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'A Comparative Analysis on the Current Legislative Trends in Regulation of Private
Law Aspects of Digital Assets'

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A Comparative Analysis on the Current Legislative Trends in Regulation of Private Law Aspects of Digital Assets

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This article provides a comparative analysis on the issue of regulation of private law aspects of digital assets in Austria, Germany, Russia and the United Kingdom. It is the first comparative legal piece of writing which addresses the attempts to create private law rules drafted specifically to regulate various types of digital assets and provides suggestions on the application of the existing private law rules to digital assets in the selected jurisdictions.

Keywords: digital asset; intangible asset; cryptoasset; cryptocurrency; blockchain; bitcoin; distributed ledger technology.

A. Introduction

There has been a growing interest in digital assets (or cryptoassets) by legislators, courts and academics. In private law, they raise several questions such as (1) acquisition of exclusive rights over digital assets; (2) treatment of digital assets in insolvency situations; (3) inheritance of digital assets; (4) claims in case of damage to digital assets and (5) treatment of digital assets in corporate law (eg as contribution in kind).

The term digital assets is a technical one, not legal. There is no legal category referred to as “digital assets” in the private law regimes of the selected jurisdictions. Accordingly, there are no private legal rules applied exclusively to “digital assets” as a category itself, neither in property law nor in law of obligations. Thus, from a legal perspective, digital assets have to be classified within existing categories of law such as intangible objects. Legal *terminology* has not been assigned to the type of properties such as virtual currencies, personal data or algorithms for commercial use. It is unclear yet, whether different types of digital assets will be treated – at least to some extent – similarly.

From a property law perspective, digital assets can fall into the category of intangible or incorporeal objects. This category stems from *Roman law*¹ and has been adopted in the Austrian Civil Code (ABGB) as well as in the French Code Civil. The German Civil Code (BGB) and the Swiss Civil Code likewise distinguish between tangible objects and intangible objects,

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¹ See Gai. 2, 13-14: (res) corporales, quae tangi possunt (velut fundus, homo, vestis, aurum argentum et denique aliae res innumerabiles); res incorporales, quae tangi non possunt (qualia sunt ea, quae in iure consistunt, sicut hereditas, usufructus, obligationes quoquo modo contractae).

however the term legal object (*Rechtsobjekt*), as is used in private law, refers to only tangible objects in German and Swiss legal systems.

Intangible assets such as obligations, services or knowledge are not unknown to lawyers, however digital assets have only recently become a subject matter of legal discourse. Digital assets, like as the case with knowledge, might be found to have an intrinsic (market) value, i.e. their value does not depend on particular qualities awarded by the law (eg obligations). In general, digital assets do not fundamentally differ from other intangible assets and in fact have a lot in common. However, digitalization of intangible objects changes the means by which they can be attributed to a person, stored and transferred.

The question as to how private law should address digital assets, in particular whether and to what extent a jurisdiction grants proprietary rights similar to intellectual property rights cannot possibly be free from a *political* debate and an interest analysis based on the motivations and added-value generated by stakeholders.

The legal discourse regarding cryptoassets has mostly revolved around areas having predominantly a public law nature, i.e. market regulation and taxation. The area of core private law on the other hand and interests affiliated with the regulation of private law aspects, i.e. the treatment of cryptoassets with regard to property law, has been thus far neglected.

The purpose of this article is to shed light on specifically the relevant aspects of private law from a comparative perspective. It is to provide a comparative analysis on the current legislative trends on the regulation of private law aspects of digital assets by focusing on Austria, Germany, Russia and the United Kingdom (UK). In doing so, the article addresses awareness of private law aspects of digital assets in academia, politics and judicial practice, proposals for potential regulations, court practice, discussions in academic discourse and conflicts of law aspect of digital assets in the selected jurisdictions. The focus on core private law excludes the otherwise important subject of tax law and regulation of state administrative practice including criminal sanctions in regard of digital assets.

B. Awareness of Private Law Aspects of Digital Assets in Academia, Politics and Judicial Practice

The governing political parties in *Germany* included the creation of a blockchain-strategy into their coalition agreement of 2018,² containing the prospect of a regulatory framework for trade with crypto currencies and tokens.³ However no parliamentary acts have been passed yet and no parliamentary debates concerning concrete proposals have taken place.⁴ The government recently announced that it intends to present a “blockchain strategy” in the middle of 2019.⁵ Since the government does not think that cryptocurrencies pose a threat to the stability of the financial market,⁶ it is doubtful whether the legal situation will change any time soon. The

² See coalition agreement 2018 (*Koalitionsvertrag zwischen CDU, CSU und SPD*), 43 et seq <<https://www.bundesregierung.de/breg-de/themen/koalitionsvertrag-zwischen-cdu-csu-und-spd-195906>> accessed 30 January 2019.

³ *ibid.*

⁴ There has been an initiative by the Green Party in 2017 that suggested to examine options to remove existing differences in the legal treatment of “corporeal and incorporeal digital works”, BT-Drucksache 18/11416, 2.

⁵ See BT-Drucksache 19/5868, 4. Despite the current state of this strategy being rather vague, the government stated that it intends to take into consideration the experiences of other countries and their strategies, namely those of Austria (*ibid* 6).

⁶ See BT-Drucksache 19/2454, 04.06.2018, 3.

probability of national regulations in the near future drops even further due to the fact that, in respect of consumer protection and some other issues, the government intends to seek solutions mostly on an international or European level.⁷ Given this and adding the fact that the German government has (at least until recently) not even requested any expert opinions regarding a private law framework for cryptoassets,⁸ it appears very likely that the German legislator will take action on a larger scale in the foreseeable future.

Among the general public, discussions have emerged in light of the *bitcoin hype*, particularly in Germany.⁹ However, it has not yet steered towards a clear-cut opinion regarding the appropriate means of private law regulation of digital assets.

Academic discussion, as usual, is the frontrunner with regard to digital assets. In Germany, already at the 71st *German Jurists' Conference (Deutscher Juristentag)* in 2016,¹⁰ digital goods were one of the subjects, and Digitalisation was the main topic of the Association of Civil Law Teachers Conference (*Tagung der Zivilrechtslehrervereinigung*) in 2017.¹¹ The issues addressed in academia are widespread and cover almost all fields of private law. This does not come as a surprise, as most corporeal objects can be – and in fact many of them are – represented by digital assets. Therefore, digital assets allow for a variety of purposes: a cryptoasset may stand for property regarding a tangible object, movable or immovable, a company share or a claim.¹²

Discussions on digital assets have taken place in the *Austrian Parliament* as well, although this has yet not resulted in the development of specific laws. In a parliamentary question to the Minister of Finance, the liberal New Austria and Liberal Forum party (*NEOS*) demanded detailed information on the current legal framework for digital assets and complained above all that there is currently considerable legal uncertainty around many core issues.¹³ The government assured them that it would take the issue very seriously and actively work on continuing to support the application of blockchain technology in Austria. It gets mention that an Austrian blockchain law is being developed, however, it is not clear which aspects of digital assets will be regulated.

Nevertheless, the *Austrian Minister of Finance* has established a FinTech advisory board in order to make proposals on the digital financial services sector. In addition, the Austrian

⁷ ibid 4 see also BT-Drucksache 19/2452, 04.06.2018, 5; BT-Drucksache 19/5868, 5 and 7.

⁸ BT-Drucksache 19/2452, 04.06.2018, 6, where it is stated that the only expert opinion that was being prepared at the moment was one on the safety of selected blockchain applications.

⁹ Sebastian Omlor, 'Blockchain-basierte Zahlungsmittel - ein Arbeitsprogramm für Gesetzgeber und Rechtswissenschaft' [2018] *Zeitschrift für Rechtspolitik* 85, 89.

¹⁰ See especially the expert opinion by Florian Faust, 'Digitale Wirtschaft – Analoges Recht: Braucht das BGB ein Update?', in Ständigen Deputation des Deutschen Juristentages (ed), *Verhandlungen des 71. DJT Essen 2016, Vol. 1* (C.H. Beck 2016).

¹¹ See Michael Grünberger, 'Verträge über digitale Güter' [2018] *Archiv für die Civilistische Praxis* 213 et seq (contracts regarding digital goods); Katja Langenbacher, 'Digitales Finanzwesen – Vom Bargeld zur virtuellen Währung' [2018] *Archiv für die civilistische Praxis*, 385 et seq (digital finance); Christine Budzikiewicz, 'Digitaler Nachlass' [2018] *Archiv für die civilistische Praxis* 558 et seq (digital legacy).

¹² See Markus Kaulartz and Robin Matzke, 'Die Tokenisierung des Rechts' [2018] *Neue Juristische Wochenschrift* 3278, 3279 et seq. for an overview over different kinds of tokens.

¹³ See <https://www.parlament.gv.at/PAKT/PR/JAHR_2018/PK0691/> accessed 30 January 2019.

Minister of Finance has announced special “sandboxes” for 2019 in order to test business models and technologies in the FinTech sector.¹⁴

The UK has been closely monitoring and undertaking work on *cryptoassets and distributed ledger technology* (DLT) since 2014.¹⁵ This work has gained a considerable pace particularly in 2018 at the policy-making level on different aspects of cryptoassets which has resulted thus far in the publications of the House of Commons Treasury Committee Report on cryptoassets¹⁶ in September 2018, the UK Cryptoassets Taskforce Final Report¹⁷ in October 2018 and a policy paper by Her Majesty’s Revenue and Customs (HMRC) on cryptoassets for individuals¹⁸ in December 2018.

There is currently no specific regulation in the UK on private law aspects of cryptoassets. Financial services law, contract law, consumer law and advertising standards are considered as potentially applicable body of laws to cryptoassets.¹⁹ Regarding *financial services*, certain cryptoasset instruments and activities may fall within the perimeter of current UK legal regulation, particularly via the Financial Services and Markets Act (2000) (Regulated Activities) Order (RAO)²⁰ and the Payment Services Regulations 2017.²¹ However, it is not necessarily straightforward at present to decide whether and what regulation applies to a particular instrument or activity; this is an exercise that can only be done on a case-by-case basis.²² In general terms, security tokens will fall within the current regulatory perimeter as they amount to a “specified investment” under the RAO, whereas exchange tokens and utility tokens typically do not.²³

C. Proposals for Regulating Private Law Aspects of Digital Assets

¹⁴ See <<https://www.bmf.gv.at/presse/FinTechWeek.html>> accessed 30 January 2019.

¹⁵ UK Cryptoassets Taskforce Final Report <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/752070/cryptoassets_taskforce_final_report_final_web.pdf> accessed 11 January 2019, 4-6.

¹⁶ House of Commons Treasury Committee Report <<https://publications.parliament.uk/pa/cm201719/cmselect/cmtreasy/910/910.pdf>> accessed 11 January 2019.

¹⁷ UK Cryptoassets Taskforce Final Report (n 15). For an analysis on the main findings of the Report, see (also) Burcu Yüksel, ‘Is the UK heading towards regulation of cryptoassets? Findings from the UK Cryptoassets Taskforce Final Report’ (*Aberdeen Law School Blog*, 15 December 2018) <<https://www.abdn.ac.uk/law/blog/is-the-uk-heading-towards-regulation-of-cryptoassets-findings-from-the-uk-cryptoassets-taskforce-final-report/>> accessed 11 January 2019.

¹⁸ HMRC’s Policy Paper <<https://www.gov.uk/government/publications/tax-on-cryptoassets/cryptoassets-for-individuals>> accessed 11 January 2019.

¹⁹ UK Cryptoassets Taskforce Final Report (n 15) para 2.28, 16.

²⁰ SI 2001 No. 544 <<http://www.legislation.gov.uk/ukxi/2001/544/contents/made>> accessed 11 January 2019.

²¹ SI 2017/752 <<http://www.legislation.gov.uk/ukxi/2017/752/contents/made>> accessed 11 January 2019.

²² UK Cryptoassets Taskforce Final Report (n 15) para 2.26, 16.

²³ In the UK, cryptoassets are classified via three main categories, namely exchange tokens, security tokens, and utility tokens. This classification is found in the UK Cryptoassets Taskforce Final Report (n 15) at para 2.11, 11 and adopted also in the HMRC’s policy paper (n 18). Under this classification, exchange tokens are cryptocurrencies like Bitcoin that are used as a means of exchange and investment but are not issued by a central bank or other central authority of a state. Security tokens are used for investment and as a capital raising tool, and may provide the holder with certain rights such as ownership, repayment of a sum of money or entitlement to a share in future profits. Utility tokens are also used for investment and as a capital raising tool, and they can be redeemed for access to specific products or services typically provided using a DLT platform. For an outline on the application of the current regulatory perimeter on cryptoassets, see *ibid*, 16-18.

Germany is hesitant to develop national legislation and rather wishes to pursue an international or at least an EU-wide solution,²⁴ whereas other jurisdictions are discussing *amendments* of codes and laws or draft new statutes governing private law aspects of digital assets.

Nevertheless, such attempts are promoted in *Germany* as well, in particular by law associations and academia.²⁵ Those proposals concern several aspects concerning the regulation of digital assets, even though the development of an entirely new code has not been favoured.²⁶ It has also been pointed out that a too eager and hasty legislation could inhibit technical progress.²⁷ The advocated course of action hence instead is a mixture of amendments to existing provisions and court practice.

In *Russia*, three different bills have been drafted which to some extent address private law aspects of digital assets.²⁸ Although mainly focusing on the regulation of initial coin offerings, regulation of crypto-exchanges and amendment of the AML/CFT legislation accordingly are also covered.

The *Russian digital rights bill* suggests amendments to the Russian Civil Code, whereas the Russian investment platforms bill and the Russian digital assets bill would be stand-alone rulebooks concerned in particular with initial coin offerings and circulation of digital assets. The Russian digital rights bill defines tokens as separate assets and characterizes them as contractual obligations.²⁹ The digital rights bill also emphasizes many common traits between tokens and securities. According to the bill, third parties can rely on the declared content of the token.³⁰ According to the bill, the moment of transfer of title would coincide with the moment of altering the entry in the blockchain.³¹ Nevertheless, in academic discussion, the proposal to introduce a new category of assets, which are claimed to be different from already known assets, is found superfluous.³²

D. Court Practice Addressing Private Law Aspects of Digital Assets

²⁴ BT-Drucksache 19/2454, 04.06.2018, 4 and also BT-Drucksache 19/2452, 04.06.2018, 5.

²⁵ Gerald Spindler, 'Digitale Wirtschaft - analoges Recht: Braucht das BGB ein Update?' [2016] Juristenzeitung 805, 816; Leonid Shmatenko and Stefan Möllenkamp, 'Digitale Zahlungsmittel in einer analog geprägten Rechtsordnung' [2018] Multimedia und Recht 495, 500 et seq.

²⁶ See for example Resolution no 2 lit a of the 71st German Jurists' Conference, <https://www.djt.de/fileadmin/downloads/71/Beschluesse_gesamt.pdf> accessed 30 January 2019.

²⁷ Peter Zickgraf, 'Initial Coin Offerings – Ein Fall für das Kapitalmarktrecht?' [2018] Die Aktiengesellschaft 293, 307; see also Spindler (n 25) 810.

²⁸ Draft Law no 424632-7 on making amendments to the parts first, second, third and fourth of the Russian Civil Code (on digital rights) (2018) <<http://www.consultant.ru/cons/cgi/online.cgi?req=doc;base=PRJ;n=170238#08713827646644379>> accessed 30 January 2019; Draft Law no 419090-7 on Attracting Investments through Investment Platforms (2018) <<http://www.consultant.ru/cons/cgi/online.cgi?req=doc&base=PRJ&n=172688#07472132557651192>> accessed 30 January 2019; Draft Law no 419059-7 on Digital Financial Assets (2018) <<http://www.consultant.ru/cons/cgi/online.cgi?req=doc&base=PRJ&n=172447#09087685817131596>> accessed 30 January 2019.

²⁹ Draft Law no 424632-7 on making amendments to the parts first, second, third and fourth of the Russian Civil Code (on digital rights) (n 28), s 1.

³⁰ Draft Law no 419059-7 on Digital Financial Assets (n 28), s 3.

³¹ Blockchain recording of titles would mean ownership transfer.

³² Sergei Sarbash, 'Analysis of the Digital rights bill' (Russian School of Private Law [Institute] 2018) <<http://privlaw.ru/wp-content/uploads/2018/04/meeting-190418-zakonoproekt-2-project-conclusion.pdf>> accessed 30 January 2019.

In cases where there are gaps and ambiguities regarding private law aspects of digital assets on the legislative side, the judiciary must step in to ensure clarity in the event of any disputes and determine the applicable law to digital assets. However, cases have not yet reached higher instance courts³³ and only seldomly become publicly available. This is most likely due to the change in economic value of digital assets which has resulted in digital assets being subject to litigation only very recently. Another reason for this might be factual difficulties such as the anonymity within blockchain networks or the technical measures against misuse – both makes it harder to even bring a case regarding digital assets before the courts.³⁴

There are, however, a few court decisions with relevance for the regulation of private law aspects of digital assets from some countries: In a decision by a Court of Appeal in Russia, the first-instance decision against the inclusion of bitcoins in the bankruptcy estate was lifted.³⁵

In Germany two court decisions concerned the question whether or not the “buyer” of digital content must be granted the right to re-sell the “purchased” good.³⁶ Although the subject matter of the cases was not cryptoassets, the decisions contributed to the discussions about the rights which an acquirer *should* have with regard to acquired digital assets as both cases turned ultimately to be successful for the vendor.

E. Academic Discourse Addressing Private Law Aspects of Digital Assets

E.I. Russia

In Russia, some authors consider digital assets as legal objects and consequently are in favour of applying *proprietary law regimes* to it.³⁷ These authors believe that property law can adequately accommodate the nature of digital assets as these assets do not give any unique new rights or entitlements to their holder and can be violated by any third party.³⁸ Others deny that owners of digital assets can bring forward ownership claims.³⁹ These authors consider digital assets as “other property” - a category, set forth by s 128 of the Russian Civil Code, which helps to put new assets under the civil law regulation.⁴⁰ There are no specific rules applicable

³³ Even regarding lower instance courts, there aren't many decisions as of yet. See i.e. KG Berlin, *Neue Juristische Wochenschrift* 2018, 3734 (Necessity of an official permission to trade in bitcoin according to s 32 sub-s 1 German Banking Act [*Kreditwesengesetz*] older version). The government has announced that the question if crypto currencies are “Rechnungseinheiten” in the sense s 1 sub-s 11 German Banking Act [*Kreditwesengesetz*] might be addressed as a part of the blockchain strategy, BT-Drucksache 19/5868, 5.

³⁴ See Shmatenko/Möllenkamp (n 25) 500.

³⁵ 9th Circuit Court of Appeal, 15 May 2018 <http://kad.arbitr.ru/PdfDocument/3e155cd1-6bce-478a-bb76-1146d2e61a4a/58af451a-bfa3-4723-ab0d-d149aafecd88/A40-124668-2017_20180515_Postanovlenie_apelljacionnoj_instancii.pdf> accessed 30 January 2019; see also annotation by Yuri Kuznecov, ‘Sud bez zakona: pravovoj rezhim kriptovalyuty v dele o bankrotstve’ (2018) 2 *Ekonomicheskaya politika* 48.

³⁶ OLG Stuttgart, *Zeitschrift für Urheber- und Medienrecht* 2012, 811; OLG Hamm, *Neue Juristische Wochenschrift* 2014, 3659.

³⁷ Artem Tolkachev and Michael Zhuzhalov, ‘Cryptocurrency as property – analysis of the current legal status’ (2018) 9 *Bulletin of economic justice of the Russian Federation* 91.

³⁸ Alexey Sazhenov, ‘Kriptovalyuty: Dematerializaciya kategorii veshchej v grazhdanskom prave’ (2018) 9 *Zakon* 89.

³⁹ Dmitriy Fedorov, ‘Tokeny, kriptovalyuta i smart-kontrakty v otechestvennyh zakonoproektah s pozicii inostrannogo opyta’ (2018) 2 *Vestnik grazhdanskogo prava* 31.

⁴⁰ Section 128 of the Russian Civil Code. The Kinds of the Objects of Civil Rights. To the objects of civil rights shall be referred the things, including money and securities, and also the other kinds of the property, such as the non-cash money, uncertificated securities, rights of property; the works and services; the protected results of intellectual activities, including the exclusive right to these (the intellectual property); the non-material values.

to “other property” assets, but inclusion of an asset into this category means that its owner has a claim in tort. Other property can furthermore be subject to transactions. According to this approach, digital assets can be relevant for a claim based on unjust enrichment and must also be included into the bankruptcy estate in case of insolvency.⁴¹ According to another opinion in legal writing, digital assets should form their own category of rights.⁴²

Aside from digital assets, Russian academics discuss the legal nature of *tokens* (digital assets, which represent a right to a particular asset - utility tokens, and investment tokens). Some scholars propose to create a unified regulation for all kinds of digital assets (cryptocurrencies and tokens), because all digital assets are recorded via blockchain and this verifies their existence and ownership.⁴³ Digital assets also can be a subject to similar infringements. Nevertheless, there is another opinion which is more favoured that from the perspective of civil law tokens share similarities with securities.⁴⁴ Similar to securities, tokens embody a right. A third party must have an opportunity to rely on tokens and declared rights that these tokens represent, even if such rights are void.

According the proposed digital rights bill, securities legislation shall be applied to tokens. As a consequence, it is said that third parties may rely on the declared content of the token without facing the risk of debtors’ objections.

E.II. Germany

There have been discussions regarding whether or not German *law of obligations* – contracts as well as torts – and German law of succession are suitable to encompass digital assets as they were drafted at a time when digital assets did not exist. Furthermore, the question has been raised if digital assets should be subjected to German property law, which would under the *lex lata* require them to be things in the sense of s 90 BGB.⁴⁵ That in turn requires – at least for the time being – corporeality.⁴⁶ Lastly, the rise of crypto currencies has led to several questions on the field of currency and financial law.⁴⁷

A major cause of difficulties regarding digital assets in German private law derives from the structure of the Civil Code’s property law sections. German property law deals with the creation, transfer, encumbrance and protection of ownership rights. Ownership in the sense of the BGB is defined by s 903 BGB as the right of the owner to “deal with the *thing* at his discretion and exclude others from every influence”. Ownership is therefore limited to things, which, according to s 90 BGB refer to “only *corporeal* objects”.

⁴¹ Fedorov (n 39) 31.

⁴² Lyudmila Novoselova, ‘Tokenizatsiya» ob’ektov grazhdanskogo prava’ (2017) 12 Economics and Law 29.

⁴³ Concerning this position: Alexander Savelyev, ‘Nekotorye riski tokenizatsii i blokchejnizatsii grazhdansko-pravovyh otnoshenij’ (2018) 2 Zakon 57.

⁴⁴ Novoselova (n 42) 29; Alexander Savelyev, ‘Kriptoalyuty v sisteme ob’ektov grazhdanskih prav’ (2017) 8 Zakon 44.

⁴⁵ An official English version of the BGB is available at <https://www.gesetze-im-internet.de/englisch_bgb/> accessed 30 January 2019. Where the wording of the BGB is quoted hereafter, the English translation is taken from this source.

⁴⁶ Christian Engelhardt and Sascha Klein, ‘Geschäfte mit Geld, das keines ist - Technische Grundlagen und zivilrechtliche Betrachtung’ [2014] Multimedia und Recht 355, 357.

⁴⁷ See Omlor (n 9) 85et seq; Langenbucher (n 11) 385 et seq. As this article mainly deals with the qualities of digital assets themselves it does not cover the law regulating the markets for digital assets.

Digital assets themselves – unlike their storage media –⁴⁸ by definition lack the required corporeality and hence are not things as defined by s 90 BGB. The clear legislative decision behind the provision also prohibits an analogous application of s 90 BGB to digital assets.⁴⁹ They therefore are currently not governed by German property law which is by nature the law of things.⁵⁰

At the moment, there is debate on whether or not an article should be added to the BGB stipulating that the provisions regarding things should apply accordingly to digital assets. A provision would, however, only make sense if digital assets were in line with the basic principles of German property law, two of which are particularly troublesome with regard to digital assets.

First, there is the principle of publicity: the transfer of ownership requires an act of publicity, which is also the foundation of a potential bona fide acquisition of property.⁵¹ *Second*, the German protection of ownership rights is mostly built on the assumption, that no more than one person can harness the full advantages of a thing at the same time.

Not all digital assets match those principles: An mp3-file, for example, can be illicitly copied but still be enjoyed by the original “owner” all the same. *Cryptocurrencies* on the other hand can match the aforementioned principles of property law. In cryptocurrency networks, for example, certain units are attributed to no more than one person at the same time. The technology also ensures publicity of transfers that is at least equivalent to the transfer of possession regarding corporeal objects.

The 71st German Jurists’ Conference in 2016 held that the legislator should at least investigate this subject in more depth regarding digital goods in general.⁵² This shows that the academic discussion regarding the application of property law to digital assets is still ongoing, even though there are the first hints at a possible differentiation between cryptoassets and other digital goods.⁵³ But as it seems at the moment, it is rather unlikely that the German legislator will move in that direction any time soon, even though many scholars would favour legislative action.⁵⁴

German Law of *contractual obligations* is much more flexible than German property law which is rather rigid. Especially in the field of purchases (s 433 ff. BGB) there is little demand for substantial changes to the existing provisions as s 453 BGB already enables the purchase of digital assets.

⁴⁸ Spindler (n 25) 812.

⁴⁹ The authors of the BGB already knew that there are not only “res corporales”, but also “res incorporales” and still decided not to include the latter into the term “thing”, see Benno Mugdan (ed), *Die gesamten Materialien zum BGB*, vol 3 (v. Decker 1899) (Motifs). However, when thinking of „res incorporales”, they of course did not think of digital assets.

⁵⁰ Omlor (n 9) 87; Engelhardt/Klein (n 46) 357, 359; Langenbucher (n 11) 405.

⁵¹ Jürgen Oechsler, in Säcker and others (eds), *Münchener Kommentar zum BGB*, vol 7 (7th edn C.H. Beck 2017), ss 929 – 936*, s 932 marginal no 5.

⁵² Resolution no 8 Var. c, <https://www.djt.de/fileadmin/downloads/71/Beschluesse_gesamt.pdf> accessed 30 January 2019.

⁵³ Engelhardt/Klein (n 46) 359 refer to cryptoassets only.

⁵⁴ In favour of an amendment to s 90 BGB regarding (only) bitcoin and comparable digital goods are Engelhardt/Klein (n 46) 359; Shmatenko/Möllenkamp (n 25) 501; more general Matthias Lehmann during a discussion at the association of civil law teachers conference [2018] Archiv für die civilistische Praxis 298.

However, some other types of contracts are not yet open to digital assets as their object, a particularly important example being (usufructuary) lease contracts. However, the parties may conclude quasi-lease contracts regarding digital goods without a regulatory framework,⁵⁵ as the freedom of contract under German law also encompasses the parties' free choice regarding its content.⁵⁶ But this flexibility is contrasted by transaction costs⁵⁷ and a potential erosion of protective provisions.

Therefore, the German Jurists' Conference has resolved,⁵⁸ and several voices in academia have proposed,⁵⁹ that the legislator should also open obligatory contract types other than purchase contracts for digital assets.

In sum, the changes to the law of contracts that are advocated so far are limited to minor changes in the shape of amendments to existing provisions.⁶⁰

In the field of *tort law*, there is a shortage of protection at the moment. The German system of tort law is built around three minor general clauses, the common description as "minor" being due to the fact that they do not provide general protection against infringements by negligence.⁶¹

This becomes especially clear with regard to digital assets, which are currently not *generally* protected against infringements by negligence. Such a protection would require either a specific law that would warrant such protection (under s 823 sub-s 2 BGB)⁶² or an absolute ownership right regarding one's digital assets (s 823 sub-s 1 BGB),⁶³ neither of which is given under the current legislation.

There are, however, some rights that allow an indirect protection of digital assets. Among these are especially the principle of copyright⁶⁴ and the *ownership or possession* of the digital assets' storage medium,⁶⁵ both of which are provided with protection against negligent infringements via s 823 sub-s 1 BGB.

⁵⁵ See Faust (n 10) A 88.

⁵⁶ Volker Emmerich, in Säcker and others (eds), *Münchener Kommentar zum BGB*, 's 311' vol 2 (7th edn, C. H. Beck 2016), margin no 1.

⁵⁷ See on the corresponding purpose of nonmandatory contract law i.e. Friedrich Carl von Savigny, *System des heutigen römischen Rechts*, vol 1 (Veit und Camp 1840), 57 et seq.

⁵⁸ Resolution no 8 Var. b, 9 Var. a and b of the 71st German Jurists' Conference, <https://www.djt.de/fileadmin/downloads/71/Beschluesse_gesamt.pdf> accessed 30 January 2019.

⁵⁹ eg Spindler (n 25) 810.

⁶⁰ Resolution no. 2 Var. a and b of the 71st German Jurists' Conference, <https://www.djt.de/fileadmin/downloads/71/Beschluesse_gesamt.pdf> accessed 30 January 2019.

⁶¹ See Karl Larenz and Claus-Wilhelm Canaris, *Lehrbuch des Schuldrechts*, vol 2/2 (13th edn, C. H. Beck 1994) 354 et seq.

⁶² There is however some protection, especially against intent via s 303a of the German Criminal Code, see David Paulus and Robin Matzke, 'Smart Contracts und das BGB – Viel Lärm um nichts?' [2018] *Zeitschrift für die gesamte Privatrechtswissenschaft* 431, 453 et seq.

⁶³ See Faust (n 10) A 1, A 72 et seq and A 92 see also the consenting resolution no. 28 lit. a of the 71st German Jurists' Conference, <https://www.djt.de/fileadmin/downloads/71/Beschluesse_gesamt.pdf> accessed 30 January 2019; Paulus/Matzke (n 62) 453 et seq.; Shmatenko/Möllenkamp (n 25) 500 have the opinion, that the ownership of ones private key justifies a protection under s 823 sub-s 1 BGB without any further amendments to the *lex lata*. Spindler (n 25) 814 goes even further and does not limit the protection to cryptoassets, see also Omlor (n 9) 87.

⁶⁴ On copyright shaping the debate about digital goods cf. Faust (n 10) A 1. Grünberger (n 11) 248 is a critic of this approach.

⁶⁵ Spindler (n 25) 812. This protection is, however, of no avail, if the owner and proprietor are third parties.

This current model of solely *indirect* protection is widely considered inadequate due to being dependent on copyright and ownership or possession of corporeal objects. The critics of the *lex lata* have proposed two possible counter-models: *First*, the implementation of new statutes protecting digital assets while also covering negligent infringements (via s 823 sub-s 2 BGB).⁶⁶ Then *second*, a protection via s 823 sub-s 1 BGB through the creation of a new absolute right regarding digital assets or the extension of ownership in the sense of property law to digital assets.⁶⁷

Recently, the similarities between *crypto tokens* and securities (within the meaning of the BGB) have become the subject of debate.⁶⁸ At the heart of this debate lies the question, to what extent the relationship of a token and its owner is comparable to the ownership of a security, given that both represent a right or a claim.⁶⁹

It has been argued that tokens can be seen as bearer bonds in the sense of ss 793 et seq BGB under the *lex lata*.⁷⁰ While this does teleologically make a lot of sense, bearer bonds do – according to the prevailing opinion in German jurisprudence – require an embodied document.⁷¹ It is therefore doubtful, whether or not German judges would be willing to qualify tokens as bearer bonds at this point.

In spite of this result, parties are able to partially achieve the effects of ss 793 et seq BGB by creating an obligatory contract with according content.⁷² Unfortunately, this does not enable the parties to create fully-fledged bearer bonds on their own: As tokens are not things they are not governed by property law and they can neither be acquired in a bona fide way (ss 932 et seq BGB) nor receive full protection under German tort law. As the obligatory effects of the contract are limited to the parties, those deficiencies would require legislative action.

It has therefore been suggested to include tokens in a possible future reform regarding the digitalisation of security issues that should attach far less importance to the element of embodiment found in current securities law.⁷³

German law of succession has a wider scope than German property law. In order to determine which assets shall be included in the deceased person's estate, all assets – tangible and intangible – are taken into consideration in accordance with s 1922 BGB.⁷⁴ It has been emphasized that the digital estate does not constitute a special legal category with regard to succession.⁷⁵ The argument that succession only covers *legal relationships*⁷⁶ and that the

⁶⁶ Resolution no. 28 lit. b of the 71st German Jurists' Conference, <https://www.djt.de/fileadmin/downloads/71/Beschluesse_gesamt.pdf> accessed 30 January 2019.

⁶⁷ See Engelhardt/Klein (n 46) 359.

⁶⁸ Kaulartz/Matzke (n 12) 3281 et seq.

⁶⁹ *ibid.*

⁷⁰ Kaulartz/Matzke (n 12) 3283.

⁷¹ See Mathias Habersack, in Säcker and others (eds), *Münchener Kommentar zum BGB*, (7th edn, C. H. Beck 2017), 'ss 759-811' s 793, margin no 5. See also Hans-Gert Vogel, in Gsell and others (eds), *beck-online.Grosskommentar* (C.H. Beck 10.2018), 'ss 793-808' margin no 88.

⁷² Kaulartz/Matzke (n 12) 3283.

⁷³ *ibid.*

⁷⁴ The official English translation of the BGB lacks this distinction. The German version is, however, clearer. It distinguishes "*Eigentum*" (assets that classify as legal objects in the meaning of property law) and "*Vermögen*" (assets in the meaning of succession law).

⁷⁵ Nicola Preuß, in Gsell and others (eds) 's 1922', *beck-online.Grosskommentar*, (C.H.Beck 10.2018), margin no 381.

⁷⁶ *ibid* margin no 17.

existence of such a relationship has to be denied with regard to cryptoassets as such, has so far not received much attention. The lack of discussion about this issue might be due to the existence of certain factual problems, e.g. the acquisition of the deceased person's login details.⁷⁷

E.III. Austria

In Austria, it remains relatively unclear how digital assets are regulated under private law. The novelty of digital assets is one reason for the uncertainty, as the Austrian legislator has yet to decide whether new laws are needed or how digital assets can fit into existing laws. Adding to this uncertainty is the fact that there are no court decisions on many pressing issues.

A necessary starting point for the characterization of digital assets under Austrian law is whether digital assets can be characterized as things (*Sachen*). Section 285 of the Austrian Civil Code (ABGB) recognizes corporeal and incorporeal things, including as debts, as property. However, the structure of the ABGB and particularly the notion of property law is different as compared to Pandectism, which can be exemplified by the fact that obligations are treated and designated as personal property rights in ABGB (*persönliche Sachenrechte*).⁷⁸ Accordingly, property law rules in principle could apply to everything that is distinguishable from a person and serves the use of people. It is widely accepted in legal writing that digital assets are “things”.⁷⁹

“Things” are further classified under the ABGB rules into several *categories*. Things are divided into corporeal and incorporeal, movable and immovable, consumable and non-consumable, and estimable and inestimable. In addition, a distinction is made among other “things” between fungible and non-fungible. Things that are not determined in trade according to individual characteristics but only according to size, number and weight (eg money, serially produced goods) are fungible. The fungibility is determined according to objective characteristics.

Given their great *variety*, it is not possible to group all digital assets into the same category of “thing”, but some similarities nevertheless exist. All digital assets are by definition incorporeal and estimable, as their existence merely consists of a data record on a blockchain and the term “asset” implies some intrinsic value. Furthermore, most (if not all) digital assets – particularly virtual currencies – are movable, and some digital assets (eg utility tokens) are consumable.

Although not expressly found in the law, “things” can be further classified according to whether they are fungible or non-fungible - digital assets could be either. For example, the different token standards are available on the Ethereum *blockchain* and ERC-20, the standard Ethereum token standard, is fungible, while the ERC-721 token standard is designed specifically for non-fungibility.

⁷⁷ *ibid* margin no 384.

⁷⁸ This is due to the structure of the ABGB inspired by the Gaiian system of Institutiones (see inter alia, Florian Heindler, *Sachenrecht* (2nd ed, SFU University Press 2018) 4.

⁷⁹ Lisa Fleißner, ‘Eigentum an unkörperlichen Sachen am Beispiel von Bitcoins’ [2018] *Österreichische Juristenzeitung* 437; Oliver Völkel, ‘Privatrechtliche Einordnung virtueller Währungen’, [2017] *Österreichisches Bankarchiv* 285; Sebastian Brehm, ‘Ausgewählte Fragen zum Umgang mit dem digitalen Nachlass’ [2016] *Journal für Erbrecht und Vermögensnachfolge* 159; Andreas Lober und Olaf Weber, ‘Money for Nothing?’ [2005] *MultiMedia und Recht*, 653 et seq.

In principle, *ownership* rights in digital assets can be transferred under Austrian law. For the purpose of this section, we limit our discussion to digital assets that are incorporeal, movable, consumable, estimable and fungible; this includes virtual currencies. The prevailing opinion in Austria applies property rights to corporeal assets only.⁸⁰ Increasingly, however, it is argued that this connection is no longer appropriate.⁸¹

As a general matter, the transfer of ownership rights under Austrian law requires a title which typically consists in a contractual transaction (*Verpflichtungsgeschäft*), an act of transfer (*Publizitätsakt*) and a material transfer agreement (*Verfügungsgeschäft*). Digital assets can therefore be the subject of all contractual transactions which are also suitable for other incorporeal, movable, consumable, estimable and fungible things. The act of transfer (*modus*) could be the transfer of the digital assets from one address to another address whose private key is at the disposal of the recipient.

All assets of a deceased person are *inheritable*, including real estate, savings, jewellery, claims against other persons, debts of the deceased person, as well as possibly access and disposal rights via Internet profiles, social media, e-mail accounts and the like. Therefore, even ownership of digital assets such as virtual currencies is inheritable, or claims under the law of obligations to transfer the digital assets.

All assets involved in *insolvency* proceedings which belong to the debtor are subject to execution (s 2 Insolvency Code). This includes all movable and immovable property of the debtor, such as property shares, co-ownership shares, claims for damages, etc. Digital assets are therefore in principle also assets subject to execution, unless the exceptional circumstances are applied, which would only be negated in the rarest of cases.

In insolvency proceedings the debtor has the right to reclaim assets subject to the insolvency proceedings, but which do not belong to the debtor in whole or in part (s 44 Insolvency Code). Whoever proves that he has a right in rem or a personal right to a thing is entitled to demand his thing back (segregation, *Aussonderung*). Ownership is the most common reason for segregation. If creditors can prove their ownership of digital goods, they are entitled to segregation of their digital assets. Digital assets and their treatment can therefore also be assessed in insolvency proceedings under existing laws.

E.IV. United Kingdom

Under the current position in the UK, which may be reviewed in the future, cryptoassets are not considered as money or currency as “they are too volatile to be a good store of value, they are not widely accepted as a means of exchange, and they are not used as a unit of account”⁸². However, beyond this, there is not much clarity on the legal characterisation and treatment of cryptoassets.

In its recent *policy paper*, HMRC clarified that cryptoassets will be considered as property for the purposes of inheritance tax while also noting that it “will look at the facts of each case

⁸⁰ See Georg Kodek, in Schwimman and Neumayr (eds), *ABGB*, ‘s 285’, *Taschenkommentar* (4th ed., lexisnexis 2017) margin no 3; Fleißner (n 79) 437; cf. Josef Aicher, in Rummel and Lukas (eds), *ABGB’s 1053’ Kommentar zum Allgemeinen bürgerlichen Gesetzbuch* (4th ed., Manz 2017) margin no 6.

⁸¹ Elisabeth Staudegger, ‘Datenhandel – ein Auftakt zur Diskussion’ [2014] *Österreichische Juristenzeiten* 107, 114 et seq; Josef Aicher, *Das Eigentum als subjektives Recht; zugleich ein Beitrag zur Theorie des subjektiven Rechts* (Duncker & Humblot 1975) 65 ff; Fleißner (n 79) 437.

⁸² UK Cryptoassets Taskforce Final Report (n 15) para 2.13, 12.

and apply the relevant tax provisions according to what has actually taken place (rather than by reference to terminology).⁸³ This indicates that the legal characterisation and treatment of cryptoassets will require a case-by-case analysis in which the type, peculiarities and function of the cryptoasset in question will be relevant and taken into account, along with the issue in question.

In the absence of court decisions on the legal characterisation and treatment of cryptoassets, debates in academia and legal practice do not suggest any clear answer on this issue either. It has been argued that in cases where they are convincingly shown to have economic value and transferability among market participants and to be sufficiently robust to trade, they are likely to be treated as a *type of property at common law*.⁸⁴ The argument follows that if they are property, they are *personal property*, not *real property*.⁸⁵ However, as rightly pointed out, they do not easily fit into the further division of “choses in possession” and “choses in action”,⁸⁶ since they share several characteristics of chose in possession (such as transferability and storage) whilst being intangible.⁸⁷ Therefore, legal uncertainties presently do remain in property law, which makes a case for an argument for traditional categories of common law to be extended to recognise “virtual choses in possession” as a new form of property referring to intangible property with the essential characteristic of choses in possession.⁸⁸ In relation to this analysis based on English common law, it is worth noting that Scotland, although a part of the UK since 1707, has its own legal system which is regarded as a mixed legal system having been influenced by both English common law and civil (Roman) law⁸⁹ and that, in the field of property law, Scots law draws substantially from Roman law and therefore adopts a different classification than that of English common law.⁹⁰

⁸³ See the HMRC’s policy paper (n 18).

⁸⁴ For this argument which has been raised for cryptocurrencies, see Financial Markets Law Committee, *Issues of Legal Complexity*, June 2018, 20-21 <http://fmlc.org/wp-content/uploads/2018/06/FinTech_bound.pdf> accessed 11 January 2019; Joanna Perkins and Jennifer Enwezor, ‘The Legal Aspects of Virtual Currencies’ (2016) 10 *Journal of International Banking and Financial Law* 569, 570.

⁸⁵ See Financial Markets Law Committee, *ibid*, 21.

⁸⁶ A “chose in possession” is defined as “a right to the exclusive possession of a physical thing” whereas a “chose in action” is defined as “a right to sue in a court of law”, see William Swadling, ‘Property: General Principles’, ch 4 in Andrew Burrows (eds), *English Private Law* (OUP 2013), para 4.20, 179.

⁸⁷ Financial Markets Law Committee (n 84) 21-22; Perkins and Enwezor (n 84) 570; Dave Michels, ‘You may not actually own your Bitcoin-legal expert’ (*The Conversation*, 23 November 2018) <<https://theconversation.com/you-may-not-actually-own-your-bitcoin-legal-expert-107307>> accessed 11 January 2019; Simon Lovegrove and Albert Weatherill, ‘Blockchain & Cryptocurrency Regulation 2019’ (*Global Legal Insights*, 17 September 2018) <<https://www.globallegalinsights.com/practice-areas/blockchain-laws-and-regulations/united-kingdom>> accessed 11 January 2019; Chris Ratcliffe, ‘A cryptic puzzle: what is the legal status of a crypto-asset?’ (Taylor Wessing, June 2018) <<https://www.taylorwessing.com/download/article-a-cryptic-puzzle.html>> accessed 11 January 2019.

⁸⁸ Financial Markets Law Committee (n 84) 23; Perkins and Enwezor (n 84) 570. See also the speech of Lord Hodge, Justice of the UK Supreme Court, 26 October 2018, 15 <<https://www.supremecourt.uk/docs/speech-181026.pdf>> accessed 11 January 2019.

⁸⁹ On this issue, see generally Konrad Zweigert and Hein Kötz (translated by Tony Weir), *Introduction to Comparative Law* (3rd edn, Clarendon Press 1998) 201–04; Elspeth Attwooll, ‘Scotland: A Multi-Dimensional Jigsaw’ in Esin Öricü, Elspeth Attwooll and S Coyle (eds), *Studies in Legal Systems: Mixed and Mixing* (Kluwer Law, 1996) 17–34.

⁹⁰ See eg Kenneth G C Reid and C.G van der Merwe, ‘Property Law: Some Themes and Some Variations’, ch 21 in Reinhard Zimmermann, Daniel Visser and Kenneth Reid (eds), *Mixed Legal Systems in Comparative Perspective: Property and Obligations in Scotland and South Africa* (OUP, 2005), 641–642. On this issue, see also Daniel Carr, ‘Cryptocurrencies as Property in Civilian and Mixed Legal Systems’ in Sarah Green and David Fox (eds), *Cryptocurrencies in Public and Private Law* (OUP 2019) (forthcoming).

F. Comparative Legal Considerations Concerning Substantive Law

As analysis above indicates, there are certain similarities and differences between the approaches on digital assets in the selected jurisdictions.

Under German law, digital assets are for the most part subjected to the existing provisions without a perceived need for *fundamental reforms*. Similarly, Russian and Austrian Civil Codes contain provisions and categories which are applicable digital assets. Whereas continental European civil legislations once again require discussion about systematic positioning in the property legal system and/or law of obligations, Common law jurisdictions seem concerned primarily with financial regulation without particular consideration about private law issues that appear to be left for the courts.

As shown above, in cases German *lex lata* is considered insufficient, it is most likely that the insufficiency comes from the German law's alignment to the corporeality of assets. This paradigm indicates the inapplicability of property law and the law of bearer bonds to digital assets. Also, not all regulated types of obligatory contracts are open to digital assets and hence incorporeal goods as being their object. Austrian law, to the contrary appears to be open to the application of property law rules similar to their application on obligations. Russian legislation provides for a category of "other property" which is vital for claims based upon tort, unjust enrichment and contractual entitlements.

In Germany, the reason why legislative inactivity on regulating private law aspects of digital assets has so far not led to more pressing demands for legislative action is due to the *substitutive qualities of obligatory contracts*.⁹¹ The freedom of contract is flexible enough as it is and can be, hence, be applied without the necessity of regulatory modifications. Two aspects are particularly important in that respect. *First*, obligatory contracts can have (almost) any content and can hence *mimic legal institutions* that are not yet open to digital assets; i.e. digital assets are not considered to be objects which can be acquired with third-party effects, but the parties can draft an obligatory contract obliging both of them to act as if there was a proprietary effect of their transaction. Even though parties can only regulate their own legal relationship *inter partes* and hence not the in rem assignment of rights *erga omnes*, they can for the most part achieve the desired results. *Second*, contractual obligations suffice to raise digital assets from a solely factual level onto the legal level. This is shown by a recent case decided by the German Federal Court of Justice (BGH) concerning the succession to a deceased person's facebook account. While the digital account itself is merely factual and therefore not subject to property law, the court, with regard to succession, held that the *obligatory user contract* between Facebook and the deceased had passed on to his heir.⁹² This analysis in German law suggests that as long as there is no absolute right to one's digital assets, it is to be expected that this will increase applicability of contract law to digital assets while – due to the progressing

⁹¹ On the support that the law of obligatory contracts provides for the implementation of innovations, especially virtual ones, see Stefan Grundmann and Florian Möslin, 'Vertragsrecht als Infrastruktur für Innovation' [2015] *Zeitschrift für die gesamte Privatrechtswissenschaft*, 435 et seq., esp. 452.

⁹² BGH, *Neue Zeitschrift für Familienrecht* 2018, 800. The more challenging question being whether said contract was *intuitus personae* and hence not subject to succession.

digitalisation of the economy – the importance of property law will be decreasing.⁹³ It remains to be seen to what extent the practical results of this paradigm shift will turn out to be satisfactory.

G. Conflict of Laws and Digital Assets

Despite its important relevance, the conflict of laws dimension of digital assets has not attracted significant attention yet in Germany, Russia, Austria, or the UK.

In the UK, there is some awareness on the cross-border nature of cryptoassets based on *their global reach*.⁹⁴ However the analysis has not been extended thus far to their implications on the conflict of laws, apart from a few academic works addressing the issue.⁹⁵ This lack of academic focus however is perhaps not surprising given the novel and complex nature of cryptoassets. Nevertheless, there is a detailed analysis on DLT and governing law, with a focus on the proprietary effects of DLT transactions in financial instruments or assets, published recently by the Financial Markets Law Committee which addresses issues of legal uncertainty and suggests a number of connecting factors.⁹⁶ After recognising that there may not be one single solution for all DLT systems and that the appropriate connecting factor may vary due to the type of DLT system or the nature of assets in question, the Financial Markets Law Committee suggests that the elective situs should be the starting point for a conflict of laws analysis of virtual tokens.⁹⁷ In its analysis, the Committee also rightly stresses the importance of the development of model conflict of laws rules, which can be adhered to on an international basis, by international body or groups such as the Hague Conference on Private International Law perhaps in collaboration with the International Institute for the Unification of Private Law (UNIDROIT).⁹⁸

In *German academia*, however, there is awareness regarding the private international law of digital assets. There has been research on the pertinent conflict rules concerning the sale of virtual objects for quite some time.⁹⁹ More recently, there have also been publications on conflict of laws issues with regard to blockchain technology, especially virtual currencies and blockchain companies.¹⁰⁰

It has been recognized that the *Savignian paradigm of private international law*, according to which the substantive law applicable to a case should be the one to which the case has its closest territorial connection, becomes harder and harder to sustain in a digitalized and

⁹³ See Langenbucher (n 11) 410 stating, that, for now, the problems of “property” regarding blockchain-technology can only be solved via the law of obligations.

⁹⁴ See eg the UK Cryptoassets Taskforce Final Report (n 15) para 4.10, 33.

⁹⁵ See eg Burcu Yüksel, ‘International Payments in Virtual Currencies: New Challenges for Private International Law’, 78th International Law Association Biennial Conference, August 2017, Sydney, Australia; Andrew Dickinson, ‘Cryptocurrencies and the Conflict of Laws’ in Green and Fox (eds) (n 90).

⁹⁶ See Financial Markets Law Committee (n 84) 55-78.

⁹⁷ See *ibid* para 7.30, 75 and para 8.1, 77.

⁹⁸ See *ibid* para 6.1, 68 and para 8.1, 77.

⁹⁹ See eg Susanne L. Gössl, *Internetspezifisches Kollisionsrecht? - Anwendbares Recht bei der Veräußerung virtueller Gegenstände* (Mohr Siebeck 2014).

¹⁰⁰ Christoph Simmchen, ‘Blockchain (R)evolution’ [2017] *Multimedia und Recht* 162, 164; Dieter Martiny, ‘Virtuelle Währungen, insbesondere Bitcoins, im Internationalen Privat- und Zivilverfahrensrecht’ [2018] *Praxis des Internationalen Privat- und Verfahrensrechts* 553; Anton Zimmermann, ‘Blockchain-Netzwerke und Internationales Privatrecht’ [2018] *Praxis des Internationalen Privat- und Verfahrensrechts* 566; Sebastian Omlor, ‘Nanopayments – Monetisierung des Cyberspace?’ [2018] *Multimedia und Recht* 428.

therefore less localizable world.¹⁰¹ It does, hence, not come as a surprise that “there is no established approach in private international law as to blockchain, smart contracts or tokens.”¹⁰²

At *international level*, digital assets were discussed during the conflict of laws proposals on securities¹⁰³ and the third-party effects on the assignment regulation proposal.¹⁰⁴ However, in both cases, digital assets were not included into the final text. Similarly, the inclusion of virtual currencies in the commentary on the United Nations Securities Convention was removed at the request of member states.¹⁰⁵

H. Conclusion

The analysis has shown that in some jurisdictions there is a political debate about the need to enact specific legislation in principle. However, this debate has not extended thus far to the question of how to regulate private law aspects of digital assets. There is no certainty yet, whether the considerations will be similar to those relevant for *copyright or industrial property rights*. The focus has been mainly on tax law, financial market law and some other aspects of legal regulation which are not necessarily private legal considerations in nature.

Notwithstanding that questions of private law will also be shaped around cases and court decisions, it is to be noted that legal discussion about private law aspects of digital assets has considerably attracted less attention thus far compared to administrative, financial market and tax law aspects of the issue. This is particularly apparent in legislative attempts to regulate private law aspects of digital assets.

In the application of the existing rules in the selected jurisdictions to digital assets, there is a considerable variety of different approaches and perceptions which inevitably leads to different results. Given that private law aspects of digital assets typically include a cross-border dimension, development of uniform substantive law rules would be welcomed in order to adequately address the needs of legal practice. However, given that it will take time and compromises among states to achieve this and even if it is achieved, the uniform substantive law rules may not address all the private law issues arising from digital assets, it is important to raise awareness on the conflict-of-law aspects of the issue and also perhaps work towards establishing conflict-of-law-rules which may be widely accepted.

As far as the EU is concerned, the risk of different legal treatment of digital assets could be avoided if the EU would consider to regulate digital assets through *EU law* instruments, although this would be difficult in the field of private law due to the limited regulatory competences of the EU. It, thus, does not come as a surprise that it is mainly EU *regulators*, rather than EU legislator, which have actively been undertaking work concerning digital assets.¹⁰⁶ The European Banking Authority (EBA) made consumers and supervisory authorities

¹⁰¹ Martiny (n 100), 565.

¹⁰² Martiny (n 100), 553.

¹⁰³ See Stella Galehr and Tessa Grosz, Diskussionsbericht zur IGKK Tagung „Forderungen und Wertpapiere im Internationalen Privatrecht“ Conference Proceedings [2019] Zeitschrift für Finanzmarktrecht, forthcoming.

¹⁰⁴ See Galehr and Grosz, *ibid*.

¹⁰⁵ See Galehr and Grosz, *ibid*.

¹⁰⁶ See European Banking Authority, EBA warns consumers on virtual currencies [2013] <<https://eba.europa.eu/-/eba-warns-consumers-on-virtual-currencies>> accessed 30 January 2019; <<https://eba.europa.eu/-/eba-proposes-potential-regulatory-regime-for-virtual-currencies-but-also-advises-that-financial-institutions-should-not-buy->

aware of the risks relating to the purchasing, holding or trading in cryptoassets in December 2013 and in July 2014.¹⁰⁷

hold-or-sell-them-whilst-n> accessed 30 January 2019; or European Securities and Markets Authority, ESAS warn consumers of risks in buying virtual currencies [2018] <<https://www.esma.europa.eu/press-news/esma-news/esas-warn-consumers-risks-in-buying-virtual-currencies>> accessed 30 January 2019.

¹⁰⁷ See European Banking Authority, EBA warns consumers on virtual currencies [2013] <<https://eba.europa.eu/-/eba-warns-consumers-on-virtual-currencies>> accessed 30 January 2019; <<https://eba.europa.eu/-/eba-proposes-potential-regulatory-regime-for-virtual-currencies-but-also-advises-that-financial-institutions-should-not-buy-hold-or-sell-them-whilst-n>> accessed 30 January 2019.



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