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**Legal issues related to the digital economy – digital assets**
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## I. Context

1. The digital economy is witnessing a shift in how economic value is held. Digital assets are playing an increasingly important role in trade, where they are used as an object of trade and trade-related services, a method of payment, collateral for raising finance, an investment vehicle, a consumable in business operations, and a tool for improving business processes. A recent report published by the Organization for Economic Co-operation and Development (OECD) notes that digital assets have the potential to leverage off emerging technologies and applications to deliver a range of benefits to business, including efficiency gains driven by automation and disintermediation, transparency, and faster and potentially more efficient clearing and settlement. It adds that digital assets could lower barriers to investment, and enhance access to finance for small- and medium-sized enterprises.<sup>1</sup>

## II. What are digital assets?

2. There is no widely accepted definition of a digital asset, for which various different names exist.<sup>2</sup> In its ordinary meaning, the term “digital asset” connotes a collection of data, stored electronically, that is of use or value.

3. A similar meaning is given by the Uniform Law Conference of Canada (ULCC) in its Uniform Access to Digital Assets by Fiduciaries Act,<sup>3</sup> which defines “digital asset” to mean “a record that is created, recorded, transmitted or stored in digital or other intangible form by electronic, magnetic or optical means or by any other similar means”.<sup>4</sup> In its commentary on the definition, the ULCC notes that the definition covers: (i) any information stored on a computer and other digital devices; (ii) content uploaded onto websites, ranging from photos to documents; and (iii) rights in digital property, such as domain names or digital entitlements associated with online games and material created online. Likewise, the National Conference of Commissioners on Uniform State Laws of the United States of America (ULC) defines “digital asset” in its Revised Uniform Fiduciary Access to Digital Assets Act to mean “an electronic record in which an individual has a right or interest”.<sup>5</sup> As the ULC notes in its commentary of the definition, such assets “rang[e] from online gaming items to photos, to digital music, to client lists” and “can have real economic or sentimental value”.<sup>6</sup>

4. If the term “digital assets” is given its ordinary meaning, the notion is already well known to the law. In this sense, a digital asset is essentially a “data message” within the meaning of the UNCITRAL Model Law on Electronic Commerce (MLEC)

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<sup>1</sup> OECD, *The Tokenisation of Assets and Potential Implications for Financial Markets*, OECD Blockchain Series, 2020, pp. 7, 16–17.

<sup>2</sup> Digital assets are sometimes referred to as “cryptoassets” in reference to the cryptographic techniques used to authenticate transactions involving the digital asset. They are sometimes also referred to as “tokens”.

<sup>3</sup> Uniform Law Conference of Canada, *Uniform Access to Digital Assets by Fiduciaries Act (2016)*, available at [www.ulcc.ca/images/stories/2016\\_pdf\\_en/2016ulcc0006.pdf](http://www.ulcc.ca/images/stories/2016_pdf_en/2016ulcc0006.pdf).

<sup>4</sup> This definition picks up the definition of “electronic” in the Uniform Electronic Commerce Act adopted by the ULCC.

<sup>5</sup> National Conference of Commissioners on Uniform State Laws, *Revised Uniform Fiduciary Access to Digital Assets Act (2015) with Prefatory Note and Comments*, available at [www.uniformlaws.org/viewdocument/final-act-with-comments-40?CommunityKey=f7237fc4-74c2-4728-81c6-b39a91ecdf22&tab=librarydocuments](http://www.uniformlaws.org/viewdocument/final-act-with-comments-40?CommunityKey=f7237fc4-74c2-4728-81c6-b39a91ecdf22&tab=librarydocuments).

<sup>6</sup> The commentary explains that the “right or interest” that the individual has in the electronic records must be a “property right or interest”. If, unlike the Canadian uniform law, the subsistence of a property right or interest is a defining feature of a digital asset, the definition would appear to avoid the question of whether digital assets are an object of property rights (see paras. 14 to 21 below).

and an “electronic record” within the meaning of the UNCITRAL Model Law on Electronic Transferable Records (MLETR).<sup>7</sup>

5. However, some types of digital assets have been singled out as having particular economic value, while also disrupting existing legal frameworks, namely:

(a) Digital assets that represent intrinsic value owing to the rules of the system in which they exist. These digital assets are sometimes referred to as “payment” tokens, the most common form of which is **cryptocurrency**; and

(b) Digital assets that represent value owing to their connection to some “real world” tangible or intangible asset such as goods (or rights in goods), receivables, and other rights, which connection is established by the rules of the system in which they exist. The connected asset is sometimes referred to as “exogenous” owing to its existence *outside* – or independent of – the system in which the digital asset exists. It may also be referred to as a “tokenized” asset by reference to the creation of a digital asset (i.e., token) to which it is connected; thus, the process of issuing such tokens is referred to as the “tokenization” of assets<sup>8</sup> and the tokens issued are referred to as “**asset-backed tokens**”.<sup>9</sup> A common form of digital asset in this sense is what is sometimes referred to as a “security” or “investment” token, which purports to represent a right to share in the profits of a particular enterprise. Another form is what is sometimes referred to as a “utility” token, which purports to represent a right to use a service provided on the platform that supports the token.

6. The focus of this paper is on both of these types of digital assets, i.e., digital assets in the form of **cryptocurrency** and digital assets in the form of **asset-backed tokens**.

7. It has been suggested that the feature of legal significance that distinguishes these types of digital assets from data messages or electronic records is their *tradability*, in the sense that the electronic system in which they are stored provides for the digital asset to be *transferred* in exchange for consideration. Moreover, it has been suggested that what makes a digital asset equivalent to a tangible object is the existence of the digital asset in a system or platform that provides (a) *control* over the asset, in the sense that the asset is capable of being controlled by an identifiable person (which control may be transferred to another person) and (b) a guarantee of *singularity* of the asset, in the sense that the asset is capable of being uniquely identified, or is otherwise secured against replication so as to avoid multiplicity. As such, the defining features of these digital assets coincide with the features that define the notion of an “electronic transferable record” under the MLETR.<sup>10</sup>

8. Digital assets can be supported by a variety of technologies and methods. They can exist in centralized systems (e.g., centralized registries of dematerialized securities or a gaming platform supporting virtual payment tokens). In this form,

<sup>7</sup> Article 2 of the MLEC defines “data message” to mean “information generated sent, received or stored by electronic, optical or similar means”, whereas article 2 of the MLETR defines “electronic record” to mean “information generated, communicated, received or stored by electronic means, including, where appropriate, all information logically associated with or otherwise linked together so as to become part of the record, whether generated contemporaneously or not”.

<sup>8</sup> See OECD, *The Tokenisation of Assets and Potential Implications for Financial Markets*, OECD Blockchain Series, 2020.

<sup>9</sup> See Cristina Cuervo, Anastasiia Morozova and Nobuyasu Sugimoto, “Regulation of Crypto Assets”, FinTech Notes, No. 19/03 (Washington, D.C., International Monetary Fund, December 2019).

<sup>10</sup> See article 10(1), which provides that an electronic transferable record meets the requirement of a paper-based transferable document or instrument if, among other things, a reliable method is used: (i) to identify that electronic record as the electronic transferable record; (ii) to render that electronic record capable of being subject to control from its creation until it ceases to have any effect or validity; and (iii) to retain the integrity of that electronic record. See also article 17(3) of the UNCITRAL Model Law on Electronic Commerce (MLEC), which establishes a “guarantee of singularity” to permit the use of electronic transport documents: *UNCITRAL Model Law on Electronic Commerce with Guide to Enactment 1996 with Additional Article 5 bis as Adopted in 1998* (United Nations publication, Sales No. E.99.V.4), para. 115.

digital assets are not a new phenomenon. More recently, the advent of distributed ledger technology (DLT) has allowed digital assets to exist in decentralized systems, where the use of consensus mechanisms offers a guarantee of singularity and addresses the so-called “double spend” problem.<sup>11</sup> While digital assets supported by DLT are currently attracting significant attention globally, the principle of technology neutrality would suggest that such assets should not be the sole focus of discussion.

9. Several jurisdictions have introduced legislation that defines the types of digital assets that are addressed in this paper. While much of that legislation deals with digital assets for regulatory purposes (e.g., in the areas of taxation, anti-terrorism financing, and financial services),<sup>12</sup> some legislation deals with private law aspects of digital assets. For instance:

(a) In Belarus, Presidential Decree No 8 of 2017 on the development of the digital economy confers on the residents of the Minsk Hi-Tech Park the right to possess “tokens”, which are in turn defined to mean “a record in transaction block ledger (blockchain)... which verifies that the owner of a digital sign (token) has rights to civil-law objects and/or is cryptocurrency”.<sup>13</sup> This definition thus picks up not only cryptocurrencies but also asset-backed tokens;

(b) In Liechtenstein, a law was enacted in 2019 to establish a legal framework for transacting in digital tokens.<sup>14</sup> The law defines “token” as a piece of information (i.e., data) on a transaction system using “trustworthy technology” that “can represent claims or rights of membership against a person, rights to property or other absolute or relative rights”. It has been observed that the law is based on a “container” model whereby tokens are likened to containers that are “loaded” with rights. While the definition is primarily focused on asset-backed tokens, the law is also relevant to cryptocurrencies, which are likened to tokens that are “empty” containers. The law refers to the transaction system in technology neutral terms, using the term “trustworthy technology” to mean “technologies through which the integrity of tokens, the clear assignment of tokens... and the disposal over tokens is ensured”. No reference is made in the law to distributed ledgers or to blockchain;<sup>15</sup>

<sup>11</sup> The “double spend” problem is characterized by the fact that data messages can be replicated and that, without a centralized “trusted” party, the same data message can be sent to multiple recipients in such a way that it is not possible to reliably determine the order in which they were sent.

<sup>12</sup> See, e.g., France, Law No. 2019-486 of 22 May 2019 on Business Growth and Transformation, which amends the Monetary and Financial Code to establish a regulatory regime for digital asset service providers. Article L. 54-10-1 of the amended Code defines digital asset to mean (i) tokens other than those constituting financial securities, and (ii) cryptocurrency. Article L. 552-2 in turn defines a “token” as “any intangible property representing, in digital form, one or more rights that may be registered, retained or transferred by means of a shared electronic recording device that identifies, directly or indirectly, the owner of such property”. See also 2019 amendments to the Payment Services Act of Japan introduced by the Bill to Amend Some of the Fund Settlement Laws, etc., in Response to the Diversification of Financial Transactions Accompanying the Advancement of Information and Communication Technology.

<sup>13</sup> Decree of the President of the Republic of Belarus No. 8 of 21 December 2017 on Development of Digital Economy, unofficial English translation available at <http://law.by/document/?guid=3871&p0=Pd1700008e>, clauses 2.1 and 2.2 and clause 12 of Annex 1.

<sup>14</sup> Liechtenstein, Law of 3 October 2019 on Tokens and TT Service Providers, *Liechtensteinisches Landesgesetzblatt*, vol. 2019, No. 301 (2 December 2019). An English translation of the law is available at [www.regierung.li/media/medienarchiv/950\\_6\\_08\\_01\\_2020.pdf?t=2](http://www.regierung.li/media/medienarchiv/950_6_08_01_2020.pdf?t=2).

<sup>15</sup> As the report of the Government on the proposed law notes, “[t]o prevent this Law from becoming outdated from a technical perspective and having a limited scope of application in just a few years, the technology-neutral formulation of the term “blockchain” is very important”: *Report and Application of the Government to the Parliament of the Principality of Liechtenstein concerning the Creation of a Law on Tokens and TT Service Providers (Tokens and TT Service Provider Act; TVTG) and the Amendment of Other Laws*, No. 54/2019, 7 May 2019, English translation available at [https://impuls-liechtenstein.li/wp-content/uploads/2019/11/054\\_Report-and-Application\\_TV TG\\_extract.pdf](https://impuls-liechtenstein.li/wp-content/uploads/2019/11/054_Report-and-Application_TV TG_extract.pdf), para. 52.

(c) In the US state of Wyoming, a Digital Assets Act<sup>16</sup> was legislated in 2019 for the purposes of bringing digital assets under the state’s secured transactions law.<sup>17</sup> The Digital Assets Act defines a digital asset as “a representation of economic, proprietary or access rights that is stored in a computer readable format, and includes digital consumer assets, digital securities and virtual currency”.<sup>18</sup>

10. One takeaway from these developments is that private law aspects of digital assets can be legislated in a manner that respects technology neutrality.<sup>19</sup>

### III. Actors

11. The use of digital assets ordinarily involves:

(a) The person who administers the system in which the digital asset exists;<sup>20</sup>

(b) The person who holds the digital asset (including the transferor and transferee in the case of a transfer);

(c) Any person on whose behalf the digital asset is held (e.g., if the digital asset is held by an intermediary such as a cryptocurrency exchange or “wallet” service provider in the case of DLT-based digital assets);

(d) If the digital asset is in the form of an asset-backed token, the person against whom the rights represented by the token are exigible (e.g., the obligor or counterparty).

### IV. Legal regimes

#### A. Contract law

12. The rules of the system (or platform) provide for the creation and transaction of the digital assets that it supports. These rules are encoded in the software that runs the system and put on a contractual footing by agreement between the system administrator and the person holding the digital asset. In some decentralized systems that run on open source software (e.g., distributed ledger systems that are “permissionless”), the only contract may be the end user agreement to use the software. In other systems, including centralized systems, the contract may be more prescriptive on matters relating to the administration of the system. The governance of online platforms, including models for structuring the relationships between platform operators and users, is not considered in this paper.<sup>21</sup>

<sup>16</sup> United States, *Wyoming Statutes*, Title 34, Chap. 29, sect. 101(a)(i).

<sup>17</sup> Uniform Commercial Code, article 9, as adopted in Wyoming: *Wyoming Statutes*, Title 34.1.

<sup>18</sup> United States, *Wyoming Statutes*, Title 34, Chap. 29, sect. 101(a)(i).

<sup>19</sup> In Australia, the explanatory memorandum accompanying a bill to introduce the concept of “digital currency” as an equivalent of foreign currency for the purposes of consumption tax legislation noted that, while cryptocurrencies at present take the form of “digital assets secured by cryptography operating through a public, automated and consensus-based distributed ledger that records and validates transactions (often taking the form of a blockchain)”, there was “a significant risk that any definition based on the current architecture of cryptographic currencies may lose relevance if new technical approaches emerge”: Treasury Laws Amendment (2017 Measures No. 6) Bill 2017, Explanatory Memorandum.

<sup>20</sup> Some distributed ledger systems operate without any administrator authorizing access to or dealings with the ledger (known respectively as “public” and “permissionless” systems). But even for these systems, the person who provides the software that runs the system could be regarded as the administrator. As noted in para. 12, the governance of online platforms is not considered in this paper.

<sup>21</sup> As noted in A/CN.9/1012 (paras. 34 and 35), it is proposed that exploratory work by the Secretariat should continue on legal issues related to the use of online platforms, including the various business models and legal structures used for those platforms.

13. The transfer of a digital asset will ordinarily be done under a contract between the transferor and transferee. Similarly, the transfer of an exogenous asset to which the digital asset is connected will ordinarily be done under a contract (e.g., a sales agreement or security agreement). There may also be a contract between the person who holds the digital asset and the person on whose behalf the digital asset is held (e.g., a custodian agreement).

## **B. Property law**

### **1. Digital assets in the form of cryptocurrency**

14. One of the key legal questions surrounding digital assets, particularly those in the form of cryptocurrency, is whether they constitute an object of property rights. While property law regimes differ substantially among legal systems, it appears that most do not regard a digital asset as an object of property rights. A question thus arises as to whether digital assets need to be treated as objects of property rights, and in particular whether the rights with respect to digital assets under contract law are insufficient to protect digital assets. A further question arises as to which features digital assets must possess in order for them to be treated as objects of property rights (bearing in mind that digital assets are essentially a collection of data messages, the property law aspects of which are addressed in addendum 2 (A/CN.9/1012/Add.2)). This in turn focuses attention on the system in which the digital asset exists and the technologies and methods that it uses.

15. In many civil law jurisdictions, as noted in addendum 2, intangible things cannot be the object of property rights. For instance, in Japan, pursuant to article 85 of the Civil Code, the property law regime under chapter IV of the Civil Code only applies in relation to “tangible” things. In a 2015 decision, the Tokyo District Court confirmed that Bitcoin could not be classified as a “thing” for the purposes of the Civil Code.<sup>22</sup>

16. In China, article 127 of the General Provisions of the Civil Law signals that “network virtual property” may be protected by law, but does not expressly recognize it as an object of property rights, nor define it. According to one commentator, the provision provides the legal basis for the formulation and improvement of legal rules in the future and that, on a broad view, network virtual property includes not only the network itself, but electronic records on the network, such as online game accounts and equipment, email and cryptocurrency.<sup>23</sup>

17. Recent judicial practice in China indicates that cryptocurrency can be protected by the law of property. In a 2019 decision concerning a claim for property damage following the shutdown of a cryptocurrency exchange, the Hangzhou Internet Court referred to the substance of article 127 of the General Provisions of the Civil Law and found that Bitcoin was the object of property rights under the law of China.<sup>24</sup> It reasoned that, in order to be an object of property rights, a cryptocurrency must have value, scarcity and controllability, and that not only Bitcoin but also other tokens and cryptocurrencies possessed each of these features.

18. In the Russian Federation, amendments to the Civil Code in 2019 introduced the concept of “digital rights” as an object of civil law rights.<sup>25</sup> The concept of “digital rights” is in turn defined in article 141.1 of the Civil Code as claims and other rights, the content and conditions of implementation of which are determined in accordance

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<sup>22</sup> Tokyo District Court, *Plaintiff Z1 v. Mt. Gox Co. Ltd.*, Case No. 33320 of 2014, Judgment, 5 August 2015.

<sup>23</sup> Zhang Xinbao, *Commentary on the General Provisions of the Civil Law* (2017, Renmin University Press).

<sup>24</sup> *Wu Qingyao v. Shanghai Yaozhi Network Technology Co., Ltd. and Zhejiang Taobao Network Co., Ltd.*, Judgment, 18 July 2019, available at [wenshu.court.gov.cn/website/wenshu/181107ANFZ0BXSK4/index.html?docId=80e226dbb0f041529c43aa9b00a11445](http://wenshu.court.gov.cn/website/wenshu/181107ANFZ0BXSK4/index.html?docId=80e226dbb0f041529c43aa9b00a11445).

<sup>25</sup> Russian Federation, Federal Law No. 34-FZ of 18 March 2019 on amendments to parts 1, 2 and article 1124 of part 3 of the Civil Code of the Russian Federation.

with the rules of the information system that meets the requirements of law. The concept of “digital right” would seem to capture digital tokens and thus establish certain digital assets as an object of property rights.

19. In Liechtenstein, when preparing the 2019 law to establish a legal framework for transacting in digital tokens, the Government considered whether the law should be amended to regard tokens as an object of property rights. To explain the decision not to do so, the Government stated that such an amendment would “require deep inroads into property law, as many provisions would have to be rewritten” and its legal consequences would need to be considered “very carefully”, because “property law not only regulates ownership of property, but also real estate, limited rights in rem such as easements and burdens, as well as mortgages and so on”. The Government decided instead to establish an autonomous regime for property-like rights in tokens that were supported by “trustworthy technology”.<sup>26</sup>

20. The question of whether digital assets in the form of cryptocurrency are “property” has arisen recently before the courts in several common law jurisdictions:

(a) In Canada, in a 2018 decision, the Supreme Court of British Columbia ordered by summary judgment that Ether tokens be traced in claims for conversion (i.e., a claim for the wrongful interference with property) and wrongful detention, each of which depends on the existence of a “good”. While the court granted the remedy, it noted that the proper characterization of cryptocurrencies was “a central issue” in the case and that “the evidentiary record [was] inadequate to permit a determination of that issue” and, in any event, that it raised “a complex and as of yet undecided question that is not suitable for determination by way of a summary judgment application”;<sup>27</sup>

(b) In Singapore, the courts have recently considered the question in the case of *B2C2 Ltd. v. Quoine Pte. Ltd.* At first instance, the Singapore International Commercial Court found that property rights could subsist in Bitcoin, applying the statement of Lord Wilberforce in the case of *National Provincial Bank v. Ainsworth* (“*Ainsworth*”) before the House of Lords of the United Kingdom that a right claimed to be “property” must be “definable, identifiable by third parties, capable in its nature of assumption by third parties, and have some degree of permanence or stability”.<sup>28</sup> On appeal, the Court of Appeal of Singapore refused to express a final opinion on the question, although it did state that “[t]here may be much to commend the view that cryptocurrencies should be capable of assimilation into the general concepts of property”, while acknowledging that there are “difficult questions as to the type of property that is involved”;<sup>29</sup>

(c) In the United Kingdom, the High Court of England and Wales found in a 2019 decision in the case of *AA v. Persons Unknown* that Bitcoin was property for the purposes of granting a proprietary injunction to restrain dealings in the cryptocurrency by a subsequent holder;<sup>30</sup> and

(d) In New Zealand, the High Court found in a 2020 decision in the case of *Ruscoe v. Cryptopia Limited (in liquidation)* that various cryptocurrencies held by a

<sup>26</sup> *Report and Application of the Government to the Parliament of the Principality of Liechtenstein concerning the Creation of a Law on Tokens and TT Service Providers (Tokens and TT Service Provider Act; TVTG) and the Amendment of Other Laws*, No. 54/2019, 7 May 2019, English translation available at [https://impuls-liechtenstein.li/wp-content/uploads/2019/11/054\\_Report-and-Application\\_TVTVG\\_extract.pdf](https://impuls-liechtenstein.li/wp-content/uploads/2019/11/054_Report-and-Application_TVTVG_extract.pdf), pp. 57–58. See, in particular, article 5, 6 and 9 of the law.

<sup>27</sup> Canada, Supreme Court of British Columbia, *Copytrack Pte. Ltd. v. Wall*, Docket No. S183051, Oral Reasons for Judgment, 12 September 2018, 2018 BCSC 1709.

<sup>28</sup> Singapore International Commercial Court, *B2C2 Ltd. v. Quoine Pte. Ltd.*, Suit No. 7 of 2017, Judgment, 14 March 2019, [2019] SGHC(I) 03, para. 142, citing House of Lords, *National Provincial Bank v. Ainsworth*, Judgment, 13 May 1965, *Official Law Reports: Appeals Cases*, vol. 1965, No. 1, p. 1248.

<sup>29</sup> *Quoine Pte. Ltd. v. B2B2 Ltd.*, Civil Appeal No. 81 of 2019, Judgment, 24 February 2020, [2020] SGCA(I) 02, para. 144.

<sup>30</sup> High Court of England and Wales, *AA v. Persons Unknown*, Case No. CL-2019-000746, Judgment, 13 December 2019, *Weekly Law Reports*, vol. 2020, No. 4, [2019] EWHC 3556 (Comm).

cryptocurrency exchange were property for the purposes of company law, and suggested that they could also be property for the purposes of the common law.<sup>31</sup> In coming to this conclusion, the court found that that the cryptocurrencies in that case “clearly met” the requirements of property referred to in the statement by Lord Wilberforce in *Ainsworth*.<sup>32</sup>

21. In each of the Singapore, United Kingdom and New Zealand cases, the court referred to a legal statement on digital assets and smart contracts that was published in November 2019 by a taskforce of the LawTech Delivery Panel, which was established by the Government of the United Kingdom, the judiciary of England and Wales, and the Law Society of England and Wales.<sup>33</sup> The statement concludes that digital assets possess all the characteristics of property under English common law (as established by Lord Wilberforce in *Ainsworth* and in subsequent cases), namely definability, identifiability, capability of assumption by third parties, certainty, control, exclusivity, assignability, permanence and stability. Moreover, it argues that digital assets should not be disqualified as property on the basis alone that they are represented by data and that the English courts have traditionally been reluctant to treat information in itself as property. In this respect, the statement observes that, in the case of digital assets, “it is not what the data tells you but what it allows you to do”.<sup>34</sup> In *AA v. Persons Unknown*, the High Court of England and Wales noted that the legal statement represented “an accurate statement as to the position under English law”.<sup>35</sup>

22. In the United States of America, some commentators have pointed to the 2003 decision of the Court of Appeals for the Ninth Circuit as support for the proposition that cryptocurrency constitutes an object of property rights. In the case of *Kremen v. Cohen*, the court accepted that the claim for conversion under the law of California applied to intangible objects – in that case, a domain name – and applied a three-part test to determine whether a property right existed in such an object: (i) there must be an “interest capable of precise definition”; (ii) it must be “capable of exclusive possession or control”; and (iii) “the putative owner must have established a legitimate claim to exclusivity”.<sup>36</sup>

## 2. Digital assets in the form of asset-backed tokens

23. For digital assets in the form of asset-backed tokens, the focus of enquiry turns from the digital asset itself to the exogenous asset. While the existence of property rights in the exogenous asset itself might not be problematic (after all, the asset itself is unlikely to be an object that is new to property law), issues may arise as to (a) whether the holding of the token can confer rights in the exogenous asset, and (b) whether transferring the token to another person can lawfully transfer to that person the rights in the exogenous asset. More so than property law, these issues engage issues of the law of negotiable instruments and negotiable documents, which is addressed separately below (paras. 27 and 28).

## C. Securities law

24. Some digital assets – notably security or investment tokens – purport to confer rights on the holder that resemble the kinds of rights comprised in shares and other investment securities. As such, these digital assets could constitute investment

<sup>31</sup> *Ruscoe v. Cryptopia Limited (in liquidation)*, Case No. CIV-2019-409-000544, Judgment, 8 April 2020, [2020] NZHC 728.

<sup>32</sup> *Ibid.*, para. 102.

<sup>33</sup> UK Jurisdiction Taskforce, “Legal Statement on Cryptoassets and Smart Contracts”, November 2019, available at [https://35z8e83m1ih83drye280o9d1-wpengine.netdna-ssl.com/wp-content/uploads/2019/11/6.6056\\_JO\\_Cryptocurrencies\\_Statement\\_FINAL\\_WEB\\_111119-1.pdf](https://35z8e83m1ih83drye280o9d1-wpengine.netdna-ssl.com/wp-content/uploads/2019/11/6.6056_JO_Cryptocurrencies_Statement_FINAL_WEB_111119-1.pdf).

<sup>34</sup> *Ibid.*, para. 60.

<sup>35</sup> *AA v. Persons Unknown*, para. 61.

<sup>36</sup> *Kremen v. Cohen.*, Case No. 01-15899, Judgment, 25 July 2003, *Federal Reporter, Third Series*, vol. 493, p. 1030.



instruments and engage laws relating to the issuance of and trading in investment securities, as well as laws on the holding of securities, as has happened in several jurisdictions.

#### **D. Secured transactions law**

25. For digital assets in the form of cryptocurrency, the holder may wish to encumber the digital asset (i.e., grant a security interest in the digital asset to secure payment or the performance of some other obligation). This raises the question of whether the digital asset can be encumbered under secured transactions law. In this regard, the material scope of secured transactions law may be linked to the property law regime, such that only objects of property rights can be encumbered.<sup>37</sup> Further questions arise as to whether the provisions of secured transactions law – including provisions on the perfection and enforcement of the security interest – are adapted to the use of such digital assets as collateral.

26. For digital assets in the form of asset-backed tokens, the token may purport to represent a security interest in the exogenous asset. This raises the question as to whether and how the creation and transfer of the token in the system constitutes the creation and transfer of the security interest, and whether and how the security interest is perfected, and thus made effective against a transferee of the exogenous asset.

#### **E. Law of negotiable instruments and negotiable documents**

27. Some digital assets in the form of asset-backed tokens – particularly those that purport to represent rights to delivery of goods or to payment – may resemble negotiable instruments such as bills of exchange or promissory notes or negotiable documents such as bills of lading or other documents of title. A question thus arises as to whether existing laws on the use of negotiable instruments and negotiable documents apply to such digital assets, which will depend in large part on whether those laws apply in an electronic environment (an issue that is addressed by the adoption of the MLETR).

28. If existing laws do not apply to such digital assets, it is unlikely that the rights that the token purports to represent will have effect beyond the contractual relationship between the person who issued the token and the person to whom the token was initially issued.

#### **F. Insolvency and other laws**

29. Similar questions arise as to whether digital assets in the form of cryptocurrency form part of an insolvency estate. Additional complexity may arise where the digital asset is held by an intermediary such as a cryptocurrency exchange or “wallet” service provider.

30. Other legal regimes with links to property law may be engaged by the use of digital assets, including the law of succession and the law of trusts, as well as sale of goods law. Moreover, as outlined above (para. 20), digital assets also raise questions about the application of remedies such as civil asset tracing.<sup>38</sup>

<sup>37</sup> For instance, in Australia, the secured transactions law applies to “personal property”: *Personal Property Securities Act 2009*, sect. 10.

<sup>38</sup> UNCITRAL has undertaken exploratory work on the topic of civil asset tracing and recovery: see <https://uncitral.un.org/en/assettracing>. A colloquium on the topic, organized by the UNCITRAL secretariat and held at the Vienna International Centre on 6 December 2019, concluded that the tracing and recovery of digital assets should be taken into account in future work on the topic: A/CN.9/1008, para. 48(b).

## **G. Reflections for the Commission**

31. The use of digital assets raises a range of legal issues – some of them fundamental – in areas of private law that fall within the mandate of the Commission. As noted by the Secretariat in its note on legal issues related to the digital economy (A/CN.9/1012, para. 29), possible future work on warehouse receipts and railway consignment notes offers an opportunity for the Commission to consider digital assets in concrete settings, particularly those in the form of asset-backed tokens. Moreover, possible future work on civil asset tracing and recovery may provide a forum for considering the legal treatment of digital assets, particularly from the perspectives of property law and insolvency law. In view of this existing workplan, it is not proposed at this time for work to proceed on a standalone project on digital assets. Rather, it is proposed that the Secretariat should continue to collaborate with the Unidroit secretariat on its ongoing project on digital assets, and look to identify possible future work to supplement existing UNCITRAL texts as part of its appraisal of those texts (as discussed in A/CN.9/1012, paras. 13 and 32).

## **V. Preliminary appraisal of relevant UNCITRAL texts**

### **A. Electronic commerce texts**

32. Digital assets are essentially a collection of “data messages” within the meaning of the MLEC and other UNCITRAL texts on electronic commerce. The rules in part one of the MLEC that give legal recognition and admissibility to data messages are thus relevant to support the use of digital assets. The rules in part two of the MLEC are also relevant to digital assets in the form of electronic transport document. The functional equivalence rules in the MLETR are also relevant to giving legal effect to tokens purporting to constitute negotiable instruments or negotiable documents.

33. When the MLEC was developed, there was no widespread use of digital assets as addressed in this paper, particularly asset tokenization. A question therefore arises as to whether the functional equivalence rules in the MLEC could be further developed to establish equivalence between the additional features (or functionality) of digital assets used in the context of commercial activities and tangible objects. The more recent MLETR, which was negotiated with asset tokenization in mind, achieves that result with respect to digital assets in the form of electronic transferable records. Indeed, the MLETR might serve as a useful basis for developing harmonized rules to support transactions involving digital assets. Separately, in view of the features considered by the courts in various jurisdictions in deciding whether digital assets in the form of cryptocurrency could be objects of property rights (as discussed in paragraphs 17 and 20 above), it is conceivable that the requirements of an “electronic transferable record” under article 10(1) of the MLETR could serve as a basis for developing harmonized rules that establish certain property (or property-like) rights in digital assets.

### **B. CISG**

34. The CISG applies to the sale of “goods”.<sup>39</sup> It does not apply to the sale of “investment securities, negotiable instruments or money”.<sup>40</sup> As a collection of “data messages”, the applicability of the CISG to digital assets as “goods” raises issues similar to those raised by the application of the CISG to data, which is addressed in addendum 2. With regard to digital assets in the form of cryptocurrency, a further question arises as to whether cryptocurrency is “money” and thus excluded from scope. With regard to digital assets in the form of asset-backed tokens that constitute investment securities or transferable records, a similar question arises as to whether

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<sup>39</sup> CISG, article 1(1).

<sup>40</sup> CISG, article 2(d).

the exclusion of “investment securities” and “negotiable instruments” applies in the electronic environment. If, ultimately, digital assets are “goods” within the meaning of the CISG, a separate question is whether the issuance or exchange of digital assets involves a “contract of sale”.

35. It is one thing for digital assets to be the subject of a sale of goods; it is another for them to be the means of exchange for goods. A question thus arises whether the transfer of digital assets in the form of cryptocurrency constitutes “payment of the price” for the purposes of the CISG, and whether the transaction can properly be characterized as a “sale”. In this regard, if cryptocurrencies are viewed as commodities, the transaction may be regarded as a barter, and the preponderant view is that a barter contract, under which goods are exchanged for goods or services, share some, but not all, elements with a contract of sale.

36. It goes without saying that the CISG was not negotiated with digital assets in mind. If, as a matter of treaty interpretation, the CISG were to apply to digital assets – either as goods or as a means of exchange – yet a further question arises as to whether the rules that it contains are appropriate and adapted to transactions involving digital assets.

### C. MLST

37. The UNCITRAL Model Law on Secured Transactions (MLST) applies to security interests created in “movable assets”, which are defined to include both tangible assets and intangible assets. A “tangible asset” includes money, negotiable instruments, negotiable documents and certificated non-intermediated securities (art. 2(II)), while an “intangible asset” means any movable asset that is not a tangible asset. The MLST provides for the creation, third-party effectiveness and priority of security rights, and contains specific rules for particular types of assets.

38. The MLST was not developed with digital assets in mind. A question thus arises as to whether the MLST applies to secured transactions involving digital assets and, if so, which specific rules apply. One view is that the rules applicable to intangible assets (instead of the asset-specific provisions) could extend to digital assets, including cryptocurrency and asset-backed tokens (e.g., tokens constituting investment securities or transferable records).<sup>41</sup> Otherwise, rules specific to digital assets might need to be developed, taking into account the interest of the various actors involved in secured transactions using digital assets as collateral. In this regard, as part of an ongoing joint project to develop principles for a data economy (discussed in addendum 2), the American Law Institute (ALI) and European Law Institute (ELI) are examining legal rules for creating security interests in data. According to the current draft of the principles,<sup>42</sup> specific rules for the third-party effectiveness of security rights in data have been developed, according to which a security right in data becomes effective against third parties when the secured party gains control of a copy of the data in a way sufficiently visible to third parties that a reasonable third-party dealing with that copy could be expected to learn of that control. While such a rule could conceptually be extended to digital assets (as a collection of data), given that digital assets are transacted within a system, it is also conceivable that a determination of third-party effectiveness – and priority of security rights – could defer to the rules of that system.

<sup>41</sup> This view was expressed by Koji Takahashi in his address to the 2017 UNCITRAL Congress: “Implications of the Blockchain Technology for the UNCITRAL Works”, in *Modernizing International Trade Law to Support Innovation and Sustainable Development* (Vienna, United Nations, 2017), pp. 84–87.

<sup>42</sup> The draft ALI/ELI Principles are currently in the form of ALI Council Draft No. 1 (8 December 2019), on file with the Secretariat.

## D. Insolvency texts

39. The suite of UNCITRAL model laws on insolvency (on cross-border insolvency, the recognition and enforcement of insolvency-related judgments, and enterprise group insolvency)<sup>43</sup> comprises a cooperative and coordinating framework for States to effectively address insolvencies where the debtor has assets in multiple States or where creditors are not from the State in which the proceeding is taking place. The overall goal of the regime established by the model laws is to provide an expedited, predictable and transparent mechanism to preserve economic value in cases of cross-border insolvency. The model laws focus on the insolvency estate, which includes all assets of the debtor that are subject to the insolvency proceedings. However, those assets are not specifically defined in the text of the model laws.

40. This apparent gap is filled by the four-part UNCITRAL Legislative Guide on Insolvency Law, which provides States with a comprehensive statement of the key objectives and principles that should be reflected in a modern insolvency law. Strong and effective insolvency regimes are important as a means of preventing or limiting financial crises and facilitating rapid and orderly workouts from excessive indebtedness. The Guide thus defines the insolvency estate very broadly as comprising all assets of the debtor, namely “property, rights and interests of the debtor, including rights and interests in property, whether or not in the possession of the debtor, tangible or intangible, movable or immovable, including the debtor’s interests in encumbered assets or in third party-owned assets”. This inclusive definition, coupled with the objectives of an efficient insolvency law, indicate that the debtor’s assets might be expected to include digital assets, as permitted by applicable law, whether such assets are held directly or by intermediaries.

41. Once the assets to be included in the insolvency estate have been identified, the insolvency representative must be empowered to establish control over those assets, for example, for liquidation or to raise financing for a workout. This requirement could give rise to additional issues, such as in the case of laws that might restrict the transferability of digital or intangible assets, or place limits on their use to raise capital.

42. In addition, if the insolvent debtor’s assets include digital assets, the location of such assets is not likely to be restricted to the State in which the insolvency proceedings are taking place, thus raising issues of cross-border insolvency.

## E. Summary

43. As noted in A/CN.9/1012 (para. 32), the preliminary appraisal by the Secretariat of existing UNCITRAL texts on secured transactions has already identified lines of enquiry that may result in concrete proposals for future work to address the use of digital assets both as collateral and as a representation of security rights in exogenous assets. Moreover, a preliminary appraisal of existing texts of insolvency has identified possible future work to address the treatment of digital assets in the form of cryptocurrency in the event of insolvency. The results of the appraisal, including any proposals for possible future work, will be reported to the Commission at a future session.

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<sup>43</sup> UNCITRAL Model Law on Cross-Border Insolvency, UNCITRAL Model Law on Recognition and Enforcement of Insolvency-Related Judgments, and UNCITRAL Model Law on Enterprise Group Insolvency.