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THE NEW FRONTIERS OF TRUST: BITCOINS AND CRYPTOCURRENCIES

Abstract

The opportunity offered by digital innovation to create new categories of goods or, at least, to transform what was previously represented by objects into something virtual has inevitably raised the issue of the legal qualification of digital assets, particularly cryptocurrencies. This classification requires a careful delimitation of the phenomenon. First, because not all ‘digital representations of value’ perform the same function and, most importantly, because their legal nature should be harmonised with the need to guarantee exclusive and absolute use by their owner and therefore, with tools that protect the individual’s ownership rights. One fundamental effect of digital assets being qualified as property is that they can be the object of trust. Moreover, it is precisely in this context that, owing to changing economic and social demands, the need to rethink the traditional categories of civil law becomes even more acute.

JEL CLASSIFICATION: K11, K20, K24, K40

SUMMARY

1 Introduction - 2 Digital innovation and the theory of goods - 3 Historical developments leading to bitcoin - 4 The legal qualification of virtual currencies - 5 The use of trust for the generational transfer of cryptocurrencies and NFTs - 6 Digital inheritance - 7 Transmission of virtual currency and trust - 8 Conclusions

1 Introduction

The digital revolution transforms, destroys and creates activities and functions in the field of trade, generating a change in human relations that inevitably affects the law, especially its function as an instrument of protection and conflict resolution.

The first problem concerns the need to understand the phenomenon and gain knowledge about matters outside the traditional sphere of jurists.

The second problem is related to the rapid and continuous pace of technical digital change that cannot be immediately summarised and translated into a suitable regulatory instrument, given the slowness of the legislative process.

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It is precisely in this situation that we have to contextualise the issue of the legal classification of virtual currencies. This not only requires careful delimitation of the phenomenon, since not all ‘digital representations of value’ perform the same function, but mainly, their legal status as to be harmonised with the need to safeguard exclusive and absolute use by their holder and therefore with tools that protect the individual’s ownership rights.

It is essential, therefore, that the ‘sectionisation of law’ upholds the unitary application of the legal system, where principles and values are the hermeneutic keys to the system.

It is in this perspective that it is necessary to see harmonisation as moving beyond the commercial rationale of intellectual property and extending the applications of the ownership model, involving a gradual expansion of the ‘intangible assets’ category to meet the demands of the virtual world and the safeguard of individuals.¹

The inclusion of bitcoins and cryptocurrencies in the context of ‘intangible assets’ means an attempt to consider these ‘new assets’ as susceptible to appropriation and, consequently, the object of ownership. It is, therefore, necessary to address a broader phenomenon which, as is well known, has, for some time, been the object of fascination in both civil law and common law contexts. Thus, taking advantage of these different approaches in legal comparison will provide a better framing of the different legal systems, while highlighting issues of global significance.

The many applications developed include the use of trusts as a vehicle for collecting virtual monetary assets. This is because the physiological fear that accompanies any recourse to legal schemes that do not belong to the civil law tradition has now been overcome.

Moreover, it is precisely in this context that, owing to changing economic and social demands, the need to rethink the traditional categories of civil law becomes even more acute.

As authoritative doctrine has argued, ‘property, from two different perspectives, is a subjective situation and a relationship’.²

In structural terms, ownership is expressed as a relationship between the owner’s circumstances and the potential competing circumstances of third parties.

However, the owner’s circumstances presuppose an obligation of conduct on his or her part, a duty to abstain and an obligation to cooperate with the other owners with the potentially opposing interests.

¹ Pietro Perlingieri and Pasquale Femia, *Nozioni introduttive e principi fondamentali del diritto civile* (Esi 2004) 125. *Status personae* and *status civitatis* are «*situazioni precise con contenuto tipico o atipico determinato. Si che per tali qualificazioni è possibile individuare quali servizi e beni sono essenziali*». See Pietro Perlingieri, *Il diritto civile nella legalità costituzionale IV Attività e responsabilità* (ESI 2020) 261.

² Pietro Perlingieri, ‘Relazione conclusiva’ in Ernesto Capobianco, Giovanni Perlingieri and Marcello D’Ambrosio (eds), *Circolazione e teoria dei beni* (ESI 2020).



Thus, the functional aspect is prevalent in ownership as a relationship³ between the owner and the third party, be it a private individual or a public body. Cooperation is required, where sometimes the interests of the owner are prevalent and sometimes those of the third parties. What is certain is that defining the social function of ownership as a criterion of sound economic management seems reductive, given the changed fundamental values in the legal system.

‘Considering the centrality of the value of the person in the constitutional system with the consequent functionalisation of the patrimonial situations - property and business - to existential situations’,⁴ the need arose, therefore, to protect all projections of the individual into the virtual world that are accessed via a digital identity,⁵ defined as the virtual representation of a person’s identity used as a means of connection between the real world and the digital world.⁶

Thus, jurists cannot overlook this social phenomenon, since the law is itself a social phenomenon,⁷ changing over time as ‘the product and at the same time the engine of cultural, economic, social and political changes’.

‘This is more necessary because scientific and technological innovation is the bearer of an incessant change that cannot be governed through the traditional pursuit of legislation. It is indispensable, therefore, to prefer “forward-looking” instruments, such as those linked to a norm based on principles’.⁸ At the same time, constructing a discipline based on closed cases presupposes a law that intervenes at the end of a cycle, to select and reorganise interests and situations that are now consolidated. However, the law may choose - given the specific sector in which it is to be applied - the path of *sunset provision*, rules that will disappear and be replaced at a predetermined deadline, thereby creating an obligation on the legislator (or others) to reconsider the matter.⁹

2 Digital innovation and the theory of goods

In the last decade, the legal debate on the circulation of trust¹⁰ has aroused particular interest among European jurists. This attention is due to the opportunity granted by digital innovation to create new categories of goods or, at least, to transform

³ *ibid* 102.

⁴ Perlingieri (n 1) 295.

⁵ Vincenzo G Giglio, ‘Identità e profilazione digitale: i rischi dei Big Data’ (*Filodiritto*, 22 November 2016) <<https://www.filodiritto.com/identita-e-profilazione-digitale-i-rischi-dei-big-data>> accessed 25 March 2024.

⁶ Massimo Giuliano, ‘La blockchain e gli Smart Contracts nell’innovazione del diritto del terzo millennio’ (2018) 6 *Il diritto dell’informazione e dell’informatica* 989.

⁷ Salvatore Satta, *Colloqui e soliloqui di un giurista* (CEDAM 1967) XIX.

⁸ Stefano Rodotà, *Tecnopolitica, la democrazia e le nuove tecnologie della comunicazione* (Laterza 2004) 23.

⁹ *ibid*.

¹⁰ In this regard, see Raffaele Lener, ‘La circolazione del modello del trust nel diritto continentale del mercato mobiliare’ (1989) *Rivista delle Scoietà* 1050 ; Antonio Gambaro, ‘Il trust in Italia e in Francia’, in Paolo Cendon (ed), *Studi in onore di Rodolfo Sacco* (Giuffrè 1994) 495 .

what was previously represented by objects into something that is virtual. Thus, a transposition of reality, though not through material elements but rather through numbers and therefore algorithms capable of translating reality into electronic information and algorithms in turn capable of transforming this information into something for the end user.

Technology has always had a significant influence on how associates regulate their relationships, thus, indirectly, on the laws that governs society.¹¹ This opens up vistas for legal research in the field of property law (Book III, Title I of the Italian Civil Code) and the relationship between these and rights in rem (Book III of the Italian Civil Code). The issue has been addressed more as it relates to intellectual property and intellectual and artistic works as opposed to property per se, and focuses on what digital innovation has brought to the existing categories, as a result of the flexibility of Italian law; but also how this limits the need to develop a broad, comprehensive theory of digital goods and contracts.

The notion of ‘rights over intangible assets’¹², now formally in disuse, has given way to ‘intellectual property’, which is characterised as a summary formula for a vast array of legal situations concerning incorporated things. The so-called ‘protectionist drift of intellectual property’ was then followed by a significant process of ‘constitutionalisation’ of the legal situations in question. Over time, intellectual property has been elevated to a constitutionally protected right.

The crucial stages in this process are clearly observed in the Court of Strasbourg’s recognition of intellectual property as a protected possession under the First Protocol of the ECHR, and also in its formal inclusion in the general guarantee of ownership provided for by Article 17 of the EU Charter.¹³

The confluence of technological evolution, changes in economic structures and the evolution of the institutional framework has led to various consequences that increasingly underscore the self-referential paradigm of intellectual property.¹⁴

The change in the lexical order reflects a profound evolution at the regulatory level,¹⁵ where the theory of goods is not limited to the theory of rights in rem or to that of property¹⁶. Emblematic of this is the study of information as a commodity.

¹¹ Giovanni Pascuzzi, *Il diritto dell’era digitale* (Il Mulino 2002) 61, 66.

¹² Gustavo Ghidini, ‘Prospettive “protezionistiche” del diritto industriale’ (1995) *I Rivista di diritto industriale* 73.

¹³ Marco Ricolfi, ‘Sub art. 17, c.2’, in Roberto Mastroianni, Oreste Pollicino and Silvia Allegrezza, *Carta dei diritti fondamentali dell’Unione Europea* (Giuffrè 2017) 338; Laurence Helfer, ‘The New Innovation Frontier? Intellectual Property and the European Court of Human Rights’ (2008) 49 *Harvard International Law Journal* 1.

¹⁴ Alexander Peukert, ‘Güterzuordnung und Freiheitsschutz’, in Reto M Hilty (ed), *Geistiges Eigentum: Herausforderung Durchsetzung* (Springer 2008) 47.

¹⁵ Giorgio Resta, ‘Dal dominio delle cose all’esclusiva sui beni immateriali’ in Capobianco, Perlingieri and D’Ambrosio (n 2) 27.

¹⁶ The so-called objectivist conception solves the problem of property in the theory of goods: Pietro Perlingieri, *Introduzione alla problematica della proprietà* (ESI 2011) 85.



Legal theory has asked whether information is a legal asset, whether and when it can form part of a legal relationship and by what means it can be protected. It has been argued that the solution requires that the information has an appreciable social utility and, at the same time, finds its unity in the legal system, an evaluation of merit.¹⁷

In principle, it is essential to establish a realistic and correct relationship between the content - document or medium - and its content (the news or idea), without insisting on protecting one another. All this is necessary, considering that the distinction between content and its support in today's digital reality is somewhat nuanced. However, they are suitable as references of interests and subjective legal situations.¹⁸ In a socio-historical context characterised by the increasing importance of interests and utilities¹⁹ which, on one hand are devoid of materiality and, on the other, have none of the exclusivity that is typical of real situations, a different orientation would reveal all its inadequacy.²⁰

One example, possible today thanks to digitisation and blockchain, is so-called 'tokenisation'²¹, namely the reduction to a numerical code of any right to be used on an asset in order to make it exchangeable. One would have to ask the meaning of attributes of goods such as 'fungibility' and 'consumability', but also which contracts concern such goods and whether it still makes sense to talk, say, contracts for the escrow and administration of dematerialised financial instruments no longer represented even by an accounting entry (object of the case), but by a unique numerical code that identifies the single instrument, the single right, its holder and the previous holders. There is,

¹⁷ Pietro Pelingieri, 'L'informazione come bene giuridico' (1990) 2 *Rassegna di Diritto Civile* 338.

¹⁸ Pietro Perlingieri, *Il diritto civile nella legalità costituzionale. Vol III* (ESI 2020) 323, 324.

¹⁹ Cf. on the topic, Giorgio de Nova, 'I nuovi beni come categoria giuridica' in Giorgio de Nova, Bruno Inzitari, Giulio Tremonti and Gustavo Visentini (eds), *Dalle res alle new properties* (Jovene 1991) 13; Antonio Gambaro, 'La proprietà nel common Law anglo-americano', in Albina Canadian, Antonio Gambaro and Barbara Pozzo (eds) *Property, Propriété, Eigentum* (CEDAM 1992) 167; Bruno Inzitari 'Le New Properties nella società post-industriale', in Giorgio De Nova, *Dalle res alle new properties* (Jovene 1991) 53 ; Antonio Jannarelli, 'Beni. Profili generali', in Nicolò Lipari (ed) *Diritto privato europeo vol I* (CEDAM 1997) 380; Antonio Jannarelli, 'La disciplina dei beni tra proprietà e impresa nel codice del 1942' [1993] *Rivista critica del diritto privato* 46, 52; Michele Lobbuono, 'I «nuovi beni» del mercato finanziario' (2002) *Rivista di diritto privato* 48; Ugo Mattei, 'Qualche riflessione su struttura proprietaria e mercato' (1997) *Rivista critica di diritto privato* 25; Alberto Pretto, 'Strumenti finanziari: la nuova proprietà' (1997) *Rivista critica di diritto privato* 669; Stefano Rodotà, *Il terribile diritto. Studi sulla proprietà privata* (Il Mulino, 1990) 20; Paola D'addino Serravalle, *I nuovi beni e il processo di oggettivazione giuridica. Profili sistematici* (ESI 1999); Alessandra Bellelli and Alberto Giulio Cianci, *Beni e situazioni giuridiche di appartenenza: tra diritti reali e new properties* (Giappichelli 2007); Alberto Maria Gambino, 'Diritto d'autore e nuovi processi di patrimonializzazione' (2011) *Diritto industriale* 114; Claudia Morgana Cascione, 'Garanzie e "nuovi beni". Sulla collateralization di nomi di dominio, pagine web, banche dati' (2010) 3 *Rivista di diritto privato* 69; Ilaria Garaci, *Nuovi beni e tutela della persona. Lo sfruttamento commerciale della notorietà* (Giappichelli 2012); Andrea Zoppini, 'Le «nuove proprietà» nella trasmissione ereditaria della ricchezza (note a margine della teoria dei beni)' (2000) 46(2) *Rivista di diritto civile* 185.

²⁰ See Anna Carla Nazzaro, 'Nuovi beni tra funzione e dogma' [2013] *Contratto e impresa* 1014; Enrico Caterini, 'Il contributo del libro terzo del codice civile alla formazione del "diritto patrimoniale comune". La palingenesi della proprietà' (2011) I in *Rassegna di diritto civile* 1.

²¹ CONSOB 'Le offerte iniziali e gli scambi di cripto-attività' (Discussion Paper, 19 March 2019) <https://www.consob.it/documents/1912911/1972122/doc_disc_20190319.pdf/2044537e-487c-5093-112e-3eacc69b12d4> accessed 25 March 2024.

therefore, a necessary connection between goods, things, and rights over things, between property and the regime of ownership, where the concept of property postulates its ability to be ‘the object of rights’ (Art. 810 of the Italian Civil Code), that is to say, the object of an active subjective situation, and not only of exclusive rights, in terms of ownership.²²

In essence, only after a careful analysis of the law of assets, will it be possible to analyse the types of contracts applicable for the transmission and storage and management of such newly designed assets so they become invulnerable to adverse financial events involving the owner, thus protecting their value in the interests of the owner and their family. As will be seen below, the trust is an institution that, although not belonging to the civil law tradition, is the one that proves to be effective in pursuing these legitimate objectives.²³

Therefore, there is a clear shift towards an economy based on a technological society that finds expression in digital information. This evolution has led to new and significant problems, primarily around the issue of qualifying cryptocurrency as a legal asset.

The traditional study of goods has proved to be wholly inadequate. It can no longer be traced back to a unitary model, but rather is fragmented due to the multiplicity of legal phenomena related to ‘new goods’, each with different characteristics and difficult to categorise.

The need to establish rules that can regulate actions arising and developing within a meta-territory²⁴ and which in turn affect the object of the law, leading to an expansion of the category of goods,²⁵ in order to catalogue these new phenomena and deduce their legal effects, demands adaptation on the part of the interpreter,²⁶ whose task is made even more difficult by the extreme vagueness of the wording contained in article 810 of the Italian Civil Code.²⁷

The term ‘thing’,²⁸ to which the wording of the article in question expressly refers, includes both the portions of material reality, which fall under the dominion of the senses and are susceptible to autonomous appropriation, and the immaterial, ‘*res quae tangi non possunt*’, which, although devoid of material consistency, are capable of

²² Salvatore Pugliatti, ‘Beni, (Teoria gen.)’, in *Enc dir V* (Milan 1959) 164; Pietro Perlingieri and Pasquale Femia, *Nozioni introduttive e principi fondamentali del diritto civile* (ESI 2004) 132.

²³ Maurizio Lupoi, *Istituzioni del diritto dei trust negli ordinamenti di origine e in Italia* (4th ed, CEDAM 2019); Lucia Di Costanzo, *Il trust nel diritto italiano* (ESI 2022).

²⁴ Understood as something external, even if located in a territory recognised by the international community. On this, see Manlio Cammarata, ‘Quali leggi per il “territorio Internet”?’ (1997) <<http://www.interlex.it/regole/mcmeta1.htm>> accessed 25 March 2024.

²⁵ Antonio Gambaro, ‘Il diritto di proprietà’, in Antonio Cicu and Francesco Messineo (eds), *Trattato di diritto civile e commerciale* (Giuffrè 1995) 129; Giorgio De Nova, ‘I nuovi beni come categorie giuridiche’, in De Nova, Inzitari, Tremonti and Visentini (n 19) 15.

²⁶ Massimo Giuliano, ‘Criptoaluta e trust’ (2021) 4 *Trusts e attività fiduciarie* 384.

²⁷ Massimo Giuliano, ‘Le risorse digitali nel paradigma dell’art. 810 cod. civ. ai tempi della blockchain’ (2021) 5 *NGCC* 1215.

²⁸ ‘Cosa’ *Enciclopedia Treccani online* <<https://www.treccani.it/vocabolario/cosa/?search=còsa>>.



providing utility, appropriation and forming an object of law, thus showing itself to be meagre, ambiguous and capable of regulating a constantly evolving phenomenon.²⁹

Several scholars have pointed out that this provision contributes little to the quest for the legal concept of property, precisely because of its linguistic formulation, to the extent that it is subject to the most disparate interpretations.³⁰

Traditional theory held that the concept of legal good, meaning ‘any material entity or ideal of legal relevance’, could be inferred from that definition.³¹

Other theories have held that it would be devoid of prescriptive value, since it does not have the function of a general normative criterion for qualifying goods in the legal sense, but would be the instrument by which ‘goods’ could be qualified according to the legal system and, therefore, be the object of rights.³²

The terms ‘good’ and ‘thing’ contained in the provision in question have received multiple and often opposing interpretations from the most authoritative exponents³³ of theory, as a result of the broad spectrum of semantic meanings attributed to them by legislators, by jurisprudence and by theory itself.

The prevailing legal theory distinguishes these concepts by considering them not to be about genus or species.³⁴ However, the two notions need to be clarified and used synonymously in practical application. On the other hand, a minority of and less recent theorists consider them to be interchangeable terms, assessments of the same legal entity.³⁵

However, the concept of ‘thing’ is independent of juridical evaluations, since it is summed up in a pre-judicial entity,³⁶ which is identified with a portion of material reality.³⁷ There is no shortage of those who point out that this material physicality must be susceptible to autonomous exploitation, in both structural and functional terms.³⁸

²⁹ Scholars have often criticised the wording of the rule. See: Vincenzo Zeno-Zencovich, ‘Cosa’ in Associazione italiana di Diritto Comparato, *Digesto delle discipline privatistiche. Sezione civile*. Vol IV (UTET 1989) 438. The Author observes that ‘*La cosa è un’entità pre-giuridica, ossia un elemento della realtà preso in considerazione dal diritto, privo di una sua autonoma qualificazione giuridica*’.

³⁰ Mario Barcellona, ‘Attribuzione normativa e mercato nella teoria dei beni giuridici’ [1987] *Quadrimestre* 615; otherwise, for its preceptive value, A Pino, ‘Contributo alla teoria giuridica dei beni’ (1948) 1 *Rivista trimestrale di diritto e procedura civile* 835.

³¹ Bruno Biondi, ‘I beni’, in *Tratt. Vassalli* (IV, UTET 1953) 15.

³² Oberdan Tommaso Scozzafava, ‘Dei beni’ in Piero Schlesinger, *Il codice civile. Commentario* (Giuffrè 1999) 5; Antonio Jannarelli, ‘La disciplina dei beni tra proprietà e impresa nel codice del 1942’, in *Lecture di diritto privato* (CEDAM 1994) 97.

³³ Nicolò Lipari, *Le categorie del diritto civile* (Giuffrè 2013).

³⁴ ‘*Il granello di sabbia e la lontana galassia pur certamente esistenti nel mondo della realtà e pur costituendo cose non possono essere qualificati come beni*’, in this sense Zeno-Zencovich (n 29) 439.

³⁵ Bruno Biondi, ‘I beni’ in F Vassalli, *I beni* (UTET, Torino 1953) 15, for whom a juridical asset ‘*qualsiasi entità materiale o ideale giuridicamente rilevante*’, but *contra* Ugo Natoli, *La proprietà* (Giuffrè 1976) 70.

³⁶ Zeno-Zencovich (n 29) 443.

³⁷ Francesco Santoro Passarelli, *Dottrine generali di diritto civile* (Jovene 1976) 55.

³⁸ Fulvio Maroi, ‘Cosa’, in *Novissimo Digesto Italiano* (UTET 1938) 356; Rosamaria Ferorelli, *Le reti dei beni nel sistema dei diritti. Teoria e prassi delle nuove risorse immateriali* (Cacucci 2006) 80.

The traditional thesis, on the other hand, usually qualifies goods as material things that can be a source of utility,³⁹ in that they can satisfy human needs and, as such, are subject to exclusive appropriation, attributable to the right of property or other forms of possession.⁴⁰

The *punctum dolens* is precisely this: to come to support a notion of a ‘thing’ that is not necessarily corporal, endorsing the thesis that maintains that the qualification of the thing as a juridical good would not rest on the logic of ownership.⁴¹

Other authors believe that the provision of art. 810 of the Civil Code is highly abstract and that the process of objectification of things is based on the exchange value of the things themselves, i.e. on the principle of patrimonialism, based on the assumption that, in a market economy, only the market decides what does or does not have value.⁴²

Interpretation difficulties involved in outlining the complaints about the vagueness and abstractness of the provision in question, as well as the variety of meanings that are attributed to the way ‘terms such as “goods”⁴³ and “thing”⁴⁴ are used by the legislature, by doctrine and by the case-law in the name of the widest polysemic nonchalance’⁴⁵ have not prevented legal scholars from recognising the historical and systematic significance of art. 810 of the Italian Civil Code.⁴⁶

It is precisely the absence of a general theory of goods that is unanimously shared and suitable for considering the emergence of new forms of wealth in a globalised society that makes it difficult for the interpreter to prepare the legal instruments necessary to ensure the best functioning of technological innovations, based, fundamentally, on the knowledge and use of data,⁴⁷ also, and above all, in terms of generational transition.

Therefore it is time to move away from the conception of the ‘thing’ strictly dependent on the requirements of ‘corporality’, ‘utility’ and ‘patrimoniality’, since

³⁹ Rosamaria Ferorelli, ‘Della proprietà, Artt. 810 - 868’, in Enrico Gabrielli (ed), *Commentario del Codice Civile* (CEDAM 2012) 6.

⁴⁰ Oberdan Tommaso Scozzafava, *I beni e le forme giuridiche di appartenenza* (Giuffrè 1982) 90.

⁴¹ Michele Costantino, ‘La proprietà in generale’, in Pietro Rescigno, *Trattato di Diritto Privato. Voll. VII-VIII* (UTET 1982) 18; Davide Messinetti, ‘Oggetto dei diritti’, in *Enciclopedia del Diritto* (XXIX, Milan 1979) 812.

⁴² Pietro Barcellona, *Diritto privato e società moderna* (Jovene 1996) 229; Pietro Barcellona, *Diritto privato e società moderna* (Jovene 1996) 634.

⁴³ Salvatore Pugliatti, *Scritti giuridici* (Giuffrè 2011) 433.

⁴⁴ Stefania Romeo, *L'appartenenza e l'alienazione in diritto romano. Tra giurisprudenza e prassi* (Giuffrè 2010) 99; Giovanni Pugliese, ‘Dalle «res incorporales» del diritto romano ai beni immateriali di alcuni sistemi giuridici odierni’ [1982] *Rivista trimestrale di diritto e procedura civile* 1137; Giovanni Turelli, ‘“Res incorporales” e “beni immateriali”: categorie affini, ma non congruenti’ [2012] *Teoria e Storia del Diritto Privato* 1.

⁴⁵ Paolo Grossi, ‘I beni: itinerari tra “moderno” e “post-moderno”’ (2012) 66(4) *Rivista trimestrale di diritto e procedura civile* 1059; Marco Allara, *Dei beni* (Giuffrè 1984) 8.

⁴⁶ Antonio Jannarelli, ‘La disciplina dei beni’ [1993] *Rivista critica di diritto privato* 97.

⁴⁷ On the impact of big data and algorithms on rights, see Vincenzo Zeno-Zencovich, ‘Big data e epistemologia giuridica’, in Alix Lloredo Alix and Alessandro Somma (eds), *Scritti in onore di Mario G. Losano* (Accademia University Press 2021). *Ex multis*, Antonio Gambaro, ‘Il diritto di proprietà’, in Antonio Cicu and Francesco Messineo, *Il diritto di Proprietà* (Giuffrè 1995) 129; Giorgio De Nova, ‘I nuovi beni come categorie giuridiche’, in De Nova, Inzitari, Tremonti and Visentini (n 19) 15.



there are emblematic examples of things included among the intangible goods, things with natural energies, where materiality is recognised despite the absence of tangibility.⁴⁸

On the other hand, legal practitioners have often found it challenging to identify adequate regulation within the legal system in the face of the emergence of ‘new assets’,⁴⁹ mainly because of the difficulty of bringing these entities back within the framework of property rights. Suffice it to say that even the institution of trusts in our legal system has suffered from incompatibility with the known proprietary scheme. However, at the same time, it has made a different conception of possession (re)emerge without violating the regulatory apparatus.

Ignoring the epochal change that our society is going through under the pervasive pressure of technological progress, as the Internet has been and as *blockchain*⁵⁰ is now, where we discuss digital capitalism, ‘*platform capitalism*’, ‘*platform society*’ or ‘*immaterial capitalism*’,⁵¹ where technology companies inevitably exercise a power of control over the movement of goods, commodities and services, all rendered intangible digital entities, means denying the existence of the object of the law in most legal relationships in the information society and information technology. Thus it also means denying the possibility of exercising rights and denying protection to those who derive economic benefit from these ‘objects’, social and moral, and contribute to the full development of the personality, as sanctioned by art. 2 of the Italian Constitution.

What is essential, therefore, is not limited to the material consistency of the entity or the way it is apprehended, but the interest of the person to be protected, which must be legally relevant and worthy of protection.⁵²

Conversely, a discipline rigidly entrusted to technical regulations would not only be inadmissible from a legal point of view, but also functionally inadequate because the

⁴⁸ Scozzafava (n 40) 1; De Nova, Inzitari, Tremonti and Visentini (n 19); Arianna Pretto, ‘Strumenti finanziari, la nuova proprietà’ [2000] *Rivista critica di diritto privato* 669; Oriana Clarizia, ‘Il diritto di proprietà dal codice civile alle nuove forme di appartenenza’ in Stefano Pagliantini, Enrico Quadri and Domenico Sinesio (eds), *Studi Comparati* (Giuffrè 2008) 787; Ugo Mattei, ‘Proprietà (nuove forme di)’, in *Enciclopedia del diritto* (Annali V, Milan 2012) 1118; Anna Carla Nazzaro, ‘Nuovi beni tra funzione e dogma’ [2013] *Contratto e impresa* 1014.

⁴⁹ Pasquale Femia, ‘Il campione biologico come oggetto di diritti. Bene giuridico e processi di valorizzazione’, in Dario Farace (ed), *Lo statuto etico-giuridico dei campioni biologici umani* (NEU 2016) 200.

⁵⁰ Blockchain is a digital ledger structured as a chain of blocks containing data and whose consensus on the state of the ledger is distributed across all nodes (computers) in the network. Once written to a transaction contained in a block, the data cannot be retroactively altered without modifying all subsequent blocks. Owing to the nature of the mathematical protocol and the validation scheme, this would require the consent of most of the network. However, the more distributed the network of nodes is, the harder this is to obtain. Thus, as will be said later, the data become unique.

⁵¹ See Francesco Giacomo Viterbo, ‘Freedom of contract and the commercial value of personal data’ [2016] *Contratto e impresa Europa* 953.

⁵² Scozzafava (n 40) 90, where ‘*un’entità diviene oggetto di disciplina giuridica quando sulla stessa si appuntano interessi umani di qualsiasi natura, che in un determinato contesto storico-culturale vengono giudicati meritevoli di tutela*’.

incessant evolution of digital techniques would also lead to the obsolescence of the legislation.⁵³ It follows that the spread ‘intangible’ and immaterial interests requires a reassessment of the traditional techniques employed to qualify subjective situations. The advent of the digital revolution thus places the interpreter before situations that are difficult to define and even more uncertain to regulate, producing a potent blend of reality and obligation.⁵⁴

3 Historical developments leading to Bitcoin

The new communication systems and the interconnection that the network has inevitably produced have changed conceptual frameworks and ways of life, thus creating new social systems that are constantly evolving and revolutionising.

On the other hand, this has led to a more sensitive perception of the problems arising from the a-territoriality of the Internet and the presence of an interconnected system.

The web itself has undergone an apparent transformation over time: initially conceived to link various static hypertext documents together, it has evolved, beginning with the definition of Web 1.0 and the paradigm of the static web.

Using new programming languages, the relationship between the user and the web has inevitably changed, moving from a passive to an active stance, changing the philosophical approach and reaching the user who is also a content provider (Web 2.0, made up of wikis, social networks, blogs). Further trends have followed with an apparent propensity for simultaneous integration, concentration and decentralisation.⁵⁵ In this context, interactive ‘virtual worlds’ have appeared, up to MMOGs (Massive Multiplayer Online Games), games played on the network and simultaneously by several people. Some famous ones are *War of Warcraft*⁵⁶ and *Second Life*.⁵⁷

The difficulties have increased with the appearance in these virtual worlds of the first virtual currencies⁵⁸ (Linder Dollar in *Second Life*), with the surprising formation of a real

⁵³ Pietro Perlingieri, ‘Privacy digitale e protezione dei dati personali tra persona e mercato’ (2018) 2 Foro napoletano.

⁵⁴ Maria Cristina Zarro, ‘Il regime di tutela del dato informativo quale asset intangibile’, in Capobianco, Perlingieri and D’Ambrosio (n 2) 283.

⁵⁵ Stefano Capaccioli, *Sviluppo storico sui fondamentali documenti per arrivare al bitcoin, Criptoattività, criptovalute e bitcoin* (Giuffrè 2021) 39.

⁵⁶ World of Warcraft is a three-dimensional fantasy MMORPG () fantasy video game, which can be played online for a fee.

⁵⁷ *Second Life* is an online digital electronic virtual world launched on 23 June 2003 by the American company *Linden Lab*, from an idea of the company’s founder, physicist *Philip Rosedale*. It is a new media IT platform that combines synchronous and asynchronous communication tools. It is applied in multiple creative fields, including entertainment, art, training, music, cinema, role-playing games, architecture, programming, business, to name a few (source: Wikipedia).

⁵⁸ Hiroshi Yamaguchi, ‘An Analysis of Virtual Currencies in Online Games’ (*SSRN*, 1 September 2004) <<https://ssrn.com/abstract=544422>> accessed 24 March 2024; Vili Lehdonvirta, ‘Real-Money Trade of Virtual Assets: New Strategies for Virtual World Operators’ in Mary Ipe (ed), *Virtual worlds* (Icfai University Press, Hyderabad, India, 2008) 113, 137; Levent V Orman, ‘Virtual Money in Electronic Markets and Communities’ *ICAST Journal of Institute for Communication, Social Informatics, and Technology*, Forthcoming, Johnson School Research Paper Series No. 27-2010



economy in the virtual world and the creation of markets⁵⁹ and websites for the exchange of these currencies and the creation of a meta-currency⁶⁰ (*Open Metaverse Currency*) used to buy or sell virtual goods or services in virtual contexts, accepted in several virtual worlds.

Many of the ideas were developed by the *cypherpunk*⁶¹ and crypto-anarchist movements, which, intent on countering the possible restrictions on freedoms and the right to privacy that the increasingly pervasive spread of information technologies would allow governments and large corporations, had identified anonymous electronic money and other untraceable payment instruments as the panacea for these asymmetries, all using large-scale cryptographic technologies.

It is practical, at the outset, to say why the unprecedented perspectives of information technology, marked not only by delocalisation, but also by the dematerialisation of activities and things within virtual spaces, and more specifically, the advent of *blockchain* technology, defined as ‘*disruptive*’⁶², represents an extraordinary innovation in recent years.⁶³

Usually, when reconstructing the phenomenon of *blockchain*, reference is made to the *paper* that appeared on a *mailing list* by a ‘phantom’ Satoshi Nakamoto,⁶⁴ dating back to 31 October 2008, which highlighted how a traditional economic thought can be set out using digital techniques (cryptography, transmission protocols, time stamping), giving rise to a new concept of “crypto economy”.

In just nine pages, this publication laid the foundations and theorised the first *trustless* payment system based on *blockchain* technology, combining a series of already known technologies but finding innovative solutions to some problems that arise from

<<https://ssrn.com/abstract=1621725>>; Matthew Elias, ‘Bitcoin: Tempering the Digital Ring of Gyges or Implausible Pecuniary Privacy’ (3 October 2011) <<https://ssrn.com/abstract=1937769>> accessed 25 March 2024.

⁵⁹ Kerry L Macintosh, ‘How to Encourage Global Electronic Commerce: The Case for Private Currencies on the internet’ (1998) 11 *Harvard Journal of Law and Technology* 733, 796.

⁶⁰ One of the first sites to carry out this activity was www.virwox.com. *Massive Multiplayer Online Role-Playing Game*.

⁶¹ From Wikipedia, ‘A *cypherpunk* is a libertarian activist who advocates the intensive use of computer cryptography as part of a path of social and political change, for example by violating confidential archives to make public some inconvenient truths. Originally, *cypherpunks* communicated through a *mailing list*, in informal groups with the intent of obtaining the *privacy* and cybersecurity of personal *accounts*, through the use of encryption, against governments and economic groups. *Cypherpunks* have been organized into an active movement since the late 1980s, with influences from *punk* culture. An example of *cypherpunk activism* is Julian Assange’s Wikileaks website’ <<https://it.wikipedia.org/wiki/Cypherpunk>> accessed 24 March 2024.

⁶² So defined because it brings ‘to a market a very different value proposition than had been available previously’ see Joseph L Bower e Clayton M Christensen, ‘Disruptive Technologies: Catching the Wave’ (1995) *Harvard Business Review* 10.

⁶³ On the methodological and conceptual limits of the more conventional approach of comparison by ‘legal systems’, linked to the idea of the ‘territoriality’ of (positive) law, shifting towards a different holistic approach, based on the idea of ‘spatiality’ of law as an experience that is both local/relative and global/universal, particularly in terms of globalisation and supranational legal integration (European law), see also Luigi Moccia, ‘Comparazione giuridica, diritto e giurista europeo: un punto di vista globale’ [2011] *Rivista trimestrale di diritto e procedura civile* 767.

⁶⁴ A pseudonym used by a person or group of people. See Satoshi Nakamoto, *Bitcoin: A Peer-to-Peer Electronic Cash System* (2008) <www.bitcoin.org>.

the creation of a distributed payment mechanism between distant people, with the elimination of a central body to ensure the certainty of the payments themselves.

The idea of a decentralised virtual currency was first described by Wei Dai in 1998, on a mailing list of crypto-anarchists, in his proposal B-money, with which he first described a payment system guaranteed by encryption and so-called encryption *proof of stake*, i.e. the incentive of participants to act honestly in the network and otherwise lose the deposited funds in the event of validation of fraudulent transactions.

In the same years, the blogger and cryptographer Nick Szabo proposed the definition of *smart contracts*, *smart contracts* capable of automatically executing transactions. The same law student published a post in December 2005 on the concept of bit-gold, based on the idea developed the year before by Hal Finney, namely the theory of *proof of work*, but without putting a limit on the total amount of bit-gold produced and giving them a different value depending on the computational capabilities invested to produce them.

*Blockchain*⁶⁵ is a set of technologies that allow the maintenance of a *distributed ledger* of data, structured in the form of a continuously growing 'chain of blocks', each containing a certain number of transactions that vary depending on the type of blockchain. These blocks are linked to each other according to a chronological principle, and their integrity and immutability are guaranteed through a system of consensus algorithms and cryptographic rules.⁶⁶

It works like a public ledger in which transactions between two users of the same network are stored. The data relating to the exchanges are saved within cryptographic blocks, hierarchically connected, thus creating an infinite chain of data blocks that allows all transactions to be traced and verified. The chain's single block contains two peculiar data: a *hash* referring to the previous block and a *timestamp*.⁶⁷

4 The legal qualification of virtual currencies

For some time now, *blockchain* has established itself as a new technology for managing electronic transactions, allowing the validation and archiving of reports, and ensuring their traceability, security, and execution in terms of payment.

⁶⁵ The term 'blockchain' is a combination of the words 'block' and 'chain'. On this subject, see Michèle Finck, *Blockchain regulation and governance in Europe* (CUP 2019); Raffaele Bianchi, Gianluca Chiap and Jacopo Ranalli, *Blockchain: tecnologia e applicazioni per il business* (Hoepli 2019); Primavera De Filippi and Aaron Wright, *Blockchain and the law*, (Harvard University Press, 2018); Nicola Attico, *Blockchain, guida all'ecosistema: tecnologia, business, società* (Guerini Next 2018); Copier Berbain, 'La blockchain: concept, technologies, acteurs et usages' (2020) 2 *Annales di Diritto e pratica tributaria internazionale* 2.

⁶⁶ The set of ciphers that enables verification of users' identities is called a cryptographic key.

⁶⁷ Antonio Tommasini, *Criptovalute, NFT e Metaverso* (Giuffrè 2022).



On this point, the *European Banking Authority*⁶⁸ has identified *virtual currencies* based on an economic-functional approach. From the subdivision made, we can talk about virtual payment currencies, which represent payment instruments (Bitcoin, Ethereum)⁶⁹; virtual investment currencies, used both as a claim against the issuer and as a right to a shareholding⁷⁰; virtual currencies of use, which allow you to access and use a digital service.⁷¹

From this, it is necessary to consider the phenomenon of cryptocurrencies,⁷² which, in the only (generic) definition available offered by anti-money laundering legislation, constitute *digital representations of value* or rights used as ‘medium of exchange or held for investment purposes’.⁷³

Next, that directive defines *virtual currencies* as ‘a representation of digital value that is not issued or guaranteed by a central bank or public body, is not necessarily linked to a legally established currency, does not have the legal status of monetary

⁶⁸ See EBA, *Report with advice for the European Commission* (9 January 2019) 7. However, at the national level in Switzerland, for an initial overview by type and function of cryptocurrencies, see FINMA, ‘Practical Guide for the Processing of Applications for Initial Coin Offerings (ICOs)’ (16 February 2018) <https://www.finma.ch/it/-/media/finma/dokumente/dokumentencenter/myfinma/1bewilligung/fintech/wegleitun-g-ico.pdf?sc_lang=it&hash=8C6FAD033EDB1A4963AC6E2BE2E013BE>. In doctrine, v. Christofer Hahn and Adrian Wons, *Initial Coin Offering (ICO)* (Wiesbaden 2018) 15.

⁶⁹ Daniele Minussi, ‘Utilizzo quale sistema di pagamento nelle transazioni immobiliari con speciale riferimento alle contrattazioni immobiliari’, in Stefano Capaccioni (ed), *Criptoattività, criptovalute e bitcoin* (Giuffrè 2021) 115.

⁷⁰ Sabrina Bruno, ‘Le initial coin offerings in una prospettiva comparatistica’ (2018) VI Riv not 1307; M Simbula, La rivoluzione regolamentare in arrivo negli Stati Uniti e in Europa e la normativa in materia di strumenti finanziari e di tutela dei consumatori, in Stefano Capaccioni (n 69) 260.

⁷¹ Giuseppe Niccolini, ‘Gettoni e buoni d’acquisto: ancora una generazione di mezzi di pagamento?’ (1978) I Rivista di diritto civile 94.

⁷² For cryptocurrencies, the *blockchain* is a widespread and participatory ‘financial centre’ that does not require an authority to issue and control the currency and its value. The *blockchain*, therefore, locates a ‘transaction cadastre’ on a decentralised and a-territorial system. At the heart of cryptocurrencies is the idea of eliminating any form of intermediation in order to allow users to communicate peer-to-peer, i.e., by communicating with each other on an equal footing and giving consent for their transactions to be stored on a ledger. A copy of this log is distributed and stored by a computer network composed of ‘nodes’. Each ‘node’ has the information regarding all the operations that have taken place up to that moment and allows conveying the data relating to the transitions made by other users, thereby validating, to some extent, the transitions shared between the various nodes. To sum up, the data are not stored by a centralised registry guaranteed by a central authority but in ‘distributed’ form, because each of the ‘nodes’ corresponds to a copy, which minimises the risk of unilateral loss or alteration of data. As for the exchange phase, the validator computers in the network check the conformity of the public key with the private key used to sign the transaction, and also verify that the settlor actually holds the cryptocurrency to be transferred. After validation, the operation will then be recorded as a new block in the chain. The exchange usually takes place either directly or through an exchange, i.e., a third-party platform, which allows virtual currency to be exchanged for traditional currency or other crypto-assets at a certain market price.

⁷³ See Directive (EU) 2018/843 of the European Parliament and of the Council of 30 May 2018 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing OJ L 156 43. The *rational* of the rule clearly moves in the direction of overseeing the areas of interference with current currencies and the real economy without correctly defining the phenomenon. Recital 10 of the Anti-Money Laundering Directive demonstrates this assumption by stating that ‘although virtual currencies can often be used as a means of payment, they could also be used for other purposes and have wider use, for example as a medium of exchange, investment, as a store of value products or be used in online casinos. The objective of this Directive is to cover all possible uses of virtual currencies.’ For similar considerations, see Fabio Di Vizio, ‘Le cinte daziarie del diritto penale alla prova delle valute virtuali degli internauti. Lo statuto delle valute virtuali: le discipline e i controlli’, in Francesco Fimmanò and Giovanni Falcone (eds), *FinTech* (ESI 2019) 292.

value, but is accepted by natural and legal persons as a medium of exchange and can be transferred, stored and exchanged electronically'.⁷⁴ This leads to a negative distinction between virtual currencies and fiat currencies.

According to European legislators, virtual currencies are not the monetary expression of national or supranational authorities. They are not issued or guaranteed by a public authority and do not have the status of money or currency, even if used as a medium of exchange like common traditional currencies. However, a contradiction emerges where virtual currency is denied the legal status of money, even though it is used as a medium of exchange to purchase goods or services. In such a case, it would be conceivable that the EU legislature would not leave room for interpreters to consider virtual currency and fiat money to be equivalent, because the laws of the Member States need to define money.

The Anti-Money Laundering Directive also uses terms such as 'money' and 'currency', one as a synonym of the other, because they are widely used in the laws of the Member States to identify the legal tender currency (the euro) or the foreign currency. In Italian law, for example, the term money occurs in articles 1277 of the Civil Code, 1278 of the Civil Code, 1279 of the Civil Code, 1280 of the Civil Code, 2343 ter of the Civil Code, 2343 quarter of the Civil Code, 2427 of the Civil Code, while the term 'currency' appears mainly in financial legislation. In the German BGB, the term *Währung* refers to the currency (§244), the term *Geld*, the currency of pecuniary obligation (*Geldschuld*) with foreign currency (§245). Also, in France's *Code monétaire et Financier*, in art. L111-1, the term *monnaie* means the euro, the currency with legal tender in that state.⁷⁵

Only in 2017, when ICOs were broadcast in the media, some countries felt the need to regulate the phenomenon, especially on the initiative of the Financial Market Supervisory Authorities.

The presence of myriad types of cryptocurrencies has also created a 'definition' problem that has led the relevant authorities to direct their efforts towards framing the legal status of the cryptocurrency to which the applicable discipline refers.

Although they are not legal tender, there has also been an attempt to prefer the thesis that cryptocurrencies are a conventional means of payment, an attempt derived above all from the position of the EU Court of Justice in the *Hedqvist* case and, in Italy, of the Revenue Agency since Resolution No. 72/E of 2016.

With this resolution, the tax authority seems to leverage the definition of virtual currency introduced by Legislative Decree No. 90 of 2017 to recognise virtual currencies

⁷⁴ Directive (EU) 2018/843 of the European Parliament and of the Council of 30 May 2018 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing (n 73).

⁷⁵ Mario Passaretta, 'Le valute virtuali virtuali in una prospettiva di diritto privato: tra strumenti di pagamento, forme alternative di investimento e titoli impropri' in Stefano Capaccioli (ed), *Criptoattività, criptovalute e bitcoin* (Giuffrè 2021) 97.



‘as an alternative payment instrument to those traditionally used in the exchange of goods and services’.⁷⁶

The Italian definition of virtual currency introduced in Legislative Decree no. 231/2007 by art. 1 Legislative Decree no. 90/2017 remains essentially the same after the transposition of the Anti-Money Laundering Directive. Art. 1, letter qq), of Legislative Decree no. 231/2007 defines *cryptocurrencies* as ‘the digital representation of value, not issued or guaranteed by a central bank or public authority, not necessarily linked to a legal tender currency, used as a medium of exchange for the purchase of goods and services or for investment purposes and transferred, stored and traded electronically’. Unlike the Anti-Money Laundering Directive, the national law does not establish a monetary *status*, but adds a possible investment purpose for use of virtual currencies.

The fact that the circulation of cryptocurrencies takes place in the vast world of the web with no defined regulatory framework raises many questions, especially their use for potential tax evasion or money laundering purposes.⁷⁷

Currently, we can count over 2000 species of virtual currency, but of these, the best known⁷⁸ is *bitcoin*, which is used as a payment method, although it does not have all the characteristics of money. It is an investment instrument,⁷⁹ although it has no specific qualification in terms of a financial instrument and its existence relies on a potentially public register. It is also protected and accessible only by those who have the keys. However, there are problems with personal data protection and, more generally, coordination with EU Reg. no. 679/2016 (GDPR) concerning the processing and free movement of personal data that remain public.⁸⁰

Focusing now on how cryptocurrencies work, it can be summarised that the highlights of the life of cryptocurrencies are their creation, storage, and exchange (with other virtual currencies, with goods or services, with NFTs or even with legal tender currencies). Cryptocurrencies are created through a process known as mining, i.e. digital currency issuance.

The activity of *miners*, which is part of the consensus mechanism called *proof-of-work*, consists of generating a *hash* with specific characteristics established by the

⁷⁶ Revenue Agency, Dre Lombardia, answer no. 956/2018.

⁷⁷ Ermanno Calzolaio, ‘La qualificazione del bitcoin: appunti di comparazione giuridica’ [2021] *Danno e responsabilità* 188.

⁷⁸ On this, see Andrea Caloni, ‘Bitcoin: profili civilistici e tutela dell’investitore’ (2019) 1 *Rivista di diritto civile* 159. See also Andreas Rahmatian, ‘Electronic money and cryptocurrencies (bitcoin): suggestions for definitions’ (2019) 34(3) *Journal of International Banking Law and Regulation* 115.

⁷⁹ Pursuant to Italy, Legislative Decree no. 58 of 24 February 1998 (Consolidated Law on Finance), art 1(4) ‘*i mezzi di pagamento non sono strumenti finanziari*’. Nevertheless, the judgment in Tribunale di Verona, 24 January 2017, n 195 enhanced the store-of-value component, which partly characterises *bitcoin*, by framing it in the context of financial instruments, to apply the rules set out in consumer protection and market integrity law. See Mario Passaretta, ‘Bitcoin: il leading case italiano, nota a Trib. Verona, 24 gennaio 2017’ (2017) *Banca borsa e titoli di credito* 471.

⁸⁰ Cf Simone Calzolaio, ‘Protezione dei dati personali (Dir. Pubbl.)’ in *Dig disc pubb aggiorn* (UTET 2017) 594.

blockchain protocol and is usually complex to comply with, requiring elaborate mathematical computations associated with each transaction or block of transactions, which are then shared with the network in exchange for compensation. This compensation depends on the transactions in the block and the number of addresses to which the amount is sent and not on the amount of cryptocurrency sent. It can consist of a *reward* (issuance of new cryptocurrencies) or a *fee* (cryptocurrencies to complete the transaction quickly). This mechanism is, for example, the basis of *Bitcoin*.

It differs from *proof-of-work*, in that so-called *proof of stake* is based on validation rights given to users based on *stake*. Unlike *miners*, validators are called *forgers* or *stakes* and their task is to verify or validate a transaction without mathematical calculations, while tying up liquidity to guarantee their commitment to carry out the validation correctly and consistently for a fee.

In addition to *mining* and *forging*, cryptocurrencies can be made available to users in other ways. Examples include the *Airdrop*, where *tokens* are made available without consideration (to create a 'community' of *tokens* and increase liquidity); the *Initial Coin Offering* (ICO), i.e. the creation of tokens issued in exchange for cryptocurrencies or legal tender currencies, and finally *minting*, i.e. the issuance of *tokens* without a public or exchange offer which are thus born, so to speak, for their own sake. On the other hand, regarding the circulation of cryptocurrencies, once the procedure for creating one's *wallet* has been completed, the customer's first address will be generated, which he will use to receive or transfer cryptocurrencies.

It should be noted from the outset that *bitcoins* are a set of elements in a transaction and elements of the *script* programming language. What is commonly called a *wallet* or 'portfolio' does not contain any cryptocurrency, only the private keys (hence the name 'key ring') to send transactions, which can be copied by anyone who learns the number sequence.⁸¹

In strictly technical terms, cryptocurrency is a pair of keys, one private and one public. The first is known only to the rights holder represented by the crypto asset or by a possible delegate. The second is known by all those participating in the system in which it circulates. The information contained in the public parameter - also encoded in the message - is, in fact, the ownership, the value attributed to it and the transaction history.

On the other hand, the private parameter allows transfers or other operations on crypto-assets through cryptographic authentication of the digital signature. However, there are other more complex cryptographic systems, such as multisigs, where control over the digital asset is achieved through multiple digital signatures.

⁸¹ Andreas M Antonopoulos, *Mastering Bitcoin* (O'Reilly & Associates Inc 2017).



Therefore, the legal qualification of virtual currencies requires interpreters to carefully delimit the phenomenon. However, in view of changes in technology, an update is needed to the concepts and terms involved. Part of the doctrine has excluded virtual payment currencies from being considered a newly minted currency (including electronic currency under article 114 bis et seq. of the Consolidated Banking Act), considering that money is only what the State adopts to settle pecuniary debts.⁸² In this regard, it has been observed that even setting aside the fact that a public authority does not prefer a virtual currency, one defect in its qualification as a currency would survive in that its monetary function is imperfect.

Money fulfils three functions: expression of a value (unit of account); preservation of purchasing power over time (store of value); and means of payment (or exchange). The first function seems challenging to recognise in cryptocurrencies, as it is compromised by the (still) modest level of economic operators who adopt them, as well as by the volatility of the value on the market and, therefore, of purchasing power.⁸³

In light of the considerations made around reinterpreting the concept of 'thing' within the historical period, crypto assets can be brought back within the scope of art. 810 of the Italian Civil Code⁸⁴, as an intangible thing, a possible object of law and, therefore, a legal asset in all respects, even if intangible in terms of consistency.⁸⁵

⁸² Vincenzo De Stasio, 'Verso un concetto europeo di moneta legale: valute virtuali, monete complementari e regole di adempimento' (2018) 6 Banca Borsa e titoli di credito 749; Gianluca Guerrieri, 'I rischi alla circolazione della moneta elettronica' (2014) 5 Le Nuove leggi commentate 1043.

⁸³ Giovanni Rinaldi, 'Approcci normativi e qualificazione giuridica delle criptomonete' (2019) 1 Contratto e impresa 257; see also Roberto Bocchini, 'Lo sviluppo della moneta virtuale: primi tentativi di inquadramento e disciplina tra prospettive economiche e giuridiche' [2017] Diritto dell'informazione e dell'informatica 27.

⁸⁴ On the concept of economic good, cf Giovanni Palmiero, *Elementi di economia politica* (Cacucci 2008) 24.

⁸⁵ *Contra* Guido Befani, 'Contributo allo studio sulle criptovalute come oggetto di rapporti giuridici' [2019] Il diritto dell'economia 232, believes that the civil regulation of cryptocurrencies should not fall within the scope of art. 810 of the Civil Code, because the semantic ambiguity of the provision would leave ample room for manoeuvre to the questionable sensitivity of the interpreter as to whether or not to include cryptocurrencies among the 'things that can be the subject of rights. If there is to be regulation, it should be left to legislators, who alone have the necessary binding authority to impose a definition of cryptocurrency that is free from any misunderstanding or hermeneutic confusion. While remaining true to the physicalistic concept of 'things', we see that Paolo Luigi Burlone and Riccardo De Caria, 'Bitcoin e le altre criptomonete. Inquadramento giuridico e fiscale' (*IBL Focus* 2014) 4, referring to *Bitcoin*, argues that 'it is first and foremost an asset, in the sense made its own and defined by the Civil Code: "goods are things that can be the subject of rights" (Article 810 of the Italian Civil Code). Of course, it will be movable property, and above all, because of its nature without any physical support, it will be an intangible asset'; in the same light, according to Carla Pernice, 'La controversa natura giuridica di Bitcoin: un'ipotesi ricostruttiva' [2018] *Rassegna di diritto civile* 345 there do not appear to be any theoretical obstacles to bringing Bitcoin back into the operational perimeter referred to in art. 810 of the Italian Civil Code, as a 'new intangible asset'. However, according to a cornerstone of the classic theory of intangible assets, although it is not enshrined in any rule of positive law, the attribution of exclusive rights over all incorporating entities should be considered regulated, in our legal system, 'by a substantially typical system; the content of those rights varies according to the nature of those entities and the interests vested in them [...]. Interests in entities other than property and without legal recognition (direct or analogue) enjoy limited protection and are characterised by the absence of exclusivity.' On this see Zeno-Zencovich (n 29) 460. On this point, Roberto Bocchini, 'Lo sviluppo della moneta virtuale: primi tentativi di inquadramento e disciplina tra prospettive economiche e giuridiche' (2017) 1 *Diritto dell'informazione e dell'informatica* 28, noted that the real caveat of this reconstruction is represented by the circumstance that the attribution of exclusive rights over intangible assets is regulated, in our system, by a principle of strict typicality. On this basis, the road to the qualification of cryptocurrency as a legal asset has only to go through a different conception of the term 'thing'.

According to this reconstruction, payment with virtual currency would be included in the exchange model (Article 1552 of the Civil Code)⁸⁶ because the payment would constitute a reciprocal transfer of things or other rights from one contracting party to another. Others, on the other hand, include payment by virtual currency within the scope of services in lieu of fulfilment (Article 1197 of the Civil Code),⁸⁷ because the price can only be determined in fiat money.

5 The use of trust for the generational transfer of cryptocurrencies and NFTs

The legal qualification of *digital assets* - and cryptocurrencies in particular - is a complex activity ‘at all latitudes’. Interpreters, doctrine and jurisprudence try to frame the phenomenon by resorting to the hermeneutic methods and legal categories of their respective traditions, often with profound differences between *civil law* and *common law* countries.

Inevitably, in the coming years, we will also see interventions by legislators, which are likely to be disparate.

Therefore, identifying rules to apply to digital assets, which are intangible and cannot be placed geographically, is a difficult task.

Concerning the common law⁸⁸, it has been noted that ‘Digital assets, and cryptocurrencies in particular, do not fit into traditional categories of property as understood by the common law, being neither “choses in possession”’ - as intangible assets - nor ‘“choses in action”’ - because, especially with cryptocurrencies, it is not usually possible to identify a person on whom one’s right of nature proprietaries can be enforced.

The question then arose as to whether or not *digital assets* were, all things considered, *property*.

Doctrine and progressively consolidating⁸⁹ jurisprudence⁹⁰ have responded positively⁹¹, defending the duality of *personal property* and believing that the category of *chose in action* could also include such *digital assets*, given its breadth and flexibility.

⁸⁶ V Stefano Cerrato, ‘Negoziare in rete: appunti su contratti e realtà virtuale nell’era della digitalizzazione’ (2018) I Rivista del diritto commerciale 440. Similarly, part of the German literature traces the fulfilment of cryptocurrency back to §480 BGB (*Tausch*), on the consideration that the fulfilment of an obligation is only possible with fiat money: hence Stefan Omlor, ‘Geld und Wahrung als Digitalisate’ [2017] Juristenzeitung (JZ) 754, 763.

⁸⁷ Giorgio Gasparri, ‘Timidi tentativi giuridici di messa a fuoco del bitcoin: miraggio monetario crittoanarchico o soluzione tecnologica in cerca di un problema?’ [2015] Diritto dell’informazione e dell’informatica 445.

⁸⁸ Gilead Cooper, ‘Virtual property: trusts of cryptocurrencies and other digital assets’ [2021] Trusts & Trustees 1, 10.

⁸⁹Cf. *inter alia*, B2C2 Ltd v Quoine Pte Ltd [2019] SGHC(I) 03; Ruscoe & Moore v Cryptopia Limited (in liquidation) [2020] NZHC 728.

⁹⁰ *High Court of England* in *AA v Persons Unknown, Re Bitcoin* [2019] EWHC 3556 (Comm).

⁹¹ However, they did so ‘instinctively’, without the nature of the *property rights associated with digital assets having yet been exhaustively clarified* (‘In trying to ascertain the rights associated with this new form of asset, the law looks



However, a different approach has argued that the advent of cryptocurrencies and all crypto assets is shaking the pre-existing dual model. It is necessary to establish a new class that acts as a *tertium genus* between *chose in action* and *chose in possession*, capable of better combining the characteristics of cryptocurrencies with the proprietary regime.⁹² This position was recently accepted by the Law Commission of England and Wales in its report contemplating a new personal property category. Indeed, in the commissioners' view, the characteristics of *chose in action* and *chose in possession* are irrelevant to the nature and functions of crypto tokens.⁹³

A fundamental precipitate of qualifying digital assets as property is that they can be the subject of trust.

Recognising that *digital assets* can be the subject of trust opens the door to using the estate planning tool.

An immediate advantage is related to the fact that, by entrusting the custody of digital assets (crypto in particular) to a professional trustee by *inter vivos* deed, the problem related to the delivery of credentials (IDs / Passwords / private key) that we have seen afflicting devolutions *mortis causa* is solved.

Having ascertained that cryptocurrencies can be the subject of trust, the legal literature has questioned whether a trustee must invest in virtual currencies.

'The Trustee Act 2000 requires trustees to consider standard investment criteria, including the need for diversification of the trust's investments, to the extent appropriate to the circumstances of the trust. This is framed as a duty to consider diversification, not a duty to diversify. Until recently, and perhaps will be for some time to come, cryptocurrencies have been too volatile and speculative to be considered a reliable, or even plausible, investment. However, cryptocurrencies are becoming increasingly "reputable", and it is not hard to imagine a future, possibly not too far away, where a trust, especially a suitably sized one, could reasonably consider including at least one element of exposure to a potentially valuable investment. [...] There is no reason why a trust should not include a very high-risk investment in a balanced

to analogies; shares in a company; promissory notes and bills of exchange; safety deposit boxes (and their keys); Goodwill; patents; the list could be continued. But none of these analogies is exact').

⁹² In *AA v Persons Unknown*, the Supreme Court noted on p. 21 how: 'Prima facie, there is a difficulty in treating Bitcoins and other crypto currencies as a form of property: they are neither *chose in possession* nor are they *chose in action*. They are not *choses in possession* because they are virtual, they are not tangible, they cannot be possessed. They are not *choses in action* because they do not embody any right capable of being enforced by action. That produces a difficulty because English law traditionally views property as being of only two kinds, *choses in possession* and *choses in action*'.

⁹³ See *Law Commission Final Report: Digital Assets. Presented to Parliament pursuant to section 3 (2) of the Law Commissions Act 1965. Ordered by the House of Commons to be printed on 27 June 23*. In particular, at Chapter 3, 'A Third Category of thing to which personal property rights can relate', 33 ff.. Cf. Giulia Bazzoni, 'I riflessi del regime proprietario delle criptovalute sul trust (ByBit Fintech Limited v Ho Kai Xin, 25 July 2023)' (2024) 1 *Trusts e attività fiduciarie* (forthcoming).

portfolio. In the case of trustees of UHNWI settlements, there may be opportunities to achieve significant gains from relatively modest investments'.⁹⁴

Suppose it has been established that a trustee can hold cryptocurrencies. In that case, it should be argued that he must invest in cryptocurrencies to diversify the trust fund and avoid possible liability for not taking opportunities.

As a result, the trustee could invest in cryptocurrencies. On the other hand, there is an issue of risk. In fact, disputes could well arise from the beneficiaries of the trust because, due to the volatility of cryptocurrencies, the trust fund could change in quantitative terms.

At this point, it becomes essential that trusts are set up expressly to hold crypto in the presence of specific regulations, or that the trust regulation contemplates the possibility of having cryptocurrencies within them.

Given the development of technology, one might wonder whether a world in which smart contracts will replace trustees is conceivable and whether intelligent contracts can play a role in the trust industry.

Smart contracts, applied to basic contracts, are the future; conversely, it is difficult to imagine that smart contracts can replace trustees or that bright deeds can be crystallised on the blockchain.

The trustee's job is, first and foremost, to recognise the changing reality of the world and to exercise, in the light of it, his fiduciary office in the interest of the beneficiaries, balancing the various needs that arise.

This is not the same as taking advantage of some of the immutability features of the blockchain to give certainty to trust deeds and the book of events instead.

6 Digital Inheritance

In this context, the dialogue between two illustrious scholars, Natalino Irti and Emanuele Severino,⁹⁵ on the relationship between law and technology appears, from the dual perspective of the jurist and the philosopher, to be of considerable interest. From it emerges, from the jurist's perspective, the positivistic conception of law made up of norms having exclusively procedural validity, but not truths of content, within which ideological, political or economic propositions must be translated in order to be adequate. The same technique, Irti argues, would have the same abstraction and therefore would be unable to answer the fundamental questions of the law.

From the philosopher's perspective, on the other hand, technology is destined to become the regulative principle of all matter, the will that regulates every other will.

⁹⁴ Gilead Cooper, 'Virtual property: trusts of cryptocurrencies and other digital assets' [2021] *Trusts & Trustees* 1, 10.

⁹⁵ Natalino Irti and Emanuele Severino, *Dialogo su diritto e tecnica* (Laterza 2001); Vittorio Frosini, *Il diritto nella società tecnologica* (Giuffrè 1981) 202; Giuseppe Corasaniti, *Il diritto nella società digitale* (Franco Angeli 2018).



Starting from the basic idea that technology does not, in essence, have exclusionary ends, but rather aims for infinite growth in power, Severino goes so far as to affirm that it reveals its concreteness since it is the form of the natural production of ends, which contributes to the indefinite expansion of the scientific and technological apparatus. Irti, however, believes that technology, as a ‘form of will be aimed at achieving non-exclusive ends, would exclude all ends that are contrary to one’s infinite capacity to achieve ends’.⁹⁶

It is undeniable, however, that abstract, *ex ante* regulation of disruptive innovative phenomena like cryptocurrencies and crypto assets is challenging.

As we have seen, this difficulty arises from the awareness that the theory of goods is not exhausted in the theory of rights *in rem* or in that of property and that it is not always easy to identify the characteristics of every possible good with those of goods subject to the right of property, much less is it possible to exclude utilities that are not suitable for subjective proprietary (or at least real) situations from being defined as goods.

Until a few years ago, one of the controversial aspects of the circulation of trusts in our legal system was the difficulty of identifying a case that could support a transfer of ownership, hence the issue of the admissibility of functional ownership with restricted use different from the provisions of under Art. 832 of the Italian Civil Code. Assuming the trustee had fiduciary ownership without the power to enjoy and dispose of it freely, the trust would also violate the principle of typicality and the *numerus clausus* of rights *in rem*. Legal theory had to put forward several arguments supporting the so-called deconstruction of the dogma of proprietary absoluteness and *perpetuitas*.⁹⁷

Although most legal theory agrees with defining virtual currencies as intangible assets, i.e. art. 810 of the Civil Code, according to which ‘goods are things that can be the subject of rights’, the proposed reconstruction presents some critical issues.

One argument to the contrary is of a theological nature⁹⁸ and is based on the limited number of assets referred to in Article 810 of the Civil Code, the extension of which must be established by legislators. On this, it should be noted that virtual currencies are considered only in the anti-money laundering discipline because they are a possible

⁹⁶ Giancarlo Montedoro, *Il diritto pubblico tra ordine e caos I pubblici poteri nell’età della responsabilità* (Cacucci 2018).

⁹⁷ Cf Antonio Gambaro, ‘I trusts e l’evoluzione del diritto di proprietà’, in Ilaria Beneventi (ed), *I Trusts in Italia oggi* (Giuffrè 1996) 57; Antonio Gambaro, *Il diritto di proprietà* (Giuffrè 1995) 629; Umberto Morello, ‘Tipicità e numerus clausus dei diritti reali’, in Umberto Morello and Antonio Gambaro (eds), *Trattato dei diritti reali* (Giuffrè 2008) 67; Ermanno Calzolaio, ‘La tipicità dei diritti reali: spunti per una comparazione’ [2016] *Rivista di diritto civile* 1080. Cf Michele Graziadei, ‘Trust, confidenza, fiducia’, in Richard H Helmholz and Vincenzo Piergiovanni (eds), *Relations between the ius commune and English law* (Rubettino 2009) 225.

⁹⁸ Cf M Costantino, ‘I beni in generale’, in Pietro Rescigno (ed), *Trattato di diritto privato* (UTET 1982) 13; Oberdan Tommaso Scozzafava, *I beni e le forme giuridiche di appartenenza* (Giuffrè 1982) 422; P Liberanome, ‘Criptovalute tra anarchia e difficili tentativi di regolamentazione’ in Fimmanò and Falcone (n 73) 426.

vector of illicit proceeds or for the financing of terrorism, so it follows that there could be no regulatory recognition of them as assets.

The second argument, which is literal, points out that only things that can be the object of rights can be goods. Furthermore, things are, by their very nature, corporeal.⁹⁹ Identifying a bit circulating in the ether in the impression created in a silicon memory is a noticeable stretch, since the object of circulation is not the physical medium but what is read through it.¹⁰⁰

The non-admission of virtual currencies as intangible assets means that the hypothesised rules of exchange (Article 1552 of the Civil Code) are not applied to their exchange. However, the exchange should be qualified as a contract of sale if the parties establish the consideration in conventional currency.¹⁰¹

For the same reason, the use of cryptocurrency in the payment system cannot always be considered as *datio in solutum*. We can only speak of *datio in solutum* if the payment with a virtual unit of account takes place instead of the payment in legal tender, and therefore in euros. Otherwise and therefore if virtual currency had been the agreed tender from the beginning, there could be no substitution with legal currency, and the consent of the creditor who consented to it from the beginning would not make sense.¹⁰²

Having made this necessary digression, 'digital assets' has now become an expression in current use, even in ordinary language, defining complex goods and legal relationships as digital, because they are connected to the use of technological devices and the internet. A digital asset is not only identified with virtual currency or cryptocurrencies in general; this type of asset is only one of the possible digital assets that could be the subject of trust. It is customary to refer to this macro-category as pure digital assets and those that, in the short term, will probably be the most thorny digital assets to be processed, i.e. personal data in the strict sense because personal data, which can be the elementary identifying one, represents, at present, a rather sought-after bargaining chip and the databases that contain personal data have an enormously increasing economic value.

The definition of digital asset was born from reflection in the criminal field, but has recently found an express regulatory reference in our Consumer Code, as most recently amended following the transposition of the twin directives in 2019, specifically Directive

⁹⁹ See Roberto Bocchini, 'Lo sviluppo della moneta virtuale: primi tentativi di inquadramento e disciplina tra prospettive economiche e giuridiche' (2017) 1 *Diritto dell'informazione e dell'informatica* 27, 33.

¹⁰⁰ Gianfranco Liace, 'I titoli al portatore (artt. 2003-2007)', in Piero Schesinger, *Commentario* (Giuffrè 2017) 46.

¹⁰¹ Gastone Cottino, 'Rapporto Permuta' in Antonio Scaljoa and Giuseppe Branca, *Commentario* (Zanichelli 2012) 80, n 5; Sarah Green, 'Cryptocurrencies: The Underlying Technology, Cryptocurrencies' in Sarah Green and David Fox (eds), *Public and Private Law* (OUP 2019) 68.

¹⁰² Sarah Green, 'Cryptocurrencies: The Underlying Technology, Cryptocurrencies' in Sarah Green *Cryptocurrencies in Public and Private Law* (Oxford 2019) 29; Mario Passaretta, 'Il problema della qualificazione giuridica delle valute virtuali. Il difficile approccio regolamentare', in Stefano Capaccioli (ed), *Criptoattività, criptovalute e bitcoin* (Giuffrè 2022) 99.



2019/771 which has the merit of having provided an initial definition for digital content and digital services.

The revolution in decentralised systems, commonly called “Web 3.0”, relies on the good quality of the data stored on the blockchain and not necessarily on a financial authority that verifies and validates the individual transaction.

As for the macro-category of pure digital assets, the management, conservation, ownership, and transmissibility of digital inheritance through trusts is one of the most emblematic wealth-planning solutions.

The topic of digital inheritance, with its somewhat uncertain contours, has fascinated lawyers in recent years, including the succession of cryptocurrencies as the digital “asset” par excellence. In this matter, four general principles of inheritance applicable to cryptocurrencies have been developed.

The first principle is that of the ‘analogic analogue’, where the digital novelty is approached by trying to bring it back to an analogue paradigm that is in some way already regulated, such as bitcoin to cash.¹⁰³

A second principle relates to the transnational extension of the value of the principles underlying decisions taken under the government of foreign legal systems.¹⁰⁴ An example is the well-known German case involving a request for access to Facebook by the parents of a young suicide victim. Three principles were established from this: the contents of the account are subject to inheritance; any contractual clauses are non-binding, as they are abusive; and, finally, the dissemination of information does not violate the GDPR.¹⁰⁵

A third principle concerns the centrality of the electronic document and the distinction, also legal, between the medium and document. Similarly, when referring to cryptocurrency in cases of succession, it must be clarified that the support (*hardware wallet*) events are indifferent to those of the document it contains.

The last principle of digital inheritance is the strict distinction between legal assets and digital access to analogue assets.¹⁰⁶

It is understood that it is different to have cryptocurrencies included in funds that invest in cryptocurrencies in various ways, have them with intermediaries, or directly hold the private keys for their movement. There is also a diversity of cryptocurrencies, so much so that bitcoins are not the same as NFTs. Therefore, people's digital assets are assets whose solutions must be identified individually.

¹⁰³ Carla Pernice, *Digital Currency e obbligazioni pecuniarie* (ESI 2018); Carla Pernice, ‘La controversa natura giuridica di Bitcoin: una ipotesi ricostruttiva’ (2018) 1 *Rassegna di diritto civile* 333; Carla Pernice, ‘Crittovalue e Bitcoin: stato dell’arte e questioni ancora aperte’, in Francesco Fimmano and Giovanni Falcone, *FinTech* (ESI 2019) 419; Mario Passaretta, ‘Bitcoin: il leading case italiano’ [2017] *Banca borsa e titoli di credito* 471.

¹⁰⁴ Giuseppe Marino, ‘La “successione digitale”’ [2018] *Oss dir civ e comm* 193.

¹⁰⁵ Maddalena Cinque, ‘L’ “Eredità digitale” alla prova delle riforme’ (2020) 66(1) *Rivista di diritto civile* 85,87.

¹⁰⁶ Remo M Morone, ‘Le problematiche successorie e di donazione nelle crittovalute’ in Stefano Capaccioli (ed), *Criptoattività, crittovalute e bitcoin* (Giuffrè 2021) 139.

7 Transmission of virtual currency and trust

One of the essential themes of digital inheritance and the succession of cryptocurrencies relates to the complex issues concerning material *post-mortem* apprehension. Access to cryptocurrencies can be difficult for three different reasons. First, it is an entirely anonymous universe where the cost of opening a new account is zero. Therefore, it is suggested that different addresses be used for each transaction, creating a clearer multiplicity of different purchase and spending centres. These different accounts can be grouped into so-called hierarchical-deterministic wallets or managed indirectly through access credentials to web wallets. These two aspects, created technically to simplify access, perhaps conceptually and legally, complicate it.

In addition to all this, there are no official registers in the Italian legal system, which instead have historically been in force for real estate and, indirectly, through the small and controlled number of authorised intermediaries, also for financial wealth, certainly does not help the heirs of cryptocurrencies, taking into account the fact the reasons for confidentiality and security that underpin the prudence suggested in the storage of private keys. They make it even more difficult for the beneficiaries of the succession to discover their existence, at least until appropriate measures are taken.

Finally, the physical media on which the access keys are contained have a physical inheritance legal history that is potentially different from that of the digital assets. The beneficiary, of course, must then be entitled legally and, therefore, must be either an heir or a legatee of the corresponding sum, because the executive aspect is not sufficient in Italian law for the transfer of wealth.

Therefore, it is not enough for those who hold the private keys of a bitcoin wallet, for example, to worry only about the transfer of the code to another person or the beneficiary of a trust; there must also be a legal transfer of ownership of that asset.

The ownership of the asset can be transferred to the trustee, as well as the availability of the key for the generational transfer. In this case, however, they should be discontinued in the declaration of succession, if it is considered appropriate that the latter should be submitted.

Some scholars argue that the inheritance tax and the compilation of the inheritance declaration on crypto assets should not be carried out based on the presumption of article 9 of legislative decree 346/1990, which establishes the exemption for money present in the inheritance. In light of this, it is believed that it is not wrong to argue that if the tax administration espouses the idea of considering cryptocurrencies as foreign money; perhaps inheritance tax should not be applied, falling within the presumption. This, however, does not mean that it is not cheaper to pay a 4% inheritance tax than 26% capital gains. It would also be cheaper, since inheritance is the basis for calculating capital gains according to current tax legislation.



What is certain is that the situation will only change after the entry into force of the mica (markets in crypto-assets) regulation scheduled for the middle of next year, which, with its 126 articles, will replace the current existing fragmented national frameworks about crypto assets and will introduce specific rules for their offer and marketing as well as regulate the role of esma - the European securities and markets authority - and the eba - the European banking authority.

In order to facilitate the management and planning of assets, and therefore also the succession of digital assets, the ideal arrangement is one in which the data of the digital assets are kept secret until the time of death, considering that they are easily updated in the meantime, since the digital asset par excellence is very fluid. Several solutions have been proposed, but indication of the credentials of the keys in the will remains somewhat risky, because the will, although secret, still needs to be published. Therefore, this highlights a significant limit to confidentiality.

In this case, the indication and storage of documents in safe deposit boxes (or, more appropriately, the seed of the deterministic hierarchical datasheet or at least a hardware wallet) could be an efficient solution, although inconvenient from a practical point of view, even if tempered by techniques that allow multiple accesses, including perhaps access in the safe deposit box and access to the outside. In the case of a bequest, the legal figure is the “legacy of a thing to be taken from a certain place” under art–655 of the Italian civil code.

It is clear, however, that the reasons for confidentiality and security underlying the particular prudence suggested in preserving private keys prevent the beneficiaries of the succession from discovering their existence if appropriate measures are not taken.

If the settlor can facilitate access to cryptocurrencies for the unaccustomed heir while maintaining control of his wallet, more significant difficulties could arise for the beneficiaries' access to the assets.

In order to facilitate enforcement, the settlor could make use of a *post-mortem exequendum* mandate, i.e., he could appoint a third party to perform certain operations upon his death, such as handing over one of the private keys to the beneficiary or arrange for the admission on the blockchain a transaction (possibly already signed by the settlor) that “fills” the address where the beneficiary is in possession. Some have criticised this mechanism on the grounds that it could overlap with the prohibition of inheritance agreements. In fact, as the doctrine has had the opportunity to explore, it is a primarily theoretical problem, considering that if the mandate is adequately and legitimately constructed, death is only the end of fulfilment and is extraneous to the causal mechanism.

It is also possible to resort to using smart contracts such as, for example, the so-called smart contracts. Dead man switch: the wallet is loaded with a sum and periodically checks whether the settlor is still living. Prolonged inactivity would result in a transfer of the sums to another wallet whose keys are automatically communicated to

the beneficiary. Alternatively, it can resort to the so-called multi-sig wallet, which requires a movement of multiple access keys. This would be a key held by the settlor, another by the trustee and a third provided in advance to the beneficiary, which would give them access at the appropriate time.

8 Conclusion

Assets in the digital age are composed of movable and immovable assets and different entities that, although material, are characterised by an additional characteristic or are preferable to a specific digital context determined by technological evolution.

From a legal point of view, new needs are emerging to balance opposing values and the need to rethink many traditional categories.

The importance of regulation is also evident for the differential treatment that is inevitably required when there is a trust that has as its object digital assets during the existence of its owner and trusts that will have to deal with managing these assets after the owner's death.

For example, in some jurisdictions, including California, interesting laws have already been enacted on the management of digital assets through trusts, but only the time after the death of the owner of these assets has been considered. At the same time, it is known that the problem already exists for the deed of trust alone of these 'new goods', in the absence of an adequate regulatory framework. The tax codes and the most critical CEOs of some professional trust companies, especially in Switzerland, have strongly emphasised the need for training of the trustee on this new category of assets that are characterised above all by a lack of stability in their value and Fintech, considering the obligation for trustees to diversify the assets entrusted to it under management.

The real problem, however, lies in the possibility of accessing digital assets on the death of the owner because, in this case, a whole series of complex actions collide, including, for example, the contract that the individual signs when accessing digital assets, more or less consciously, with the large server providers. In most cases, these contracts provide for the impossibility of accessing personal data, which are also considered digital assets that can be accessed with personal credentials, making it difficult for heirs to take over these positions, which can only be overcome by order of the judge or in other even more complex ways.

Such situations that have given rise to multiple rulings, especially for possible conflicts with regulations put in place to protect the consumer; contractual models that raise applicable legal issues, precisely because they are prepared unilaterally by large digital companies that are based in places other than the one where the service is provided.



Inevitably, doubts arise about the lawfulness of access to such digital assets, both at the exchange and at the wallet provider, when confronted with the provisions of Articles 93 and 23 of the Copyright Act about the powers that are vested in the relatives over the copyright of the deceased and Art 2 *terdecies* GDPR to the privacy rights of the deceased.

Similar judgments have recently been made in Italy. Indeed, some very recent rulings, including in the Courts of Milan¹⁰⁷ and Bologna¹⁰⁸ in 2021 and, most recently, the Court of Rome¹⁰⁹ in 2022, have reiterated that, according to Art. 2 *terdecies* of the Privacy Code, denial of access to the personal data of the deceased user is entirely unjustified, where the conditions established by law are met.

The mere loss of the wallet holder's private key will likely prevent future access to their heirs. The same could be said for NFTs, especially at a time when, with the end (or almost) of the era of mistrust, Italian practice is experimenting with increasing curiosity and liveliness with the many functions that the trust can perform and is experiencing the many benefits that this, and not others, can provide to operators.

Among the many application developments being cultivated, there is also the use of trusts as a vehicle for private cultural heritage, which expresses two possible purposes: the community's destination and the management of generational transitions. This, however, could also be applied to cultural heritage held by Public Administrations, an area in which the oft-mentioned cultural gap emerges overbearingly.

It is argued, therefore, that the complexity of the knowledge required for adequately managing such portfolios demands a suitable activity on the part of the post-mortem agent, the executor or even the trustee, which could be carried out by a company specialising in digital inheritance. However, it must be evident that, in some cases, the reason for decentralisation is to be found precisely in the lack of trust in the intermediary.

However, a new enhancement of the role of the guardian could be envisaged, where he or she would fill the hybrid knowledge required by the digital innovation that increasingly pervades the present day, so much so that the new generations are more likely to be owners of this type of asset.

Another fundamental point of reflection is represented by the best practices that should be followed in the presence of personal digital assets. Indeed, it is preferable to draw up an inventory to have knowledge and awareness of digital assets.

¹⁰⁷ Tribunale di Milano, Sez I, Ord 10 February 2021 <<https://onelegale.wolterskluwer.it>> accessed 25 March 2024.

¹⁰⁸ Tribunale di Bologna, Sez Civ I, 25 November 2021 <https://i2.res.24o.it/pdf2010/Editrice/ILSOLE24ORE/QUOTIDIANI_VERTICALI/Online/_Oggetti_Embedded/Documenti/2022/01/20/Tribunale%20di%20Bologna.pdf> accessed 25 March 2024.

¹⁰⁹ Tribunale di Roma, Sez VIII, Ord 10 February 2022 <<https://rivistapactum.it/app/uploads/2022/08/1.-Trib.-Roma-sez.-VIII-ord.-10.02.2022.pdf>> accessed 25 March 2024.

Secondly, it is essential to turn to experienced professionals who will undoubtedly recommend a form of management and planning for digital assets through instruments *inter vivos*, thinks of the trust, with the consequent possibility of segregating these assets and having the management of them through the instrument itself; *mortis causa*, such as a will drawn up according to precise indications, which would allow the expression of testamentary instructions for the intergenerational transfer of these assets, on the death of the owner.

The horizon that the jurist sees is not an exclusionary alternative between the real and virtual of the assets conferred in trust, but an inclusion of all the manifestations of human autonomy of the conceptual innovation of cryptocurrencies that consequently requires new interpretative schemes to be able to approach and fully understand, including in relation to historical elements. Jurists, particularly civil lawyers, are called on to become perceivers of the historical line in which we place ourselves and try to order it.¹¹⁰

The slow adaptation of the regulatory framework to the dynamics of the blockchain, in the sense of strengthening the protection of the rights of the protagonists of 'Web 3.0', calls for a more excellent balance of ownership relationships between the parties to avoid loss of trust in the digital context. The risk, therefore, is that the new ownership dimension, which was supposed to be the protagonist of the revolution caused by crypto assets, will end up bending to interests that are not always worthy, which seem to find an ideal ecosystem in the metaverse, thus reviving the historical distrust of trusts.

There is a risk that the use of virtual currency conceals illicit transactions aimed at carrying out money laundering conduct, thus forcing the interpreter to question the completeness of the measures regulated in the fifth Anti-Money Laundering Directive for adequate protection. This foreshadows a process of reorganisation and modernisation of the rules, for which European Union legislator have a fundamental consultation role to play.

Today, more than ever, 'ordering, the lofty task of the jurist, does not mean immobilising, crystallising, fixing in closed systems, in fossilising hierarchies. Today, ordering is a bet that the jurist plays not only on the past and the present but also (and above all) on the future. Today, rethinking the classical categories on the part of the civil lawyer is a commitment that formally invests his mission as a jurist, even before a cultural need'.¹¹¹

¹¹⁰ Michele Lobo, 'Nuovi beni e forme di appartenenza' in Capobianco, Perlingieri and D'Ambrosio (n 2) 17, 25.

¹¹¹ Paolo Grossi, 'Il diritto civile alle soglie del terzo millennio. Una postfazione', in Francesco Macario e Michele Lobo (eds), *Il diritto civile nel pensiero dei giuristi* (Giuffrè 2010) 422.