THE INDIVIDUAL AND THE PROPERTY IN VIRTUAL WORLDS

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Abstract
Virtual reality and augmented reality have the potential to change the economy and society as much as the internet once did. In AR, virtual objects mix with real environments and objects. In virtual reality environments, people will move around using avatars and using virtual objects and individualise their virtual spaces with virtual artworks. However, the integration of humans into virtual and semi-virtual environments also leads to an intensification of problems connected with the relationship of the individual to technology and powerful platforms. The person integrated into virtual worlds will be under far closer observation and influence by platform operators than today's internet user. This must have consequences for the legal protection of personality. In addition, questions arise about the extension of personality rights to the virtual existence of the individual and to the question of the legal protection of objects used by the individual in his or her virtual environment. The article discusses some aspects from the perspective of the German law.

Keywords:
Augmented reality; virtual reality; token; blockchain; property rights; personality rights.

Abstrak
Realitas virtual dan *augmented reality* memiliki potensi untuk mengubah ekonomi dan masyarakat seperti halnya internet dulu. Dalam AR, objek virtual bercampur dengan lingkungan dan objek nyata. Dalam lingkungan realitas virtual, orang akan bergerak menggunakan *avatar* dan menggunakan objek virtual dan mengindividualisasikan ruang virtual mereka dengan karya seni virtual. Namun, integrasi manusia ke dalam lingkungan virtual dan semi-virtual juga mengarah pada intensifikasi masalah yang terkait dengan hubungan individu dengan teknologi dan platform yang kuat. Orang yang terintegrasi ke dalam dunia virtual akan berada di bawah pengamatan dan pengaruh yang jauh lebih dekat oleh operator platform daripada pengguna internet saat ini. Hal ini harus memiliki konsekuensi bagi perlindungan hukum terhadap kepribadian. Selain itu, muncul pertanyaan tentang perluasan hak kepribadian atas keberadaan virtual individu dan pertanyaan tentang perlindungan hukum atas objek yang digunakan oleh individu dalam lingkungan virtualnya. Artikel ini membahas beberapa aspek terutama dari perspektif hukum Jerman.

Kata Kunci:
Augmented reality; virtual reality; token; *blockchain;* hak milik; hak kepribadian.

Introduction

This article, which is an elaborated text based on a presentation of the author at the 8th National and International Conference of Asosiasi Filsafat Hukum Indonesia in December 2021, describes two relevant aspects of the future digitalization, connected with the mixing of the virtual and the real world. The more virtual objects are combined with real objects in augmented reality applications,

the more these connections become permanent, the more virtual spaces develop as an alternative to real spaces and the more people move in those virtual spaces, the more the question of effects on the legal understanding of things and persons arises. What effect does the linking of real and virtual elements have on the concept of property, what role does tokenization play and what modifications does our current understanding of the individual's right to privacy require in the developing virtualization? The article aims to raise the related questions. It is intended as an introductory contribution to the topic. It should show that questions which were already raised a few years ago when virtual-game-worlds first became popular are now arising again. However, the advanced state of technology now makes these questions seem far more important than they were at the time. Announcements of the development of comprehensive virtual worlds, the blockchain revolution and the launch of numerous augmented reality applications and devices now bring the question into the realm of everyday life.

Analysis

Responsibility in the Digitalised Society

The technological developments of the digitalisation have permanently changed the society. Many daily activities of a large part of humanity have increasingly shifted to the internet, which has led to the growth of social platforms and e-commerce platforms and the access of these platforms to the thoughts and actions of the people who communicate through them. The power of the platforms partially collides with social processes and rules of societies.

One reason for this is, that the platforms exist globally on the non-territorially limited internet.[1] The ubiquity of the internet has led to a significant loss of state sovereignty. States have only limited ability to enforce regulatory measures against interference on their territories from the internet. Where they can in fact do so, this power is not based on state territorial sovereignty but on economic or political power. The partial replacement of the traditional

[1] Stefan Koos, 'The Displacement of the Law by Technicity', *Paper for the 1st Ahmad Dahlan International Conference on Law and Social Justice (ADICoLS)*.

Territoriality-Principle, rooted in international law, by the Ubiquity-Principle and the associated loss of sovereignty is leading to a crisis of international law, because traditional rules of conflict of laws, which are also based on principles of international law of the corpus of nations, are being openly displaced by principles of power. Thus, for the time being, states that have sufficient economic and political significance will still have the power to force internet corporations to comply with their rules globally; other states will apply their rules territorially, but often fail because of the facticity of the ubiquitous internet. This is accompanied by a tendency towards the extraterritorial application of norms of powerful states and associations of states. Territorial (and extraterritorial) power is thus no longer based on legal legitimacy, but on a de facto claim to power. Its own legitimacy - as has always been the case with the extraterritorial application of national law - is certainly to be questioned, but not simply rejected outright, because it could be argued that a state not only has the right but also the duty to enforce its law even in the face of the ubiquity of the internet, at least when this is done to protect its citizens and with the best possible consideration for the interests of other states.[2] In the longer term, however, it cannot be ruled out that the territorial power of the states that are currently still able to enforce their rules will also dwindle. Ultimately, in the long run, this shifts the responsibility of the states in the digitalised society to the internet corporations and the individuals on the internet.

Another aspect is that users of the platforms can hide behind identities they have given themselves and the threshold for making statements publicly is much lower than in the analogue world. However, the companies that operate the platforms largely do not see themselves as responsible for avoiding or eliminating negative social and political effects that their platforms have on societies. While they accept a certain responsibility, for example in filtering the activities of their users, they do not see themselves as responsible for the content that is posted on

[2] Karl-Heinz Fezer and Stefan Koos, Internationales Wirtschaftsrecht, 5th ed., *Staudinger BGB* (2019), pp. 69-70.

the platforms by users.[3] The German media scientists *Altmeppen* and *Filipovic* have aptly described this as 'responsible non-responsibility' ("*verantwortliche Nichtzuständigkeit*").[4] The previously described reduction of state sovereignty and state responsibility in the digitalised society thus meets with a rejection of the perception of responsibility by the platform corporations and thus creates a dangerous responsibility gap.

It is obvious that this problem of responsibility distribution in the digital-globalised society is already not solved at the existing technological level and legal approaches to solving it therefore often appear inconsistent or ineffective. This concerns the role of the individual within the chain of responsibility, who has become much more of an active actor in the digitalised society itself than was the case before. Anybody can become an influencer or a publicist on platforms with significant reach. This causes chances for the individual but also dangers as the individual can be part of a stronger mass dynamic of the digitalized publicity, which is individually not controllable. With the increase in the options for shaping and the social possibilities for exerting influence and individual potential for injury, the responsibility of the individual is also likely to grow, for himself, but also towards the society. This should have an impact on the development of the law for the protection of the individual, because at least the aspect of individual self-responsibility is gaining in importance compared to the prohibitive protective idea of traditional law.

The plans announced by various market actors to develop big virtual worlds ("Metaverse", "Omniverse") and the almost unstoppable connection of the real

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[3] Mark Zuckerberg claimed before the US Congress on April 9, 2018: "I started Facebook. I run it. I'm responsible for what happens here"; https://deadline.com/2018/04/mark-zuckerberg-tells-congress-i-started-facebook-run-it-im-responsible-1202361385/ (last visited 11/27/21). In an interview he furthermore said: "I certainly feel responsible for how our platforms are used. They're used in a lot of different ways. That's going to be studied by academics and historians for a long time to come, what the overall effect is. There are a lot of effects"; https://www.indiatoday.in/technology/news/story/mark-zuckerberg-feels-responsible-for-how-facebook-has-been-used-1611910-2019-10-22 (last visited 11/27/21).

[4] Klaus-Dieter Altmeppen and Alexander Filipovic, 'Corporate Digital Responsibility. Zur Verantwortung von Medienunternehmen in Digitalen Zeiten', *Communicatio Socialis*, Vol. 52, no. 2 (2019): pp. 202–14, https://doi.org/10.5771/0010-3497-2019-2-202

world with virtual elements in everyday life through augmented reality applications will further increase both the threat to the individual and the role of self-responsibility of the individual in the digital world. Anyone who uses AR-applications in public, possibly networked in global platforms, becomes a potential infringer of the privacy and data protection interests of others. For example, he or she decides on virtual attributes added to a real person in AR-applications of all platform users and can thereby commit a new form of cyber-bullying. In the future, anyone who moves in the virtual world with a virtual personality (avatar) will be subject to the platforms' access to their data, behaviour, and ideas even more than today. It surely is problematic, that such a development begins before the question of the distribution of responsibility has been solved satisfactorily and before at least an international minimum consensus on these questions has been found. Thus, at the moment the question of how much power the corresponding companies will accumulate due to the even stronger connection between platform power and data access will depend on whether the politically and economically most powerful states and communities of states succeed in curtailing this power, for example through antitrust measures.

Virtual Worlds and Virtual Property

Virtual reality and augmented reality will have an impact on the individuality of the users themselves. If users move in virtual or partially virtual environments by means of avatars, virtual proxies, then this may have an impact on their behaviour and self-perception, as can already be observed in connection with the behaviour of people on internet platforms. The legal quality of a person's avatar in the metaverse, for example, and its significance for the personality rights of its owner must be discussed. Similar questions - although not linked to the problem of personality rights - arise for virtual objects.

In the German legal discussion so far, questions of the legal classification of virtual items and avatars were mainly discussed from the perspective of MMORPG (Massive Multiplayer Online Role-Playing Games). For items used in such games and created or found by players, the preponderance of the dependence of these

items on the fulfilment of the contract by the game providers and platform operators[5] was often referred to, which would oppose an absolute effect of the items and thus a qualification as virtual property.[6] Other authors emphasised an intellectual property qualification of virtual items in online role-playing games due to their partly absolute character.[7]

The US-scholar *Juliet Morigniello* stressed - from the common-law perspective - that the intellectual property rights qualification because of its intangibility may not properly meet the peculiarities of virtual property.[8] A further step would be the recognition of virtual objects as real objects and their legal protection as real objects due to the functional similarity between property in the virtual world and property in the real world.

The question of the classification of virtual objects has considerable significance, which will grow at the latest after the announcement of the 'Metaverse' but also with the advancing 'Non-Fungible Tokens' (NFT). A comprehensive virtual world of personal experience and workspace would, unlike MMORPG, have the potential to go beyond a mere single offer of a provider and can grow into a comprehensive virtual platform that represents a parallel level of action for social activities.

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5 See AGDC08: On avatar rights and virtual property, https://www.engadget.com/2008-09-15-agdc08-on-avatar-rights-and-virtual-property.html (last visited 11/27/2021).

6 Pamela Koch, 'Die rechtliche Bewertung virtueller Gegenstände auf Online-Plattformen', *JurPC* (2006) at paragraph 44; see on the legal character of social media accounts as virtual assets in Indonesian law: Teguh Tresna Puja Asmara et al., 'Digital Assets: The Idea of Indonesian Property Law Reform and Its Potential as a Collateral Object', *Hasanuddin Law Review*, Vol. 5 no. 3 (2019), p. 282: The authors of this study stress a character of social media accounts as intangible exclusive properties. However, this view seems to be strongly influenced by a property approach of the US-law and it is not discussing the relation between the contractual character of the relation between user and platform owner and the rather factual exclusion effect of the account log in, which, however, could be protected by aspects of the personality rights of the account user. A similar relation between contractual character and absoluteness of the factual position of the holder can be found regarding the qualification of domains names, see Stefan Koos, 'Die Domain als Vermögensgegenstand zwischen Sache und Immaterialgut', *Multimedia und Recht*, Vol. 7 no. 6 (2004), p. 359-362.

7 Andreas Lober and Olaf Weber, 'Money for Nothing? Der Handel mit virtuellen Gegenständen und Charakteren', *Multimedia und Recht*, Vol. 8 no. 10 (2005), p. 655.

8 Juliet Moringiello, 'More on What Virtual Property can do for Property: The Problem of Analogy', PropertyProfBlog (blog), 27 February 2008, https://lawprofessors.typepad.com/property/2008/03/more-on-what-vi.html.

Some aspects of such a vision clearly show that a reassessment of virtual property may be necessary at this point at the latest:

a. The broader networking and linking of platforms in a 'metaverse' and the connection with everyday social actions such as professional and business meetings, online commerce and the like may lead to a stronger connection of virtual platforms with the real world than has ever been the case in previous applications of virtual spaces. This results in a greater significance of the power of the operators of such platforms for social development and greater effects on the interacting individuals and their legal interest. Thus, analogous to the situation of existing social platforms, the question of the distribution of responsibility and competence described above becomes even more important.
b. With the increasing broad networking of society in a comprehensive virtual parallel world, the persistence of this virtual space is also growing. The virtual space is detaching itself from the technical maintenance by individual providers either factually or possibly legally - with appropriate regulation by legislators due to the social significance of such spaces. Persistence of the virtual surrounding seems to be an essential prerequisite for the recognition of virtual property in this surrounding.[9] At the same time, the relevance of the contractual relationship between user and provider, which in the case of MMORPGs still prevented the qualification of rights to items in the virtual world as absolute rights, can be reduced.
c. An increasing connection of virtual and real worlds and an increasing interaction between real objects and persons with virtual objects in augmented reality and virtual reality applications can result in a further argument for the convergence of virtual objects with real objects, which could lead to a re-determination of the concept of legal objects (see below). The use of 'virtual clones' of objects in virtual factories, for example, shows the potential of the future blurring of the boundary between virtuality and reality and the

[9] See Wian Erlank, 'Introduction to Virtual Property: Lex Virtualis Ipsa Loquitur', *Potchefstroom Electronic Law Journal,* Vol. 18, no. 7 (2015), p. 2528.

interaction between both realms. This "dissolution of boundaries" through digitalisation by linking the real and the digital world[10] is part of a trend towards the displacement of territorially shaped law by technicality.[11] In any case, the law should also try to grasp the challenges of digitalisation in the best possible way by reacting flexibly to new developments. This already results from the binding of state power to the constitution.

d. Blockchain technology and the tokenisation of virtual objects have the potential to further dissolve the functional difference between objects in the real world and in the virtual world. Digital objects that are digitally protected by non-fungible tokens (NFT) in the blockchain are clearly assigned to authorised persons and cannot be copied indefinitely as originals. This means that virtual objects, such as digital sculptures for one's own virtual location, detach themselves from the platform operators. They can be individually created and purchased or sold by users, and their owner can to a certain extent exclude others from using them. Virtual objects then fulfil the characteristics of property; they have an exclusion function and a use function.
e. Closely related to this is the assumption that with tokenisation, the meaning of the conceptual pair 'material-immaterial' may also diminish or even disappear. Legally, there would possibly no longer be a reason for this differentiation because the ownership of a token would have a different quality than the ownership of an intangible property right. An intangible property is protected because a state grants corresponding protection limited to its territory (territoriality principle). Tokens are not dependent on the territorially limited recognition of a state for their existence. They are based on the technical security in the blockchain. In this respect, they may be close to the factual existence of real objects.

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10 Volker Boehme-Nessler, 'Die Macht der Algorithmen und die Ohnmacht des Rechts. Wie die Digitalisierung das Recht relativiert', *Neue Juristische Wochenschrift*, Vol. 70 no. 42 (2017), p. 3032.

11 Stefan Koos *supra* note 1.

It should be noted regarding the question of '*virtual property*' that the term has not yet been clearly defined in legal terms, at least not in continental European civil law. American authors deal with 'virtual property' from the perspective of the Anglo-Saxon legal sphere, so that it promises only very limited insights for the continental civil law. Moreover, the Roman-*Germanic* law tradition has legal structural guidelines for rights *in rem*, such as the *numerus clausus* of rights *in rem* and a narrow concept of property. The property approach of the Anglo-American legal system differs fundamentally from this because property is understood here predominantly in terms of the relationship of the right to the legal subject and not as the relationship of a person to the object.[12] Arguments for the recognition of virtual property are essentially based on phenotypical aspects such as a (future) functional similarity between things in the real world and objects in the virtual world. Such aspects alone, however, may not be sufficient for a removal of the legal structural limitation of an expanding definition of property in continental European property law and the overcoming of the dogma of the *numerus clausus* of rights *in rem*.

The Dutch '*Runescape*' case[13] from 2007 is often cited in this regard, mainly because it took place based on a continental European legal system: Two youths forced a player of the online game 'Runescape' by means of direct and indirect violence to log into his player account. They then transferred virtual game items and virtual currency used in the game to their own player accounts. The court of first instance, the *Rechtsbank Leeuwarden*, had convicted the two defendants of theft under Sec. 310 of the Dutch Penal Code. In 2012, the Supreme Court agreed with the classification of the facts as theft. The decision did not deal with the civil law qualification of the right to virtual objects as property or intellectual property. However, it was considered significant for the discussion on the classification of virtual property because Sec. 310 of the Dutch Penal Code refers to the appropriative taking away of property ('goed'). The same is to apply to the

12 Wian Erlank, *Property in Virtual Worlds* (2012), at p. 218.
13 LJN: BG0939, Rechtbank Leeuwarden, 17/676123-07 VEV.

Indonesian offence of theft, which largely corresponds to Dutch law.[14] The Dutch court has thus used a broader concept of property (it also includes electricity, for example), which would be excluded under German law: According to § 242 (1) StGB, the offence of theft here is based on the taking away of another person's movable thing (‘*bewegliche Sache*’).[15] The term ‘thing’ is clearly defined in § 90 BGB in the sense of physical objects. Thus, in a corresponding case, criminal liability as theft would not come into consideration without an extending analogy. However, since a prohibition of analogy applies to criminal law, the realisation of the offence of extortion (§ 253 StGB) would at best come into question.

It must be considered that the Dutch criminal law speaks of the taking away of '*goed*' (German translation: ‘*Gut*') and thus does not refer to corporeal 'things' (‘Sachen’). In the official English translations of the Dutch, Indonesian and German Criminal Codes, the term '*property*' is used. The underlying concept of property is used detached from a link to corporeal objects, similar to the Anglo-American law. It is broader than the German civil and criminal law concept of property (‘*Eigentum*’ in the sense of ownership, see Sec. 903 *Bürgerliches Gesetzbuch*) and represents the translation of the term of '*goed*', as the object of the legal right. German law makes a strict distinction between the right to the thing (‘*Eigentum*’), translated as '*ownership*', and the object of the right (‘*Sache*’), translated as '*thing*', whereas the English translations understand '*property*' in the sense of the object taken away (belonging to another), which need not necessarily be a physical object.[16] Thus, in German law, the property concept under civil law, in contrast to the wider German constitutional concept of property in Article 14 of the Basic Law, is strictly linked to the tangibility of an object. It covers neither intellectual property nor economic property. The same applies to the French penal code: Art. 311-1 Code Pénal focuses on the theft of a 'thing' and in Art. 311-2 explicitly equates the stealing of energy

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14 See on the qualification of digital assets in the Indonesian and contemporary Dutch property law Teguh Tresna Puja Asmara et al. *supra* note 6, p. 281-285.

15 “*Wer eine fremde bewegliche Sache einem anderen in der Absicht wegnimmt, die Sache sich oder einem Dritten rechtswidrig zuzueignen, wird mit Freiheitsstrafe bis zu fünf Jahren oder mit Geldstrafe bestraft.*“.

16 See regarding the difference between Anglo-Saxon law and Roman-Germanic law Erlank, *supra* note 12, p. 218.

with theft. As a result of this difference, the Dutch court decision promises only very limited insight if it is a matter of a dogmatically clear assessment of precisely the relationship between corporeal and virtual objects and not just a classification in a general legal concept of property which also covers non-corporeal objects.

In the context of AR applications, another argument arises for a re-evaluation of virtual objects and an approximation to real objects. This will be illustrated by the following example:

> *An AR application registered on a platform of many networked users gives the registered users the possibility to create their own virtual objects, designs or information and to connect them with real objects. For example, a user can project virtual graffiti on landmarks such as churches, public buildings, or monuments, but also connect statements or virtual objects with real objects or even people. The user can do this individually limited to his own AR devices, but he can also objectify it by publishing the projection on the network and thus making it accessible to all users by their AR devices.*

The example shows the infringement potential associated with AR applications, especially if the application is linked to large networks that may have an international impact. Such applications can lead to new forms of cyberbullying, insofar as persons are virtually stigmatised by means of AR information, for example by linking offensive attributes, certain virtual objects or information with a real person and publishing them on the network. On the other hand, however, real objects can also be linked with virtual objects and create an independent impression for the hybrid object in their linkage. For example, architecture can be changed in AR or works of art can be supplemented with virtual elements changing the character of the real object. On the one hand, this raises the question of the need for protection of those entitled to the real objects. On the other hand, it raises the question of the protectability of the 'hybrid' object composed of virtual elements and real elements itself.

The issue of cyberbullying through AR projections is covered by existing legal rules, at least in theory - not necessarily in practical enforcement due to a lack of controllability. There is no significant difference here systematically to other forms of cyberbullying in social networks. Regarding the question to which extent

AR applications can interfere with property or ownership in real objects it must be discussed whether the connection of a real object with a virtual component that can be objectively perceived in the network goes beyond the mere ideational influence that is not covered by ownership protection in the German law.[17] However, the expected broad social networking of future AR applications and a stronger persistence of future virtual environments may argue in particular in favour of an extension of the protection of ownership in real objects to such effects. In connection with the '*PokemonGo*'-games, a violation of ownership of the property was still mostly rejected in the German legal discussion because there was a lack of a spatial-physical connection to the property when virtual objects were placed on it.[18] This could become a too conservative a view in respect of the blurring of the boundaries between the real and virtual worlds. At the very least, an objectified informational link between the virtual object and the real object could be sufficient to establish interference with the ownership of the real object. Accordingly, in the example described above, there would be a disturbance of ownership because the link with the virtual object is objectified in the network.

In this context, the phenomenon that the social position of the individual as the subject of the assignment of rights could in future be derived even more strongly from his or her involvement in digital environments also plays an important role. This may result in a reduction in the significance of the spatial-physical points of reference for subjective rights.

Virtual Objects and Tokenization

The blurring of the boundaries between the virtual world and the real world and the mixing of virtual and real elements and objects also leads to the consideration of whether purely virtual objects, at least when they are objectified to a certain extent and their existence, immutability and origin are technically secured, namely through tokenization, can be understood analogously to physical

17 Felix Hilgert, Teil 17, Augmented Reality, in *Leupold/Wiebe/Glossner (ed.), Münchener Anwaltshandbuch IT-Recht* 4 (2021), paragraph 112 with further references.

18 Felix Hilgert, supra note 16, paragraph 113.

objects in terms of ownership law - and not only in terms of immaterial goods law.[19] Tokens are entries in decentralised blockchain databases which map certain rights.[20] A distinction is made between intrinsic tokens and extrinsic tokens. Intrinsic tokens are tokens to which a certain value is assigned due to their mere existence. *Intrinsic* tokens are therefore valuable in themselves. In contrast, the value of *extrinsic* tokens only results from the connection with certain assets or claims that are to be derived from the token.[21]

The phenomenon of tokens on real objects must be examined regarding its classification within the system of real property rights. As far as tokens are only understood as debt securities in the sense of capital investment law, as it is the case in the new German law on the introduction of electronic securities ('eWpG') of June 2021, this question does not yet arise. The eWpG is implementing a main part of the blockchain strategy of the German Federal Government. Pursuant to Section 2 (1) eWpG, a security can also be issued as an electronic security instead of as a physical document. This is an extrinsic token because the value of the token is not derived from itself but from the securitised claim. This electronic security is equated with things in the understanding of the German civil law (§ 90 BGB) by means of a legal fiction ("*shall be deemed as*") (§ 2 para. 3 eWpG). The transfer process described in § 25 eWpG is instructive: it enables the transfer of ownership ("*Übertragung des Eigentums*") of an electronic security analogous to the transfer of ownership of a security certificate following the German law system of transfer of ownership, by agreement and handing over (see para. 929 BGB), whereby the handing over lies in the transfer in the electronic securities register. Nevertheless, e-securities do not become things, but are merely fictitious as things. The legal fiction prevents a genuine extension of the concept of ownership under German civil law to tokens.

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19 Negative Stefan Möllenkamp and Leonid Shmatenko, Blockchain und Kryptowährungen', in *Handbuch Multimedia-Recht*, 56 El. (2021), paragraph 32.

20 Ursula Kleinert and Volker Mayer, Elektronische Wertpapiere und Krypto-Token – Aktuelle Rechtslage und die Blockchain-Strategie der Bundesregierung vom 18.9.2019', *Europäische Zeitschrift für Wirtschaftsrecht,* Vol. 30 no. 20 (2019), p. 858.

21 Stefan Möllenkamp and Leonid Shmatenko, supra note 18, paragraph 30.

Moreover, the recent regulation of tokens in the German law is only very selectively limited to securities law.

Generally, tokens are not regarded as things by the prevailing view in Germany due to their lack of physicality. Sometimes tokens are regarded as unwritten intellectual property rights *sui generis* lacking the legal protection of other immaterial goods.[22] In a 2017 decision, the 1st Criminal Senate of the German Federal Supreme Court (BGH) classified bitcoins as neither things nor rights, but as a "*realisable asset*" of its own kind.[23] A teleologic extension of the concept of ownership to tokens in the German law is not possible because of the *numerus clausus* of rights *in rem*[24] which is a strong dogma of the German property law.[25] As soon as tokens can furthermore represent a direct right of dominion or a partial right of dominion in a real-world object, for example in a vintage car or a work of art, their relationship to object ownership must be clarified. Also, the transfer of tokens must be examined in its relationship to the transfer of the represented object by material transfer agreement. The tokenisation law of the Principality of Liechtenstein[26] is interesting in this context: on the one hand, real objects can also be tokenised here. The law also covers intrinsic tokens that do not represent rights to objects (Art. 3 par. 3). Secondly, tokens that are generated domestically are regarded as domestically located assets, they are territorialised (Art. 4). Dispositions of tokens effect the disposition of the right represented by the token.

The advance of NFTs (Non-Fungible Tokens) shows that tokens to works of digital art, for example, can fulfil certain functions that are usually associated with the legal ownership of an object. The assignment of an NFT to a digital content to a

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22 Julia von Buttlar and Sebastian Omlor, 'Tokenisierung von Eigentums-, Benutzungs-, Zutritts- und Pfandrechten', *Zeitschrift Für Rechtspolitik*, Vol. 54 no. 6 (2021), p. 170.

23 BGH, 1 StR 412/16 (27.7.2017), paragraph 67, http://juris.bundesgerichtshof.de/cgi-bin/rechtsprechung/document.py?Gericht=bgh&Art=en&nr=82664&pos=0&anz=1 (last visited 22.1.2022).

24 Stefan Möllenkamp and Leonid Shmatenko, supra note 18, paragraph 22.

25 Regarding the critics against the numerus clausus of rights *in rem* see Stefan Koos, ‚Fiduziarische Person und Widmung – Das stiftungsspezifische Rechtsgeschäft und die Personifikation treuhänderisch geprägter Stiftungen‘, (2004), p. 46 ff.

26 Gesetz vom 3.10.2019 über Token und vertrauenswürdige Technologien (VT) Dienstleister, https://www.gesetze.li/konso/2019301000 (last visited 1.12.2021).

person - for example, a file with a digital work of art - does not mean ownership in the legal sense of the content itself or an exclusive license for the content, but initially only leads to the registration of the acquirer of the NFT as the "owner" of the NFT in the blockchain. If the NFT is not recognised by the legal system in its linkage to the digital content, for example by legally equating the 'ownership' (the assignment in the blockchain) of the NFT with the ownership or the exclusive right to the linked real or digital object, the right to the NFT does not directly give the beneficiary any rights to the linked content. The phenomenon that NFTs in digital artworks have nevertheless sometimes reached a considerable market value can be explained by the fact that the attribution of the NFT to a rightsholder is seen by the market as an (intrinsic) value in itself, which lies in being able to pass oneself off as the 'owner', even though the linked work remains in the public domain. The 'owner' of the NFT is in this respect comparable to the owner of a real work of art that is permanently on loan to the public in a museum.[27]

Overall, for a legal system like Germany having already started a legislation on some aspects of tokenisation the comprehensive task of developing a *private law of tokens* arises. A private law of tokens should in particular determine the relationship of the property of the token to the ownership of the represented object and establish rules on the transfer of tokens and its legal effects to the ownership situation of the object. Without a clear legal dogmatic classification of *in rem* tokenisation, there is a risk that the strict institutes and concepts of the German property law will either stand in the way of a reasonable integration of the innovative and internationally important developments through blockchain technology or that technology finally takes over functions that should be performed by law which means a loss of legislative and administrative control. Insofar as virtual objects are expressed and objectified by tokens - the details are left open at this point – it might be possible in the future to grant such virtual objects a sufficient

[27] Robert Heine and Felix Stand, 'Weiterverkauf digitaler Werke mittels Non-Fungible-Token aus urheberrechtlicher Sicht. Funktionsweise von NFT und Betrachtung der urheberrechtlichen Nutzungshandlungen.', *Multimedia und Recht*, Vol. 24 no. 10 (2021), p. 757.

proximity to things in the legal sense. This could lead to a fundamental redefinition of *ownership* protection or to a reception of a wider concept of *property* in the German and other continental legal systems.

The Right to Avatar – The Personality in the Virtual World

Already talking about virtual objects in MMORPG, the assessment of the protectability of the avatar - i.e., the game character that the player develops in the game and with which he interacts with other users in the virtual world - was to be carried out differently than for other virtual objects such as virtual weapons or game items. The reason for this is that the avatar is not just an item given by the game operators but is developed by the player himself during the game and represents the player's person in the virtual environment. It is therefore obvious to consider the aspect of the general *right of personality* as important protection aspect in addition to the aspect of the *creative self-development* of the avatar, which, due to the creativity element, alone could lead to a classification under intellectual property law, and to give the avatar special protection based on this.[28]

The foreseeable development of virtual workspaces and virtual leisure rooms and gaming areas, for example in the 'metaverse' or other virtual worlds, could significantly increase the importance of the question of the legal nature and of the protection of avatars. Legal questions will arise here which can only be answered after a broad interdisciplinary discussion on the role and freedom of the individual in the digitalisation carried out by psychologists, sociologists, philosophers, and law experts.

Two aspects should be mentioned here: Firstly, avatars embody individuals in virtual environments. Their appearance and behaviour correspond to the desires and feelings of the real person who uses the avatar. Even if the usability of the avatar in the virtual environment depends on contractual agreements with an operator of the platform or network, the importance of the right of personality for the constitutionally guaranteed status of the individual makes it necessary to consider

[28] See about the creativity aspect Pamela Koch, *supra* note 6, at paragraph 46.

to what extent the avatar must be withdrawn from the access and the possibility of manipulation by platform operators. This is especially true if virtual environments establish themselves in the future as broad elementary areas for people's lives in a future strongly digitalised society and if they become services of general interest. Similar to the antitrust law discussions about limiting the market influence of monopolistic networks and platforms limitations for their power to the detriment of the personality interest of individuals will be necessary. The right of personality will have to be extended to the avatar, its appearance, and its existence.

This results in the *defensive function* of the avatar:

a. The right not to be objectified (the avatar is no mere item in the virtual environment subject to the arbitrariness of the provider who organises and runs the virtual environment platform).
b. The right not to be manipulated by platform operators (choice of appearance and behaviour is respected within the limits of the law).

The *positive function* is based on:

a. The freedom to choose freely the appearance and social image of the avatar (limited by law).
b. The freedom to create a consistent virtual personality.

Secondly, on the other hand avatars do not necessarily represent the user's behaviour in the real world. When using an avatar, users may behave contrary to their habits in the context of social interactions in the real world. In addition, avatars can be replaced and changed at will and are therefore potentially fluctuating. This could result in problems for the transparency of social behaviour, which will become even more significant the more widespread the use of virtual workspaces and virtual social spaces becomes. Legal protection of the avatar must then be reconciled with appropriate legal control of the avatar's potential for abuse. It is not yet clear how the law could capture the ambivalence of the person in the hybrid real and digital society.

The blending of the real and virtual worlds will lead to the need for rules that control the behaviour of people in virtuality in a socially acceptable way. As is well known, it already seems hardly possible in the context of social internet platforms

to control certain abuses of anonymity effectively legally. The related problems and issues will increase with the general expansion of virtual spheres of life.

Conclusion

Recent visions of all-encompassing virtual worlds should be a wake-up call for legal experts to think about the possible implications for the law before those visions become reality. Important is a broad interdisciplinary discussion on the topic including the ability of the recent national data protection laws to protect the interest of the users against globally acting tech companies. We will see the combination of two main problems: those are the ubiquity of the internet and the lack of responsibility of the platforms. The discussion must also include basic dogmatic questions of the civil law, and it is possible, that the classic view of property rights and ownership may need a deeper review than it was the case during all the time of the existence of the classic European civil law codifications. It cannot be negated, that the potential of danger for the individual which is more and more embedded into technology and technical environments is increasing more than ever if the visions of metaverses are successful in the global market and if augmented reality applications and virtual reality platforms are a part of the global social life.

References

Books:

Dietrich, Jannis P.; Augmented Reality-Umgebungen im Urheberrecht, Berlin, 2020.

Erlank, Wian; Property in Virtual Worlds (2012). Available at SSRN: https://ssrn.com/abstract=2216481 or https://dx.doi.org/10.2139/ssrn.2216481

Fezer, Karl-Heinz and Koos, Stefan; Internationales Wirtschaftsrecht, München, 5th ed., 2019

Hilgert, Felix; in Leupold/Wiebe/Glossner (ed.), Münchener Anwaltshandbuch IT-Recht, Part 17 ‚Augmented Reality', München, 2021

Koos, Stefan, Fiduziarische Person und Widmung – Das stiftungsspezifische Rechtsgeschäft und die Personifikation treuhänderisch geprägter Stiftungen, München, 2004.
Möllenkamp, Stefan and Shmatenko, Leonid; in: Handbuch Multimedia-Recht, Blockchain und Kryptowährungen, München, 56. EL 2021

Journals:

Altmeppen, Klaus-Dieter and Filipovic, Alexander; Corporate Digital Responsibility. Zur Verantwortung von Medienunternehmen in Digitalen Zeiten, 52(2) Communicatio Socialis, 2019, p. 202–14, Available at: https://doi.org/10.5771/0010-3497-2019-2-202.
Boehme-Neßler, Volker; Die Macht der Algorithmen und die Ohnmacht des Rechts. Wie die Digitalisierung das Recht relativiert, 70(42) Neue Juristische Wochenschrift, 2017, p. 3031-3037.
von Buttlar, Julia and Omlor, Sebastian; Tokenisierung von Eigentums-, Benutzungs-, Zutritts- und Pfandrechten, 56(6) Zeitschrift für Rechtspolitik, 2021, p. 169-172.
Erlank, Wian; Introduction to Virtual Property: Lex Virtualis Ipsa Loquitur, 18(7) Potchefstroom Electronic Law Journal, 2015, p. 2525–2559.
Heine, Robert, and Stand, Felix; Weiterverkauf digitaler Werke mittels Non-Fungible-Token aus urheberrechtlicher Sicht. Funktionsweise von NFT und Betrachtung der urheberrechtlichen Nutzungshandlungen, 24(10) Multimedia und Recht, 2021, p. 755–760.
Kleinert, Ursula and Mayer, Volker; Elektronische Wertpapiere und Krypto-Token – Aktuelle Rechtslage und die Blockchain-Strategie der Bundesregierung vom 18.9.2019, 30(20) Europäische Zeitschrift für Wirtschaftsrecht, 2019, p. 857-863.
Koch, Pamela; Die rechtliche Bewertung virtueller Gegenstände auf Online-Plattformen, JurPC, Web-Dok. 57/2006, 2006, paragraph 1-60. Available at: https://doi.org/10.7328/jurpcb/200621553.
Koos, Stefan; Die Domain als Vermögensgegenstand zwischen Sache und Immaterialgut, 7(6) Multimedia und Recht, 2004, p. 359-365.
Lober, Andreas and Weber, Olaf; Money for Nothing? - Der Handel mit virtuellen Gegenständen und Charakteren, 8(10) Multimedia und Recht, 2005, p. 653-660.
Teguh Tresna Puja Asmara, Lastuti Abubakar, Tri Handayani; Digital Assets: The Idea of Indonesian Property Law Reform and Its Potential as a Collateral Object, 5(3) Hasanuddin Law Review, 2019, p. 278-288.

Conference Papers:

Koos, Stefan; The Displacement of the Law by Technicity, Paper for the 1st Ahmad Dahlan International Conference on Law and Social Justice (ADICoLS), Universitas Ahmad Dahlan, Yogjakarta 4.-5. August 2021 (proceedings in publishing process).

Others:

Chmielewski, Dawn C.; 'Mark Zuckerberg Tells Congress: "I started Facebook. I run it. I´m responsible for what happens here"', Deadline April 9, 2018. https://deadline.com/2018/04/mark-zuckerberg-tells-congress-i-started-facebook-run-it-im-responsible-1202361385/ (last visited 30.1.2022).

Ganjoo, Shweta; 'Mark Zuckerberg says he feels responsible for how Facebook has been used', India Today October 22, 2019. https://www.indiatoday.in/technology/news/story/mark-zuckerberg-feels-responsible-for-how-facebook-has-been-used-1611910-2019-10-22 (last visited 30.1.2022).

Zenke, Michael; 'AGDC08: On avatar rights and virtual property'. https://www.engadget.com/2008-09-15-agdc08-on-avatar-rights-and-virtual-property.html (last visited 30.1.2022).

Moringiello, Juliet; More on What Virtual Property Can Do For Property: The Problem of Analogy, PropertyProfBlog (blog), 27 February 2008, https://lawprofessors.typepad.com/property/2008/03/more-on-what-vi.html (last visited 22.1.2022).

German Federal Supreme Court, July 27, 2017, 1 StR 412/16, paragraph 67. Available at: http://juris.bundesgerichtshof.de/cgi-bin/rechtsprechung/document.py?Gericht=bgh&Art=en&nr=82664&pos=0&anz=1 (last visited 22.1.2022).

Rechtsbank Leeuwarden (Netherlands), October 21, 2008 (BG0939; 17/676123-07 VEV) (Runescape).