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Research Article

JUDICIAL EFFICIENCY IN THE ERA OF DIGITAL ASSETS: PERSPECTIVES ON SMART TECHNOLOGIES

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ABSTRACT

Background: *The expansion of digital assets increasingly challenges the effectiveness of judicial protection mechanisms traditionally designed for tangible goods. Cryptocurrencies, smart technologies, and digitally controlled environments disrupt established notions of possession, enforcement and interim relief.*

Method: *The research employs a doctrinal and comparative legal methodology, focusing on selected jurisdictions (Germany, Greece, and the United Kingdom), alongside relevant EU law. It examines how these systems conceptualise possession, regulate interim judicial protection, and address digital control in technologically mediated environments.*

Results and Conclusions: *The analysis demonstrates that traditional possessory protection offers a useful but only partially adaptable framework for digital assets. While common law jurisdictions show greater flexibility in recognising cryptocurrencies and NFTs as property subject to interim protection, civil law systems remain more constrained by the requirement of tangibility. However, all examined systems increasingly rely on functional equivalents of possession, particularly through access-based control.*

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The article argues that effective judicial protection of digital assets requires a reconceptualisation of possession as control over access rather than physical detention. Interim judicial measures can provide adequate protection, provided that courts are willing to intervene through orders directed at intermediaries and technological infrastructures. The study concludes that future doctrinal development and legislative clarification at the EU level are necessary to ensure legal certainty and cross-border effectiveness in digital asset disputes.

1 INTRODUCTION

Property law has traditionally been grounded in the protection of tangible possessions, with the Germanic concept of possessorische Besitzschutz[1] providing a robust legal mechanism to safeguard possession against unlawful interference. Yet, the rapid expansion of digital technologies, including cloud computing, blockchain-based assets, and the metaverse, challenges classical notions of possession. Digital assets such as non-fungible tokens (NFTs), cryptocurrencies, and virtual real estate defy physicality, are often controlled through cryptographic keys, and can be transferred instantly across borders.

This transformation raises a central legal question: can traditional mechanisms of interim judicial protection effectively safeguard digital possession? More specifically, should possession be reconceptualised as a form of access-based factual control in order to remain functionally relevant in the digital era?

To address these questions, this article adopts a doctrinal and structured comparative approach. It focuses on selected jurisdictions representing both civil law and common law traditions, namely Germany, Greece, and the United Kingdom, while also incorporating relevant developments at the level of European Union law. These jurisdictions have been selected due to their doctrinal significance, the availability of case law on digital assets, and their differing approaches to possession and interim protection.

The comparative analysis is structured around three core dimensions: (i) the concept of possession, (ii) the availability and function of interim judicial measures, and (iii) the treatment of digital assets and access-based control. By examining how these elements interact in different legal systems, the article seeks to identify both structural limitations and emerging doctrinal adaptations.

The article proceeds as follows. Section 2 outlines the methodological framework and explains the comparative approach adopted. Section 3.1. analyses the concept of possession in the context of digital assets, highlighting the shift from physical control to access-based control. Section 3.2. examines the role of interim judicial protection across the selected jurisdictions, with particular emphasis on its adaptability to digital disputes. Section 3.3. explores the boundaries between judicial protection and technological self-

1 The German concept of "*possessorischer Besitzschutz*", referring to possessory protection of possession.

help. Section 3.4. provides a comparative synthesis and evaluates cross-border enforcement issues. Finally, Section 4 presents the conclusions concerning the future development of civil procedural law in the digital era.

2 METHODOLOGY

This research follows a doctrinal, comparative, and functional methodological approach, focusing on the operation of possessory protection and interim judicial measures within contemporary civil procedural law. Instead of referring broadly to multiple jurisdictions, the analysis focuses on three legal systems, Germany, Greece and the United Kingdom, which represent distinct doctrinal traditions, whereas the United Kingdom reflects a more flexible common law approach, particularly in recognising digital assets as property. The comparison is based on specific criteria: i) the legal concept of possession, ii) the availability and scope of interim measures, iii) the treatment of digital assets within existing legal categories, and iv) the role of courts in addressing technologically mediated forms of control. This doctrinal analysis aims to identify the structural assumptions underlying traditional concepts of possession and to assess their suitability for digitally mediated forms of control.

In parallel, the study undertakes a case-law analysis at both national and supranational levels. Judicial decisions of the Court of Justice of the European Union and the European Court of Human Rights are examined alongside selected judgments from national courts and common law jurisdictions. This jurisprudential analysis illustrates how courts conceptualise possession, self-help, and interim protection in the context of digital assets, smart technologies, and remote-control mechanisms. The comparative dimension of the methodology consists of juxtaposing traditional possessory remedies with legal responses to digital assets, smart objects, and platform-based environments.

Finally, the study adopts a functional and normative perspective to evaluate whether existing procedural instruments, particularly interim measures, can provide effective and timely protection in cross-border and digital contexts. This assessment informs the article's conclusions on the adaptability of civil procedural law and the conditions under which interim judicial protection may evolve to address contemporary technological developments.

3 RESULTS AND DISCUSSION WITH ANALYSIS OF LEGAL ISSUES

3.1. Possession of Digital Objects

The concept of possession in relation to tangible goods has always been fundamental in legal thought, with its earliest records dating back to the Stone Age, when humanity defined its

identity through the ownership of objects.[2] In this early phase of legal development, possession was a pre-legal condition, preceding the institutionalised regulatory framework of ownership. The protection of possession (and later, ownership) has consistently been part of legal history, and specifically codified in the Roman *interdicta*.

It is notable that, despite the recognition of possession as an institution across all European legal systems,[3] fundamental differences are observed between the traditions of civil law and common law. At the core of these differences, systems distinguish between actions for the protection of ownership (petitory actions) and actions for the protection of possession (possessory actions), and ultimately provide measures for both definitive and interim judicial protection, such as interim measures for possession or ownership.

The notion of physical possession (*possessio naturalis*), following the *res corporales* of Roman law, is deeply rooted in legal theory and pertains primarily to tangible goods, notably real property and movable items. In civil law countries, objects are traditionally understood to be solely tangible items,[4] i.e., corporeal things capable of human control.

Similarly, in the common law tradition, in the famous case *Colonial Bank v Whinney* (1885), the principle was established that all personal or movable property could be categorised into one of two states: a) in possession, or b) in action, with the famous phrase:

All personal things are either in possession or in action. The law knows no tertium quid between the two.[5]

This rigid dichotomy, however, has increasingly come under pressure in the context of efforts to develop a more coherent and harmonised European approach to property law,

2 Riccarda Feldman, *Der possessorische Besitzschutz und sein Verhältnis zum petitorischen Recht: Eine materiellrechtliche und zivilprozessuale Betrachtung* (Mohr Siebeck 2020) 1. See also, Michele Graziadei and Lionel Smith (eds), *Comparative Property Law: Global Perspectives* (Edward Elgar 2017) 3; Konstantinos Papachristou-Dimitras, 'Cadastral Systems and the Registration of Immovable Property in the European Legal Order: The Perspective of a Model European Cadastre' in Aristotle University of Thessaloniki, *Comparative Cadastral Law* (Sakkoulas 2021) 871 [in Greek].

3 Therese Müller, *Besitzschutz in Europa: Eine rechtsvergleichende Untersuchung über den zivilrechtlichen Schutz der tatsächlichen Sachherrschaft* (Mohr Siebeck 2010) doi:10.1628/978-3-16-167477-8.

4 See, for example, Greek Civil Code 'Αστικός Κώδικας' (adopted 24 October 1984, amended 27 February 2026) art 947 <https://www.kodiko.gr/nomothesia/document/437467/p.d.-456-1984> accessed 28 February 2026; German Civil Code 'Bürgerliches Gesetzbuch' (BGB) (effective 1 January 1900, amended 10 August 2021) § 90 <https://www.gesetze-im-internet.de/englisch_bgb/index.html> accessed 15 January 2026; French Civil Code 'Code Civil' (effective 21 March 1804, amended 1 January 2026) art 516 <https://www.legifrance.gouv.fr/codes/texte_lc/LEGITEXT000006070721/> accessed 15 January 2026. See also Mario Martini and Jonas Botta, 'Der Staat und das Metaversum' (2023) 26 MMR: Zeitschrift für IT-Recht und Recht der Digitalisierung 890.

5 This category refers to rights involving claims against others, such as for the return of a chattel or the payment of a debt. A debt or money claim may constitute a right *in action*, where the holder has no immediate possession but must seek judicial enforcement.

particularly in light of emerging forms of intangible and digital assets.[6] A noteworthy attempt in this direction is reflected in the *Draft Common Frame of Reference* (DCFR), Book VIII, on acquisition and loss of ownership of goods (Chapter 6),[7] which, however, never acquired binding legal force. The initial intent was to offer a model legal system for Member States, which could be adopted voluntarily or serve as a foundation for reforms in national legal orders. Despite these early efforts, harmonisation in the field of possession has remained limited.

Apart from the above, in the context of the digital revolution, serious issues arise, such as whether access codes to social media accounts (often professional and lucrative), emails, banking details, cryptocurrencies, and other digital contents (e.g., books, music, videos) can be considered objects in the sense of civil law, and whether they fit into one of the two categories of property recognized in common law systems.[8] This question arises because, in this new environment, physical contact with the goods is no longer a necessary. In this respect, the jurisprudence of the ECtHR may offer a broader functional understanding of "possessions", which is particularly relevant in the context of intangible and digital assets. At the supranational level, Article 1 of Protocol No. 1 to the European Convention on Human Rights already provides that:

Everyone has the right to own property and to enjoy its possessions.[9]

This provision declares the right of every natural or legal person to the peaceful enjoyment of their possessions (biens, in the French version). As the United Kingdom's representative noted during the drafting of the ECHR, the term "possessions" was unfamiliar in the English legal language. Nonetheless, it was adopted to mirror the meaning of the French term bien. Despite the somewhat vague formulation of the provision, the ECtHR[10] has made it clear that:

By recognising that everyone has the right to the peaceful enjoyment of their possessions, Article 1 essentially guarantees the right to property.

6 Feldman (n 2) 233; Eveline Ramaekers, *European Union Property Law: From Fragments to a System* (Intersentia 2013) 1.

7 Study Group on a European Civil Code, *Draft Common Frame of Reference (DCFR)* (Sellier 2009). See also, Müller (n 3) 202.

8 Nicolas Philip Sander, *Besitz(schutz) smarter Sachen* (Mohr Siebeck 2024) 4, doi:10.1628/978-3-16-163922-7. Vividly describes this legal uncertainty as a "digitalen Wilden Westens" ['digital Wild West'].

9 Council of Europe, *European Convention on Human Rights*: *as amended by Protocols Nos 11, 14 and 15; supplemented by Protocols Nos 1, 4, 6, 7, 12, 13 and 16* (ECtHR 2013).

10 *Marckx v Belgium* App no 6833/74 (ECtHR, 13 June 1979) para 63 <https://hudoc.echr.coe.int/fre?i=001-57534> accessed 15 January 2026; *Beyeler v Italy* App no 33202/96 (ECtHR, 5 January 2000) para 100 <https://hudoc.echr.coe.int/eng?i=001-58832> accessed 15 January 2026; *Fabris v France* App no 16574/08 (ECtHR, 7 February 2013) para 50 <https://hudoc.echr.coe.int/eng?i=001-116716> accessed 15 January 2026.

Thus, the ECtHR, by adopting a broad,[11] autonomous interpretation of the concept, has held that "possessions" include all forms of economic interests, whether present or future. These encompass, inter alia, claims sufficiently established under domestic law,[12] shares and other financial and business-related assets,[13] commercial licences,[14] intellectual property rights,[15] and more.

These dilemmas are likely to engage both domestic and foreign jurisprudence in the years to come. Legal theories on possession and detention are called upon to undergo substantial re-evaluation and reform to accommodate contemporary developments, as is already underway in both common law and civil law jurisdictions.

In this context, the scientific discourse surrounding the concept of "property" is being reignited at the international level, potentially inaugurating a new form of "digital possession and ownership", which would relate to the concept of possessing or controlling digital goods or data (*digitalen Besitz*, also "*Besitz an Daten*[16]").[17] New legislative initiatives are on the horizon to incorporate modern digital assets and rights. Already, in EU law, Directives 2019/770,[18] concerning certain aspects of contracts for the supply of digital content and digital services, and 2019/771,[19] regarding contracts for the sale of goods, have led to significant modifications in sales law. This is due to the Civil Code's

11 *Gasus Dosier- und Fördertechnik GmbH v Netherlands* App no 15375/89 (ECtHR, 23 February 1995) para 53 <https://hudoc.echr.coe.int/eng?i=001-57918> accessed 15 January 2026.

12 *Radomilja and Others v Croatia,* App nos 37685/10 and 22768/12 (ECtHR, 20 March 2018) para 142 <https://hudoc.echr.coe.int/fre?i=001-181591> accessed 15 January 2026; *Grbac v Croatia,* App no 64795/19 (ECtHR, 16 December 2021) para 86 <https://hudoc.echr.coe.int/fre?i=001-214019> accessed 15 January 2026.

13 *Mamatas and Others v Greece* App nos 63066/14, 64297/14 and 66106/14 (ECtHR, 21 July 2016) para 90 <https://hudoc.echr.coe.int/eng?i=001-164969> accessed 15 January 2026; *Pannon Plakát Kft v Hungary* App no 39859/14 (ECtHR, 6 December 2022) paras 42, 44 <https://hudoc.echr.coe.int/eng?i=001-221253> accessed 15 January 2026; *Sebeleva and Others v Russia* App no 42416/18 (ECtHR, 1 March 2022) para 39 <https://hudoc.echr.coe.int/eng?i=001-216223> accessed 15 January 2026.

14 *Malik v United Kingdom* App no 23780/08 (ECtHR, 13 March 2012) para 90 <https://hudoc.echr.coe.int/fre?i=001-109541> accessed 15 January 2026; *Vékony v Hungary* App no 65681/13 (ECtHR, 13 January 2015) para 29 <https://hudoc.echr.coe.int/eng?i=001-149201> accessed 15 January 2026; *NIT S.R.L. v Moldova* App no 28470/12 (ECtHR, 5 April 2022) para 235 <https://hudoc.echr.coe.int/eng?i=001-216872> accessed 15 January 2026.

15 *Anheuser-Busch Inc v Portugal,* App no 73049/01 (ECtHR, 11 January 2007) para 72 <https://hudoc.echr.coe.int/eng?i=001-78981> accessed 15 January 2026.

16 Contra the notion of 'Eigentum an Daten' see, Sander (n 8) 7.

17 ibid. See also Fabian Michl, '"Datenbesitz" – ein grundrechtliches Schutzgut?' (2019) *38 Neue Juristische Wochenschrift* 2729; Tomas Hoeren, 'Datenbesitz statt Dateneigentum' (2019) 1 *MMR*: Zeitschrift für IT-Recht und Recht der Digitalisierung 5.

18 Directive (EU) 2019/770 of the European Parliament and of the Council of 20 May 2019 on Certain Aspects Concerning Contracts for the Supply of Digital Content and Digital Services [2019] OJ L 136/1.

19 Directive (EU) 2019/771 of the European Parliament and of the Council of 20 May 2019 on certain Aspects Concerning Contracts for the Sale of Goods, amending Regulation (EU) 2017/2394 and Directive 2009/22/EC, and repealing Directive 1999/44/EC [2019] OJ L 136/28.

frequent failure to equate intangible goods with tangible property, thereby creating a legal hybrid akin to the forces of nature.

The distinction between intangible intellectual property (e.g., a digital image) and the physical medium that conveys it into the realm of the senses results in two parallel levels of protection: one for the work as an intangible asset and the other for the material unit that embodies it.[20] In fact, legal relations concerning the material medium are primarily governed by civil law provisions, while relations concerning the work as an intangible asset are governed by intellectual property law. The protection of the intangible work continues to exist, regardless of whether the (potential) material medium changes.[21] In an era where we transition from the delivery of a specific storage medium (e.g., CD or USB) to a non-material transfer via downloading (e.g., via iCloud), Apple customers do not possess the data medium from which ownership of images or videos could arise. Thus, the creation of an NFT through programming does not provide the developer with ownership in the traditional sense of property law, but rather, with the help of a private key, the tokens can be technically controlled, though they are not physically tangible.[22]

A further challenge is posed by the new digital world of *Metaverse Real Estate*, where users can interact, create, and own virtual goods and property.[23] The purchase of property in the metaverse represents a new form of investment and business activity, significantly different from traditional real estate, as understood under the Civil Code. Virtual property ownership is primarily confirmed through blockchain technology[24] and NFTs, which essentially serve as proof of ownership, acting as a "digital identity" and falling within the category of intangible assets. Therefore, if one holds the NFT (i.e., has access to it), one is considered to also own the virtual property. However, the question remains unresolved as to whether possession of a token supported by assets equates to actual

20 Case C-263/18 *Nederlands Uitgeversverbond and Groep Algemene Uitgevers v Tom Kabinet Internet BV and Others* (CJEU, 19 December 2019) <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:62018CJ0263> accessed 15 January 2026.

21 Case C-419/13 *Art & Allposters International BV v Stichting Pictoright* (CJEU, 22 January 2015) <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:62013CJ0419> accessed 15 January 2026.

22 Lisa Marleen Guntermann, 'Non-Fungible Token als Herausforderung für das Sachenrecht' (2022) 19 Recht Digital 204.

23 Matthew Ball, 'The Metaverse: What It Is, Where to Find It, and Who Will Build It' (*Epyllion*, 13 January 2020) <https://www.matthewball.vc/all/themetaverse> accessed 15 January 2026; Kimon Saitakis, 'Legal Challenges Stemming from Investing in Metaverse Real Estate' in *Investing in Digital Assets: The EU Law Approach,* vol 1 (Sakkoulas 2024) 47; Henrike Strobl, 'Virtuelle Welten, reale Rechte: Die Durchsetzung des Urheberrechts' (2023) 7 *Zeitschrift für Urheber- und Medienrecht* 492.

24 Evelyse Carvalho Ribas, 'NFTs – Digital Certificate, License of Use, Ownership' (*Artlaw.club*, 18 October 2021) <https://artlaw.club/en/artlaw/nfts-digital-certificate-license-of-use-ownership-1> accessed 15 January 2026; Wanja Johannes Kleiber, 'NFT – eine Einordnung' (2022) 4 *MMR*: Zeitschrift für IT-Recht und Recht der Digitalisierung 445; Thomas Hoeren and Wolfgang Prinz, 'Das Kunstwerk im Zeitalter der technischen Reproduzierbarkeit – NFTs (Non-Fungible Tokens) in rechtlicher Hinsicht' (2021) 8 *Computer und Recht* 565; Saitakis (n 23) 58.

ownership of the virtual property, or merely represents a license granted by the corresponding metaverse platform. In this case, the contractual (rather than proprietary) nature of the right appears to prevail,[25] even though the very concept of virtual land is designed to provide the holder of virtual land with a role similar to that of an owner.[26] These developments demonstrate that traditional concepts of possession, grounded in physical control, are increasingly inadequate in the digital environment, thereby necessitating a functional reconceptualisation of possession as control over access.

3.2. Interim Protection of Possession and Provisional Regulation of Status

In this context, it appears that interim measures for the protection of possession or detention have limited application to purely intangible goods. Instead, alternative legal mechanisms may prove more suitable, such as those found in intellectual property law. Moreover, digital files containing clients' personal data are protected under the General Data Protection Regulation (GDPR).[27] In the event of a breach of such data, severe sanctions may be imposed under the regulatory framework.

Nevertheless, the concept of possession, when adapted to the peculiarities of intangible goods, could potentially encompass the exercise of a form of control over the good analogous to physical control (*corpus possessionis*); this control, when exercised with the *animus domini*, establishes a legal condition equivalent to traditional possession. It is noteworthy that in *AA v Persons Unknown*,[28] the High Court of England and Wales issued an interim proprietary injunction to safeguard cryptocurrencies. The court specifically recognised that cryptocurrencies (in this case, Bitcoin) possess characteristics that justify their treatment as property,[29] in accordance with the common law criteria. This

25 Saitakis (n 23) 56.

26 See, Gita Radhakrishna, 'Legal Issues with Real Estate in the Metaverse' (International Conference on Law and Digitalization *ICLD* 2022) 77, doi:10.2991/978-2-494069-59-6_7; Fabian Reinholz, '*Metaverse und Recht: Das Recht des Metaverse – ein Überblick*' (2023) 16-17 *Gewerblicher Rechtsschutz und Urheberrecht in der Praxis* 479; Saitakis (n 23) 56.

27 Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the Protection of Natural Persons with Regard to the Processing of Personal Data and on the Free Movement of Such Data, and repealing Directive 95/46/EC (General Data Protection Regulation) [2016] OJ L 119/1.

28 *AA v Persons Unknown* [2019] EWHC 3556 (Comm); *Tulip Trading Ltd v Van Der Laan* [2023] EWHC 83 (Ch); Amy Castor, 'UK's High Court Ruling on NFTs as "Property" Has Been Called a Landmark—But It May Not Actually Change Much' (*Artnet*, 4 May 2022) <https://news.artnet.com/market/uk-high-recognizes-nfts-as-property-2108605> accessed 15 January 2026.

29 British professor Goode argues that cryptocurrencies have "realised commercial value". See, Roy Goode, '*What is Property?*' (2023) 139 Law Quarterly Review 1, doi:10.3316/agispt.20230116081971. See also, Kelvin FK Low and Ernie GS Teo, 'Bitcoins and Other Cryptocurrencies as Property?' (2017) 9(2) *Law, Innovation and Technology* 235, doi:10.1080/17579961.2017.1377915; David Fox and Sarah Green (eds), *Cryptocurrencies in Public and Private Law* (OUP 2019) 139, doi:10.1093/law/9780198826385.001.0001; Jiabin Lai, 'Possession of Cryptoassets' (2023) 1 Journal of Business Law 41,

recognition enabled the granting of interim injunctions to prevent the further transfer or dissipation of the assets.

Following this reasoning, the case of Ozone Networks Inc trading as OpenSea [2022] EWHC 1021,[30] reaffirmed the tendency of the common law judiciary to adapt to emerging technologies and digital property. The court accepted that NFTs (Non-Fungible Tokens) may also be regarded as property, and consequently approved the issuance of an interim injunction preventing their further transfer or disposal by a third party. More specifically, it was accepted that courts may issue *freezing orders* to "freeze" unlawfully transferred cryptocurrencies or NFTs, thereby ensuring the preservation of such digital assets during pending litigation.

In line with this judicial evolution, the New Bill to Clarify Crypto's Legal Status was introduced before the UK Parliament in September 2024,[31] upon the recommendation of the UK Law Commission. The Bill aims to clarify the legal classification of cryptocurrencies and other digital assets by establishing a third category of property, distinct from *things in possession* (tangible property) and *things in action* (intangible rights).

Within the framework of EU law, a landmark judgment regarding cryptocurrencies is the CJEU's *Skatteverket v David Hedqvist*,[32] which held that cryptocurrencies do not constitute

doi:10.2139/ssrn.4860851. Similarly, in Australia and Singapore, cryptocurrencies are treated as assets. See, *Janesh s/o Rajkumar v Unknown Person* ("CHEFPIERRE") [2022] SGHC 264, which, among other things, stated: "to characterise NFTs as mere information would ignore the unique relationship between the encoded data and the blockchain system, which enables the transfer of this encoded data from one user to another in a secure and verifiable fashion." See also Jamie Crawley, 'NFTs Can Be Considered Property, According to Singapore High Court Ruling' (*CoinDesk*, 24 October 2022) <https://www.coindesk.com/policy/2022/10/24/nfts-can-be-considered-property-according-to-singapore-high-court-ruling> accessed 15 January 2026; Thomas Choo and Zhen Guang Lam, 'Singapore High Court Recognises NFTs as a Form of Property' (*Clyde & Co LLP*, 21 November 2022) <https://www.clydeco.com/en/insights/2022/11/singapore-high-court-recognises-nfts-as-a-form-of> accessed 15 January 2026. See also, Saitakis (n 23) 60. On the other hand, some consider the view of cryptocurrencies as property to be unfortunate. A notable example is Robert Stevens, 'Crypto is Not Property' (2023) 139 *Law Quarterly Review* 615, doi:10.2139/ssrn.4416200, who argues: "The moon and the fish in the sea are things, but they are not 'property'. Nobody has ever identified any right in relation to crypto, nor how it would be vindicated. Therefore, it is not property." See also Florent Thouvenin and Alfred Früh, *Zuordnung von Sachdaten: Eigentum, Besitz und Nutzung bei nicht-personen-bezogenen Daten* (ITSL 2020) 16-7.

30 *Ozone Networks Inc trading as OpenSea* [2022] EWHC 1021 (Comm).

31 UK Law Commission, *Digital Assets: Final Report* (Law Com No 412, HH Associates Ltd 2023) para 1.3. In which it is stated: [1.3] "The term digital asset is extremely broad. It captures a huge variety of things including digital files, digital records, e-mail accounts, domain names, in-game digital assets, digital carbon credits, crypto-tokens and NFTs. The technology used to create or manifest those digital assets is not the same. Nor are the characteristics or features of those digital assets."

32 Case C-264/14 *Skatteverket v David Hedqvist (*CJEU, 22 October 2015*)* EU:C:2015:718 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:62014CJ0264> accessed 15 January 2026. See also, Philippe Jougleux, *Special Forms of Contracts in Cypriot Law* (Sakkoulas 2024) 19-20.

tangible property, as their sole purpose is to serve as a means of payment. According to the CJEU (para. 55):

It is not disputed, however, that the virtual currency 'bitcoin' does not constitute a share or other security conferring ownership rights in legal persons, nor does it constitute a similar financial instrument.

Consequently, it remains doubtful whether a court could, for instance, order the return of digital assets to the lawful owner in the event of the theft of private keys to a cryptocurrency wallet.

It is worth noting that within the European Union, the Markets in Crypto-Assets Regulation (MiCA) aims to establish a harmonised regulatory framework for cryptocurrencies and digital assets. In particular, MiCA[33] addresses security and transparency issues for crypto-asset service providers, stablecoins, and issuers of digital currencies, with the goal of protecting investors and ensuring consistency across EU markets.

This raises the question: in cases where someone unlawfully obtains a private key or access code to a digital service or bank account and thereby gains access to assets without any physical contact, can such a form of disturbance be remedied under the legal framework of interim possession measures? A core difficulty is that an access code, as an intangible item not subject to physical control, cannot be "possessed" in the traditional legal sense. A sound interpretation holds that the "holder" of a digital asset is the person who has access to it. Thus, the possession of a password or private key appears more as a matter of access control and use authorisation than of legal ownership.[34]

Consequently, the object of possession might be construed as the public address of a digital wallet used to store cryptocurrencies, or the private keys enabling access and management of these assets. From this perspective, a suitable interim measure in the event of a violation would be to restore access and control over the digital object. In practice, a court ruling on provisional measures could oblige the third party to return or disclose access credentials, transfer account management rights, or, for example, in the event of a hacked bank account, order the immediate resetting of credentials and reinstatement of control to the rightful owner. Such orders, however, resemble more closely a temporary regulatory injunction than a classic possession-based interim measure.

33 European Parliament, Proposal for a Regulation on Markets in Crypto-assets, and amending Directive (EU) 2019/1937 (COM/2020/593 final, 24 September 2020) <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020PC0593> accessed 15 January 2026. See also, Francesco Paolo Patti, 'Europäische Perspektiven' in Florian Möslein and Sebastian Omlor, *Kryptoaktien: Erweiterung des eWpG durch das Zukunftsfinanzierungsgesetz* (Mohr Siebeck 2024) 21, doi:10.1628/978-3-16-163488-8.

34 Markus Kaulartz and Robin Matzke, 'Die Tokenisierung des Rechts' (2018) 45 *Neue Juristische Wochenschrift* 3278; Saitakis (n 23) 56.

In common law jurisdictions, when an individual unlawfully seeks to take possession of real property or obstruct another's possession, the actual possessor is entitled to seek **injunctive relief** from the court.[35] Specifically, two main types of injunctions may be granted[36]: *prohibitory (negative) injunctions*, which restrain a party from undertaking a particular act, and *mandatory injunctions*, which compel a party to act. It is, after all, a well-established principle in common law that interim judicial protection should preserve the *status quo*[37] between the parties, rather than anticipate or substitute the final determination of rights.

Regarding interim protection under German law, the Zivilprozessordnung (ZPO)[38] provides two general forms of provisional judicial relief under §§ 935 and 940.[39] A distinction is made[40] between *Arrest*, which secures future enforcement of monetary (or potentially monetary) claims (§ 917(1) ZPO), and *einstweilige Verfügung*, which safeguards other rights (§ 935 ZPO) or seeks to temporarily regulate a disputed legal situation (§ 940 ZPO).[41] The former (935) addresses threats to the future satisfaction of a non-monetary claim, while the latter (940) permits the temporary resolution of contested circumstances.[42] Historically, § 940 ZPO is rooted in the *possessorium summarissimum*,[43] the precursor to modern possession-based interim remedies. Notably, the German ZPO does not contain specific provisions for interim protection of possession per se, unlike the Greek Code of Civil Procedure (Article 734), but rather emphasises the preservation of existing conditions, similar to the Swiss ZPO[44] (cf. §§ 261–269). More analogous to the

35 Dimitrios Tsikrikas, '*Preliminary Judicial Protection*' in Peter Gottwald (ed), *Litigation in England and Germany: Legal Professional Services, Key Features and Funding* (Gieseking E u W 2010) § 17, 107. On replevin, cf. Müller (n 3) 195-6.

36 Heinrich Nagel and Peter Gottwald, 'Internationaler einstweiliger Rechtsschutz 'in *Internationales Zivilprozessrecht* (7 auf, Verlag Dr Otto Schmidt 2013) 798, doi:10.9785/ovs.9783504383510.798.

37 Adrian Zuckerman, *Zuckerman on Civil Procedure: Principles of Practice* (Sweet & Maxwell 2013) 398.

38 German Code of Civil Procedure 'Zivilprozessordnung' (ZPO) (adopted 12 September 1950, amended 8 December 2025) <https://www.gesetze-im-internet.de/zpo/BJNR005330950.html> accessed 15 January 2026.

39 See also, Müller *(n 3)* 60.

40 Fritz Baur, *Studien zum einstweiligen Rechtsschutz* (Mohr Siebeck 1967) 46; Dieter Leipold, *Grundlagen des einstweiligen Rechtsschutzes* (Beck 1971) 62; Bernhard Wieczorek and Rolf A Schütze, *Zivilprozessordnung: Kommentar* (4th edn, De Gruyter 2019) before § 916, para 8; Hans-Joachim Musielak and Walter Voit (eds), *Zivilprozessordnung: ZPO* (Beck 2023) § 935, paras 2, 4; Gerhard May, *Die Schutzschrift im Arrest- und Einstweiligen-Verfügungs-Verfahren* (De Gruyter 1983).

41 Leipold (n 40) 75; Stephan Wendt, *Die einstweilige Räumungsverfügung des § 940a Abs 2 ZPO* (Mohr Siebeck 2015) doi:10.1628/978-3-16-167828-8.

42 Rekha R Thomas and Hans Putzo, *Zivilprozessordnung ZPO: Kommentar* (45th edn, Beck 2024) § 935, para 3.

43 BGB (n 4) §§ 861, 862; ZPO (n 38) § 940; Feldman (n 2) 91; see also, Leipold (n 40) 75; Nagel and Gottwald (n 36).

44 Isaak Meier, *Grundlagen des einstweiligen Rechtsschutzes im Schweizerischen Privatrecht und Zivilverfahrensrecht* (Schulthess Juristische Medien 1983) 298; Nicolas Fuchs, *Die Besitzesschutzklagen nach Art 927 ff ZGB* (Dike 2018) 104; Emil Stark and Barbara Lindenmann, *Berner Kommentar: Zivilgesetzbuch: Der Besitz, Art 919-941 ZGB* (4 Auf, Stämpfli 2016) 209.

Greek provisions are the Austrian ZPO §§ 454–459,[45] which govern possession-related interim measures in a targeted and detailed manner.

In Greek law, interim protection of possession and detention is governed by a specific procedural framework under Article 734 of the Greek Code of Civil Procedure (GrCCP),[46] which provides for a distinct category of provisional regulation of status. This provision constitutes a specialised form of interim judicial protection, explicitly designed to safeguard possession (*νομή*) and detention (*κατοχή*) against unlawful disturbance or dispossession.[47] Unlike general interim measures, Article 734 GrCCP reflects the particular importance of possessory relations within the Greek legal order by enabling courts to intervene swiftly and restore the factual control of the possessor or detentor without requiring a prior determination of substantive rights.

However, despite its procedural flexibility, the application of Article 734 GrCCP remains conceptually anchored in the traditional understanding of possession as physical control over a tangible object. As a result, its direct applicability to digital assets is not straightforward, given that such assets lack corporeality and are instead characterised by access-based control mediated through technological systems. While it may be argued that access to a digital account or control over cryptographic keys could functionally approximate the notion of possession, Greek procedural law has not yet explicitly recognised such forms of control as falling within the scope of Article 734. Consequently, the protection of digital assets under this provision would require a doctrinal extension, shifting from a strictly material conception of possession towards a broader understanding centred on effective control over access. Such an interpretative development would align Greek law with emerging trends in other jurisdictions, where courts increasingly prioritise functional control over formal classification in the context of interim judicial protection.

In this light, the effectiveness of interim protection in digital asset disputes depends less on the ontological classification of the asset and more on the court's ability to restore and preserve control over access. Unlike traditional possessory measures, digital interim relief must prioritise reversibility, as irreversible technical effects may, in effect, predetermine the outcome of the main proceedings. Consequently, procedural law requires targeted adaptations, including: explicit recognition of access-based control as a protectable factual situation capable of interim protection and cross-border coordination mechanisms for digital enforcement, acknowledging the inherently transnational nature of digital assets and

45 Eric Descheemaeker, *The Consequences of Possession* (Edinburgh UP 2014) 176-7. On Austrian law, cf Georg Kodek, *Die Besitzstörung: materielle Grundlagen und prozessuale Ausgestaltung des Besitzschutzes* (Manz 2002) 18; Müller (n 3) 94.

46 Greek Code of Civil Procedure 'Κωδικασ Πολιτικησ Δικονομιασ' (adopted 24 October 1985, amended 28 July 2025) <https://www.kodiko.gr/nomothesia/document/388111/p.d.-503-1985> accessed 15 January 2026.

47 Konstantinos Papachristou-Dimitras, *Provisional Measures of Possession or Detention* (Sakkoulas 2025) [in Greek].

blockchain-based systems. Interim judicial protection must evolve from a possession-centred paradigm to a control-centred one, capable of responding to the realities of digital interaction. In doing so, procedural law remains faithful to its fundamental mission: preventing irreparable harm and containing arbitrary interference, whether through physical force or digital code.

Procedural fairness and judicial control cannot be achieved through technological self-help mechanisms, such as remote lockouts or automated enforcement. On the contrary, efficiency must be pursued within a framework of judicial supervision. First of all, it has been argued that interim measures can effectively protect digital asset holders, provided that courts are willing to recognise digital control as a form of legally relevant possession. This includes the temporary restoration of access rights, judicial orders addressed to platform intermediaries, and a cautious integration of technological tools under strict procedural safeguards.

Beyond doctrinal adaptation, technological tools may also enhance the effectiveness of interim judicial protection. In particular, artificial intelligence may be legitimately employed across a broad range of supportive judicial functions, provided that it neither substitutes judicial reasoning nor independently determines the outcome of proceedings. Indicatively, it may be used in electronic filing[48] and case management through AI-based systems, in the analysis of statistical data (predictive analytics) to map the course and duration of proceedings, in the automated drafting of pleadings through natural language processing tools, in algorithmic case-law research and the detection of conflicting judgments,[49] as well as in the assistance of litigants through digital legal assistants ("legal chatbots") offering guidance, for example, on procedural matters. In this way, AI-assisted systems could facilitate the rapid identification of technically feasible interim measures, assess risks of asset dissipation, and map cross-border enforcement pathways.

48 CEPEJ, *Guidelines on Electronic Court Filing (e-Filing) and Digitalisation of Courts* (Council of Europe 2021).

49 Noteworthy is the Delfos system, an AI-based legal research environment enabling natural-language search of case law, judicial documents, and procedural materials. Delfos operates on a pilot basis and is fully interoperable with Fortuny, the central case-management system of the Spanish judiciary. Through this interoperability, judges and prosecutors may search not only jurisprudential databases but also pending and completed case files. Users may also upload their own documents, which are automatically processed and incorporated into the search corpus, facilitating cross-referencing and comparative analysis. A particularly significant feature is the automated summarisation of judicial documents, aimed at reducing administrative burden and enabling rapid comprehension of complex texts. The use of natural language enhances transparency and usability by enabling more direct, secure interaction with AI capabilities. See, 'Spain: AI Rolled Out in Justice System as Part of the Digitalisation Strategy' (*Oxford Institute of Technology and Justice*, September 2025) <https://www.techandjustice.bsg.ox.ac.uk/research/spain> accessed 15 January 2026.

3.3. The Boundaries Between Self-Help and Provisional Judicial Protection

Beyond the inherent impossibility of physical control over intangible assets, legal practice is increasingly confronted with cases of remote interference and obstruction of the possessor's powers through a wide range of smart devices,[50] such as smartphones or smart locks installed on residential doors or vehicles. For instance, a smart lock may automatically block a tenant's access to a rented apartment with a simple click, without any physical contact with the object, in the event of rent default, or may prevent a vehicle from being recharged. Additionally, so-called "starter interrupt devices," as well as embedded GPS and kill-switch systems,[51] enable vehicle lessors to remotely prevent a car from being started in the event of unpaid instalments.

The German Federal Supreme Court (Bundesgerichtshof, BGH) has already ruled on such matters in its decision dated 26 October 2022,[52] declaring unlawful the remote blocking of an electric car battery's charging capability and invalidating the relevant contractual clause authorising such action.

According to this clause, Renault reserved the right, upon premature termination of the contract and the lapse of a fourteen-day period, to block battery recharging via digital means. The BGH, affirming prior judgments of the Düsseldorf Regional Court (Landgericht)[53] and Higher Regional Court (Oberlandesgericht),[54] held that this remote action constituted an arbitrary disturbance of possession, amounting to prohibited self-help.

Thus, in the digital environment, provisional protection of possession or detention is increasingly called upon to bridge the gap between impermissible self-help and the demand for swift dispute resolution. In such a scenario, the tenant has a legitimate interest in securing the continued performance of the lease contract, for example, by seeking a rent reduction due to defects in the leased property, without risking the landlord unilaterally terminating the contract and locking the premises remotely. In this case, moreover, the smart device itself constitutes the object of possession, given that the software, while instrumental to the operation or control of the object, is not considered an asset subject to physical possession. In general, there are two main ways to examine software: either as an independent object [Software als Sache im Sinne], according to the German Civil Code (Article 90), or as part of a physical object [Sachqualität der Software aus der Sachqualität der Hardware bzw. der smarten Sache], which one can own. In this context, software is considered to depend on the physical object (such as a car or a mobile phone) that contains or uses it.[55]

50 Linda Kuschel, 'Digitale Eigenmacht: Digitale Eingriffe in vernetzte Sachen als Herausforderung für den possessorischen Besitzschutz' (2020) 220(1) *Archiv Für Die Civilistische Praxis* 98; Sander (n 8).

51 Sander (n 8) 30.

52 Case XII ZR 89/21 (Renault) (BGH, 26 October 2022); Sander (n 8) 118.

53 Case 12 O 63/19 (LG Düsseldorf, 11 December 2019).

54 Case I 20 U 116/20 (OLG Düsseldorf, 7 October 2021).

55 According to Sander (n 8) 132, the quality of the software object depends on the physical object (hardware) to which it is embedded or through which it operates.

3.4. Cross-Border Effect and Enforcement of Orders for Possessory or Detentive Provisional Measures

Under Articles 36–39 of the Brussels Ia Regulation (Regulation 1215/2012),[56] judgments given *inter partes* are recognised and enforced automatically in another Member State, without the need for any special procedure. However, even in the absence of international jurisdiction, courts of the Member State of origin may issue provisional measures in order to prevent irreparable harm to the applicant. In such instances, however, the provisional measure will have no cross-border effect and shall remain effective solely within the territory of the Member State of the issuing court.[57] Moreover, as is clear from the combined reading of Article 2(a) and Recital 33 of Regulation 1215/2012, '*only a measure ordered by a court which has jurisdiction as to the substance of the matter may be regarded as a 'judgment' the free circulation of which must be ensured under this Regulation.*'[58]

Consequently, for the purposes of Regulation 1215/2012, the term "judgment" encompasses only provisional measures and interim orders that are granted by a court having international jurisdiction over the substance of the case. It follows, therefore, that provisional measures ordered by a court lacking such jurisdiction are devoid of cross-border effect and remain enforceable exclusively within the Member State of origin.[59]

Although the Brussels Ia Regulation appears to restrict the cross-border enforceability of provisional measures, inasmuch as such measures must originate from a court having jurisdiction as to the merits in order to be capable of transnational recognition, it simultaneously broadens the concept of a recognisable and enforceable "judgment" to include also *ex parte* orders for provisional measures. This results from the amended Article 2(a), second subparagraph, of Regulation 1215/2012. Thus, *ex parte* provisional measures may now be recognised and enforced in other Member States, provided that the issuing court possesses jurisdiction under the Regulation as to the substance of the matter, and further, that the order has been served upon the defendant prior to its enforcement. In such cases, both positive and negative provisional res judicata may arise.

56 Regulation (EU) No 1215/2012 of the European Parliament and of the Council of 12 December 2012 on Jurisdiction and the Recognition and Enforcement of Judgments in Civil and Commercial Matters [2012] OJ L 351/1.

57 Ibid, art 2(a), recital 33.

58 Ibid, Case C-581/20 *Skarb Państwa Rzeczypospolitej Polskiej reprezentowany przez Generalnego Dyrektora Dróg Krajowych i Autostrad v TOTO SpA - Costruzioni Generali and Vianini Lavori SpA* (CJEU, 6 October 2021) <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A62020CJ0581> accessed 15 January 2026.

59 Regulation (EU) No 1215/2012 (n 56) recital 33; also, art 27(3). See also, Council Regulation (EC) No 44/2001 of 22 December 2000 on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters [2001] OJ L 12/1, art 34(3).

It should also be noted that Regulation 1215/2012[60] provides for specific exceptions where recognition or enforcement of a judgment issued in another Member State may be refused, as set out in Articles 45 (recognition) and 46 (enforcement). In particular, Article 45(1)(c) provides that, upon application by any interested party, recognition shall be refused "if the judgment is irreconcilable with a judgment given between the same parties in the Member State addressed." As a result, the judgment rendered in the Member State of recognition or enforcement shall take precedence, regardless of whether it precedes or follows the judgment whose recognition or enforcement is sought.

Lastly, where the dispute involves non-EU States or concerns specific categories of matters that fall outside the scope of Regulation 1215/2012, other international instruments may apply, such as the Lugano Convention (in relation to EEA States), and bilateral treaties on judicial cooperation concluded between the States concerned.

4 CONCLUSIONS

This study has examined the capacity of traditional civil procedural mechanisms to respond to disputes involving digital assets, with particular emphasis on interim judicial protection and the concept of possession. The analysis has demonstrated that classical possessory frameworks, while still relevant, are insufficient when applied to purely digital environments characterised by access-based control and technological mediation.

The comparative analysis reveals a clear divergence between legal systems. Common law jurisdictions, particularly the United Kingdom, display greater doctrinal flexibility in recognising cryptocurrencies and other digital assets as property capable of protection through interim measures. In contrast, civil law systems, such as Germany and Greece, remain more closely tied to the requirement of tangibility, which limits the direct application of traditional possessory remedies. Nevertheless, even within civil law frameworks, there is a growing functional shift toward protecting forms of control that resemble possession in their practical effects.

The central finding of this article is that effective judicial protection in the digital era depends less on the formal classification of assets and more on the court's ability to restore and preserve control over access. Interim measures can fulfil this function, provided that they are adapted to address digital realities, including the involvement of intermediaries, the reversibility of technical actions, and the cross-border nature of digital assets.

At the same time, the analysis highlights structural limitations, particularly in relation to cross-border enforcement and the fragmentation of legal approaches within the European

60 Regulation (EU) No 1215/2012 (n 56) art 27(3). See also, Council Regulation (EC) No 44/2001 (n 59) art 34(3).

legal space. These challenges underline the need for greater doctrinal clarity and, potentially, legislative intervention at the EU level.

In this context, the reconceptualisation of possession as access-based factual control is a necessary step to maintain the functional relevance of civil procedural law. Such an approach allows courts to respond effectively to digital interference while preserving the fundamental principles of procedural fairness and judicial oversight. Ultimately, the evolution of interim judicial protection must ensure that legal systems remain capable of preventing irreparable harm, whether in physical or digital form.

REFERENCES

1. Ball M, 'The Metaverse: What It Is, Where to Find It, and Who Will Build It' (*Epyllion*, 13 January 2020) <https://www.matthewball.vc/all/themetaverse> accessed 15 January 2026
2. Baur F, *Studien zum einstweiligen Rechtsschutz* (Mohr Siebeck 1967)
3. Carvalho Ribas E, 'NFTs – Digital Certificate, License of Use, Ownership' (*Artlaw.club*, 18 October 2021) <https://artlaw.club/en/artlaw/nfts-digital-certificate-license-of-use-ownership-1> accessed 15 January 2026
4. Castor A, 'UK's High Court Ruling on NFTs as "Property" Has Been Called a Landmark—But It May Not Actually Change Much' (*Artnet*, 4 May 2022) <https://news.artnet.com/market/uk-high-recognizes-nfts-as-property-2108605> accessed 15 January 2026
5. Choo T and Lam ZG, 'Singapore High Court Recognises NFTs as a Form of Property' (*Clyde & Co LLP*, 21 November 2022) <https://www.clydeco.com/en/insights/2022/11/singapore-high-court-recognises-nfts-as-a-form-of> accessed 15 January 2026
6. Crawley J, 'NFTs Can Be Considered Property, According to Singapore High Court Ruling' (*CoinDesk*, 24 October 2022) <https://www.coindesk.com/policy/2022/10/24/nfts-can-be-considered-property-according-to-singapore-high-court-ruling> accessed 15 January 2026
7. Descheemaeker E, *The Consequences of Possession* (Edinburgh UP 2014)
8. Feldman R, *Der possessorische Besitzschutz und sein Verhältnis zum petitorischen Recht: Eine materiellrechtliche und zivilprozessuale Betrachtung* (Mohr Siebeck 2020)
9. Fox D and Green S (eds), *Cryptocurrencies in Public and Private Law* (OUP 2019) doi:10.1093/law/9780198826385.001.0001
10. Fuchs N, *Die Besitzesschutzklagen nach Art 927 ff ZGB* (Dike 2018)
11. Goode R, '*What is Property?*' (2023) 139 Law Quarterly Review 1, doi:10.3316/agispt.20230116081971

12. Graziadei M and Smith L (eds), *Comparative Property Law: Global Perspectives* (Edward Elgar 2017)
13. Guntermann LM, 'Non-Fungible Token als Herausforderung für das Sachenrecht' (2022) 19 Recht Digital 200
14. Hoeren T, 'Datenbesitz statt Dateneigentum' (2019) 1 *MMR:* Zeitschrift für IT-Recht und Recht der Digitalisierung 5
15. Hoeren T and Prinz W, 'Das Kunstwerk im Zeitalter der technischen Reproduzierbarkeit – NFTs (Non-Fungible Tokens) in rechtlicher Hinsicht' (2021) 8 *Computer und Recht* 565
16. Jougleux P, *Special Forms of Contracts in Cypriot Law* (Sakkoulas 2024)
17. Kaulartz M and Matzke R, 'Die Tokenisierung des Rechts' (2018) 45 *Neue Juristische Wochenschrift* 3278
18. Kleiber WJ, 'NFT – eine Einordnung' (2022) 4 *MMR*: Zeitschrift für IT-Recht und Recht der Digitalisierung 445
19. Kodek G, *Die Besitzstörung: materielle Grundlagen und prozessuale Ausgestaltung des Besitzschutzes* (Manz 2002)
20. Kuschel L, 'Digitale Eigenmacht: Digitale Eingriffe in vernetzte Sachen als Herausforderung für den possessorischen Besitzschutz' (2020) 220(1) *Archiv Für Die Civilistische Praxis* 98
21. Lai J, 'Possession of Cryptoassets' (2023) 1 Journal of Business Law 41, doi:10.2139/ssrn.4860851
22. Leipold D, *Grundlagen des einstweiligen Rechtsschutzes* (Beck 1971)
23. Low KFK and Teo EGS, 'Bitcoins and Other Cryptocurrencies as Property?' (2017) 9(2) *Law, Innovation and Technology* 235, doi:10.1080/17579961.2017.1377915
24. Martini M and Botta J, 'Der Staat und das Metaversum' (2023) 26 MMR: Zeitschrift für IT-Recht und Recht der Digitalisierung 887
25. May G, *Die Schutzschrift im Arrest- und Einstweiligen-Verfügungs-Verfahren* (De Gruyter 1983)
26. Meier I, *Grundlagen des einstweiligen Rechtsschutzes im Schweizerischen Privatrecht und Zivilverfahrensrecht* (Schulthess 1983)
27. Michl F, '"Datenbesitz" – ein grundrechtliches Schutzgut?' (2019) *38 Neue Juristische Wochenschrift* 2729
28. Müller T, *Besitzschutz in Europa: Eine rechtsvergleichende Untersuchung über den zivilrechtlichen Schutz der tatsächlichen Sachherrschaft* (Mohr Siebeck 2010) doi:10.1628/978-3-16-167477-8
29. Musielak HJ and Voit W (eds), *Zivilprozessordnung: ZPO* (Beck 2023)

30. Nagel H and Gottwald P, 'Internationaler einstweiliger Rechtsschutz 'in *Internationales Zivilprozessrecht* (7th edn, Verlag Dr Otto Schmidt 2013) 798, doi:10.9785/ovs.9783504383510.798

31. Papachristou-Dimitras K, 'Cadastral Systems and the Registration of Immovable Property in the European Legal Order: The Perspective of a Model European Cadastre' in Aristotle University of Thessaloniki, *Comparative Cadastral Law* (Sakkoulas 2021) 871 [in Greek]

32. Papachristou-Dimitras K, *Provisional Measures of Possession or Detention* (Sakkoulas 2025) [in Greek]

33. Patti FP, 'Europäische Perspektiven' in Möslein F and Omlor S, *Kryptoaktien: Erweiterung des eWpG durch das Zukunftsfinanzierungsgesetz* (Mohr Siebeck 2024) 21, doi:10.1628/978-3-16-163488-8

34. Radhakrishna G, 'Legal Issues with Real Estate in the Metaverse' (International Conference on Law and Digitalization *ICLD* 2022) 74, doi:10.2991/978-2-494069-59-6_7

35. Ramaekers E, *European Union Property Law: From Fragments to a System* (Intersentia 2013)

36. Reinholz F, '*Metaverse und Recht: Das Recht des Metaverse – ein Überblick*' (2023) 16-17 *Gewerblicher Rechtsschutz und Urheberrecht in der Praxis* 478

37. Saitakis K, 'Legal Challenges Stemming from Investing in Metaverse Real Estate' in *Investing in Digital Assets: The EU Law Approach,* vol 1 (Sakkoulas 2024) 47

38. Sander NP, *Besitz(schutz) smarter Sachen* (Mohr Siebeck 2024) doi:10.1628/978-3-16-163922-7

39. Sosnitza O, *Besitz und Besitzschutz: Sachherrschaft zwischen faktischem Verhältnis, schuldrechtlicher Befugnis und dinglichem Recht* (Mohr Siebeck 2003) doi:10.1628/978-3-16-157942-4

40. Stark E and Lindenmann B, *Berner Kommentar: Zivilgesetzbuch: Der Besitz, Art. 919-941 ZGB* (4th edn, Stämpfli 2016)

41. Stevens R, 'Crypto is Not Property' (2023) 139 *Law Quarterly Review* 615, doi:10.2139/ssrn.4416200

42. Strobl H, 'Virtuelle Welten, reale Rechte: Die Durchsetzung des Urheberrechts' (2023) 7 *Zeitschrift für Urheber- und Medienrecht* 492

43. Thomas RR and Putzo H, *Zivilprozessordnung ZPO: Kommentar* (45th edn, Beck 2024)

44. Thouvenin F und Früh A, *Zuordnung von Sachdaten: Eigentum, Besitz und Nutzung bei nicht-personen-bezogenen Daten* (ITSL 2020)

45. Tsikrikas D, '*Preliminary Judicial Protection*' in Gottwald P (ed), *Litigation in England and Germany: Legal Professional Services, Key Features and Funding* (Gieseking E u W 2010) 107

46. Wendt S, *Die einstweilige Räumungsverfügung des § 940a Abs 2 ZPO* (Mohr Siebeck 2015) doi:10.1628/978-3-16-167828-8

47. Wieczorek B and Schütze RA, *Zivilprozessordnung: Kommentar* (4th edn, De Gruyter 2019)

48. Zuckerman A, *Zuckerman on Civil Procedure: Principles of Practice* (Sweet & Maxwell 2013)

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АНОТАЦІЯ УКРАЇНСЬКОЮ МОВОЮ

Дослідницька стаття

ЕФЕКТИВНІСТЬ СУДОВОЇ СИСТЕМИ В ЕРУ ЦИФРОВИХ АКТИВІВ: ПЕРСПЕКТИВИ SMART-ТЕХНОЛОГІЙ

Константінос Папахрісту-Дімітрас

АНОТАЦІЯ

Вступ. *Розширення цифрових активів дедалі більше ставить під сумнів ефективність механізмів судового захисту, традиційно розроблених для матеріальних благ. Криптовалюти, smart-технології та цифрове контрольоване середовище порушують усталені уявлення про володіння, правозастосування та тимчасове правозастосування.*

Методи. *У дослідженні використовується доктринальна та порівняльно-правова методологія, що зосереджена на окремих юрисдикціях (Німеччина, Греція та Велика Британія) разом із відповідним законодавством ЄС. У ньому розглядається, як ці системи концептуалізують володіння, регулюють тимчасовий судовий захист та вирішують питання цифрового контролю в технологічно опосередкованих середовищах.*

Результати та висновки. *Аналіз демонструє, що традиційний захист володіння пропонує корисну, але лише частково адаптовану основу для цифрових активів. У той час як юрисдикції загального права демонструють більшу гнучкість у визнанні криптовалют та NFT майном, що підлягає тимчасовому захисту, системи цивільного права залишаються більш обмеженими вимогою матеріальності. Однак усі досліджені системи все більше покладаються на функціональні еквіваленти володіння, зокрема, через контроль на основі доступу. У статті стверджується, що ефективний судовий захист цифрових активів вимагає переосмислення володіння як контролю над доступом, а не фізичного утримання. Тимчасові судові заходи можуть забезпечити належний захист за умови, що суди готові втручатися, видаючи накази, спрямовані проти посередників та технологічних інфраструктур. У дослідженні зроблено висновок, що майбутній розвиток доктрини та законодавчі роз'яснення на рівні ЄС необхідні для забезпечення правової визначеності та транскордонної ефективності у спорах щодо цифрових активів.*

Ключові слова. *Тимчасові заходи, цивільне процесуальне право, володіння, цифрове володіння, посесорний захист, метавсесвіт.*