sort of "gym" of experimentation and application for various technologies, from blockchain [7] to cryptocurrencies [8], from NFT (Non-fungible tokens) to Defi (Decentralised Finance), and even some Dao (Decentralised Autonomous Organization) [9].

These and other digital innovations find, in - and thanks to - immersive reality, the most favorable environment to develop and evolve, especially in view of the fact that their operation is independent of the presence of state authorities [10].

The use of the aforementioned technological processes is, understandably, connected with innumerable legal profiles, both private and publicistic in nature.

As far as the publicistic aspect is concerned, on the one hand, the main question is related to the possibility of fundamental rights coexisting in the metaverse, in the absence of public authorities linked to an undefined territoriality [11].

The essential starting point for understanding whether and how such rights can be compatible with the metaverse, is inevitably represented by Article 2 of the Italian Constitution - reread in a technological key - in some ways a synthesis of the entire Constitutional Charter [12] and for this reason the deepest core of inviolable rights [13].

Article 2 of the Constitution represents the main provision for understanding how - and, above all, whether - the metaverse can be reconciled with the affirmation of the constitutionally inviolable rights that represent the prerequisite of being *homo dignus* [14], as well as the real foundation of the social and political order [15].

The intangibility of the individual and his or her data disappears as soon as it descends into virtual life, where personal information is collected on a massive scale and functionally for the elaboration of the preferences of the subject. A circumstance, this, in which fundamental rights become instruments for utilitarian purposes and solidarity.

The metaverse materializes the concern for unlimited propagation not of public power, but of private and economic power.

New and different questions arise from those posed by constitutionalism as a limit to state power. In the metaverse, in fact, the basic approach of Article 2 of the Constitution and all those rights that emanate from it are overturned. Inviolability itself, as noted here, is a concept inconsistent with the setting of a virtual society chained in a continuous ascent towards profit: freedoms are functionalized not at all to the development of the individual, but rather to the strengthening of an oligopolistic regime aimed at maximizing the economic well-being of the few [16].

In such a scenario, democratic values recede, and the institutional order is no longer based on the duties of political, economic and social solidarity.

With respect to an analysis based merely on the recognition of fundamental rights - of a digital nature, we mean - the law must preserve its stabilizing function, attributing to the new dynamics a form of protection, the most intense manifestation of which cannot yet be measured for being highly unstable and characterized by superstructures (blockchain, cryptocurrencies, assets) that are equally unstable [17].

Problems of a different nature - but no lesser intensity - arise, on the other hand, with reference to the legal implications, it is worth mentioning in the first place those related to the "contractualisation" of market relations that the network of the metaverse, at the same time, allows and requires, also in order to make the "goods" of life that are created in it negotiable and enforceable against third parties [18].

In this respect, a series of sub-problems related to intellectual property, transactions [19] (and thus to the use of non-fungible tokens) and extra-contractual obligations open up [20].

An interconnected and ordinary metaverse (i.e. not exclusively related to the time the user dedicates to his or her own amusement), where it is possible to conduct part of normal daily activities, implies *in re ipsa* the collection of large amounts of data - for example the monitoring of consumption habits, opinions, personal tastes and even emotions through the analysis of behavioral and biometric data [21].

Thus, it would be an oxymoron to support, for instance, the concept of privacy in meta-reality [22]. In fact, in the metaverse, it will be possible to envisage the protection of personal data, but not a full and complete protection of privacy - at least in the current state of development of technology - understood in the original sense of the term, as the right to be let alone [23]: the problem that arises is no longer how to have access to the personal data of the inhabitants of this reality, but only how to manage their treatment [24].

The companies that govern the metaverse are able to derive, with a high level of certainty, the possibility of

establishing what future behavior will be chiselled on needs, desires, interests artfully created through the continuous exploitation of personal data substituting themselves almost integrally for public power, making the digital society an empty space impermeable even to the historical guarantees of constitutionalism [25].

The risks in this respect are obvious and require reflection on three issues in particular.

First, data portability; in this sense, interoperability will imply automatic sharing of data between metaverses. The aim is to (i) figure out how to balance property rights over data and users' rights; (ii) how to ensure that personal correspondence is protected both from the commercial interests of companies and, in some countries - China, for instance - from state interference; (iii) with regard to the organization of the infrastructure, aspects such as storage, management, safeguarding (as well as liability for data theft or misuse) and transfer of data used in the metaverse will also have to be considered [26].

Secondly, then, the aspect concerning the activities directly performed on users through the processing of their data must be analyzed. This concerns, for instance, the suppression or diminution of individuals capacity for self-determination in favor of formatting to a single dominant standard for the construction of further markets [27]. The primacy of virtual reality would lead to a new offensive against the sensitive data of consumer-users, paving the way for various issues of social justice, commodification of personal data, and aggressively profiling practices [28], without forgetting that the loss of autonomy is followed by the loss of freedom, the disintegration of personal identity [29] and, consequently, the violation of dignity. In the contemporary scenario, given the presence of metaverses that are still not perfectly interoperable, it is essential to ensure the use of the most up-to-date security measures and a certain methodology in the area of data breach management, considering also that immersive virtual reality could generate new sources of offences [30].

Finally, there is the aspect of accountability, which reverberates both in the concept of transparency of contractual conditions and, pre-eminently, in the concept of security as an assessment of cyber risk - i.e. the risk of direct and indirect damage that may arise from the use of technologies for processing data, pursuant to Article 32 GDPR [31]. This consideration shifts the focus of attention right from the design phase (by-design), in the sense that the owner, at the moment he starts to conceive of processing third-party data, must have in mind the specific measures to be taken in order to avoid any type of risk.

The problem, in this sense, lies in the difficulty of identifying these risks and, consequently, the possible strategy of their containment; given the unpredictable evolution of technological processes and legal requirements, an over-hasty regulation could, on the one hand, stifle innovation and, on the other hand, not be effective in solving the problems that may arise [32].

Beyond the unpredictability associated with innovations, such measures can and certainly must today include the pseudonymization and encryption of personal data; the ability to ensure, on a permanent basis, the confidentiality, integrity, availability, and resilience of processing systems and services; the ability to promptly restore the availability and access of personal data in the event of a physical or technical incident; a procedure for regularly testing, verifying, and evaluating the effectiveness of technical and organizational measures to ensure the security of processing [33].

The multitude of entities present in the metaverse and their intertwined and overlapping roles will, in fact, create a web of relationships that will make it very difficult to determine their respective responsibilities and burdens [34].

These issues are even more complex to resolve when analyzed in the light of the combination of art and law, especially in the representation of cultural assets by digital means.

3. From tradition to digitization of cultural heritage

The issue concerning the definition of cultural heritage [35] has been widely debated during the process of developing the system of artistic heritage protection, especially in the international arena. The reason, as can be guessed, is to be found in the indiscriminate extension of the scope of application of the notion of cultural property drags with it a consequent indiscriminate extension of all areas of protection [36].

It is natural, therefore, that the definitional profile has been the first problem to have engaged the states and, consequently, the transposition of this issue into the metaverse can only broaden its scope.

In Italy, the subject matter of this paper is now governed by Legislative Decree No. 42/2004 (the so-called *Codice dei beni culturali e del paesaggio*).

The notion of cultural property can currently be inferred from art. 2(2) and articles 10 and 11 of legislative decree no. 42 of 2004. For the first provision, cultural goods are those immovable and movable things that, pursuant to Articles 10 and 11, are of artistic, historical, archaeological, ethno-anthropological, archival and bibliographical interest, and other things identified by or under the law as evidence having civilizational value [37].

Thus delineated, the current notion is based primarily on two elements: the need for these goods to constitute testimonies having value of civilization and the recognition of the culturality of the same *ex lege* [38].

Therefore, it would seem plausible to affirm the creation of cultural property by the legislator [39], within which the characters of typicality are well identifiable [40]. It is particularly difficult, in fact, to identify a cultural good on the basis that it represents a testimony having the character of civilization. This definition suffers from the limitation of a markedly substantive approach to the notion of cultural property: in fact, the recognition of the cultural value of the property will always depend on the prior qualification of the legislature [41].

In other words, any testimony that has the value of civilization would become cultural property in the legal sense

exclusively on the basis of a qualification, i.e., a determination of fact, made by the legislator [42], as a result of which the same would respond to the principle of typicality.

As anticipated, the problem of legal qualification has affected multiple areas of protection [43]. On this point, doctrine has often opted for a "functionalist" definition, addressed in relation to the purpose pursued by the property under consideration. Therefore, following a system of "concentric circles" [44], the good can be subject to preservation, enjoyment and circulation, in a descending climax that moves from the need to preserve the good to the need to share it.

The present analysis, at this point, dwells precisely on the aspects related to the fruition and circulation of cultural goods, not so much on the "traditional" level - on which the doctrine has been widely expressed - but with reference to the reproduction of the same in the metaverse.

Digital reproduction of works of art represents a singular opportunity to make the preservation and enhancement of assets coexist, as it frees this pair of interests from the possible antithesis between the activities that are called upon to implement them: preservation on the one hand, and dissemination and fruition on the other [45]. In this regard, in fact, technology has clearly influenced the opposition - at least on the ideological level - between the preservation of the good and its enhancement beyond fruition, beyond mere observation, to the extreme limit of economic exploitation [46].

In particular, with the contribution of technology, at least three orders of consequences can occur in the management of cultural heritage: (i) first, the digitization and, above all, the virtualization of assets can respond more effectively to their own physical preservation - the "historical criterion" is overcome, in this sense, given the "timelessness" of the virtual world; second, fruition is enriched, making it more attractive; finally, the creation of new cultural "products" is allowed [47].

Among other things, digitization is also a fundamental tool for ensuring wider access by civil society to cultural resources - whether they are preserved in museums, libraries, archives [48]. The cultural heritage chain and its metadata represent the basis of public enjoyment [49].

The broader modes of access to cultural property allow for greater expressiveness of the nature of the property itself; from this it follows that the image of cultural heritage is the best means of promoting, and thus highlighting, that value strictly inherent in artistic heritage - constitutionally protected by Article 9 among the Fundamental Principles - to guarantee the widest usability.

The general problems outlined are accentuated in two contexts, which should be mentioned.

The issue of the reproduction and exploitation of images of works in the public domain (and therefore, from the standpoint of copyright, freely usable by anyone) must, first of all, also be considered from the perspective of the regulation of cultural heritage [50] provided for in the Cultural property code for works of artistic or historical interest [51].

The second issue that needs to be considered is that of works that are not kept in locations with regulated access - the so-called works that are accessible to free view. The possibility of making and using an image containing an architectural work or any work of art placed in a location that makes it exposed to public view is, in Italian law, not clearly regulated [52].

Since there is no legislation specifically regulating the so-called freedom of panorama, the problem must be solved by balancing the interests between those who have rights over a work placed in a public place to maintain control over its exploitation and, consequently, over its reproduction and the interest of the community in the enjoyment of the work on the basis that it is freely visible [53].

In the case of works protected by copyright, since reproduction is an act reserved exclusively to the author, a distinction must first be made between works protected by copyright and works in the public domain [54].

In the first case, the consent of the rights holder is certainly necessary for reproduction and for making the work available to the public [55].

As far as the second case is concerned, the issue of free uses plays a fundamental role in the construction of the "new copyright", capable of reconciling the proprietary protection needs of authors with the needs of enjoyment of the users [56].

In this perspective, once the terms for copyright protection have expired, works in the public domain should be freely usable by the community without the need to obtain authorizations, subject to respect for the moral rights of the author [57].

Notwithstanding this principle, a different practice has become widespread, particularly in situations where the "owner" of a work is a museum, a practice in which authorizations need to be obtained for both the production of photographic reproductions and their use. The basis of this practice is generally identified in the right of ownership of the object (but sometimes also in an exclusive right to the image) [58].

4. Digital artworks and their transient nature

In a virtual environment, such as the metaverse, works of art take on an ephemeral nature, easily reproducible and globally distributable. This characteristic raises a number of questions with regard to the protection of intellectual property and copyright, and how rights of the artists can be effectively preserved when their works can be duplicated

instantaneously [59]. The ephemeral then becomes evident when the speed of digital reproduction far exceeds the creation of the work itself [60].

To date, there are already several blockchain-based worlds where museums and art galleries have "bought" - in the literal sense of the term - land and built their own space. The examples are *Somnium Space*, where it is placed the *Museum of Crypto Art* (MOCA) or *Decentraland*, where both the digital gallery of the König Galerie and that of *Sotheby's*, which has been selling tokenized virtual art with great success since 2021, are "located".

Another type of metaverse that has gained popularity among art galleries and museums is *Cryptovoxels*, where both the San Francisco Museum of Modern Art and the Francisco Carolinum in Linz have already acquired land. Within this metaverse, galleries offer a mix of 2D art - traditionally displayed on a wall - and 3D objects, which can be selected for detailed viewing from which a Non Fungible Token (NFT) market usually derives [61].

Rebus sic stantibus, this is a real revolution for the contemporary art world, capable of standing up as a collective space for sharing and democratic interaction.

However, if on the one hand the characteristics of the NFT and the metaverse make them effective tools for creative production, especially in relation to the possibility of breaking down the traditional barriers of access that the art market presents, on the other hand, considering the inevitable rapid obsolescence of technology, it is necessary to reflect on the horizon of technology itself and understand how to distinguish the cultural, as well as economic, value of works created and exhibited in these multiverse from the real ones.

The phenomenon described above may stimulate the interest of the jurist especially with reference to the aspect of incompatibility between the needs of museums in the management of collections, the rights of digital professionals who produce the images and offer the services related to their electronic availability, and the public interest in the promotion and dissemination of culture [62].

The issue becomes even more thorny when it comes to works of public museums, which are included among the state property under Article 822 of the Civil code [63].

This issue, in fact, requires a vision that moves away from the (at least presumed) rigid opposition between public and private law [64]. With reference to the regulation of digital reproductions of museum works, in fact, this framing could be misleading. In fact, the rules regulating the phenomenon are endowed with the purely "publicistic" characteristic of regulating relations between administrations and citizens, while realizing, however, "private" effects when they decide on the legal status of certain assets and the rights of the persons who use them [65].

It seems clear that the reflections on the digitization of cultural assets are linked by a common thread: the intangible value of artistic assets is evoked by images of them and makes their virtual reproductions particularly imbued with meaning, also economically appreciable.

5. The legal protection of cultural property in the metaverse

One of the main legal challenges of this new digital frontier concerns, as a natural consequence, virtual property - or rather, property rights.

Generally speaking, users are able to buy, sell and exchange goods within this space, creating a true form of innovative economy.

From a legal point of view, the first problem encountered is the possibility that the work, as often happens, has an owner other than the author. In such scenarios, an agreement between both owners of the different legal situations - i.e. authorial and dominical - will be necessary for there to be reproducibility [66].

However, the likelihood of such circumstances occurring is rather infrequent, especially if one thinks of museum works, particularly Italian ones, whose preservation and display already fall into the public domain as a result of the extinction of copyright.

Yet, it cannot be said that state ownership and the absence of authorial constraints has always facilitated free reproducibility. On the contrary, until recently, it is noticeable how even public legislation on cultural heritage, in regulating museum activities, has traditionally structured its protection on the proprietary model of exclusive enjoyment [67].

Already the law of 30 March 1965, no. 340 recognized the administration's control over the iconography "of antiquities and fine arts" and legitimized the faculty to impose schemes for the lucrative uses of the same [68].

The provision of a payment for authorization was reaffirmed in 1993 and confirmed in 2004 with the Cultural heritage code, which provided, in the combined provisions of Articles 107 and 108, for the possibility for the administration to impose usage fees and remuneration for lucrative reproductions, reserving gratuitousness to images requested by private individuals for personal use or study purposes [69]. Such a regulatory framework made it possible, de facto and de jure, to have recourse to extra-contractual compensatory protection in the case of unauthorized reproductions.

Considering what has been said so far, the possibility of technologically reproducing - especially in the metaverse - the image of the good has made it susceptible to being disseminated and enjoyed independently of its materiality, stripping it of the immaterial value imprisoned in the *res* [70].

To this end, Law No. 106 of 29 July 2014, with its innovative amendments to art. 108 of the Cultural heritage code, represented a turnaround that balanced the regulation of reproductions of cultural assets with respect to a sense of

valorization [71].

In particular, the aforementioned novelty has "liberated" the reproductions of cultural assets and the subsequent disclosure of images - by any means, therefore also online, on blogs and social media - by not requiring any authorization by the entity and, in cases where not for profit, free of charge.

The current version of the discipline of the Cultural heritage code, therefore, legitimizes in the interpreter's mind an irenic vision of the relationship between the cultural valorization of works of art and their free and free digital reproducibility - for non-profit uses - specular with respect to the lack of idiosyncrasy between the use of digital technology and the physical preservation of the good.

The reform of art. 108 of the Cultural heritage code could have been bolder, leaning towards full freedom of reproduction. In fact, despite the fact that a general principle of free reproduction of cultural goods in the public domain is established, in practice reproduction is anything but free since it is subject to prior authorization and the prior payment of a fee [72].

6. Conclusive remarks

In view of what has been observed so far, it is foreseeable that in the future the enjoyment of works of art in "collective mode" will develop more and more globally and, predominantly, through the use of digital or digitized images; as a consequence, the issues related to their protection will become more and more stringent.

Specifically, the protection of fundamental rights will intuitively represent the legal terrain on which the clash of interests will take place, between the creation of new exclusive rights, aimed at protecting the economic prerogatives of museum bodies and licensees, and the need for maximum dissemination of images [73]. It often happens, in fact, that the more exclusive regimes tend to expand to goods and services relevant to human development, the more fundamental rights are burdened with the indispensable task of balancing and neutralizing dominical devices.

The public interest in "controlling" the commercialization of digitized cultural assets is intended to finance and support the prerogatives of the institutions in the preservation and cataloguing of assets, which are prodromal to their fruition.

Hence, an intangible economic value of the works to be brought to light through their digital iconography derives. Its profitability often exceeds, in the cultural market, that of exchange value. And it is not insignificant that this patrimony of all' presents itself today as such thanks to the public investments that over time have enabled the physical preservation of the works.

On this point, then, emerges the social influence that digital technologies are able to develop. The characteristics of dissemination immediacy, the high potential for creative elaboration of visual space, make digitization markedly different from the merely plagiaristic activities that all legal systems are wont to discourage and pursue [74].

It is not a matter of setting up new and additional regulations to the current ones to cope with this new way of representing and perceiving art; rather, it would seem appropriate to address, by way of example, the policies in which the public function of museums is expressed in order to balance usage restrictions and fundamental freedoms - i.e. those with the purpose of information, scientific research, artistic and cultural production. In this perspective, possible conflicts of interest will have to be resolved through criteria of reasonableness and proportionality between the right to enjoyment and the interest - whether public or private - in administering the use of the images of the work according to criteria of cost-effectiveness [75].

The possible licensing models for images of works of art must, in any case, seek negotiating arrangements that are respectful of collective interests and, at the same time, move away from the narrow meshes of proprietary paradigms.

In conclusion, the reproduction of works of art in virtual realities, such as the metaverse, raises new legal challenges that require a considered response. The balance between the promotion of digital creativity and the legal protection of artists will require a collaborative approach involving artists, lawyers, technologists and legislators.

Only through careful reflection and the creation of new legal instruments will it be possible to shape a future in which the metaverse can offer itself as an environment in which art can flourish in a sustainable way that respects of the rights of the artists.

Note

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[1] R. De Meo, *Quale disciplina per accesso e uso delle immagini digitalizzate di opere d'arte in pubblico dominio?*, in *Il Diritto dei Beni Culturali*, (ed.) B. Cortese, Rome, 2021, pag. 189. On the matter of audience diversification, as a direct consequence of the multifaceted purposes that the museum institution is able to realise through technological fruition, G. Guerzoni, S. Stabile, *I contenuti museali digitali*, in G. Negri-Clementi, S. Stabile (eds.), *Il diritto dell'arte*, *II*, *La circolazione delle opere d'arte*, Milan, 2013, pag. 217. The authors, in particular, highlight how digitisation of works of art can increase cultural activities of education, teaching, conservation and access to heritage.

[2] M. Piccinali, *Il patrimonio artistico culturale e la promozione virtuale globale*, in M. Piccinali, A. Puccio, S. Vasta, (eds.), *Il metaverso. Modelli giuridici e operativi*, Milan, 2023, pag. 103. See for a general analysis of these aspects, M.E. Colombo, *Musei e cultura digitale*, Milan, 2020; R. De Meo, *La riproduzione digitale delle opere museali fra valorizzazione culturale ed economica*, in *Dir. infor.*, 2019; M.A. Sandulli, *Codice dei beni culturali e del paesaggio*, Milan, 2019; E. Sbarbaro, *Codice dei beni culturali e*

diritto d'autore: recenti evoluzioni nella valorizzazione e nella fruizione del patrimonio culturale, *Riv. dir. ind*., 2016; G. Stanzione, *Beni culturali, realtà aumentata e nuove tecnologie dell'informazione: profili giuridici*, in *www.comparazionecivile.it*, 2019.

[3] Term derived from the dystopian novel by N. Stephenson, *Snow Crash*, Londra, 1992, which indicated a digital dimension characterized by a virtual reality shared through the Internet, in which one interacted thanks to an avatar. T.E. Frosini, *L'orizzonte giuridico dell'intelligenza artificiale*, in *Dir. infor*., 2022, 7, footnote 9.

[4] See for an in-depth analysis, F. Sarzana D'Ippolito, *Il diritto del metaverso*, Turin, 2022, 3 ff.; R. Moro Visconti, A. Cesaretti, *Il metaverso tra realtà digitale e aumentata: innovazione tecnologica e catena del valore*, in *Dir. Internet*, 2022, pagg. 627-634.

[5] It also has an impact on family structures. In fact, according to G. Alpa, *La famiglia nell'età postmoderna. Nuove regole, nuove questioni*, in *Riv. trim. dir. proc. civ*., 2023, pag. 363, through avatars, and the metaverse world, natural families are flanked by "artificial" families that offer their members an alternative life, entirely imaginary and 'liquid', yet tending to be similar in affections, contrasts, adversities, to real life.

[6] L. Floridi, *Metaverse, a Matter of Experience*, in *Philosophy & Technology*, 2022, pag. 4 ff, although, as the author himself explains, it is possible that this choice is still uneconomical today, because every company operating in its metaverse tries to attract as many users as possible to its location, to the exclusion of others.

[7] On the perfect adaptability of blockchain to the functioning of the metaverse, peer-to-peer technology and database structures that foster self-governance, accessibility and interoperability, see G. Cerrina Feroni, *Il metaverso tra problemi epistemologici, etici e giuridici*, in *MediaLaws*, 2022, pag. 27, footnote 27. For a general analysis on the functioning and characteristics of blockchain see A. Borroni, *Blockchain: Uses and Potential Value*, in *Legal Perspective on Blockchain. Theory, Outcomes, and Outlooks*, (ed.) A. Borroni, Naples, 2019, pagg. 1-55; A. Borroni, *Bitcoin e blockchain: un'analisi comparatistica dalla nascita alla potenziale regolamentazione*, in *Ianus*, 2019, pagg. 275-314. Be also permitted a reference to F. Zambardino, *La blockchain e la protezione dei dati personali: una tecnologia privacy compliant by design?*, in *EJPLT*, 2022, pagg. 136-152; F. Zambardino, *Blockchain and Regulatory Issues*, in *Legal Perspective on Blockchain. Theory, Outcomes, and Outlooks*, (ed.) A. Borroni, cit., pagg. 87-107.

[8] For a general overview on cryptocurrencies, see C. Pernice, *Criptovalute, tra legislazione vigente e diritto vivente*, in *Il diritto alla prova dei cryptoasset*, *Ianus*, no. 21, 2020; A. Borroni, M. Seghesio, *Bitcoin e Blockchain: Un'analisi comparatistica dalla nascita alla potenziale regolamentazione*, in *La relazione tra intermediari e clienti nel diritto dell'economia*, G. Gimigliano (ed.), *Ianus*, no. 19, 2019; N. Vardi, *"Criptovalute" e Dintorni: alcune considerazioni sulla natura giuridica dei bitcoin*, in *Dir. inf*., 2015.

[9] On the legal-economic implications of the metaverse, R. Moro Visconti, A. Cesaretti, *Il metaverso tra realtà digitale e aumentata: innovazione tecnologica e catena del valore*, in *Dir. Int*., 2022, pag. 627 ff. For a general discussion on the functioning of the above-mentioned technologies, see C. Poncibò, *Il Diritto Comparato e la Blockchain*, in *Memorie del Dipartimento di Giurisprudenza dell'Università di Torino*, Turin, 2020; F. Faini, *Blockchain e diritto: la "catena del valore" tra documenti informatici, smart contracts e data protection*, in *Resp. civ. prev*., 2020.

[10] On this point, amplius, A. Monti, *Metaverso e convergenza tecnologica: aspetti (geo)politici, giuridici e regolamentari*, in G. Cassano, G. Scorza (eds.), *Metaverso*, Rome, 2023, pag. 65 ff.

[11] L. Di Majo, *L'art. 2 della Costituzione e il "Metaverso"*, in *MediaLaws*, pag. 41. More generally, the relationship between constitutionalism and new technologies, A. Simoncini, *Il linguaggio dell'intelligenza artificiale e la tutela costituzionale dei diritti*, in *Rivsta AIC*, 2023; P. Costanzo, *Il ruolo del fattore tecnologico e le trasformazioni del costituzionalismo*, in *Costituzionalismo e globalizzazione. Atti del XXVII Convegno annuale AIC*, Aa. Vv., Naples, 2014, pag. 43 ff; T.E. Frosini, *Il diritto costituzionale di accesso a Internet*, in *Rivista AIC*, 2011, 1, pag. 8 ff; S. Sica, V. Zeno-Zencovich, *Legislazione, giurisprudenza e dottrina nel diritto dell'Internet*, in *Dir. infor*., 2010, 3, pag. 377 ff; V. Zeno-Zencovich, *Manifestazione del pensiero, libertà di comunicazione e la sentenza sul caso "Internet"*, in *Dir. Infor*., 1996, 4/5; V. Zeno-Zencovich, *Perché occorre rifondare il significato della libertà di manifestazione del pensiero*, in *Percorsi Costituzionali*, 2010, 1, pag. 69 ff.

[12] In these words M. Fioravanti, *Costituzione italiana: articolo 2*, Rome, 2017, pag. 1.

[13] L. Di Majo, *L'art. 2 della Costituzione e il "Metaverso"*, cit., pagg. 42-43. Article 2 of the Constitution is important because it marks an authentic and conscious Copernican revolution in the conception of the person: no longer subordination to the State, but rather the State as a function of the person, whose inviolable rights are recognised and guaranteed. If considered in an inseparable perspective with the human, even the electronic body is a person, certainly different from the real one, but not for this reason detached from the principles of equality, self-determination and dignity, born of a long elaboration, persisting - in theory - in this unusual dimension, connected to the new environment in which the body is immersed. *Ibid*.

[14] On the terminology, see the reconstruction provided by S. Rodotà, *Antropologia dell'homo dignus. Lezione tenuta nell'Aula Magna dell'Università di Macerata il 6 ottobre 2010 in occasione del conferimento della Laurea honoris causa*, in *Storia e memoria*, 2010, pag. 107 ff.

[15] P. Ridola, *Le libertà e i diritti nello sviluppo storico del costituzionalismo*, in *I diritti costituzionali*, vol. 1, (eds.) R. Nania, P. Ridola, Turin, 2001.

[16] L. Di Majo, *L'art. 2 della Costituzione e il "Metaverso"*, cit., pag. 60.

[17] *Ibid*. The author, in this perspective, speaks no longer of a charter of rights, but rather a charter of duties towards those who are intangible, but who we know exist and will be increasingly present in time, aimed at breaking that user-platform bond from below whenever there is even the perception of the danger of an aggression against fundamental rights. The affixing of much more stringent obligations and prohibitions - even to bodies that aspire to become digital - is unavoidable, on the one hand, because of the difficulty of identifying the human subjects behind the "Multiverse", and on the other hand, to guarantee the person himself, anticipating his protection at a time before he is swept into the black hole of immersive reality.

[18] The reference is to G.M. Riccio, *Metaverso, logiche proprietarie e poteri privati*, in G. Cassano, G. Scorza, *Metaverso*, *cit.*, pag. 85 ff. Of the same author G.M. Riccio, *Il metaverso e la necessità di superare i dogmi proprietari*, in *Dir. Internet*, 2023, pagg. 223-243. On the subject of contractualisation through digital platforms in the strict sense of the term, G. Alpa, *Sul potere contrattuale delle piattaforme digitali*, in *Contr. Impr.*, 2022, 3; R. Pardolesi, *Piattaforme digitali, poteri privati e concorrenza*, in *Dir. pubbl*., 2021, 3; S. Aceto di Capriglia, *Contrattazione algoritmica. Problemi di profilazione e prospettive operazionali. L'esperienza "pilota" statunitense*, in *Federalismi.it*, 2019; G. Resta, *Digital Platforms and the Law: Contested Issues*, in *MediaLaws*, 2018, 1; S. Sica, A.G. Parisi, *La tutela del consumatore nel contratto online*, in *Rimedi e tecniche di protezione del consumatore*, (ed.) A.M. Gambino, Turin, 2011.

[19] *Inter alia*, probably the most relevant ones, concern, on the one hand, the problem of trademarks (do the trademark rights

of a fashion company, especially where it is not present in the metaverse, extend also to the virtual world?) For an examination on this point, see *Questioni di diritto industriale*, Naples, (ed.) A. Borroni, 2014.

[20] G. Cerrina Feroni, *Il metaverso tra problemi epistemologici, etici e giuridici*, cit., pag. 28.

[21] F. Sarzana di S. Ippolito, M.G. Pierro, I. Epicoco, *Il diritto del metaverso*, cit., pag. 38 ff.

[22] For a general discussion of the subject, please refer to *I "poteri privati" delle piattaforme e le nuove frontiere della privacy*, (a cura di) P. Stanzione, Turin, 2022.

[23] According to authoritative doctrine, it is changes in information, reproductive and genetic engineering technologies that have shifted the path from the right to privacy (i.e. the right to be let alone) to the right to retain control over personal information. Extensively, on this point, already in times before today's technological development. S. Rodotà, *Repertorio di fine secolo*, Rome-Bari, 1999, pag. 201. Of the same author, also S. Rodotà, *Tecnologia e diritti*, Bologna, 1995, pag. 19 ff. See more recently G. Pascuzzi, *Il diritto dell'era digitale. Tecnologie informatiche e regole privatistiche*, Bologna, 2020; T.E. Frosini, *Tecnologie e libertà costituzionali*, in G. Comandé, G. Ponzalli (eds.), *Scienza e diritto nel prisma del diritto comparato*, Milan, 2004; G. Pascuzzi, U. Izzo, M. Macilotti (eds.), *Comparative Issues in the Governance of Research Biobanks. Property, Privacy, Intellectual Property, and the Role of Technology*, Heidelberg-New York-Dordrecht-London, 2013; G. Giannone Codiglione, *I dati personali come corrispettivo della fruizione di un servizio di comunicazione elettronica e la "consumerizzazione della privacy"*, in *Dir. Inf.*, 2017, 2.

[24] On this point, amplius, G. Cerrina Feroni, *Il metaverso tra problemi epistemologici, etici e giuridici*, cit., pagg. 28-29.

[25] A. Venanzoni, *Cyber-costituzionalismo: la società digitale tra silicolonizzazione, capitalismo delle piattaforme e reazioni costituzionali*, cit., pag. 10. It is, on closer inspection, a standard method of social sorting that is so intrusive as to entail the loss of control of any virtual body (a concept preconized by S. Rodotà, *Elaboratori elettronici e controllo sociale*, Bologna, 1973), continuously subjected to aggressive digital "targeting advertising" activities, of capillary "preter intentional" surveillance through the traces left on the net. L. Di Majo, *L'art. 2 della Costituzione e il "Metaverso"*, cit., pag. 51. On this point, also G. Pitruzzella, *La libertà di informazione nell'era di Internet*, in *MediaLaws*, 2018, pag. 25 ff.

[26] In particular, A. Celotto, *Il "metaverso" e delle sue implicazioni per l'ordinamento giuridico*, audizione presso la Commissione Affari Costituzionali del Senato della Repubblica, in *senato.it*, 6 luglio 2022, noted how the lack of the adoption of an adequacy assessment by the European Commission continues to cause a state of uncertainty in international data traffic. It will therefore be essential to resolve this knot as soon as possible, otherwise the metaverse, whose data are collected and managed automatically by artificial intelligence systems, will not be able to function.

[27] G. Cerrina Feroni, *Il metaverso tra problemi epistemologici, etici e giuridici*, cit., pag. 29. More generally, A. Quarta, G. Smorto, *Diritto privato dei mercati digitali*, Milan, 2020.

[28] Please refer to the fundamental concluding prologue by S. Rodotà, *Privacy, libertà e dignità*, 26ma Conferenza internazionale sulla protezione dei dati, Wroclaw, 14-16 settembre 2004, who stated that without strong protection of information about them, people are increasingly at risk of being discriminated against for their opinions. Privacy is a necessary tool to defend the society of freedom and to oppose the construction of a society of surveillance, classification, social selection.

[29] On this point, for a general overview see G. Alpa, *Il diritto di essere se stessi*, Milan, 2021, pag. 203 ff.

[30] On the issue of new offences, see, generally, S. Aceto di Capriglia, *Gli illeciti on line e le nuove frontiere della responsabilità civile nell'era digitale*, in *Federalismi.it*, 2018.

[31] For an analysis of article 32 of the GDPR, see in doctrine M.S. Esposito, *Commento art. 32 GDPR*, in R. D'Orazio, G. Finocchiaro, O. Pollicino, G. Resta (eds.), *Codice della privacy e data protection*, Milan, 2021, pag. 502-514.

[32] On the importance of designing responsible technologies and spaces from the outset, he wrote, among others, with reference to some cautious informal interlocutions at EU level, M. Pollet, *Métavers: les régulateurs face a la difficulté d'un nouvel espace encor à inventer*, in *Euractiv.fr*, June 21, 2022.

[33] G. Cerrina Feroni, *Il metaverso tra problemi epistemologici, etici e giuridici*, cit., pag. 30. These are guarantees provided for in the draft of the new regulation on artificial intelligence, given the interconnection between the two topics.

[34] *Ibidem.*

[35] On the definitional problem, without any claim to completeness, A. Miranda, *Introduzione alla "tutela privatistica dei beni ambientali e culturali"*, in *La Tutela Privatistica dei Beni Ambientali e Culturali tra Prescrizione e Cooperazione. Modello inglese e prospettive italiane*, (ed.) A. Miranda, Padua, 2004, pagg. 1-20; G.P. Demuro, *Una proposta di riforma dei reati contro i beni culturali*, in *Riv. It. Dir. Proc. Pen.*, 2002, 4, pagg. 1358-1369; G. Pitruzzella, *La nozione di bene culturale (artt. 1, 2, 3 e 4 d.lg. 490/1999)*, in *Aedon*, 2000, 1; G. Sciullo, *I beni*, in *Diritto e gestione dei beni culturali*, (a cura di) C. Barbati, M. Cammelli, G. Sciullo, Bologna, 2011, pagg. 21-52; G. Alpa *et al.*, *I beni culturali nel diritto - Problemi e prospettive*, Naples, 2010.

[36] F. Di Bonito, *Il problema definitorio del "bene culturale" tra 'reale' e 'dichiarato': consapevolezza della culturalità e ricadute penalistiche*, in *Il Diritto dei Beni Culturali*, (a cura di) B. Cortese, Rome, 2021, pag. 51.

[37] *Ibidem.*

[38] On the point, S. Manacorda, *La circolazione illecita dei beni culturali nella prospettiva penalistica: problemi e prospettive di riforma*, in *Circolazione dei beni culturali mobili e tutela penale: un'analisi di diritto interno, comparato e internazionale*, Milan, 2015, 20, identifies three different definitions: a casuistic, a unitary and a normative definition of cultural property.

[39] As already stated in consolidated doctrine, with reference to V. Cerulli Irelli, *Beni culturali, diritti collettivi e proprietà pubblica*, in *Scritti in onore di M.S. Giannini*, vol. 1, Milan, 1988, pagg. 135-178.

[40] P. Stella Richter, E. Scotti, *Lo statuto dei beni culturali tra conservazione e valorizzazione*, in *Trattato di diritto amministrativo*, (a cura di) G. Santaniello, Padua, 2002, pag. 397.

[41] F. Di Bonito, *Il problema definitorio del "bene culturale" tra 'reale' e 'dichiarato': consapevolezza della culturalità e ricadute penalistiche*, cit., pag. 62.

[42] G. Sciullo, *I beni*, cit., pag. 23.

[43] S. Manacorda, *La circolazione illecita dei beni culturali nella prospettiva penalistica: problemi e prospettive di riforma*, cit., 20.

[44] This theory was proposed by, L. Casini, *Oltre la mitologia giuridica dei beni culturali*, in *Aedon*, 2012, 1-2.

[45] R. De Meo, *Quale disciplina per accesso e uso delle immagini digitalizzate di opere d'arte in pubblico dominio?*, cit., pag. 190. See also G. Negri-Clementi, S. Stabile (a cura di), *Il diritto dell'arte*, II, *La circolazione delle opere d'arte*, cit., pag. 228 ff. The authors note how digitization of collections in the analog world has created new opportunities for exchange and creative reuse, enabling the community to explore and interact with cultural heritage in innovative ways. Cultural institutions are thus transformed from custodians of analog collections into providers of digital services.

[46] On the economic exploitation of art, see extensively L. Mansani, *Proprietà intellettuale e giacimenti culturali*, in *Aida*, 2013, pag. 124 ff.

[47] R. De Meo, *Quale disciplina per accesso e uso delle immagini digitalizzate di opere d'arte in pubblico dominio?*, cit., pagg. 190-191.

[48] For an analysis on the subject of copyright protection with reference to the web from a comparative perspective see O. Pollicino, *Tutela del diritto d'autore e protezione della libertà di espressione in chiave comparata. Quale equilibrio su Internet?*, in *Il caso del diritto d'autore, I diritti nella "rete" della rete*, (ed.) F. Pizzetti, Turin, 2013, pag. 97 ff.

[49] On the issue regarding the use of images related to cultural property, see G. Bavetta, *Immagine (diritto alla)*, in *Enciclopedia del Diritto*, Vol. XX, 1970; A. Serra, *Patrimonio culturale e nuove tecnologie: la fruizione virtuale*, in L. Casini (a cura di), *La globalizzazione dei beni culturali*, Bologna, 2010; L. Casini, *Riprodurre il patrimonio culturale? I 'pieni' e i 'vuoti' normativi*, in *Aedon* 2018, 3; M.C. Pangallozzi, *La fruizione del patrimonio culturale nell'era digitale: quale evoluzione per il 'museo immaginario'?*, in *Aedon*, 2020, 2.

[50] On the matter, G. Resta, *L'immagine dei beni*, in *Diritti esclusivi e nuovi beni immateriali*, (ed.) G. Resta, Turin, 2011, pagg. 568-569.

[51] P. Magnani, *Profili di tutela del diritto d'autore nella creazione di cataloghi digitali del patrimonio culturale: la protezione della banca dati e la protezione dei contenuti*, in *Aedon*, 2020, 3, pag. 7.

[52] The problem arises already in the case where the work depicted represents the main object of the photograph as well as in the case where the object of the photograph is broader, but also includes that element. For reconstruction and further study of the problem, see P. Magnani, *Musei e valorizzazione delle collezioni: questioni aperte in tema di sfruttamento dei diritti di proprietà intellettuale sulle immagini delle opere*, *Riv. Dir. Ind.*, 2016, pag. 211 ff.

[53] P. Magnani, *Profili di tutela del diritto d'autore nella creazione di cataloghi digitali del patrimonio culturale: la protezione della banca dati e la protezione dei contenuti*, cit., 7-8. On the topic of copyright and freedom of expression V. Zeno-Zencovich, *Diritto d'autore e libertà di espressione: una relazione ambigua*, in *Aida*, 2005, pagg. 151-160.

[54] G. Resta, *L'immagine dei beni*, cit., pagg. 557-558.

[55] *Ibidem.*

[56] On this point M. Ricolfi, *Il diritto d'autore*, in N. Abriani, G. Cottino, M. Ricolfi, *Diritto industriale*, in *Tratt. Dir. Comm.*, G. Cottino (a cura di), Padua, II, 2001, pag. 458 ff.

[57] S. Aliprandi, *Vincoli alla riproduzione dei beni culturali oltre la proprietà intellettuale*, in *Arch. Calc.*, 2017, pag. 93 ff.

[58] P. Magnani, *Profili di tutela del diritto d'autore nella creazione di cataloghi digitali del patrimonio culturale: la protezione della banca dati e la protezione dei contenuti*, cit., pag. 8.

[59] P. Testa, *Il parere del professionista - Diritti di proprietà intellettuale e metaverso*, in *Dir. ind.*, 2022, pag. 299 ff.

[60] R. De Meo, *Quale disciplina per accesso e uso delle immagini digitalizzate di opere d'arte in pubblico dominio?*, cit., pagg. 190-191.

[61] Non-Fungible Tokens (or more commonly NFTs) are tokens that can be used to represent the ownership of unique objects. They allow art objects, collectibles and even real estate to be tokenized. The ownership of an asset will be protected by the blockchain, in fact no one will be able to change the ownership record or copy and paste a new NFT into existence. Non-fungible is an economic term used to describe objects such as furniture, music files or computers; where these objects are not interchangeable for other objects, this is because they have unique characteristics. On the point, R. Garavaglia, *Tutto sugli NFT. Crypto art, token, blockchain e loro applicazioni*", Milan, 2022, pagg. 120-121.

[62] R. De Meo, *Quale disciplina per accesso e uso delle immagini digitalizzate di opere d'arte in pubblico dominio?*, cit., pagg. 191-192.

[63] On the inability of the norms contained within the code to design a discipline capable of reacting to "the disorder of public property" that would require organic reforms with the explicit aim of replacing the obsolete codictic discipline of Napoleonic imprint and the magmatic patchwork of special laws stratified, often in a non-organic manner, over time, see C.M. Cascione, *Il diritto privato dei beni pubblici*, Bari, 2013, pag. 20.

[64] On this point, see amplius L. Nivarra, *I beni culturali sullo sfondo del ripensamento dello statuto dei beni pubblici*, in G. Alpa *et al.* (eds.), *I beni culturali nel diritto. Problemi e prospettive*, Naples, 2010, pag. 55 ff. See also G.A. Benacchio, M. Graziadei, *Il declino della distinzione tra diritto pubblico e diritto privato*, in *atti del IV Congresso nazionale SIRD, Trento, 24-26 settembre 2015*, Naples, 2016, pag. 3 ff.

[65] R. De Meo, *Quale disciplina per accesso e uso delle immagini digitalizzate di opere d'arte in pubblico dominio?*, op. cit., pag. 192.

[66] P. Forte, *Il bene culturale pubblico digitalizzato: prime note per uno studio giuridico*, in *Pers. Amm.*, 2019, pag. 283. See also G. Resta, *L'immagine dei beni*, cit., pag. 585. The author bases his conclusion on a comparative jurisprudential analysis observing that "the image of movable or immovable property that is freely visible is not subject to any restriction on reproduction and exploitation by third parties, with the exception of any protection deriving from the right to privacy or intellectual property rights that may insist on the property. G. Resta, *Le fotografie delle catacombe e la proprietà intellettuale*, in *Dir. Infor.*, 2012, pag. 845.

[67] R. De Meo, *Quale disciplina per accesso e uso delle immagini digitalizzate di opere d'arte in pubblico dominio?*, cit., pag. 194.

[68] M. Modolo, *Promozione del pubblico dominio e riuso dell'immagine del bene culturale*, in *Arch. Calc.*, 2018, pag. 76, reconstructs the parliamentary affair of law no. 340/1965, which led to the choice to make the authorization regime prevail over the free reproducibility regime: in that circumstance, the alleged reasons of physical protection of the property prevailed, but above all, and this was even more interesting, the intention to limit, through the inhibiting power of authorizations, the multiplication of photographs.

[69] These articles expressly establish the limits within which cultural goods may be reproduced. On this point, widely, C. Galli, *Tutela e valorizzazione dei beni culturali pubblici e privati attraverso la proprietà intellettuale*, in *Dir. ind.*, 2021.

[70] G. Morbidelli, *Il valore immateriale dei beni culturali*, in A. Bartolini, D. Brunelli, F. Caforio (eds.), *I beni immateriali tra regole privatistiche e pubblicistiche*, Naples, 2014, pag. 171 ff; S. Barile, *Verso una nuova ipotesi di rappresentazione del concetto di bene culturale*, in *Patrimonio culturale e creazione di valore. Verso nuovi percorsi*, (ed.) G. Golinetti, Padua, 2012, pag. 71 ff; G. Manfredi, *La tutela proprietaria dell'immateriale economico nei beni culturali*, in *Dir. econ.*, 2017, pag. 29 ss.; P. Forte, *Il bene culturale pubblico digitalizzato: prime note per uno studio giuridico*, cit., pagg. 245-301.

[71] R. De Meo, *Quale disciplina per accesso e uso delle immagini digitalizzate di opere d'arte in pubblico dominio?*, cit., pag. 198.

[72] S. Aliprandi, *Vincoli alla riproduzione dei beni culturali oltre la proprietà intellettuale*, cit., pag. 93 ff.

[73] On this point, an extensive examination has been carried out by A. Bartolini, *L'immaterialità dei beni culturali*, in *Aedon*, 2014, 1.

[74] On this point, for a comparative analysis R. Caso, *Il diritto d'autore accademico nel tempo dei numeri e delle metriche*, Trento Law and Technology Research Group Research Paper n. 36, 2018; G. Pascuzzi, *Il fascino discreto degli indicatori: quale impatto sull'università?*, in *Foro It.*, 2017, I, pag. 2549 ff. But also, among the first on the topic, R. Pardolesi, C. Motti, *"L'idea è mia!": lusinghe e misfatti dell'economicis of information*, in *Dir. Infor.*, 1990, pag. 345 ff; R. Pardolesi, *"Software" di base e diritto d'autore: una tutela criptobrevettuale?*, in *Foro It.*, 1988, I, pag. 3133 ff.

[75] About cost-effectiveness of the art, see G. Severini, *L'immateriale economico nei beni culturali*, in *Aedon*, 2015, 3.

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