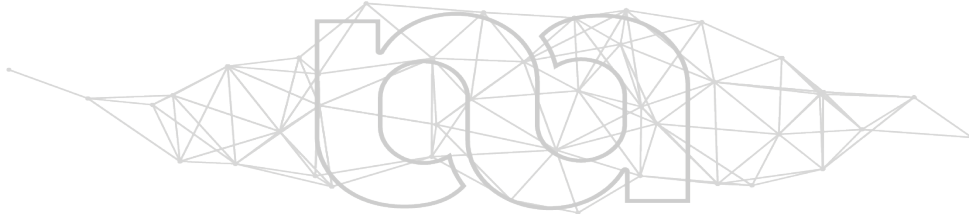
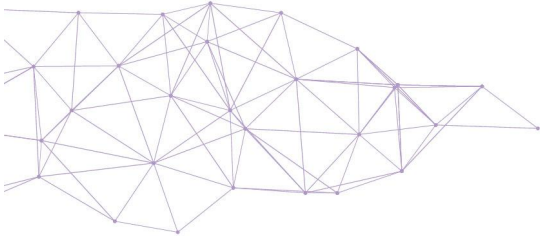


# Law Applicable to Virtual Real Estate in the Metaverse

Proceedings of the International Congress Towards a Responsible  
Development of the Metaverse, 13-14 June 2024, Alicante

**Ana Mercedes López Rodríguez**  
The Loyola University of Sevilla



The Chair for the Responsible Development of the Metaverse (MetaverseUA Chair) was created by the University of Alicante (Spain) and financed by Meta Platforms under its [XR Program and Research Funds](#). The Program aims at supporting academic and independent research across Europe into metaverse issues and opportunities. The MetaverseUA Chair is a member of the [European Metaverse Research Network](#). Like all our work, this report has been produced completely independently. The ideas expressed in this paper are the sole responsibility of the author.

How to cite this paper:

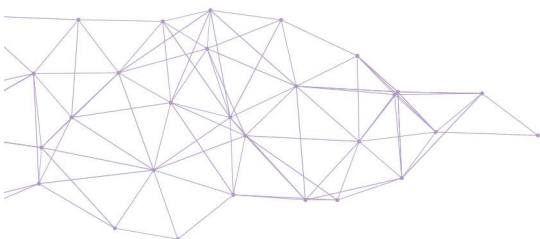
Lopez Rodriguez, A.M., 'Law Applicable to Virtual Real Estate in the Metaverse.' (2024) *Proceedings of the International Congress Towards a Responsible Development of the Metaverse*, Alicante, 13-14 June, 2024.



## Abstract

Recently, substantial investments in strategically located virtual lands and buildings within the metaverse have been garnering significant attention. The regulatory framework governing these investments lacks clarity and traditional choice of law rules encounter challenges related to decentralized ownership of virtual real estate and complex digital frameworks. This article explores the concept of virtual real estate and discusses the limitations of applying choice of law rules to resolve conflicts concerning land in the metaverse. It advocates for the use of 'voie directe' methods to effectively address these challenges—an approach that could ultimately contribute to the development of a *Lex Metaversi*, an evolving set of rules specifically tailored to the dynamics of the metaverse.

**Keywords:** Virtual real estate, virtual land, metaverse, choice of law, *Lex Metaversi*, arbitration, NFTs



## Table of Contents

<b>1. Introduction .....</b>	<b>1</b>
<b>2. Distributed Ledger Technology and the Dynamic Landscape of Virtual Property .....</b>	<b>2</b>
<b>3. Legal nature, complexities and implications of virtual real estate in the metaverse ..</b>	<b>4</b>
3.1. Virtual land as real estate.....	4
3.2. Virtual land as cryptoassets .....	5
3.3. Virtual land as license agreements .....	7
3.4. Virtual land as a sui generis category. The issue of expropriation. ....	7
<b>4. Choice of law issues in conflicts involving virtual land .....</b>	<b>8</b>
4.1. Choice of Law for Real Estate .....	9
4.2. Choice of law for intangible property .....	10
4.3. Choice of law for licensing agreements .....	12
<b>5. New Choice of Law Rules for the Metaverse? Towards a Lex Metaversi .....</b>	<b>13</b>
<b>6. Conclusions .....</b>	<b>17</b>

## 1. Introduction

In the domain of digital innovation, blockchain and its distributed ledger technology (DLT) have fundamentally transformed the conceptualization and authentication of virtual property. Non-Fungible Tokens (NFTs) have emerged as a revolutionary application of blockchain, reshaping the ownership and trade of digital assets.<sup>1</sup> This convergence of blockchain/DLT and NFTs has established a robust infrastructure supporting the creation, authentication and transactional integrity of virtual property, including virtual real estate.

Simultaneously, the metaverse, a virtual space blending physical reality with digital environments, has swiftly appeared as a transformative landscape expanding the notion of property beyond physical boundaries.<sup>2</sup> Within this digital domain, the rise of virtual property has attracted considerable attention, marking a shift in asset perception and ownership dynamics.<sup>3</sup> With individuals, businesses and entities increasingly participating in and investing in the metaverse, virtual property gains economic significance mirroring real estate market dynamics. Notably, significant investments, totaling nearly \$2 billion in recent years on platforms like *Decentraland*, *The Sandbox*, *The Otherside*, *Axie Infinity*, or *Voxels*, underscore the rush to establish a presence in the metaverse. Factors such as size, proximity to popular locations, or adjacency to infrastructure influence the value of virtual real estate.<sup>4</sup>

Traditional choice of law principles face inherent inadequacies in effectively addressing the complexities and nuances of legal issues arising within these digital realms.<sup>5</sup> The distinctive nature of virtual real estate, governed by intricate digital frameworks and decentralized ownership structures, poses significant challenges for conventional conflict of laws approaches rooted in geographic location and tangible asset holdings. Moreover, it transcends conventional real estate regulation, rendering existing rules ill-equipped to grapple with the multifaceted legal issues that may arise. The present article aims to examine the limitations of the existing regulatory framework in navigating virtual real estate conflicts, highlighting the necessity for innovative and specialized approaches, such as “voie directe” methods.

In order to that, Section 2 analyzes the intersection of Distributed Ledger Technology (DLT) and the evolving concept of virtual property within the expansive landscape of the metaverse. Section 3 explores the legal nature, complexities and implications of virtual real estate in the metaverse. Section 4 delves into choice of law issues in virtual real estate conflicts. Section 5 assesses the need for new choice of law rules tailored to the unique dynamics of the metaverse and introduces the *Lex Metaversi*. Finally, Section 6 concludes.

---

<sup>1</sup> J. Fairfield, ‘Tokenized: The Law of Non-Fungible Tokens and Unique Digital Property’ (2021) 97 *Indiana Law Journal* 1261.

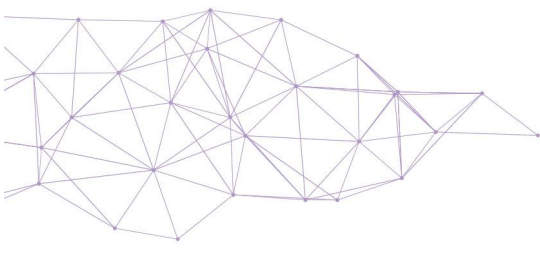
<sup>2</sup> S. Mystakidis, ‘Metaverse’ (2022) *Encyclopedia* 2.1 486.

<sup>3</sup> A. Hiken, ‘Why Brands Are Buying Land in the Metaverse; Marketers Are Eager to Explore the Profit Potential in Virtual Real Estate’ (2022) 93 *Advertising Age* 1.

<sup>4</sup> ‘Most Expensive Land in the Metaverse,’ [2023] Dappradar <https://dappradar.com/blog/most-expensive-land-in-the-metaverse> accessed 9 May 2024.

<sup>5</sup> D Kraus et al (eds), *Blockchain and Private International Law* (Edward Elgar, Cheltenham 2022).





## 2. Distributed Ledger Technology and the Dynamic Landscape of Virtual Property

Blockchain or Distributed Ledger Technology (DLT) is a transformational computing innovation<sup>6</sup> that was created under the pseudonym Satoshi Nakamoto in 2009 as a protocol to the Bitcoin cryptocurrency.<sup>7</sup> A significant application of DLT are the so-called smart contracts, programs stored on a blockchain that run when predetermined conditions are met, without requiring the goodwill of the other party or a third party.<sup>8</sup> Not all smart contracts are legally binding agreements,<sup>9</sup> but they share common features such as being self-verifying due to automated possibilities; self-executing when the rules are met at all stages and tamper-proof, as no one can change what's been programmed.<sup>10</sup>

DLT technologies are destined to play a key role in the *Metaverse*, a digital environment operating on the blockchain, where technologies such as virtual reality and augmented reality act as providers of visual components, offering unlimited business opportunities and social interaction.<sup>11</sup> The term Metaverse was first coined and used as a term in the science fiction book *Snow Crash* by Neal Stephenson, which was published in 1992.<sup>12</sup>

Despite substantial discussions within science fiction and gaming circles, there's a scarcity of legal academic literature specifically addressing the metaverse. Its definition remains elusive and lacks consensus;<sup>13</sup> however, it encompasses an amalgamation of IoT, AR, VR, XR and 3D technologies. Often referred to as Web 3.0, the metaverse lacks a singular definition or entity.<sup>14</sup> Bibri has, for instance, referred to the metaverse as a 3D virtual network conceived by developers as an enduring, immersive cyberspace where individuals use avatars to engage with shared elements and establish a profound connection to their physical and mental selves, embodying diverse identities and personalities.<sup>15</sup> For Mourtzis, the metaverse or the post-reality universe is "a perpetual and persistent multi-user environment that combines physical reality and digital virtuality. It is based on the convergence of technologies, such as XR (Virtual Reality (VR), Mixed Reality

---

<sup>6</sup> D Tapscott and A Tapscott, *Blockchain Revolution: How the Technology Behind Bitcoin is Changing Money, Business, and the World* (Penguin, NY 2016).

<sup>7</sup> S Nakamoto, 'Bitcoin Open Source Implementation of P2P Currency', [2009] P2P Foundation <https://p2pfoundation.ning.com/forum/topics/bitcoin-open-source> accessed 9 May 2024.

<sup>8</sup> M Raskin, 'The Law and Legality of Smart Contracts'(2017) 1 *Georgetown Law Technology Review* 305.

<sup>9</sup> A Savelyev, 'Contract Law 2.0: 'Smart' Contracts as the Beginning of the End of Classic Contract Law,' (2017) 26 *Information & Communications Technology Law* 116.

<sup>10</sup> B Carron and V Botteron, 'How smart can a contract be,' in D Kraus and others (eds), *Blockchains, Smart Contracts, Decentralised Autonomous Organisations and the Law* (Edward Elgar, Cheltenham 2019).

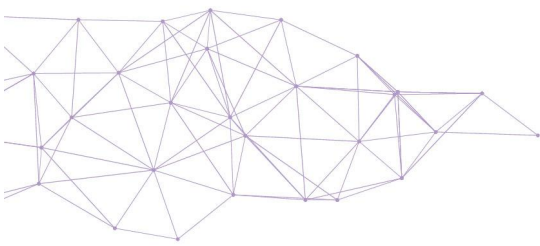
<sup>11</sup> MFN Amirulloh et al., 'Know More Metaverse as the Technology of the Future', [2022] *International Journal of Research and Applied Technology* <https://doi.org/10.34010/injuratech.v2i1.6915> accessed 9 May 2024; S Bibri and A Zaheer, 'The Metaverse as a Virtual Form of Data-Driven Smart Urbanism: On Post-Pandemic Governance through the Prism of the Logic of Surveillance Capitalism' (2022) 5 *Smart Cities* 715; Mystakidis (fn 2).

<sup>12</sup> N Stephenson, *Snow Crash* (Bantam Books, NY 1992).

<sup>13</sup> As indicated in the European Commission Communication of July 11, 2023, "EU Initiative on Web 4.0 and Virtual Worlds: Leading the Way to the Next Technological Transition," COM(2023) 442 final and in the European Parliament Resolution of January 17, 2024, on virtual worlds: opportunities, risks, and strategic implications for the single market, P9\_TA(2024)0032.

<sup>14</sup> P Singh and D Karan Rajput, 'Metaverse: Surging Need for Competent Laws with Increasing Metaverse Crimes' (2022) 5 *International Journal of Law Management & Humanities* 712.

<sup>15</sup> Bibri (fn 11).



(MR) and Augmented Reality (AR)), Digital Twin and Blockchain, that enable multisensory interactions with digital objects, virtual environments and people.<sup>16</sup>

It is estimated that 30% of global organizations would have goods and services prepared for the metaverse by 2026.<sup>17</sup> Industries spanning banking, electronics, semiconductors, communications, media, retail, engineering, organizational marketing, branding and sales of goods and services stand to be significantly influenced by the metaverse.<sup>18</sup>

In these blockchain-based virtual worlds, avatars, land, buildings, names etc can be bought and sold as Non-Fungible Tokens (NFTs). NFTs are certificates of ownership based on smart contracts, stored on a blockchain and backed by blockchain technology (eg Ethereum).<sup>19</sup> They are typically associated with a digital asset, such as visual arts, videos, music, or collectible items. NFT allows you to be a virtual member of countless exclusive experiences in the metaverse and the physical world, thus enhancing social and community experiences.<sup>20</sup> Through NFTs, for instance, users can have full ownership of their land and spaces in the metaverse.<sup>21</sup> The underlying blockchain allows users to prove ownership of the asset and develop their virtual real estate as they wish.<sup>22</sup> Virtual property refers, in this regard, to intangible assets, rights, or possessions existing in digital or virtual environments, often represented by data, tokens, or digital objects that hold value and can be owned, transferred, or traded within online platforms or virtual spaces.<sup>23</sup> By the same token, virtual real estate encompasses various forms of virtual land, properties, or spaces that users can acquire, own, develop, trade, or utilize within digital realms.<sup>24</sup> These properties, although intangible, may have distinct characteristics, boundaries and attributes akin to physical real estate.<sup>25</sup>

In recent years, significant investments have been made in virtual real estate as individuals and companies strive to establish a presence in the metaverse.<sup>26</sup> Transactions involving

---

<sup>16</sup> D Mourtzis et al., 'Human centric platforms for personalized value creation in metaverse' (2022) 65 *Journal of Manufacturing Systems* 653.

<sup>17</sup> (2013) 45 *ACM Computing Surveys Journal* 1.

<sup>18</sup> *Ibid.*

<sup>19</sup> Fairfield (fn 1).

<sup>20</sup> B Guidi and A Michienzi, 'The social impact of NFTs in the metaverse economy,' [2023] *Proceedings of the 2023 ACM Conference on Information Technology for Social Good*, <https://doi.org/10.1145/3582515.3609564> accessed 13 May 2024.

<sup>21</sup> A Duggal et al, 'Significance of NFT Avatars in Metaverse and their Promotion: Case Study', [2023] *Scientific Journal of Metaverse and Blockchain Technologies*, <https://doi.org/10.36676/sjmbt.v1i1.04> accessed 13 May 2024.

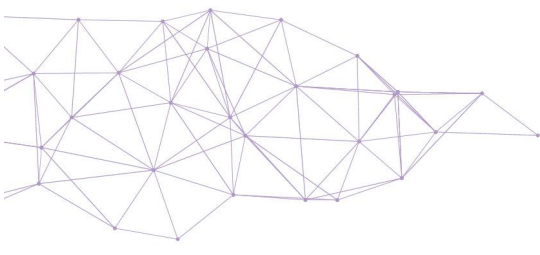
<sup>22</sup> K Park, *The Study on IPR Issues Surrounding Uses of NFTs in Metaverse* (Law Research Institute Chungbuk National University, Korea 2022) <https://doi.org/10.34267/cbstl.2022.13.2.83> accessed 13 May 2024.

<sup>23</sup> J Fairfield, 'Virtual Property' (2005) 85 *Boston University Law Review* 1047; J Dibbell, *Play Money: Or, How I Quit My Day Job and Made Millions Trading Virtual Loot* (Basic Books NY 2006); R Bartle, 'Hearts, Clubs, Diamonds, Spades: Players Who Suit MUDs' (1996) 1 *The Journal of Virtual Environments* 123; R Bartle, *Designing Virtual Worlds* (New Riders Publishing, Hoboken NJ 2003); R Bartle, 'Virtual Realities: A Brief Look at MUD1 and MUD2' (1994) *Proceedings of the Virtual Worlds Conference* 45; E Castronova, *Synthetic Worlds: The Business and Culture of Online Games* (University of Chicago Press, Chicago 2005); P Ludlow, *Crypto Anarchy, Cyberstates, and Pirate Utopias* (MIT Press, Cambridge MA 2001).

<sup>24</sup> CFTE, *Real Estate in The Metaverse. Analysis of Land Prices in The Sandbox* (Center for Finance, Technology and Entrepreneurship, 2022) 16, available at: [https://courses.cfte.education/wp-content/uploads/2022/01/Metaverse\\_Real\\_Estate\\_Market\\_CFTE\\_Report\\_2022.pdf](https://courses.cfte.education/wp-content/uploads/2022/01/Metaverse_Real_Estate_Market_CFTE_Report_2022.pdf) accessed 13 May 2024.

<sup>25</sup> *Ibid.*; D Hunter, *The Oxford Handbook of Virtuality* (Oxford University Press, Oxford 2014); Hiken (fn 3).

<sup>26</sup> DappRadar (fn 4), CFTE (fn 24).



virtual real estate are likely to become commonplace, reflecting the evolving dynamics of virtual property within metaverse environments.<sup>27</sup>

### 3. Legal nature, complexities and implications of virtual real estate in the metaverse

Virtual real estate typically encompasses the land or spaces that users can own, buy, trade, sell, rent, or lease within virtual environments, serving various purposes from leisure and entertainment to commercial activities.<sup>28</sup> The legal nature of virtual real estate, however, presents a multifaceted and intricate terrain, characterized by complex jurisdictional issues, evolving regulatory frameworks and profound implications for property rights, intellectual property and economic governance.

The property systems existing within virtual worlds generally adhere to the norms of contemporary private property systems, allowing for the free transfer of property and transactions conducted in the local currency.<sup>29</sup> In this regard, it is argued that the presence of property within these virtual environments may reflect our inability to envision alternative structures for interpersonal relationships amid conditions of resource scarcity.<sup>30</sup> Particularly in the Western context, envisioning a world devoid of property seems beyond our conceptual grasp.<sup>31</sup>

Disputes over virtual property have become the subject of real-world legal battles and negotiations. Empirical studies on the psychology of virtual worlds, particularly concerning virtual property, show that property interests feel genuinely significant to the parties involved.<sup>32</sup> In other words, none of the disputes that may arise merely dissolves with the recognition that the entire endeavor was merely “a game.”<sup>33</sup>

The central inquiry lies, therefore, in whether legal frameworks in the physical realm will recognize and accommodate these expectations. This is, whether the proprietor of a virtual world’s platform also holds ownership over virtual buildings constructed within it, or whether ownership can extend to individuals who purchase virtual land and who wish to sell or rent out their lands and buildings for others to design their own games, host events and other social activities.

#### 3.1. Virtual land as real estate

---

<sup>27</sup>S. Finn, ‘The Metaverse: Exploring The Wave Of Virtual Real Estate’, [2022] Forbes <https://www.forbes.com/sites/forbesbusinesscouncil/2022/06/10/the-metaverse-exploring-the-wave-of-virtual-real-estate> accessed 9 May 2024.

<sup>28</sup> J Dibbell, ‘The Unreal Estate Boom’, [2003] Wired <https://www.wired.com/2003/01/gaming-2/> accessed 9 May 2024.

<sup>29</sup> CFTE (fn 24).

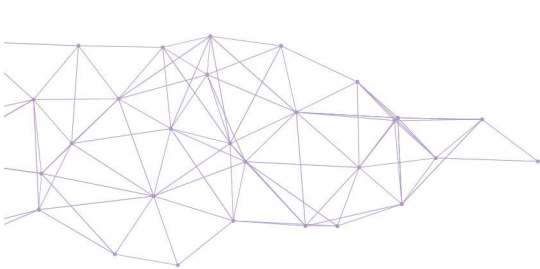
<sup>30</sup> G. Lastowka and D. Hunter, ‘The Laws of the Virtual Worlds’ (2004) 92 California Law Review 1.

<sup>31</sup> Ibid.

<sup>32</sup> D. Kahneman, J. Knetsch and R. Thaler, ‘Experimental Tests of the Endowment Effect and the Coase Theorem’ (1990) 98 Journal of Political Economy 1325.

<sup>33</sup> E. Reid, ‘Identity and the Cyborg Body, in Cultural Formations in Text-Based Virtual Realities’, [1994] Cultural Studies Program, Department of English, University of Melbourne <https://smg.media.mit.edu/library/reid1994.html> accessed 9 May 2024.





Some scholars argue that traditional property law principles should apply to virtual property, as it more closely resembles physical property.<sup>34</sup> In this regard, authors like Fairfield advocate that the legal framework applicable to virtual property must necessarily differ from the regime applied to intellectual property. This author points out that much of what we call virtual has been created by modeling the real world. Therefore, similar regulatory instruments should be applied to this realm.<sup>35</sup> The Dutch Supreme Court, for instance, has upheld a judgment in a criminal case involving adolescents who assaulted another young individual, coercing him at knifepoint to surrender his possessions within the virtual realm of RuneScape, which included an in-game amulet and knife.<sup>36</sup>

If the above statement holds true, the regime applicable to virtual immovable property should resemble the regulatory framework applicable to physical real estate. The individual who invests money in the acquisition or rental of virtual land would acquire rights akin to those of an owner or tenant. The developer, on the other hand, would retain their intellectual property rights over the specific program code. There are some factors that favor the consideration of virtual land as authentic real estate. One of them is its inherent lack of portability, thus establishing a crucial distinction from other digital assets.

Another factor is location. As in real life, the location of these lands and buildings is a crucial factor in determining their value. Contrary to the ephemeral nature of certain virtual objects, virtual land in the metaverse anchors its existence to a specific location, which in turn entails significant legal and economic implications. This geographical fixation establishes the basis for arguing that, like in the physical world, the possession and ownership of virtual land are subject to spatial and geographical considerations. Size, proximity to popular hot spots, or whether the property is next to a road are factors that accordingly influence the value of virtual real estate.<sup>37</sup> As an interesting aside in support of considering virtual land as real estate, even indigenous communities have raised their voices, demanding participation in land distribution in the metaverse to prevent the repetition of past injustices.<sup>38</sup> Similarly, *Ijarah*, a type of lease rooted in Islamic principles of Shariah, is being studied for its applicability in the virtual realm.<sup>39</sup>

## 3.2. Virtual land as cryptoassets

---

<sup>34</sup> M.Quadrini, 'Caveat Cloudster: Why Traditional Common and Civil Property Law Should Apply to Virtual Property and How It Will Change the Legal Realities of the Internet' (2015) 24 Dalhousie Journal of Legal Studies 55.

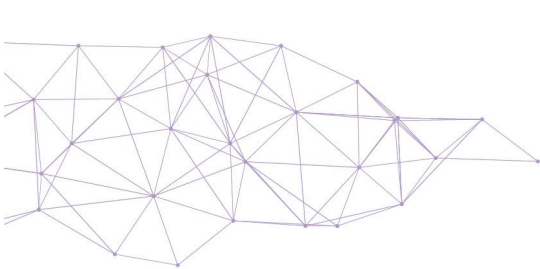
<sup>35</sup> J.Fairfield, 'Property as the law of virtual things', [2022] 7 Frontiers in Research Metrics and Analytics 981964, available at: <https://doi.org/10.3389/frma.2022.981964> accessed 10 May 2024.

<sup>36</sup> W Erlank, 'The Legal Acceptance of Virtual Property?', [2010] SSRN <https://doi.org/10.2139/SSRN.1591384> accessed 9 May 2024.

<sup>37</sup> DappRadar (fn 4). M Goldberg, PK Mitchell and F Schär, "Land valuation in the metaverse: Location matters", [2021] available at SSRN 3932189.

<sup>38</sup> B.Barba et al, 'Discussion Paper: First Nations' Culture in the Metaverse,' [2022] <http://dx.doi.org/10.2139/ssrn.4058777> accessed 9 May 2024.

<sup>39</sup> K. Katterbauer et al, 'Islamic Finance in the Metaverse – A Meta-Finance framework for Supporting the Growth of Shariah-Compliant Finance Options in the Metaspace,' [2022] [https://www.researchgate.net/publication/357958316\\_Islamic\\_finance\\_in\\_the\\_metaverse\\_-\\_a\\_metafinance\\_framework\\_for\\_supporting\\_the\\_growth\\_of\\_Shariah-Chocompliant\\_finance\\_options\\_in\\_the\\_metaspace](https://www.researchgate.net/publication/357958316_Islamic_finance_in_the_metaverse_-_a_metafinance_framework_for_supporting_the_growth_of_Shariah-Chocompliant_finance_options_in_the_metaspace) accessed 9 May 2024.



Real estate is often characterized by its lack of mobility, permanent nature, fixed geographical location and notable durability. It is also distinguished as corporeal property whose natural destination is to remain within a country.<sup>40</sup> Following this interpretation, virtual land would not be truly real property, but rather, intangible movable property or cryptoassets, whose ownership is backed by a non-fungible token (NFT). It is noteworthy, in this regard, that NFTs are not subject to the MiCA regulation on crypto-asset markets, unless they serve the function of “access keys to services,” and the same applies to DAOs, organizational structures adopted by some virtual platforms.<sup>41</sup>

As cryptoassets, the legal nature and content of virtual land, would be akin to intangible assets and thus fall under the regime of movable assets of this nature.<sup>42</sup> In this respect, it is crucial to differentiate between virtual property and intellectual property.<sup>43</sup> Indeed, when purchasing a physical book, the distinction between intellectual property and ownership of the asset is clear. I can resell the book, but I cannot alter or distribute the work without permission from the intellectual property rights holder. Prior to the emergence of NFTs, it was not possible to sell or transfer a digital work, as by its very nature, it could be endlessly copied and replicated. With the advent of NFTs, acquiring a tokenized work, such as a virtual building, does not entail purchasing the digital work itself.

The buyer solely acquires a collection of codes or metadata linked to the 'authentic version' of the work in question. These metadata are recorded on the blockchain and contain information about the location of the original work and the owner of that specific instance of the work. Consequently, the acquisition does not entail the copyright associated with the digital work, but rather the general right to possess, sell, lend, or transfer the NFT itself, subject to the specific conditions of the digital market in which the transaction takes place.<sup>44</sup> Similarly, when a virtual asset does not result from creative work, as is the case with Bitcoin, it is not subject to any legal framework of intellectual property.<sup>45</sup> Although logic may seem to support this position, particularly considering that virtual land is not corporeal, the lack of portability renders it much more akin to the legal nature of real property. Indeed, if a virtual platform ceases its activities, virtual land and buildings disappear as such. This was the case with the real estate holdings of *AltSpace* when it closed down on 10 March 2023, to focus on the development of *Microsoft Mesh*.<sup>46</sup>

---

<sup>40</sup> Judgment of the Court of Justice of the European Union of 10 February 2022, C-595/20, *ShareWood Switzerland*, ECLI:EU:C:2022:86, paragraphs 28-29.

<sup>41</sup> Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on crypto-asset markets and amending Regulations (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937, OJ L 150, 9.6.2023, pp. 40-205, Recitals 10 and 22.

<sup>42</sup> K. Nekit, 'Legal Nature and Types of Digital Assets in the Activities of Technology-Oriented Startups' (2023) 13 *Juridical Tribune* 304, available at <https://doi.org/10.24818/TBJ/2023/13/2.08> accessed 9 May 2024.

<sup>43</sup> I. Davydova et al, 'Legal nature and inheritance of virtual property in Ukraine and the world: current status, problems, prospects', (2021) 10 *Revista de Derecho* 1; Contrarily, J.Gong, 'Defining and Addressing Virtual Property in International Treaties' (2011) 17 *Boston University Journal of Science and Technology Law* 101.

<sup>44</sup> A .López Rodríguez, 'Competencia Judicial Internacional en Controversias Relativas a Tokens No Fungibles (NFT)' (2022) 74 *Revista Española de Derecho Internacional* 299, 304.

<sup>45</sup> For a more detailed exposition, we refer to specialized studies on the protection and management of intellectual property in the metaverse, such as A. López-Tarruella Martínez (ed.), *Protección y gestión de la propiedad intelectual en el metaverso* (Reus, Madrid 2023); P. De Miguel Asensio, 'Blockchain and Smart Contracts Relating to Copyright: Jurisdiction and Applicable Law', in D De Angelis et al (eds), *La tecnologia blockchain e il diritto d'autore: miraggio o realtà?* (ALAI Italia, 2021) 41.

<sup>46</sup> E.Roth, 'AltspaceVR is shutting down as Microsoft's mixed reality division shrinks', [2023] *The Verge* <https://www.theverge.com/2023/1/21/23565188/alt-space-vr-shutting-down-microsoft-layoffs> accessed 13 May 2024.

### 3.3. Virtual land as license agreements

From a more distant perspective, there is contention against classifying virtual property as intangible assets. Cifrino, for instance, advocates for addressing challenges in the realm of virtual worlds through contract law.<sup>47</sup> In this author's view, the rejection of applying the regulatory framework used for real property is evident, emphasizing that none of the theoretical approaches to property conceptually aligns with the unique characteristics of virtual domains. Additionally, it is noted that resolution of these disputes often relies on the terms and conditions outlined in End User License Agreements (EULAs) agreed upon by users and platforms.<sup>48</sup>

This theory possesses some degree of accuracy. On the one hand, the value of the NFTs backing the ownership of virtual assets is ostensibly based on a simple idea: the buyer of a non-fungible token acquires clear and unrestricted ownership of said token. However, the technology underlying NFTs allows sellers to maintain prolonged control over assets that have been transferred and fully paid for. Thus, some tokens are programmed for their developers to reclaim a portion of the profits each time they are resold, a situation that seems to not align properly with the underlying premise in virtual real estate transactions, namely, the transfer of ownership.

In addition, the regime of intellectual property currently prevailing on the internet can be characterized as "hostile" towards digital personal property, resulting in the widespread imposition of the intellectual property licensing contract regime.<sup>49</sup> To the best of our knowledge, there is still no case law on this matter, although some authors have suggested that courts might express certain reservations regarding classifying transactions involving virtual property as genuine purchase contracts.<sup>50</sup>

In any case, these assertions cannot lead us to dismiss the existence of situations where the acquisition of virtual property entails the acquisition of a clear and unrestricted property right. Taking the above into account, when disagreements arise among sellers, buyers and developers of virtual real estate, courts must consider whether they are dealing with a purchase agreement or a licensing agreement.

### 3.4. Virtual land as a *sui generis* category. The issue of expropriation.

Despite our inclination in preceding paragraphs to consider virtual land more akin to real estate than to intangible movable property, a more accurate approach may involve characterizing virtual land as a *sui generis* category, similar to physical real estate but requiring specific regulation that takes into account its unique characteristics: lack of corporeality, anchorage in a virtual rather than geographical domain and so forth. This perspective recognizes the distinct nature of virtual properties, acknowledging the need for tailored legal frameworks that address their digital and non-physical attributes.

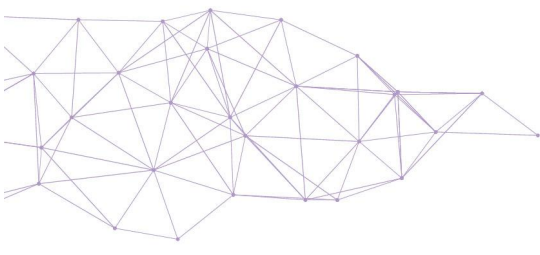
---

<sup>47</sup> C. Cifrino, 'Virtual Property, Virtual Rights: Why Contract Law, Not Property Law, Must Be the Governing Paradigm in the Law of Virtual Worlds,' (2014) 55 Boston College Law Review 235.

<sup>48</sup> Ibid.

<sup>49</sup> Critically, Fairfield (fn 1)

<sup>50</sup> Ibid.



The unique characteristics that differentiate virtual land from physical real estate become apparent in cases of expropriation. Proprietor rights against expropriations by the State are protected in various countries around the world, typically through constitutional provisions or specific legal frameworks that ensure compensation and due process. However, constitutional safeguards that protect owners of traditional real estate most likely do not apply to virtual land. In the United States, while the Fifth and Fourteenth Amendments of the U.S. Constitution impose restrictions on governmental actions concerning real property, requiring just compensation for public takings or regulations that reduce its economic utility, private entities, including platform operators, generally operate without these constitutional constraints.<sup>51</sup> In similar terms, the owner of virtual land probably could not directly invoke the constitutional right to fair and equitable compensation when deprived of his or her property and rights, as outlined in Article 33(3) of the Spanish Constitution. As a result, virtual land lacks constitutional protection, allowing private entities to delete or permanently block access to such property without compensation. For example, *Decentraland's* terms of use limit the platform's liability to either the user's actual payments in the preceding 12 months or a maximum of \$100 in case of claims.<sup>52</sup>

From the above, it can be inferred that virtual land constitutes a *sui generis* category of assets that requires tailored regulatory measures. By establishing a framework that aligns with the inherent properties of virtual land, such as its intangible nature, lack of portability, strategic significance and reliance on virtual domains, policymakers can ensure effective governance that supports innovation while addressing legal and practical challenges associated with virtual land ownership and transactions.

#### 4. Choice of law issues in conflicts involving virtual land

Physical world conflicts tend to replicate in the metaverse, including controversies related to real estate.<sup>53</sup> Consequently, we may anticipate disputes originating from expropriations of virtual land or limitations of rights carried out by operating platforms, conflicts related to ownership or other real rights and litigation linked to disputes arising from contracts of sale or lease of virtual land, among other potential issues.

Litigation concerning virtual real estate will be in some way related to blockchain technology, as the establishment, registration, or transfer of rights over these assets is conducted through Distributed Ledger Technology (DLT). Unlike traditional real estate, which is registered through established land registries and legal frameworks and typically require a series of formal and documentary requirements for the registration, such as the requirement for a public document,<sup>54</sup> virtual land exists on blockchain networks or virtual platforms that may lack universally recognized registration systems. Additionally, the

---

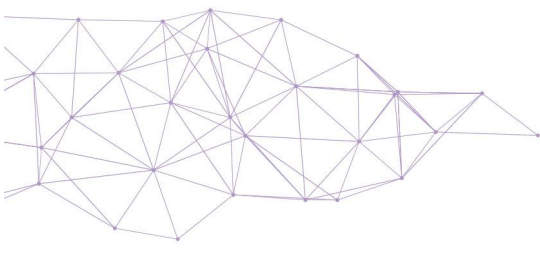
<sup>51</sup> R. Koonin et al, 'Real Estate in the Metaverse: A Few Risks to Know Before Investing', [2022] *The National Law Review* <https://www.natlawreview.com/article/real-estate-metaverse-few-risks-to-know-investing> accessed 9 May 2024.

<sup>52</sup> Term 11.2, *Decentraland's Terms of Use* <https://decentraland.org/terms/#:~:text=CONTENT%20AVAILABLE%20IN%20DECENTRALAND%20MAY,THIRD%20PARTY%20LINKS%20CLICKED%20ON> accessed 9 May 2024.

<sup>53</sup> Singh (fn 14); Mourtzis (fn 16)

<sup>54</sup> L Martínez Velencoso et al (eds), *Transfer of Immovables in European Private Law* (Cambridge University Press, Cambridge 2017).





immutability of blockchain records complicates the correction of errors or fraudulent entries, further hindering the ability to oppose third-party claims.

The decentralized registration of rights over virtual real estate also raises concerns regarding data protection and privacy, since information related to a property recorded on the blockchain can theoretically be accessible to anyone on the network.<sup>55</sup> Similarly, the use of smart contracts in transactions involving virtual real estate can lead to disputes over the interpretation and scope of contract terms—sometimes drafted directly in computational language. Furthermore, although blockchain technology provides some security against potential fraudulent alterations, there can be inherent flaws such as entries containing incorrect or false data, with rectification proving extremely complex due to the immutable nature of the information contained in the blockchain.<sup>56</sup>

Within the context of the EU, particular attention must be paid to the Directive on contracts for the supply of digital content and digital services, adopted with the aim of facilitating transactions within the Digital Single Market and ensuring a high level of consumer protection.<sup>57</sup> However, it is important to note that not all users of virtual platforms can be considered consumers and Recital 12 of the mentioned Directive explicitly states that “the legal nature of contracts for the supply of digital content or services and the question of whether such contracts constitute, for example, a contract of sale, of services, of rental or an atypical contract, should be left to determination by national law.” Therefore, the study of the regulatory framework applicable to operations carried out on virtual platforms cannot be understood without analyzing the applicable national law.

In the event of a dispute arising concerning a right in rem in a virtual immovable or the lease or sale of virtual land, it is not entirely clear which law would be applicable. Different scenarios emerge, depending on the characterization of virtual real estate as true immovable property, as intangible movable property, or as mere licensing agreements.<sup>58</sup>

#### 4.1. Choice of Law for Real Estate

The physical location of immovable property within a country is commonly used as a connecting factor to determine the applicable law in disputes related to rights in rem.<sup>59</sup>

---

<sup>55</sup> M. Graglia and C. Mellon, ‘Blockchain and Property In 2018. At the End of the Beginning’ (2018) 12 *Innovations* 90, available at: [https://doi.org/10.1162/innov\\_a\\_00270](https://doi.org/10.1162/innov_a_00270) accessed 9 May 2024; B. Verheye, ‘Land Registration in the Twenty-First Century: Blockchain Land Registers from a Civil Law Perspective’ in A. Lehari and R. Levine-Schnur (eds.), *Disruptive Technology, Legal Innovation, and the Future of Real Estate* (Springer, NY 2020) 123.

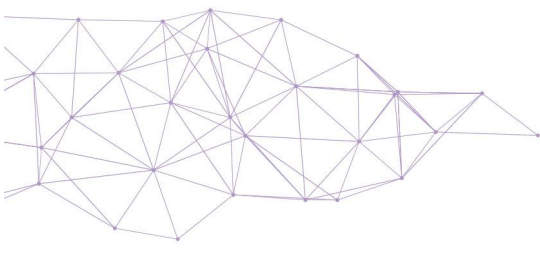
<sup>56</sup> J. Sklaroff, ‘Smart Contracts and the Cost of Inflexibility’ (2017) 166 *University of Pennsylvania Law Review* 263; K. Werbach, ‘Trust, but Verify: Why the Blockchain Needs the Law’ (2018) 33 *Berkeley Technology Law Journal* 487; M. Raskin (fn 8); J. Lingwall and R. Mogallapu, ‘Should Code Be Law? Smart Contracts, Blockchain, and Boilerplate’ (2019) 88 *University of Missouri-Kansas City Law Review* 285.

<sup>57</sup> Directive (EU) 2019/770 of 20 May 2019 on certain aspects concerning contracts for the supply of digital content and digital services, OJ L 136, 1.

<sup>58</sup> On the issue of jurisdiction and dispute resolution regarding virtual real estate, see A. López Rodríguez, ‘Inmuebles virtuales y perspectivas innovadoras de resolución de conflictos en el metaverso’ (2024) 16 *Cuadernos de derecho transnacional* 319, available at: <https://e-revistas.uc3m.es/index.php/CDT/article/view/8426> accessed 9 May 2024; on the issue of intellectual property rights over virtual property, see López-Tarruella (fn 45).

<sup>59</sup> C. Rupp, ‘The lex rei sitae and Its Neighbours—Debates, Developments, and Delineating Boundaries Between PIL Rules’ (2018) 7 *European Property Law Journal* 267; J. Singer, ‘Property Law Conflicts’ (2014) 54 *Washburn*





However, the *Lex Rei Sitae* does not appear to have much viability in the metaverse. In virtual and decentralized platforms, there is no physical country that would allow the legal relationship to be placed under a specific legal system. Therefore, if we characterize virtual land as real estate, existing choice of law rules would not be operational.

Regarding contractual issues, leases and other transactions involving these properties would be subject in the European Union to the law provided under Regulation (EC) No 593/2008 (Rome I).<sup>60</sup> Unless the parties have validly agreed on the applicable law, Article 4(1)(c) of the Rome I Regulation refers to the law of the country where the immovable property is situated, when the contract relates to a right in rem in immovable property or to a tenancy of immovable property, unless the contract has manifestly closer connections with another country (Article 4(3) of the Rome I Regulation). For holiday leases, the contract is governed by the law of the country where the landlord has his habitual residence, provided that the tenant is a natural person and has his habitual residence in the same country (Article 4(1)(d) of the Rome I Regulation and subject to the existence of a law with a manifestly closer connection under Article 4(3). These connecting factors do not have much operability with virtual land and the escape clause would be often impracticable, given the difficulty of finding a manifestly closer connection for transactions that automatically take place within decentralized networks.<sup>61</sup> Additionally, how would the domicile of an avatar or a party with anonymous identity be determined? And what would be the location of an entity operating as a DAO for the purpose of applying Article 4(1)(d) of the Rome I Regulation? In this context, Decentralized Autonomous Organizations (DAOs) are governance structures used by some virtual platforms. They are organizational entities that operate in a decentralized manner through smart contracts on a blockchain platform. DAOs are managed by their members through automated and transparent decision-making, without the need for a centralized authority structure.<sup>62</sup> Consequently, we can infer that the connections provided in Article 4 the Rome I Regulation neither contemplate nor align with the peculiarities of virtual land.

## 4.2. Choice of law for intangible property

The *rei sitae* is also the connecting factor employed by most jurisdictions to determine the applicable law in disputes related to rights in rem over movables.<sup>63</sup> Again, given the

---

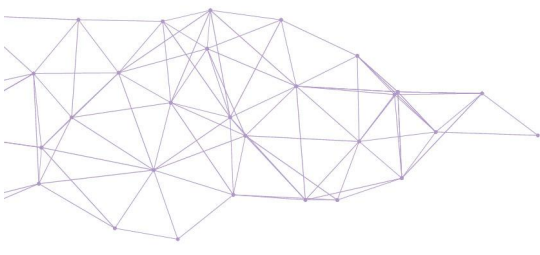
Law Journal 129; J Stern, 'Property Exclusivity, and Jurisdiction' (2014) 100 Virginia Law Review 111; R Weintraub, *Commentary on the Conflict of Laws*, 6a ed. (Foundation Press, St. Paul MN 2010) 573. G Garriga Suau and C Whytock, 'Choice of Law for Immovable Property Issues: New Directions in The European Union and The United States' (2022) 74 Revista Española de Derecho Internacional 81; J Stern (fn 46) 111; R Weintraub (fn 46); M. Hancock, 'Conceptual Devices for Avoiding the Land Taboo in Conflict of Laws: The Disadvantage of Disingenuousness' (1967) 20 Stanford Law Review 1.

<sup>60</sup> Regulation (EC) No 593/2008 of the European Parliament and of the Council of 17 June 2008 on the law applicable to contractual obligations (Rome I), OJ L 177, 4 July 2008, 6.

<sup>61</sup> F. Guillaume, 'Aspects of private international law related to blockchain transactions', in D Kraus et al (eds), *Blockchains, Smart Contracts, Decentralised Autonomous Organisations and the Law* (Edward Elgar Publishing, Cheltenham 2019) 49.

<sup>62</sup> F. Guillaume and S. Riva, 'Blockchain Dispute Resolution for Decentralized Autonomous Organizations: The Rise of Decentralized Autonomous Justice', in D Kraus et al (eds), *Blockchain and Private International Law* (Edward Elgar, Cheltenham 2022) 549; W Kaal, *Decentralized Autonomous Organizations: Internal Governance and External Legal Design* (Now Publishers, Boston Delft 2021); D Kraus (fn 10).

<sup>63</sup> B. Akkermans and E. Ramaekers, 'Lex rei sitae in perspective: National Developments of a common rule?' (2012) 2012/14 Maastricht University Private Law Institute Working Paper 2.



complexity of locating virtual property, other approaches are imperative. In the case of securities, for instance, the Hague Convention of July 5, 2006,<sup>64</sup> is based on the PRIMA (“Place of the Relevant Intermediary Approach”) criterion, although it cannot be satisfactorily adapted to delocalized assets.<sup>65</sup> Some countries have recently adopted legislation on the applicable law for non-intermediated cryptoassets.

For example, in accordance with Article 32(1) of the German Electronic Securities Act (eWpG),<sup>66</sup> the choice of law rule established in Article 17a of the Custody Act (DepotG) applies preferentially to intermediated securities, but non-intermediated securities are governed by the law of the state where the supervisory authority of the registry is located. In situations not subject to supervision, the rule refers to the law of the jurisdiction of the entity maintaining the registry. Finally, if this information is not available, the law of the registered domicile of the issuing entity applies.<sup>67</sup> However, the effectiveness of these connections is questionable when dealing with delocalized entities such as DAOs.

Therefore, the *UNIDROIT Principles on Digital Assets*<sup>68</sup> introduce a closing clause in Article 5(d), which refers to the *Lex Fori* or the private international law rules of the forum when none of the connections used in paragraphs (a), (b) and (c) (party autonomy, the law of the expressly specified state in the system where the digital asset is registered, or the law of the domicile of the issuing entity) can be applied.<sup>69</sup> In contrast, the *ELI Principles on the Use of Digital Assets as Collateral*<sup>70</sup> use geographic connections such as the law of the guarantor’s establishment or administration, the law of their habitual residence, or the asset’s connection with a specific jurisdiction.<sup>71</sup> This is also not very suitable for delocalized environments.

If we focus on the contractual issues, the application of the Convention on Contracts for the International Sale of Goods (CISG) – commonly known as the Vienna Convention – to intangible movable property, such as digital assets represented by NFTs (Non-Fungible Tokens), is subject to interpretation and debate. The CISG generally applies to contracts for the sale of goods. According to Article 2(a) of the CISG, “goods” are defined as “all things (including specially manufactured goods) which are movable at the time of the conclusion of the contract.”

Some legal scholars argue that the definition of “goods” in the CISG could encompass certain intangible assets, particularly if they are capable of being delivered and transferred in accordance with the contract.<sup>72</sup> Yet, the specific identity of those conducting transactions in the metaverse is not easily accessible, which makes it difficult to

---

<sup>64</sup> Hague Convention of 5 July 2006 on the law applicable to certain rights in respect of securities held with an intermediary.

<sup>65</sup> M. Lehmann, ‘How to determine the law applicable to crypto assets?’, [2021] Blog, The European Association of Private International Law Eapil <https://eapil.org/2021/04/02/how-to-determine-the-law-applicable-to-crypto-assets> accessed 9 May 2024.

<sup>66</sup> Gesetz über elektronische Wertpapiere vom 3 Juni 2021, “eWpG”, BGBl I S 1423.

<sup>67</sup> C. Wendehorst, ‘Chapter 5. Proprietary Rights in Digital Assets and the Conflict of Laws’ in A Bonomi et al (eds), *Blockchain and Private International Law* (Brill Nijhoff, 2023) 101.

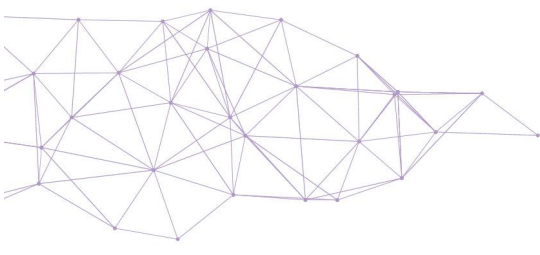
<sup>68</sup> *UNIDROIT Principles on Digital Assets and Private Law* (UNIDROIT, Rome 2023).

<sup>69</sup> UNIDROIT Digital Assets and Private Law Principle 5(1)(d) (A) and (B); B Jiménez-Gómez, ‘Los principios de Unidroit sobre activos digitales: entre el Derecho mercantil y el Derecho internacional privado’ (2023) XXIII Anuario Español de Derecho Internacional Privado 269.

<sup>70</sup> *ELI Principles on the Use of Digital Assets as Security* (European Law Institute, Vienna 2022).

<sup>71</sup> 3rd and 4th Principle.

<sup>72</sup> B. Hayward, ‘To Boldly Go, Part II: Data as the CISG’s Next (But Probably Not Final) Frontier’ (2021) 44 University of New South Wales Law Journal 1482.



determine whether the parties have their place of business in different Contracting States, as required for the application of the CISG according to Article 1(1)(a). Additionally, if choice of law rules refer to the law of a Contracting State, the CISG will apply pursuant to Article 1(1)(b). However, there is no definitive consensus on this issue and the applicability of the CISG to transactions involving NFTs or other forms of intangible movable property may vary depending on the specific circumstances and interpretations by courts or arbitral tribunals.

Otherwise, these contracts would be subject to the national law chosen by the parties. Either included in the applicable terms and conditions – when the transaction is made with the metaverse platform – or in the contract between the parties e.g. when buildings and lands are purchased or leased in secondary markets. According to *VRChat TOS*,<sup>73</sup> for instance, “This TOS is governed by the laws of the State of California without regard to conflict of law principles that would result in the application of the laws of another jurisdiction.” Contrarily, *Decentraland’s Terms of Use*<sup>74</sup> do not contain any choice of law.

In the absence of choice, sales would be governed by the law of the country where the seller has their habitual residence (Article 4(1)(a) of the Rome I Regulation) and if it is a lease, the law of the habitual residence of the characteristic provider would apply (Article 4(2) of the Rome I Regulation), unless, in both cases, the contract has manifestly closer connections with another country (Article 4(3) of the Rome I Regulation). Similarly, certain transactions may be eligible for the protection provided under Article 6 of the Rome I Regulation, concerning certain consumer contracts and guarantee contracts would be governed by the applicable law as determined by the aforementioned provisions (Article 14 of the Rome I Regulation).

### 4.3. Choice of law for licensing agreements

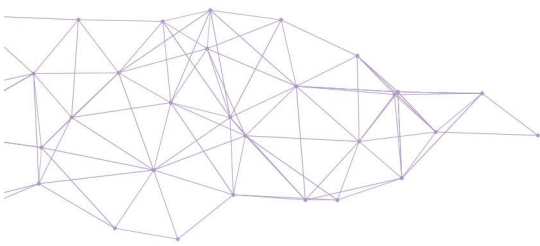
As mentioned earlier, some authors have expressed reservations regarding the classification of virtual property as genuine property. In their opinion, these transactions constitute mere licensing agreements. In that case and, aside from possible choices of law (Article 3 Rome I Regulation) or consumer contracts deserving protection (Article 6 of the Rome I Regulation), the applicable law will be determined, in the absence of a choice, under Article 4(2) of the Rome I Regulation, namely, by the law of the country where the party performing the characteristic performance of the contract has their habitual residence, unless the contract has manifestly closer connections with another country (Article 4(3) of the Rome I Regulation). Consequently, the same reflections made in previous paragraphs regarding the difficulty of determining the identity and habitual residence of the parties or the law with the manifestly closest connections in virtual and decentralized environments are equally applicable here.

The preceding analysis of the characterization of virtual property and its treatment in private international law leads, accordingly, to an unequivocal conclusion: Regardless of the legal classification assigned to virtual real estate – whether genuine real property, intangible movable property, or licensing agreements – the fundamental characteristics of blockchain technology operating in the metaverse, particularly decentralization and anonymity/opaqueness, pose challenges to territorial connecting factors such as the situation of the property in a country or the habitual residence of the parties. Similarly,

---

<sup>73</sup> <https://hello.vrchat.com/legal> accessed 10 May 2024.

<sup>74</sup> <https://decentraland.org/terms/> accessed 10 May 2024.



choice of law rules based on the closest connection are not always effective in decentralized contexts, where transactions are carried out simultaneously across different nodes of a blockchain. The closest connection can sometimes be determined by reference to a related off-chain factor or transaction. But if this is not the case, the determination of the applicable law raises additional questions.

## 5. New Choice of Law Rules for the Metaverse? Towards a *Lex Metaversi*

Decentralized technologies enable transactions and interactions that are not confined to physical locations or specific jurisdictions. Parties can engage in complex transactions across borders without intermediaries or central authorities. However, traditional choice of law rules relying on territorial connections may not effectively address the complexities of such transactions. In the Metaverse, parties' physical locations or the location of virtual assets may be ambiguous or constantly changing, making it challenging to determine applicable law based on traditional criteria.

There is a growing need for technologically neutral legal frameworks that can accommodate the unique features of decentralized environments. These frameworks should consider factors beyond physical location and adapt to the dynamic and borderless nature of digital transactions. As most interactions in the metaverse are cross-border, the imperative need for choice of law rules adapted to these environments is evident.

The literature has already suggested new alternative connecting factors to address challenges in determining applicable law in decentralized environments. One proposed factor is the place of domicile or establishment of the token issuer, although identifying their identity or location can be difficult.<sup>75</sup> Another consideration is the place of the operator administering the system ("PROPA"), or the location of the holder of the master key ("PREMA"), which could be applicable particularly in permissioned systems.<sup>76</sup>

Alternatively, referencing the law of the forum could be considered as another approach to resolving legal issues in these contexts.<sup>77</sup> However, identifying the court with competent jurisdiction presents equal challenges in virtual environments, further complicating the use of the *Lex Fori* as a connecting factor.<sup>78</sup>

Traditional jurisdictional criteria, accordingly, are not adapted to disputes related to decentralized environments, to the point that some scholars have presented blockchain arbitration mechanisms as an alternative.<sup>79</sup> In this regard, several platforms have emerged

---

<sup>75</sup> E.Prévost, 'The Law Applicable to Digital Representations of Off-chain Assets' in A Bonomi et al (eds), *Blockchain and Private International Law* (Brill Nijhoff, 2023) 285; F Schurr and A. Layr, 'DLT and PIL from the Perspective of Liechtenstein' in A Bonomi et al (eds), *Blockchain and Private International Law* (Brill Nijhoff, 2023) 754.

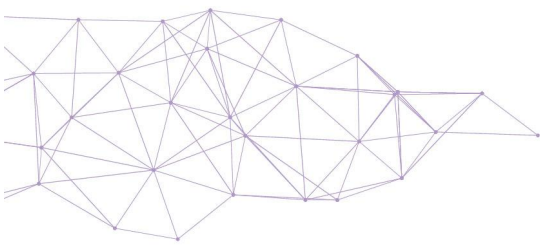
<sup>76</sup> F. Villata, 'Cryptocurrencies and Conflict of Laws' in A Bonomi et al (eds), *Blockchain and Private International Law* (Brill Nijhoff, 2023) 314.

<sup>77</sup> As, for instance, the law of the regulatory forum. See, in this regard, B Yuksel Ripley and F Heindler, 'The Law Applicable to Crypto Assets: What Policy Choices Are Ahead of Us?', in A Bonomi et al (eds), *Blockchain and Private International Law* (Brill Nijhoff, 2023) 259; F Wilke, 'A German Approach: Lex Supervisionis Registri and Subordinate Connecting Factors' in A Bonomi et al (eds), *Blockchain and Private International Law* (Brill Nijhoff, 2023) 727. F Guillaume, 'Aspects of private international law related to blockchain transactions' in D Kraus (fn 61).

<sup>78</sup> López Rodríguez (fn 58).

<sup>79</sup> Guillaume and Riva (fn 62) 549; F Ast and B Deffains, 'When Online Dispute Resolution Meets Blockchain: The Birth of Decentralized Justice' (2021) 4 *Stanford Journal of Blockchain Law & Policy*, available at: <https://stanford-jblp.pubpub.org/pub/birth-of-decentralized-justice/release/1> accessed 10 May 2024.





to provide decentralized justice outside the adjudicative monopoly of state courts,<sup>80</sup> claiming to be “the justice system for the coming age of the metaverse” and even for claims arising *offchain*.<sup>81</sup> Some of them operate in a closed market, such as *Bisq*,<sup>82</sup> and *Bitrated*,<sup>83</sup> whereas other platforms provide dispute resolution services as their primary business model, such as *Metacourt*, *Codelegit*,<sup>84</sup> *Kleros*,<sup>85</sup> *Aragon Court*,<sup>86</sup> and *Jur*.<sup>87</sup> The latter group attracts more attention due to their unique characteristics, especially because it stands on concepts of crowdsourcing, decentralized justice and game theory.

Although specific methods and systems may vary, these dispute resolution platforms typically use some kind of token or cryptocurrency system to encourage jury involvement and to reward or punish particular behaviours.<sup>88</sup>

The challenges in determining the applicable law according to traditional connecting factors, coupled with the use of game theory and economic incentives by decentralized arbitration platforms, lead us to anticipate the gradual emergence of a substantive regulatory framework for the Metaverse. This framework will be created by its participants and aimed at addressing the shortcomings of traditional conflict resolution mechanisms. A phenomenon analogous and developing in parallel to the so-called *Lex Cryptographia*, a body of rules operating through self-executing smart contracts and decentralized autonomous organizations (DAOs).<sup>89</sup>

The Law of the Metaverse or *Lex Metaversi* will share many similarities with the *Lex Cryptographia*, given the decentralized nature of certain virtual platforms, but it will necessarily incorporate a series of distinct elements that respond to the specific characteristics of the metaverse.<sup>90</sup> The metaverse offers a virtual environment where users can interact and own virtual assets, going beyond the transactional focus of distributed ledger systems. Users create avatars to represent themselves within this virtual space, which contrasts with the identity tied to cryptographic keys in the blockchain.

Metaverse interactions may also include the involvement of autonomous non-human agents, which raises the question of recognizing their capacity to be subjects of rights and obligations, including the allocation of responsibility and determination of their legal status. Furthermore, as this article shows, ownership of virtual property is a key feature of the metaverse, allowing users to own and trade virtual assets like digital art, virtual currency and even virtual real estate. This ownership aspect is more expensive than the

---

<sup>80</sup> N. Jevremović, ‘Blockchain, Smart Contracts and ADR,’ [2021] Verona Summer School [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=369942210](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=369942210) accessed 10 May 2024.

<sup>81</sup> Ast (fn 79) and *Metacourt White Paper* <https://www.metacourt.gg> accessed 10 May 2024.

<sup>82</sup> Exchange, Decentralized, Bisq <https://bisq.network/> accessed 10 May 2024.

<sup>83</sup> Bitcoin Trust Platform, Bitrated <https://www.bitrated.com> accessed 10 May 2024.

<sup>84</sup> Codelegit, Datarella <http://codelegit.com> accessed 10 May 2024.

<sup>85</sup> The Just Protocol, Kleros <https://kleros.io> accessed 10 May 2024

<sup>86</sup> Dashboard, Aragon Court <https://court.aragon.org/#/dashboard> accessed 10 May 2024.

<sup>87</sup> Jur is the Blockchain for Creating New Societies, Jur, <https://jur.io> accessed 10 May 2024.

<sup>88</sup> O. Rabinovich-Einy and E. Katsch, ‘Blockchain and the Inevitability of Disputes: The Role for Online Dispute Resolution’ (2019) 2 *Journal of Dispute Resolution* 25.

<sup>89</sup> A. Wright and P. De Filippi, ‘Decentralized blockchain technology and the rise of lex cryptographia,’ [2015] <https://ssrn.com/abstract=2580664>; P. De Filippi and S. Hassan, ‘Blockchain technology as a regulatory technology: From code is law to law is code’, [2016] 21 *First Monday*, available online at: <https://doi.org/10.5210/fm.v21i12.7113> accessed 10 May 2024.

<sup>90</sup> Y. Yuan and Y. Yang, ‘Embracing the Metaverse: Mechanism and logic of a new digital economy’ [2022] 3 *Metaverse*, available at: <https://doi.org/10.54517/met.v3i2.1814> accessed 10 May 2024.



asset tokenization and smart contract functionalities seen in DLTs. All and all, the metaverse governance model reflects more complex social and financial dynamics than the financial use cases of blockchain networks.<sup>91</sup>

The *Lex Metaversi* will signify a transformative shift akin to the historical evolution of the *Lex Mercatoria*. *Lex Mercatoria* originated as a set of norms crafted by market participants to govern international commerce, circumventing medieval ecclesiastical and feudal laws and later evolving into international arbitration and customary practices post-World War II.<sup>92</sup> Similarly, participants within decentralized metaverses are likely to establish practices, customs and consensus-based principles independent of state law, aimed at remedying the inadequacies of conventional conflict resolution mechanisms and choice of law rules.

Following the precedent set by the *Lex Mercatoria* and the *Lex Cryptographia*, the *Lex Metaversi* is likely to face debate, with critics challenging its legitimacy due to its non-parliamentary origin and absence from international conventions. Opponents will argue that algorithms or economic incentives cannot replace traditional law due to their incompleteness and lack of normativity.<sup>93</sup> Similarly, others are likely to contend that the *Lex Metaversi* cannot anticipate all complexities and contingencies that may arise in transactions, nor can it fulfill the social functions designed to preserve public order, security and individual autonomy inherent in traditional legal systems.<sup>94</sup> Moreover, some critics will emphasize that metaverse governance may be influenced by platform operators and software engineers, potentially embedding ideological biases or agendas into their design.<sup>95</sup>

Despite these potential criticisms, the *Lex Metaversi* may serve a similar functional role as legal institutions. Where choice of law rules are inoperative and state regulations do not provide an adequate solution to the characteristics of virtual environments, the *Lex Metaversi* can facilitate conflict resolution by providing enforceable rules and decisions agreed upon by parties through metaverse arbitration platforms rather than state authorities.

In the current state of the *Lex Metaversi* development, state law intervention still remains crucial for addressing unforeseen circumstances such as programming errors, validity issues, taxation and external causes like insolvencies, deaths, or the illegal acquisition of cryptographic assets. Furthermore, legislative action is necessary to compensate victims

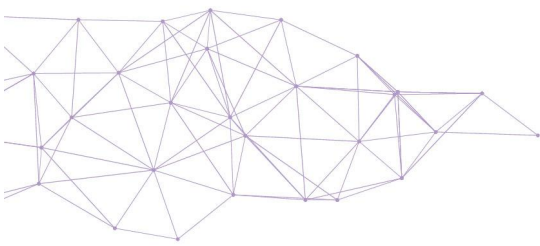
<sup>91</sup> A. Davis et al, 'Avatars, People, and Virtual Worlds: Foundations for Research in Metaverses' (2009) 10 Journal of the Association for Information Systems 1, available at: <https://doi.org/10.17705/1JAIS.00183> accessed 10 May 2024.

<sup>92</sup> J. Mustill, 'The new lex mercatoria: the first twenty-five years' (1988) 4 Arbitration International 86; B Goldman, 'Lex Mercatoria' (1983) 3 Forum Internationale 3; C Schmitthoff, 'International Business Law A New Law Merchant' in CJ Cheng (ed), *Clive M. Schmitthoff's Select Essays on International Trade Law* (Martinus Nijhoff, 1988) 20; A López Rodríguez, *Lex Mercatoria and Harmonization of Contract Law in the EU* (DJØF Publishing, Copenhagen 2003).

<sup>93</sup> S. Agnikhotram and A. Kouroutakis, 'Doctrinal challenges for the legality of smart contracts: Lex Cryptographia or a new, 'smart' way to contract?' (2019) 19 Journal of High Technology Law 300, 319.

<sup>94</sup> S. Farrell et al, 'Lost and found in smart contract translation – considerations in transitioning', [2017] <https://www.semanticscholar.org/paper/Lost-and-found-in-smart-contract-translation---in-1-Farrell-Machin/126f16d3195a0c29eaebec29925b755e85d1d9b7> accessed 10 May 2024.

<sup>95</sup> S. Hassan and P. De Filippi, 'The Expansion of Algorithmic Governance: From Code is Law to Law is Code', [2017] Field Actions Science Reports 88, 89, available at: <http://journals.openedition.org/factsreports/4518> accessed 10 May 2024.



of damages caused by these technologies.<sup>96</sup> Yet, even today, legal intervention is constrained when parties operate solely within decentralized networks, posing challenges for traditional legal frameworks to intervene effectively.

Given these challenges, policymakers cannot overlook the phenomenon of the *Lex Metaversi*. Rather than perceiving it as a competitor to traditional law, the focus should be on identifying common ground and addressing potential friction points through strategic adaptation and articulation.

The direct application of substantive rules in cross-border contexts is not new, nor does it necessarily conflict with state public policy. Unlike traditional legal settings where choice of law rules based on geographical connections guide the selection of applicable law, some existing arbitration laws and rules give arbitrators the flexibility to apply substantive rules directly, a concept known as “*voie directe*.”<sup>97</sup> This approach allows the arbitral tribunal to bypass conventional choice of law rules and apply the rules they consider appropriate to resolve disputes effectively, including non-national rules.<sup>98</sup> In the context of disputes related to virtual land, these rules could encompass, for instance, the recognition and protection of property rights in virtual assets, including virtual land and buildings; ensuring clarity and enforceability in virtual property transfers; consumer protection measures; and addressing intellectual property issues related to virtual assets, such as copyrights, trademarks and licensing agreements for virtual real estate and digital creations.

Decisions made through “*voie directe*” methods undergo state scrutiny during the stages of annulment, recognition and enforcement, where factors like the validity of the arbitration agreement, procedural legality, the capacity of the parties and arbitrators and potential conflicts with public policy are evaluated.<sup>99</sup> Similarly, off-chain recognition and enforcement of metaverse arbitration platforms can be subject to judicial scrutiny, although the application of the 1958 New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards to these decisions is not clear.<sup>100</sup> In any event, off-chain enforcement raises significant concerns regarding pseudonymity and the jurisdictional question of where recognition and enforcement proceedings for transactions conducted in a metaverse should be initiated.<sup>101</sup> In scenarios where interactions take place exclusively within the metaverse, with no known off-chain contact

---

<sup>96</sup> See, in this regard, the Proposal for a Regulation of the European Parliament and of the Council Laying Down Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act) and Amending Certain Union Legislative Acts, COM(2021)206 final.

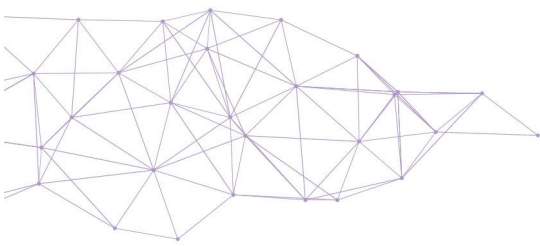
<sup>97</sup> D. Jones, ‘Chapter 18: The Substantive Rights of Parties in Arbitration: *Voie Directe* and *Voie Indirecte*’ in N. Kaplan and M. Moser (eds), *Jurisdiction, Admissibility and Choice of Law in International Arbitration: Liber Amicorum Michael Pryles* (Kluwer Law International, Alphen aan den Rijn 2018) 303.

<sup>98</sup> See, in this regard, Art 1511 French Code of Civil Procedure; Art 34 Spanish Arbitration Act; Art 28 United Nations Commission of International Trade Law (‘UNCITRAL’) Model Law on International Commercial Arbitration 1985 (as amended in 2006); Art 21 International Chamber of Commerce Rules of Arbitration 2012 (‘ICC Rules’); Art 35(1) UNCITRAL Arbitration Rules 2010; Art 28(1) American Arbitration Association (‘AAA’) 2009 Rules; Art 59(a) World Intellectual Property Organization (‘WIPO’) 2002 Arbitration Rules; r27 Singapore International Arbitration Centre (‘SIAC’) 2013 Rules; Art 22.3 London Court of International Arbitration (‘LCIA’) Arbitration Rules (1998); Art 34 Australian Centre for International Commercial Arbitration (‘ACICA’) Arbitration Rules (2011); Art 22(1) Arbitration Rules of the Stockholm Chamber of Commerce (2010); Art 27(2) Vienna International Arbitral Centre Rules of Arbitration (2013).

<sup>99</sup> A. López Rodríguez, ‘New Arbitration Acts in Denmark and Spain. The Application of Transnational Rules to the Merits of the Dispute’ (2006) 23 *Journal of International Arbitration* 125.

<sup>100</sup> A. López Rodríguez (fn 58) 338.

<sup>101</sup> L. Azaria, ‘Digital Economy / Expanded Applications of DLT: Metaverses’ (2022) CODIFI Conference.



and no means to locate the parties or their assets in the physical world, enforcement of metaverse arbitration decisions is facilitated by self-execution through escrow accounts.<sup>102</sup> This underscores the importance of ensuring the legality and respect for consumer rights, competition etc.

It can be deduced, accordingly, that the identification of the substantive rules applicable to metaverse disputes is critical in ensuring the enforceability and legitimacy of arbitration decisions, especially in decentralized systems characterized by pseudonymous parties and transactions conducted beyond traditional territorial boundaries. Stakeholders must navigate these complexities by adopting innovative approaches to dispute resolution that align with the decentralized nature of blockchain networks and virtual environments. Initiatives like the *ELI Principles on Blockchain Technology, Smart Contracts, and Consumer Protection*, the *ELI Principles on the Use of Digital Assets as Security*<sup>103</sup> or the *UNIDROIT Principles on Digital Assets and Private Law*<sup>104</sup> can inspire the adoption of principles and rules in virtual property law, providing guidance and model provisions applicable to transactions within the metaverse. This is particularly relevant as the regulation of real estate property is not solely dependent on the autonomy of the parties but also includes mandatory rules and publicity requirements vis-à-vis third parties. Three decades ago, UNIDROIT adopted the Principles of International Commercial Contracts,<sup>105</sup> which were developed through private initiative and subsequently widely used in numerous instances of international arbitration.<sup>106</sup> They have been recognized as sources of the *Lex Mercatoria*.<sup>107</sup> Similarly, the adoption of principles concerning virtual property can gain significant backing over time, ultimately elevating this initiative to the status of a source of the *Lex Metaversi*.

## 6. Conclusions

To fully realize the potential of the metaverse, policymakers and stakeholders must develop regulatory frameworks that transcend traditional geographical boundaries.

---

<sup>102</sup> <https://docs.kleros.io/products/escrow/new-in-progress-kleros-escrow-tutorial> accessed 10 May 2024.

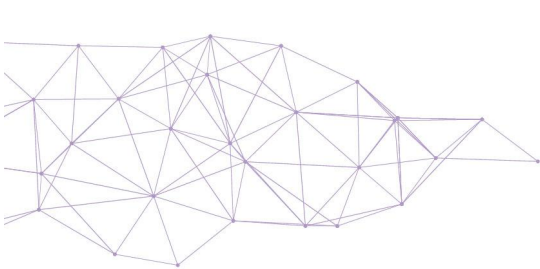
<sup>103</sup> European Law Institute, *ELI Principles on Blockchain Technology, Smart Contracts, and Consumer Protection* (ELI, Vienna 2023) available at: [https://www.europeanlawinstitute.eu/fileadmin/user\\_upload/p\\_eli/Publications/ELI\\_Principles\\_on\\_Blockchain\\_Technology\\_Smart\\_Contracts\\_and\\_Consumer\\_Protection.pdf](https://www.europeanlawinstitute.eu/fileadmin/user_upload/p_eli/Publications/ELI_Principles_on_Blockchain_Technology_Smart_Contracts_and_Consumer_Protection.pdf) accessed 10 May 2024; European Law Institute, *ELI Principles on the Use of Digital Assets as Security* (ELI, Vienna 2022) available at: [https://www.europeanlawinstitute.eu/fileadmin/user\\_upload/p\\_eli/Publications/ELI\\_Principles\\_on\\_the\\_Use\\_of\\_Digital\\_Assets\\_as\\_Security.pdf](https://www.europeanlawinstitute.eu/fileadmin/user_upload/p_eli/Publications/ELI_Principles_on_the_Use_of_Digital_Assets_as_Security.pdf) accessed 10 May 2024.

<sup>104</sup> UNIDROIT, *Principles on Digital Assets and Private Law* (UNIDROIT, Rome 2023) available at: <https://www.unidroit.org/wp-content/uploads/2024/01/Principles-on-Digital-Assets-and-Private-Law-linked.pdf> accessed 10 May 2024.

<sup>105</sup> UNIDROIT, *Principles of International Commercial Contracts* (UNIDROIT, Rome 1994), with enlarged editions published in 2004, 2010, and most recently in 2016.

<sup>106</sup> <https://unilex.info/instrument/principles> accessed 10 May 2024; F. Marrella and F. Gélinas, 'The UNIDROIT Principles of International Commercial Contracts in ICC arbitration: A preliminary assessment [including extracts from ICC awards referring to the UNIDROIT Principles of International Commercial Contracts and a bibliography]' (1999) 2 *International Court of Arbitration Bulletin* 26.

<sup>107</sup> A. Hartkamp, 'The Use of the UNIDROIT Principles of International Commercial Contracts by National and Supranational Courts' in *UNIDROIT Principles for International Commercial Contracts: A New Lex Mercatoria?* (ICC Publication n. 490/1, 1995) 253; A. López Rodríguez, 'Las compilaciones orgánicas de principios generales del derecho de los contratos y su naturaleza jurídica' in A. Calvo Caravaca and J. Oviedo Albán, *Nueva lex mercatoria y contratos internacionales* (Ibáñez, Bogotá 2006).



Choice of law rules that rely on geographical connecting factors or the identity of the parties are ill-suited for virtual, decentralized environments. As demonstrated by this article, the problem is particularly evident in relation to virtual land, where connecting factors such as the location of the immovable property or the habitual residence of the parties are not very effective.

This article has proposed considering virtual land either as real estate or as a category similar to real estate. Additionally, it has recommended resolving metaverse conflicts using the “voie directe” approach. “Voie directe” in arbitration refers to a method where arbitrators directly apply substantive rules they consider appropriate to resolve a dispute, rather than relying on traditional choice of law rules. This approach would allow decision makers to solve metaverse disputes without the need to determine the applicable law based on connecting factors or choice of law principles.

Identifying applicable substantive rules for metaverse disputes is crucial and initiatives driven by organizations like the ELI and UNIDROIT may serve as sources of inspiration for developing future virtual property law in the metaverse. The *UNIDROIT Principles of International Commercial Contracts* were developed through private initiative and have been widely used in numerous instances of international arbitration. These principles have been recognized as sources of the *Lex Mercatoria*. Similarly, the adoption of principles concerning virtual property may gain significant support over time, ultimately elevating this initiative to the status of a source of the *Lex Metaversi*.

Establishing a well-suited and clear framework for virtual land is paramount. Such a framework should provide essential guidance and legal certainty, crucial for fostering trust and facilitating transactions within the metaverse. Clarity in legal principles, property rights, dispute resolution mechanisms and consumer protection is vital to promote investment, innovation and sustainable growth in these emerging virtual platforms. It will not only ensure the protection of stakeholders’ interests, but it will also contribute to the broader development and integration of virtual economies into the global legal landscape.

Policymakers, legal scholars and industry stakeholders must collaborate to develop robust legal frameworks tailored to the unique characteristics and challenges posed by virtual real estate and related activities. This effort will support the responsible and equitable expansion of the metaverse while safeguarding the interests and rights of all participants involved.





## Bibliography

Akkermans, B., and E. Ramaekers. 'Lex rei sitae in perspective: National Developments of a common rule?' (2012) 2012/14 Maastricht University Private Law Institute Working Paper 2.

Amirulloh, MFN et al. 'Know More Metaverse as the Technology of the Future', [2022] International Journal of Research and Applied Technology <https://doi.org/10.34010/injuratech.v2i1.6915>.

Bartle, R. Designing Virtual Worlds (New Riders Publishing, Hoboken NJ 2003).

Bartle, R. 'Hearts, Clubs, Diamonds, Spades: Players Who Suit MUDs' (1996) 1 The Journal of Virtual Environments 123.

Bartle, R. 'Virtual Realities: A Brief Look at MUD1 and MUD2' (1994) Proceedings of the Virtual Worlds Conference 45.

Bibri, S., and A. Zaheer. 'The Metaverse as a Virtual Form of Data-Driven Smart Urbanism: On Post-Pandemic Governance through the Prism of the Logic of Surveillance Capitalism' (2022) 5 Smart Cities 715.

CFTE, Real Estate in The Metaverse. Analysis of Land Prices in The Sandbox (Center for Finance, Technology and Entrepreneurship, 2022) 16, available at: [https://courses.cfte.education/wp-content/uploads/2022/01/Metaverse\\_Real\\_Estate\\_Market\\_CFTE\\_Report\\_2022.pdf](https://courses.cfte.education/wp-content/uploads/2022/01/Metaverse_Real_Estate_Market_CFTE_Report_2022.pdf).

Cifrino, C. 'Virtual Property, Virtual Rights: Why Contract Law, Not Property Law, Must Be the Governing Paradigm in the Law of Virtual Worlds,' (2014) 55 Boston College Law Review 235.

Davydova, I. et al, 'Legal nature and inheritance of virtual property in Ukraine and the world: current status, problems, prospects', (2021) 10 Revista de Derecho 1.

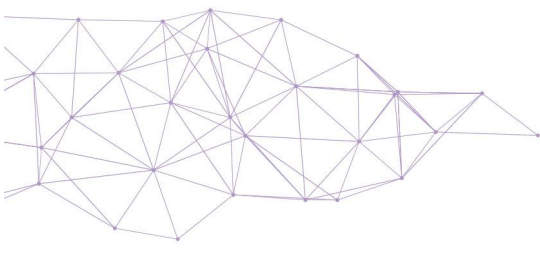
Dibbell, J. 'The Unreal Estate Boom', [2003] Wired <https://www.wired.com/2003/01/gaming-2/>

Duggal, A. et al, 'Significance of NFT Avatars in Metaverse and their Promotion: Case Study', [2023] Scientific Journal of Metaverse and Blockchain Technologies, <https://doi.org/10.36676/sjmbt.v1i1.04>.

Erlank, W. 'The Legal Acceptance of Virtual Property?', [2010] SSRN <https://doi.org/10.2139/SSRN.1591384>.

Fairfield, J. 'Property as the law of virtual things', [2022] 7 Frontiers in Research Metrics and Analytics 981964, available at: <https://doi.org/10.3389/frma.2022.981964>.





Fairfield, J. 'Tokenized: The Law of Non-Fungible Tokens and Unique Digital Property' (2021) 97 Indiana Law Journal 1261.

Finn, S. 'The Metaverse: Exploring The Wave Of Virtual Real Estate', [2022] Forbes <https://www.forbes.com/sites/forbesbusinesscouncil/2022/06/10/the-metaverse-exploring-the-wave-of-virtual-real-estate>.

Goldberg, M. PK Mitchell and F. Schär, "Land valuation in the metaverse: Location matters", [2021] available at SSRN 3932189.

Graglia, M., and C. Mellon. 'Blockchain and Property In 2018. At the End of the Beginning' (2018) 12 Innovations 90, available at: [https://doi.org/10.1162/innov\\_a\\_00270](https://doi.org/10.1162/innov_a_00270).

Guidi, B., and A. Michienzi. 'The social impact of NFTs in the metaverse economy,' [2023] Proceedings of the 2023 ACM Conference on Information Technology for Social Good, <https://doi.org/10.1145/3582515.3609564>.

Hiken, A. 'Why Brands Are Buying Land in the Metaverse; Marketers Are Eager to Explore the Profit Potential in Virtual Real Estate' (2022) 93 Advertising Age 1.

Hunter, D. 'The Oxford Handbook of Virtuality' (Oxford University Press, Oxford 2014).

Kahneman, D., J. Knetsch, and R. Thaler. 'Experimental Tests of the Endowment Effect and the Coase Theorem' (1990) 98 Journal of Political Economy 1325.

Kraus, D., et al (eds), Blockchain and Private International Law (Edward Elgar, Cheltenham 2022).

Kraus, D., et al (eds), Blockchains, Smart Contracts, Decentralised Autonomous Organisations and the Law (Edward Elgar, Cheltenham 2019).

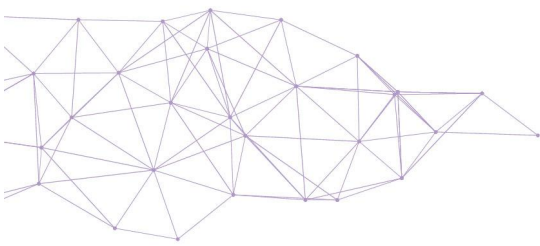
Lastowka, G., and D. Hunter. 'The Laws of the Virtual Worlds' (2004) 92 California Law Review 1.

Lehmann, M. 'How to determine the law applicable to crypto assets?', [2021] Blog, The European Association of Private International Law Eapil <https://eapil.org/2021/04/02/how-to-determine-the-law-applicable-to-crypto-assets>.

López Rodríguez, A. 'Competencia Judicial Internacional en Controversias Relativas a Tokens No Fungibles (NFT)' (2022) 74 Revista Española de Derecho Internacional 299, 304.

López Rodríguez, A. 'Inmuebles virtuales y perspectivas innovadoras de resolución de conflictos en el metaverso' (2024) 16 Cuadernos de derecho transnacional 319, available at: <https://e-revistas.uc3m.es/index.php/CDT/article/view/8426>.

Martínez Velencoso, L. et al (eds), Transfer of Immovables in European Private Law (Cambridge University Press, Cambridge 2017).



Mourtzis, D. et al., 'Human centric platforms for personalized value creation in metaverse' (2022) 65 Journal of Manufacturing Systems 653.

Mystakidis, S. 'Metaverse' (2022) Encyclopedia 2.1 486.

Nakamoto, S. 'Bitcoin Open Source Implementation of P2P Currency', [2009] P2P Foundation <https://p2pfoundation.ning.com/forum/topics/bitcoin-open-source> accessed.

Nekit, K. 'Legal Nature and Types of Digital Assets in the Activities of Technology-Oriented Startups' (2023) 13 Juridical Tribune 304, available at <https://doi.org/10.24818/TBJ/2023/13/2.08> accessed 9 May 2024.

Park, K. The Study on IPR Issues Surrounding Uses of NFTs in Metaverse (Law Research Institute Chungbuk National University, Korea 2022) <https://doi.org/10.34267/cbstl.2022.13.2.83>.

Quadrini, M. 'Caveat Cloudster: Why Traditional Common and Civil Property Law Should Apply to Virtual Property and How It Will Change the Legal Realities of the Internet' (2015) 24 Dalhousie Journal of Legal Studies 55.



MetaverseUA  
Chair



Universitat d'Alacant  
Universidad de Alicante

