

Title	Developments with respect to PIL implications of the digital economy, including DLT
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Developments with respect to PIL implications of the digital economy, including DLT

I. Introduction

- 1 At its 2020 meeting, the Council on General Affairs and Policy (CGAP) invited the Permanent Bureau (PB), “subject to available resources, to monitor developments with respect to the private international law implications of DLT” and to “report to CGAP at its 2021 meeting”.¹ This Preliminary Document provides a report on these developments.
- 2 The scope of this report is limited to the mandate given to the PB in line with the discussions at CGAP 2020.² However, in the course of preparing this report, two factors arose: first, PIL implications that have arisen in the context of the use of DLT systems are technology agnostic, meaning that these implications also arose in the context of digital, and not only DLT-specific, systems. Second, this report aims to be technology neutral, so that its observations remain relevant regardless of the speed at which new technologies, applications, or taxonomies are being developed. Taking these two factors into account, this report provides an overview of the PIL implications of the digital economy, including applications based on DLT technology.
- 3 The PB has, in the course of the last year, coordinated with the secretariats of UNCITRAL and UNIDROIT in relation to work on this topic. In order to ensure that resources are most efficiently and effectively deployed, work at the PB on this topic focused specifically on issues of PIL that fall within the mandate of the HCCH, but which fell neither within the mandates of UNCITRAL or UNIDROIT nor the ongoing work programme of these two organisations.
- 4 This report first provides a summary of the PB’s coordination with UNCITRAL and UNIDROIT. It then provides an overview of the most important characteristics of the digital economy, including DLT systems and applications, that pose challenges in relation to PIL, such as connecting factors (see also Annex I) and the different initiatives in some jurisdictions in relation to the digital economy (see also Annex II). This report concludes with a list of possible topics for further work. The topics on this list are those identified by the PB as urgent, with PIL implications, and with real-world impact.

II. Coordination with UNCITRAL and UNIDROIT

- 5 The PB has closely coordinated, including through participation as an observer, with UNCITRAL and UNIDROIT in relation to the latter organisations’ current work on the topic. In the document³ presented by UNIDROIT at its 99th Governing Council Session regarding work on Artificial Intelligence, Smart Contracts and DLT, direct reference was made to the issue of conflict of laws in relation to holding and transfer of tokens and the necessity of involving the HCCH in the working group for this part of the work. The HCCH participated as an observer in the first session of UNIDROIT’s Working Group on Digital Assets and Private Law, held online from 17 to 19 November 2020.
- 6 UNCITRAL and UNIDROIT are also working on the development of a legal taxonomy in relation to the different DLT-related applications. This taxonomy may have an impact on future PIL work at the HCCH. At workshops jointly organised by UNCITRAL and UNIDROIT in May 2019 and in March 2020, these organisations hosted experts’ groups to develop a legal taxonomy to apply to emerging technologies and their applications. The PB is in regular dialogue with UNCITRAL and UNIDROIT on

¹ C&R No 15 of CGAP 2019.

² Report of Meeting, No 2, pp. 8-9.

³ UNIDROIT 2020 C.D. (99) A.4, April 2020.

this work, in order to ensure coordination and an ongoing exchange in line with each organisation's mandate.

7 In light of the HCCH's mandate to work towards the progressive unification of the rules of PIL, and taking care not to repeat work already being undertaken by UNCITRAL and UNIDROIT, for the purposes of this report the PB focused on the specific issues arising from emerging technologies and applications in the digital economy, including DLT applications,⁴ as follows:

- jurisdiction and choice of court (e.g., how to determine the competent court to resolve a dispute in relation to a crypto asset),
- applicable law and choice of law (e.g., what is the most appropriate connecting factor defining the law applicable to a transaction via blockchain), and
- recognition and enforcement (e.g., how to enforce a foreign judicial decision in relation to a service regulated by a smart contract).

III. Characteristics of the digital economy, in particular DLT systems and applications, which pose challenges for PIL

8 As mentioned above,⁵ implications for PIL are not limited to certain technologies (e.g., DLT) or to certain applications (e.g., blockchain, crypto assets, smart contracts). Rather, the implications for PIL are due to the uses and functions of these systems and applications. Following on this, and in line with the mandate given by CGAP in 2020, this document reports on topics relating to the global digital economy that have PIL implications, with a specific focus on the systems and applications of DLT.

A. Terminology

9 The terminology used for the different technologies, systems and applications in the digital economy, including those based on DLT, is a topic that is increasingly discussed in different fora. The lack of uniformity and harmonisation in these discussions comprise one of the main challenges of a technology that is both application-agile and evolving. Examples of efforts to harmonise the terminology can be found in the Blockchain Terminology Project of InterPARES Trust,⁶ and is an ongoing discussion at the experts' groups meetings hosted by UNCITRAL and UNIDROIT on the development of a legal taxonomy.⁷

B. Key elements common to DLT applications

10 Prel. Doc. No 28 of CGAP 2020⁸ listed some of the main developments enabled by DLT and blockchain applications (e.g., crypto assets, Smart Contracts, Decentralised Autonomous Organisations (DAOs)) that raise PIL issues in relation to their use and function. Asset tokenisation is another development enabled by DLT that has broad applications, most potentially in relation to banking and other financial and commercial activities. DAOs are a good illustration of the myriad

⁴ The distributed and decentralised nature of DLT systems and applications raise, *per se*, issues of PIL, as previously explored in Prel. Doc. No 28 of November 2020, "Proposal for the Allocation of Resources to Follow Private International Law Implications relating to Developments in the Field of Distributed Ledger Technology, in particular in relation to Financial Technology", drawn up for the attention of CGAP March 2020, available on the HCCH website at < www.hcch.net > under "Governance" then "Council on General Affairs and Policy", and further commented on in this report.

⁵ See para. 2.

⁶ See InterPARES Trust Terminology Project: Key Blockchain Terms and Definitions (2017), available at: <http://arstweb.clayton.edu/interlex/blockchain/>.

⁷ See para. 6. See UNCITRAL document A/CN.9/1012 presented at its 53rd session, 6-17 July 2020, p. 4.

⁸ See *supra* note 4.

of possibilities enabled by DLT, enabling different types of values and rights to be represented and traded as digital tokens (which may not necessarily be crypto assets).

- 11 One of the main characteristics of DLT applications that impact on PIL is the *decentralised* nature of DLT, which operates across traditional jurisdictional borders. Due to the decentralised record of transfers of digital assets across multiple internet servers (“nodes”) in a DLT mechanism, in many cases such transfers can be considered *disintermediated*. Transactions and relationships that are created via DLT are multi-party and request multi-signatures for their conclusion, which allows for self-enforcing adjudication within the network.
- 12 Moreover, actions outside the DLT network cannot prevent transactions from being made within the DLT network, which are partly *automated*. Once a transaction is triggered, it sets in motion a series of concatenated virtual actions that were previously coded. For this reason, there has been support for the existence of a “rule of code” in DLT environments, because some of these actions are independent of direct human intervention (see below para. 18). Transactions in DLT networks are also *immutable*. While these features provide security against tampering, they have also been classified by some actors as “disruptive” of existing legal frameworks (*i.e.*, that traditional concepts of contract law, including excuses for non-performance such as hardship or *force majeure* cannot and do not apply).
- 13 The characteristics mentioned in the paragraphs above apply to digital assets created and transferred via *decentralised systems*, regardless of the particular application. Against this background, three main categories of possible future work may be considered in regard of the challenges that they pose to PIL: a) assets created or stored in these systems (*e.g.*, crypto assets); b) agreements concluded or executed via these systems (*e.g.*, smart contracts); and c) operation and management of such systems (*e.g.*, DAOs).⁹
- 14 PIL issues remain unresolved for situations involving such assets, agreements and operations. For example, there is clarity neither in relation to the applicable law to digital assets and corresponding transfers, nor in relation to the possibility of incorporating party autonomy and choice of law in DLT protocols. It is also not clear which State has the jurisdiction to resolve any corresponding disputes that may arise, with the very rare exception in which the dispute concerns transactions in which all nodes are located in one State (*i.e.*, one-jurisdiction, permissioned systems). In addition, there is the issue of applicability and enforceability of choice of court agreements involving digital assets.

C. Connecting factors in relation to digital assets created and transferred via decentralised systems

- 15 With a focus on the main characteristics of digital assets created and transferred via decentralised systems that are relevant to the HCCH’s mandate, the PB has explored some of the challenges in relation to potential PIL connecting factors (see Annex I). The information in Annex I, which is a summary of the 2018 report by the Financial Markets Law Committee (FMLC), reflects the major developments in the field.¹⁰
- 16 PIL challenges in relation to connecting factors relate to the fact that traditional geographical locations (“*situs*”) may not be of relevance to the functioning of a DLT network. The allocation of jurisdiction among national courts is one of the issues that arise in relation to digital assets based on DLT.¹¹ In this regard, the difference between permissioned and permissionless systems in the

⁹ H. Territt, (2019), “Governing the blockchain: What is the applicable law?”, *Fintech: Law and Regulation* (ed. J. Madir.), pp. 171-184.

¹⁰ Financial Markets Law Committee - FMLC (2018), *Distributed Ledger Technology and Governing Law: Issues of Legal Uncertainty*.

¹¹ One example is in the case of Initial Coin Offerings (ICOs), which triggered a wave of class actions filed in the USA. A relevant discussion about jurisdiction took place in the case of *Tezos*, submitted in the Northern District of California.

DLT platforms may be considered crucial for applicable legal frameworks. Individuals on permissioned ledgers must be authorised before they can gain access to the system, thus becoming identifiable. On the other hand, users are not required to obtain permission to participate in permissionless systems, which are usually based on open source software.

- 17 Moreover, in an effort to connect DLT systems to a geographical space, new formulations have appeared, for example, the “Place of the Relevant Operating Authority / Administrator” (PROPA). For systems that function with a master key, there is also the “Primary Residence of the Encryption Private Master Keyholder” (PREMA). Instead of focusing on the location of the asset or the place where the transaction was made, the focus is shifted to the location of the participant (e.g., the consumer) or the relevant operating authority.
- 18 The difficulty in applying traditional connecting factors to digital assets has led to the creation of novel types of connecting factors that involve IT criteria in the determination of the applicable law. One example is the formulation of a “*lex codicis*” or “*lex digitalis*”, which considers the governing law of the code that was used to create the original distributed ledger programme. In the case where the computer code itself does not have a particular *situs*, the governing law of the code is taken to be the primary residence of the coder (or PResC).¹²
- 19 Another challenge is the growing movement that seeks to differentiate between actions inside and outside of a blockchain (“on-chain” vs “off-chain”). This differentiation has impact on party autonomy because there is no guarantee that a *situs* chosen by the parties in off-chain agreements will be effectively applicable.
- 20 A further challenge that arises relates to the legal nature of the asset. Some jurisdictions consider that some assets traded in decentralised systems are tangible assets while others are not (“off-platform tokens” vs “on-platform tokens”). There is no harmonised view or approach on this topic.
- 21 Further work on the issue of connecting factors in relation to digital assets created and transferred via decentralised systems should be considered.

IV. Regulatory initiatives and their impact on PIL

A. Trends

- 22 Several regulatory initiatives have been observed across different jurisdictions. In the table presented in Annex II, the PB has compiled the initiatives by country / region, providing a short description of their content, and pointing to the potential PIL implications of these initiatives.
- 23 Cryptocurrencies and tokens are among the most common digital assets mentioned in regulatory initiatives across the world. Their regulation and conceptualisation in domestic legislations and regulations have been seen by many jurisdictions as indispensable to securing stability and sustainability, protecting customers and their privacy, and enabling innovation, digital inclusion, and development. Some regulatory initiatives have attempted to categorise digital assets created and transferred via DLT, including cryptocurrencies, into one of the traditional legal categories.
- 24 In this regard, a trend that has emerged is the distinction made by certain jurisdictions between cryptocurrencies on the one hand, and the other applications based on DLT on the other. One such example is the approach taken by the People’s Republic of China. Such clear differentiation has been used as a way to allow for stricter regulation on cryptocurrencies, while allowing room for innovation and for the development of other novel DLT applications.¹³ Nonetheless, a number of

¹² Financial Markets Law Committee - FMLC (2017), *Distributed Ledger Technology and Governing Law: Issues of Legal Uncertainty*, p. 21.

¹³ GBBC Global Standard Mapping Initiative (GSMI) 2020, p. 21.

jurisdictions have imposed bans, including on financial institutions, on holding or transacting with cryptocurrencies. The division between regulations applicable to cryptocurrencies as opposed to other digital assets is likely to have a considerable impact on PIL. As such, further work on this issue should be considered.

- 25 Another trend is the creation of “valleys” or bubbles where a specific legal framework applies, with the intention of attracting greater interest from DLT-based companies and investors. One example is the creation of the Astana International Financial Center (AIFC) in Kazakhstan, which operates under the securities and corporate law of the United Kingdom.¹⁴ The creation of these “valleys” of specific applicable laws within another jurisdiction that applies a different set of laws has a significant impact on PIL.

B. Fragmentation

- 26 The various regulatory initiatives show how heterogeneous the approaches and concerns have been in relation to digital assets, including their creation, holding, storage, transfer and use. Concerns about the implications for PIL, in particular relating to applicable law, choice of law, choice of forum, recognition, and enforcement, have also been raised by regulators across the world. For example, Germany elaborates on such concerns in its *Blockchain Strategy of the Federal Government*, which includes the matter of which legal system applies, as well as the issue of the enforceability of law in cross-border DLT structures.¹⁵
- 27 Fragmentation has already been observed at different levels. First, not all kinds of digital assets available are regulated. In many jurisdictions, only some of them (mostly cryptocurrencies) have been the object of domestic frameworks.¹⁶ Other jurisdictions have addressed specific DLT applications,¹⁷ while still others have addressed the need to regulate the digital economy more broadly.¹⁸ Moreover, it is worth noting that the use and understanding of terminology have varied among the different initiatives. Second, in relation to the assets regulated, the legal nature of the assets has been understood differently by different jurisdictions. For example, some jurisdictions classify cryptocurrencies as equivalent to securities resulting in the application of the relevant securities laws and regulations.¹⁹ Other jurisdictions understand cryptocurrencies to be property or fungible assets, therefore applying the relevant property law.²⁰ Third, the fragmentation can be also observed in terms of the different approaches taken towards legal reform aimed at regulating the emerging digital economy. While some jurisdictions have had their regulatory bodies issuing papers pointing towards existing legal frameworks²¹ and their continuing applicability, other jurisdictions have amended their legislations or issued new bills.²²
- 28 A recent mapping initiative from the Global Blockchain Business Council, the Global Standard Mapping Initiative (GSMI) 2020, emphasised the need for uniform global standards to facilitate impactful and responsible cross-border innovation.²³ The Report, which represented an “unprecedented effort to map and analyse the current blockchain landscape”, noted the fragmentation of regulatory approaches across the world, and that “existing efforts to coordinate across jurisdictions have been piecemeal at best and chaotic at worst”.²⁴ The Report concludes

¹⁴ AIFC Report, p.30, available at: <https://report.aifc.kz/store/2019/08/29/15670579238.pdf>.

¹⁵ Blockchain Strategy of the Federal Government: We Set Out the Course for the Token Economy, available at: https://www.bmwi.de/Redaktion/EN/Publikationen/Digitale-Welt/blockchain-strategy.pdf?__blob=publicationFile&v=3.

¹⁶ See more details per country in Annex II.

¹⁷ See in Annex II the examples of Bermuda and Mauritius.

¹⁸ See in Annex II the examples of Liechtenstein and Switzerland.

¹⁹ See in Annex II the examples of Australia, Israel, Kazakhstan and Singapore.

²⁰ See in Annex II the examples of the People’s Republic of China and Italy.

²¹ See in Annex II the examples of Australia, Israel, Lithuania and the United Arab Emirates.

²² See in Annex II the examples of Bermuda, France, Liechtenstein, Mauritius, Singapore and Switzerland.

²³ GBBC Global Standard Mapping Initiative - GSMI (2020), p. 2.

²⁴ See note 23, p. 25.

“breaking through traditionally siloed bodies of information, industries, and geographic barriers will facilitate more functional networks”.²⁵

29 Fragmentation creates challenges for the digital economy, which is inherently cross-border. Harmonisation is necessary not only to protect consumers but also to create a level playing field for States, investors and innovators. A uniform PIL framework can address such challenges without interfering with the internal regulation of these decentralised systems, thereby providing coherence and certainty to the relevant stakeholders. The rapid adoption of the digital economy worldwide reinforces the urgency of future work by the HCCH on this timely and increasingly important topic, with a view to creating a future uniform and harmonised PIL framework that will protect users, enable innovation, improve good governance, and strengthen the rule of law in the burgeoning digital economy.

V. Proposal to CGAP

30 Based on its current mandate, the PB will continue to monitor, resource permitting, the developments with respect to the PIL implications of the digital economy, including DLT. It will also continue its cooperation and coordination with UNCITRAL and UNIDROIT. The findings of the continued work of the PB on this issue could feed into the discussions to take place at the envisaged international conference on international commercial and financial law to be held in late 2022.²⁶ An open list of possible topics for such work is provided in Annex III. The PB moreover invites CGAP to consider creating an Experts’ Group to assess the desirability, necessity (including assessing the extent to which the existing HCCH instruments can be used for digital assets) and feasibility of a new instrument on jurisdiction, law applicable, and recognition and enforcement of judgments in respect of digital assets. This potential new instrument would provide unified rules aimed at resolving PIL issues that arise in the context of the digital economy.

²⁵ *Ibid.*

²⁶ See C&D No 39 of CGAP 2020.

ANNEXES

Annex I – Overview of Connecting Factors

Overview of Connecting Factors		
Rule and Description	Advantages	Limitations
<p><u>Lex situs¹</u></p> <p>Traditional PIL property rule. With the historical focus on tangible goods, <i>lex situs</i> dictates that rights or entitlement should be governed by law of the place in which the property or claim to property is situated.</p>	<p><u>Tangible property</u></p> <p>For DLT arrangements exchanging ‘exogenous tokens’² that represent tangible property (especially immovable property), courts will most likely apply the <i>lex situs</i> of the underlying asset.</p> <p>For exogenous tokens, changes to existing conflict rules may not be necessary, as the only difference lies in the technology underpinning the transaction. Here, traditional conflict rules may be more appropriate.</p>	<p><u>Distributed and decentralised</u></p> <p><i>Lex situs</i> rule does not translate well when applied to a DLT system. Situs of an asset constituted on a DLT ledger is not obvious for two reasons.</p> <p>First, because the ledger is distributed. A network can span several jurisdictions and have no central authority or validation point (especially in permissionless systems).</p> <p>Second, location may be hard to determine for cross-border transfers of intangible assets.</p> <p>Application of geographically-dependent connecting factors are problematic in DLT context.</p>
<p><u>Elective Situs³</u></p> <p>Proprietary effects of DLT transactions governed by the chosen law of the DLT network participants.</p>	<p><u>Simplicity and certainty, especially for regulation</u></p> <p>Proprietary effects of all transactions on the system are subject to the same governing law.</p> <p>Applicable law of the transaction is transparent to participants and regulation.</p>	<p><u>Threshold issues, regulatory risks</u></p> <p>Two threshold issues. First, party autonomy is not universally accepted as a choice-of-law principle for proprietary issues. Second, it may be difficult to apply in permissionless systems.⁴</p> <p>More significant issue will likely be the perceived regulatory risks. For instance, participants may choose a legal system unrelated to the assets and is subject to significant undue influence. This could potentially facilitate the mass transfer of assets by means of legal adoption in the jurisdiction identified by the connecting factor.</p>
<p><u>Modified elective situs⁵</u></p> <p>A variant of the ‘elective situs’ rule. The participants’ choice of <i>situs</i> could be restricted by regulation or technology. For example, election could be limited to a choice of law approved by regulators, or restricted in respect of a choice of law lacking any connection to the DLT enterprise.</p>	<p><u>Addresses public policy concerns</u></p> <p>Regulators may consider this necessary if uninhibited choice of parties is perceived as being used for avoidance purposes, or that such free choice would contradict public policy.⁶</p>	<p>Approval from more than one regulator.</p> <p>May be difficult to implement rule that requires approval from more than one regulator – especially where the competent authority for a distributed system is not obvious.</p>
<p><u>Deemed election⁷</u></p> <p>Another variant of the ‘elective situs’ rule. Deemed election is</p>	<p><u>Simplicity and transparency</u></p>	<p><u>Identifying the competent authority</u></p>

¹ FMLC (2018), [Distributed Ledger Technology and Governing Law: Issues of Legal Uncertainty](#), p. 10.

² Distinction between ‘endogenous tokens’ (i.e. native cryptocurrencies) and ‘exogenous tokens.’ Endogenous tokens do not refer to anything existing outside the blockchain. Exogenous tokens are those which have a necessary connection with assets existing outside the blockchain. [UNIDROIT (2019), [Summary](#), p. 2.]

³ FMLC (2018), p. 15.

⁴ For permissioned systems, acceptance of a particular governing law could be included in terms for accession to the system (e.g. clearing houses). [Norton Rose Fulbright](#) (p. 1) describes these terms of access as the ‘Constitution’ of a permissioned ‘governed’ blockchain – without which the blockchain would be permissionless.

⁵ FMLC (2018), p. 16.

⁶ Although not mentioned in the FMLC Report, Article 4 of the HCCH 2006 Securities Convention, which conditions the validity of the choice of law agreement to the relevant intermediary having an office in that State, meeting certain minimum criteria, provides an example of this kind of restriction on the elective situs. Further, Article 11 of the HCCH 2015 Principles on Choice of Law in International Contracts provides limitations resulting from overriding mandatory rules and public policy (*ordre public*). The FMLC Report mentioned Rome I Regulation as an example, as it restricts party autonomy in choice of law by preserving certain protective rules, rather than by limiting the possible options.

⁷ FMLC (2018), p. 17.

<p>determined by relevant regulatory or competent authority, where applicable.</p>	<p>Proprietary effects of all transactions are subject to the same governing law.</p> <p>Transparency to third parties – assuming that the deemed election would be public knowledge.</p>	<p>May be self-defeating. A further rule on determining the relevant national competent authority is needed.</p>
<p><u>Chosen law of the transaction/transfer/assignment</u>⁸</p> <p>In the context of one or more transfers of an asset, proprietary effects of the transaction are determined by the applicable law of the assignment.</p>	<p><u>Party autonomy, simplicity</u></p> <p>Applying the law of assignment allows parties to choose the law that will govern proprietary effects of the transaction.</p> <p>Simplicity and coherence regarding the choice of law rule on contractual effects.</p>	<p><u>Competing entitlements, practical difficulties, fragmentation</u></p> <p>No certain answer in case of competing entitlements where successive transfers take place under different governing laws.</p> <p>Requires participants in DLT system to coordinate and agree on governing law. Practical difficulty and inefficiency of this requirement undermines the speed and efficiency of using DLT.</p> <p>Fragmentation within a DLT system, where recorded transactions are subject to multiple different laws.</p>
<p><u>PROPA</u>⁹</p> <p>Place of the Relevant Operating Authority/Administrator.</p> <p>This rule presupposes that the DLT system is both (i) permissioned and (ii) centralised (under the control of a central operating authority or administrator).</p> <p>For such a system, the governing law would either be (i) the location of the R(O)A¹⁰ or (ii) the R(O)A is responsible for determining the governing law.</p>	<p><u>Certainty</u></p>	<p><u>Relocation of R(O)A, identifying the R(O)A, permissionless systems. See 'PREMA' below for 'costs.'</u></p> <p>The PROPA rule is problematic where the R(O)A is required to move jurisdictions (e.g. Brexit).</p> <p>May not always be clear who the R(O)A is. Whether an authority should be the R(O)A may change depending on the role of the administrators.¹¹ Furthermore, additional rules are required to choose between two R(O)A candidates have equivalent powers and are located in different jurisdictions.</p> <p>Most importantly, PROPA would not be applicable in systems without R(O)As, specifically – permissionless and 'trustless' DLT systems.</p>
<p><u>PREMA</u>¹²</p> <p>Primary Residence of the Encryption Private Master keyholder.</p> <p>Similar to PROPA, but this approach looks to the location of the private master key¹³ for the DLT system (for systems that have such a key).</p> <p>Presumptively, this location would be the primary residence, centre of main interests or (possibly) domicile of the master key-holder.</p>	<p><u>Certainty</u></p>	<p><u>Tertiary 'warrant' key, costs</u></p> <p>A significant disadvantage of PREMA is the increasing prevalence of tertiary 'warrant' keys. These keys allow DLT enterprises to decrypt data if they are served with a court order.</p> <p>For both PROPA and PREMA, legal opinion must be sought in locating the R(O)A/master key holder, thereby increasing costs for market participants.</p>

⁸ FMLC (2018), p. 17.

⁹ FMLC (2018), p. 18.

¹⁰ Relevant Operating Authority/Administrator.

¹¹ For instance, an administrator's role may be limited to verifying participants' identity or providing technical access to the ledger. It is uncertain as to what functions and purposes an administrator must serve in order to qualify as an R(O)A.

¹² FMLC (2018), p. 19.

¹³ This would be the key by which the R(O)A or relevant authority controls the ability to transfer digital assets on the ledger.

<p><u>Location of Issuer master account¹⁴</u></p> <p>For securities issues, this looks to the place of the Issuer master account where there is no intermediary and investors hold securities directly from the issuing company.</p>	<p><u>Enforcing claims</u></p> <p>In addition to other advantages (simplicity, certainty), this rule aligns choice of law with the legal system under which claims must ultimately be enforced against the issuer.</p>	<p><u>Action against system administrator</u></p> <p>By contrast, a disadvantage of this rule is the lack of alignment between choice of law and the legal system under which regulatory or legal action against the system administrator can be most effectively taken.</p>
<p><u>Location of participant¹⁵</u></p> <p>Applies law of the place where the system participant (<i>i.e.</i>, who is transferring assets) is resident, has centre of main interest, or is domiciled.</p>	<p><u>Bulk transfers</u></p> <p>Appropriate for transfer of assets in bulk. Otherwise, transferees would have to conduct due diligence on each asset under its own governing law or <i>lex situs</i> respectively.</p>	<p><u>Relevance, questions of entitlement, splitting the ledger</u></p> <p>Questionable relevance of this benefit (<i>left, 'bulk transfers'</i>) in a DLT environment.</p> <p>A significant disadvantage is that this rule gives no clear answer to questions of entitlement where there are: joint transferors, chains of assignments, or change in habitual residence by the transferor.</p> <p>Rule artificially splits up the distributed ledger record.</p>
<p><u>Law of private user key¹⁶</u></p> <p>Location of private user key¹⁷ for the DLT system. This would presumptively be the primary residence, centre of main interests or (possibly), domicile of user key-holder.</p>		<p><u>Determining location, costs</u></p> <p>May be difficult to objectively determined domicile of user key-holder, especially because one key may be composed of several parts that are held across multiple jurisdictions.</p> <p>Establishing location of the relevant person will necessitate complex legal opinions and cost.</p>
<p><u>Law of the assigned claim¹⁸</u></p> <p>Proprietary effects of transaction would be governed by the applicable law of the assigned claim.</p> <p>Understood as a kind of <i>situs</i> rule for intangible assets. Here, the <i>situs</i> is deemed to be the legal system identified as the applicable law of the asset.</p>	<p><u>Elective situs, wider conflicts regime</u></p> <p>This approach enjoys the same advantages as with an elective <i>situs</i> rule.</p> <p>For the EU, it would also have the benefit of aligning with the wider conflicts of law regime (Rome I).</p>	<p><u>Only applicable to exogenous intangible assets</u></p> <p>Rule can only be implemented for intangible assets that have a separate existence from the DLT system (<i>i.e.</i>, must not be tangible assets or native 'on-platform'¹⁹ tokens). As previously mentioned, tangible assets will likely be governed by <i>lex situs</i>. As for virtual 'on-chain' endogenous tokens, a separate rule tailored to the distributed system is required.</p>
<p><u>Lex codicis²⁰</u></p> <p><i>Also: lex digitalis, PResC.²¹</i></p> <p>Looks to the governing law of the code that was used to create the original distributed ledger programme. Usually taken to be the Primary residence of the original Coder (PResC).</p>	<p><u>Simplicity and certainty</u></p> <p>Original coder can be identified relatively easily. Rule also provides <i>ex ante</i> certainty.</p>	<p><u>Relevance of original coder</u></p> <p>Tenuous connection to the original coder. Where the coder is not also the system administrator, there is little reason why they should be relevant to and responsible for subsequent developments on the distributed ledger.</p>

¹⁴ FMLC (2018), p. 19.

¹⁵ FMLC (2018), p. 19-20.

¹⁶ FMLC (2018), p. 20.

¹⁷ Key by which a participant in the system controls the digital asset.

¹⁸ FMLC (2018), p. 20.

¹⁹ Depending on whether the distributed ledger is a blockchain, the term 'on-platform' may be used interchangeably with 'on-chain.' Same applies for 'off-platform' and 'off-chain.'

²⁰ FMLC (2018), p. 21.

²¹ Primary Residence of the Coder.

Annex II – Domestic initiatives in relation to the digital economy

Domestic initiatives in relation to the digital economy					
Location	Initiatives	Description	Relevant framework document	Scope	Possible PIL implications ¹
Australia	Australia's National Blockchain Roadmap	"Several Australian Government agencies have sought to clarify the regulatory issues that affect the implementation and use of blockchain in the financial sector, including: (...) The Australian Securities and Investments Commission (ASIC), which has: *developed an information sheet on evaluating distributed ledger technology; *developed an information sheet to assist issuers of initial coin offerings and crypto-assets to understand their obligations under the Corporations Act 2001 and the Australian Securities and Investments Commissions Act 2001; *established an Innovation Hub that fintech start-ups can approach for help to navigate the regulatory system, and has run series of meetups to engage directly with stakeholders. (...)"	ASIC Information Sheet 225 Initial coin offerings and crypto assets; ASIC Information Sheet 219 Evaluating distributed ledger technology	Crypto assets; ICOs	(3)
Bermuda	New legislation: Digital Assets Business Act and ICO Act	"Bermuda enacted comprehensive legislation in 2018 that regulates cryptocurrencies, digital assets, and initial coin offerings. There is an extensive set of licensing requirements designed to ensure that digital asset businesses meet standards to ensure liquidity and transparency and comply with anti-money laundering laws and various consumer protections." ⁱ	Digital Assets Business Act; Company and Limited Liability Company (Initial Coin Offering) Amendment Act 2018	Cryptocurrencies; digital assets; ICOs	(1), (3)
China, People's Republic of	Interpretation of the legislation	"Article 127 of the General Rules of the Civil Law of China, which took effect on October 1, 2017, provides that: 'In case laws have provisions on the protection of data and internet virtual properties, such laws should be complied with.' Some Experts believe that this means that one of the basic laws in China recognizes the legal status of cryptocurrencies as virtual property." ⁱⁱ	General Rules of the Civil Law of China (Article 127) (Property Law)	Cryptocurrencies	(3), (4)
EU	DLT Pilot [Proposal]	"The DLT Pilot Regime is a regulatory sandbox for DLT market infrastructures providing trading and settlement services for DLT-transferable securities. More specifically, it is open for market participants running 'multilateral trading facilities' or 'securities settlement systems' using DLT. Moreover, such actors have to be authorised as an investment firm or a market operator under Directive 2014/65/EU (MIFID II) or as a Central Securities Depository under Regulation 909/2014 (CSDR). If those requirements are met, the actor can apply for specific permission under the Pilot Regime, the consequence of which is the actor's temporary exemption from certain rules." ⁱⁱⁱ	2020/0267 (COD)	DLT market infrastructures	(1)
Estonia	Inclusion of cryptocurrencies definitions in the Money Laundering and Terrorist Financing Prevention Act	"The definition and legal nature of cryptocurrencies (<i>i.e.</i> , are they a right, thing or private money) in the civil law is unsettled, and there is no case-law on this subject in Estonia." ^{iv}	Money Laundering and Terrorist Financing Prevention Act	Cryptocurrencies	(3)

¹ Possible PIL implications: (1) Cross-border framework, (2) Jurisdiction, (3) Applicable law, (4) Recognition and enforcement*

* In relation to recognition and enforcement, and not reflected in the table, there are several countries which have banned transacting and holding of cryptocurrencies (Algeria, Bangladesh, Bolivia, Burundi, Egypt, Libya, Morocco, Nepal, Pakistan, Palau, Qatar, Tanzania, Uzbekistan, the West African Economic and Monetary Union (including Benin, Burkina Faso, Ivory Coast, Mali, Niger, Senegal and Togo)) or banned financial institutions from transacting with and holding cryptocurrencies (Iran, Kuwait, Laos, Myanmar) according to the [GBBC Global Standard Mapping Initiative \(GSMI\) 2020](#).

	Unofficial guidelines for ICO issuers and token traders	“The Estonian Financial Supervisory Authority (EFSA) is of opinion that tokens in terms of the offerings mentioned above, depending on their structure, might be considered as securities according to the definition set forth in the current Securities Market Act (SMA) as well as in the Law of Obligations Act (LOA). In assessing whether or not securities laws apply, the EFSA states that substance should be considered over form.”	Guidelines for ICO issuers and token traders – Estonian Financial Supervision and Resolution Authority (EFSA)	Tokens; ICOs	(3)
France	Action Plan for Business Growth and Transformation (PACTE)	In April 2019, France passed the PACTE law (Action Plan for Business Growth and Transformation), which defines regulation around digital assets.’	PACTE info in English Loi PACTE	Digital Assets	(3)
Germany	Blockchain strategy of the Federal Government	“Alongside questions of consumer protection and data protection, the consultation process addressed questions of company law. Primarily, the matter raised was the enforceability of law in blockchain structures, especially if they cross national borders.” “3.6 The Federal Government is checking the suitability, feasibility and potential of an international arbitration authority - Cross-border blockchain networks can provide new challenges from the legal viewpoint, for instance on the matter of which legal system is applied. In the realm of blockchain technology, in which the contracting parties usually do not know one another, it is complicated, and possibly unjust to the interests involved, if there is a classic negotiation to attain a consensus-based dispute resolution.”	Blockchain strategy of the Federal Government	Token economy	(1), (3), (4)
Ireland	Discussion Paper, Department of Finance	“In 2018, the Department of Finance issued a discussion paper on virtual assets. The paper explicitly states that its purpose is not ‘[t]o provide guidance or set forth policy in relation to virtual currencies trading, purchasing, selling, or raising funds via Initial Coin Offerings (ICO).’ One of the key considerations from the Department of Finance in the Discussion Paper was the need for a ‘clear legal & regulatory environment to ensure compliance when investing in blockchain linked businesses [and] Guidance in relation to tax and consumer protection matters.” ^{vi}	Discussion paper Virtual Currencies and Blockchain technology	Virtual currencies, ICOs	(3)
Israel	Blockchain ecosystem	“The three main recommendations of the [ISA] report were the following: a tailor made disclosure regime, the ease of restrictions through a regulatory sandbox and a regulatory infrastructure for security token trading platforms.” ^{vii}	Final Report of the ISA (Israel Securities Authority) Committee	Cryptocurrencies	(3)
Italy	Italian AML legislation	“[...] A virtual currency is ‘a digital representation of value which is neither issued by a central bank or a public authority, nor necessarily attached to a legal tender, and which is used as a means of payment and can be transferred, stored or traded electronically’” ^{viii}	Italian AML legislation	Cryptocurrencies	(3)
Kazakhstan	Astana International Financial Center (AIFC)	“The Constitutional Statute of the Republic of Kazakhstan ‘On the Astana International Financial Centre’ dated December 7, 2015 (the Constitutional Statute) defines the Astana International Financial Centre as a territory within the capital city, defined by the President of the Republic of Kazakhstan, where a special legal regime for the finance industry applies. The AIFC acting law is based on the Constitution of the Republic of Kazakhstan and consists of the Constitutional Statute, the AIFC Acts based on the principles, norms and precedents of the law of England and Wales, the standards of leading global financial centres, and the law of the Republic of Kazakhstan, which applies to matters not regulated by the Constitutional Statute and AIFC Acts. (...)”	AIFC Report	Financial Market	(1), (2), (3), (4)
Latvia	Joint action Estonia, Latvia and Lithuania on FinTech	“The Estonian Ministry, the Latvian Ministry and the Lithuanian Ministry recognise the importance of the development of the capital market and a stronger institutional framework to handle the cross border challenges in the Baltic States.” (Text of the MoU)	MoU	FinTech	(1)

Liechtenstein	Liechtenstein Blockchain Act	“The Liechtenstein Parliament passed the Token and Trusted Technology Service Provider Act (TVTG) on October 3, 2019, and the law has entered into force on January 1, 2020. Liechtenstein is the first country to introduce a comprehensive regulation for the blockchain industry, for cryptocurrencies, utility tokens, payment tokens, stable coins, and digital securities like security tokens.” ^{ix}	Token and Trusted Technology Service Provider Act (TVTG)	Wide-range	
Lithuania	Ministry of Finance Guidelines	“In 2018, the Lithuania Ministry of Finance issued ICO guidelines that reiterated the differentiated approach to cryptocurrencies adopted by the Bank of Lithuania in 2017. The guidelines stated that there is no single piece of legislation that governs cryptocurrencies and cryptoassets. Applicable laws will depend on the nature of particular cryptocurrencies, their purpose, and their potential utilization.” ^x	ICO Guidelines	Virtual currencies and ICOs	(3)
Mauritius	New legislation on custody of digital assets	“Digital asset custody regulatory framework effective from 01 March 2019”. ^{xi}	Financial Services [Custodian Services (digital asset)] Rules 2019 and Financial Services (Consolidated Licensing and Fees) (Amendment) Rules 2019	Digital assets	(1)
Singapore	Payment Services Act 2019	“Singapore took a wait-and-see approach to blockchain and digital assets. Then, in January 2019, Parliament passed the Payment Services Act 2019, which streamlined existing laws for payment services under the Payment Systems (Oversight) Act 2006 and the Money-Changing and Remittance Businesses Act 1979 and established new requirements relevant to digital asset businesses.” ^{xii}	Payment Services Act 2019	Digital assets	(1), (3)
Spain	Digital Legacy – Trust for Wills	TrustForWills ensures the automated compliance with wishes of digital services users (e.g. social profiles, storage platforms, banking services) in case of temporary disability or death. ^{xiii}	-	Digital assets	(1), (2)
Switzerland	Blockchain Act	“The new set of Swiss laws on blockchain and distributed ledger technology (DLT; Blockchain/DLT Laws) has been approved by the Swiss Parliament on 25 September 2020 and is thus now in final form. Subject to a referendum, which is unlikely, the Blockchain/DLT Laws will presumably enter into force early next year.	Anpassung des Bundesrechts an Entwicklungen der Technik verteilter elektronischer Register. Bundesgesetz	Wide-range	(3)
United Arab Emirates	Dubai Blockchain Strategy	“The Financial Services Regulatory Authority of the Abu Dhabi Global Market has published regulations and guidance on accepted crypto assets, ICOs, and crypto asset businesses.” ^{xiv}	Virtual Assets Activities Guidance Guidance – Regulation of Digital Securities Activities	Wide-range	(1), (3)
United Kingdom	Legal Statement – UK Jurisdiction Taskforce	“Whether English law would treat a particular cryptoasset as property ultimately depends on the nature of the asset, the rules of the system in which it exists, and the purpose for which the question is asked. In general, however: (a) cryptoassets have all of the indicia of property; (b) the novel or distinctive features possessed by some cryptoassets—intangibility, cryptographic authentication, use of a distributed transaction ledger, decentralisation, rule by consensus—do not disqualify them from being property; (c) nor are cryptoassets disqualified from being property as pure information, or because they might not be classifiable either as things in possession or as things in action;(d) cryptoassets are therefore to be treated in principle as property. This is likely to have important consequences for the application of a number of legal rules, including those relating to succession on death, the vesting of property in personal bankruptcy, and the rights of liquidators in corporate insolvency, as well as in cases of fraud, theft or breach of trust. Cryptoassets cannot be physically possessed: they are purely “virtual”. Accordingly,	Legal statement on cryptoassets and smart contracts	Crypto assets; smart contracts	(3)

		<p>as a matter of law they cannot be the object of a bailment, and only some types of security can be granted over them, though we see no obstacle to the granting of other types of security. They are not documents of title, documentary intangibles or negotiable instruments (though some form of negotiability may arise in future as a result of market custom), nor are they instruments under the Bills of Exchange Act.”</p> <p>“There is a contract in English law when two or more parties have reached an agreement, intend to create a legal relationship by doing so, and have each given something of benefit. A smart contract is capable of satisfying those requirements just as well as a more traditional or natural language contract, and a smart contract is therefore capable of having contractual force. Whether the requirements are in fact met in any given case will depend on the parties’ words and conduct, just as it does with any other contract.”</p>			
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ⁱ U.S. Law Library of Congress, [Report: Regulatory Approaches to Cryptoassets in Selected Jurisdictions](#), April 2019, p. 34.

ⁱⁱ Shen Wenhao, [Regulation of Cryptocurrency in China](#).

ⁱⁱⁱ Wolf-Georg Ringe & Christopher Ruof, [The DLT Pilot Regime: An EU Sandbox, at Last!](#), Oxford Business Law Blog.

^{iv} Lätt, P. (PWC-Estonia), [Blockchain & Cryptocurrency Regulation 2020 | Estonia](#), Website: Global Legal Insights.

^v Nasdaq (2019), [Vive la Blockchain: Why the French Government is Embracing Blockchain and Implementing Regulation](#).

^{vi} U.S. Law Library of Congress, [Report: Regulatory Approaches to Cryptoassets in Selected Jurisdictions](#), April 2019, p. 113.

^{vii} See OECD paper, p. 47, <https://www.oecd-ilibrary.org/docserver/b6d380ed-en.pdf?expires=1606219865&id=id&accname=guest&checksum=BF3EE64991ABDB44EDA38FF5FFFB53B8>

^{viii} Andrea Tuninetti Ferrari, [Italian court rules that cryptocurrency is "property" and a "means of payment" - The BitGrail case](#), at Clifford Chance Talking Tech.

^{ix} Extracted from: https://www.lcx.com/blockchain-laws-liechtenstein/?utm_source=rss&utm_medium=rss&utm_campaign=blockchain-laws-liechtenstein

^x U.S. Law Library of Congress, [Report: Regulatory Approaches to Cryptoassets in Selected Jurisdictions](#), April 2019, p. 157.

^{xi} Mauritius Financial Services Commission (2019), [FSC issues the Financial Services \(Custodian services \(digital asset\)\) Rules 2019](#), FSC News.

^{xii} GBBC Global Standard Mapping Initiative (GSMI) 2020, p. 22.

^{xiii} atSistemas (2020), [atSistemas participats in the development of the TrustForWills solution](#) (in Spanish). For more information, see [here](#).

^{xiv} GBBC Global Standard Mapping Initiative (GSMI) 2020, p. 23.

Annex III – Possible topics for further work

The PB has identified a number of possible topics for further work that will bring more clarity to current and potential PIL issues in relation to the digital economy. The following is an open list of such possible topics:

- Applicable law: Legal nature of digital assets and digital transactions
Considering the classification, and the impact of such classification on the applicable law, of the legal nature of the relevant objects (e.g., are crypto assets a form of securities, immovable property, documentary intangibles, or a new category of object?).
- Connecting factors
Considering the impact of the digital economy and associated regulatory initiatives on the relevant connecting factors and associated PIL issues, including the impact on party autonomy.
- Case-law and dispute settlement mechanisms focused on PIL and the digital economy
Identifying the relevant fora and jurisprudence, as well as the most urgent implications of these in regard to applicable law, jurisdiction and enforcement. This will also provide an overview of potential differences among the legal systems where harmonisation may be necessary and desirable.
- Recognition and enforcement: Existing rules of PIL or other international instruments that may impact on PIL
Analysing existing international instruments and identifying possible areas of conflict or of synergy to a potential PIL instrument. There are some recognised intersections with existing regulations at both regional and international levels (e.g., the UNCITRAL Model Law on Electronic Commerce). Further research would be required to identify the connections of these existing instruments with a potential PIL framework. Work may also be necessary to elucidate the different approaches regarding conflict of laws, cooperation mechanisms, and the feasibility and form of a possible future PIL instrument.
- Recognition and enforcement: Existing domestic regulations and other initiatives that may impact on PIL
Analysing existing and nascent domestic instruments and other initiatives that may impact on a possible future PIL instrument. Further research would be required to identify the areas of similarity and conflict between these existing frameworks.