



Distributed Ledger Technology and Governing Law: Issues of Legal Uncertainty

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1. INTRODUCTION AND BACKGROUND

- 1.1. The role of the Financial Markets Law Committee (the “FMLC”) is to identify issues of legal uncertainty or misunderstanding, present and future, in the framework of the wholesale financial markets which might give rise to material risks and to consider how such issues should be addressed.
- 1.2. Distributed Ledger Technology (“DLT”) systems¹ are often borderless, spanning several jurisdictions and leaving market infrastructures, regulated firms, members of the public and others conducting transactions thereupon vulnerable to multiple—and potentially inconsistent—assertions of governing law. Such multiple assertions stem from the fact that it might be less than clear where assets and their records are located in a DLT environment.² For both participants in a DLT system—and any affected third parties—uncertainty as to governing law is self-evidently neither a satisfactory nor a viable outcome.
- 1.3. One need only consider the immense scale of research being conducted by the financial sector into DLT,³ the targeted applications of DLT that have already been brought to market in 2017,⁴ and DLT’s status as “the bedrock of the “New Industrial Revolution”⁵ (notwithstanding the absence of agreement as to DLT’s significance in practice)⁶ to recognise the increasing relevance of DLT and the pressing need for international consensus on this issue of governing law. As the law relating to DLT lags behind the trajectory of the technology, an international conflict of laws

¹ For the avoidance of doubt, a DLT system need not be a formal “system” in the technical or engineering sense of the word.

² See ESMA, *The Distributed Ledger Technology Applied to Securities Markets* (7 February 2017) para.72, available at: <https://www.esma.europa.eu/press-news/esma-news/esma-assesses-dlt%E2%80%99s-potential-and-interactions-eu-rules>.

³ See slide 14 of World Economic Forum “The future of financial infrastructure: an ambitious look at how blockchain can reshape financial services” (presentation prepared in collaboration with Deloitte) (August 2016), available at: http://www3.weforum.org/docs/WEF_The_future_of_financial_infrastructure.pdf.

⁴ See, for example: (i) Daimler AG and Landesbank Baden-Württemberg (LBBW)’s successful launch of a 1 year corporate Schuldschein with a volume of €100 million in [June 2017](#), where the entire transaction was carried out digitally via blockchain technology; (ii) distributed ledger specialists Axoni, in conjunction with eleven firms (including BNP Paribas, Credit Suisse, Goldman Sachs, J.P. Morgan, Thomson Reuters and ISDA) announced [on 20 November 2017](#) the successful completion of a pilot to manage equity swap transactions and related post-trade lifecycle events employing blockchain smart contracts; and (iii) in [August 2017](#) six of the world’s biggest banks (including Barclays and HSBC) announced that they have joined a project, pioneered by UBS, to create a new form of digital cash called a “utility settlement coin” that they hope to launch next year for clearing and settling financial transactions over blockchain.

⁵ See the G20 Insight Report, *The G20 Countries Should Engage with Blockchain Technologies to Build an Inclusive, Transparent, and Accountable Digital Economy for All* Mauplin, J (Max Planck Institute for Comparative Public Law & International Law & Centre for International Governance Innovation, 5 April 2017), available at: http://www.g20-insights.org/policy_briefs/g20-countries-engage-blockchain-technologies-build-inclusive-transparent-accountable-digital-economy/.

⁶ On DLT’s “awkward adolescent phase”, see Morgan Stanley “Blockchain: Unchained?” (8 September 2017), available at: <https://www.morganstanley.com/ideas/blockchain-unchained>.

framework for financial transactions and systems using DLT needs to be developed as a matter of priority.

2. A WORD AS TO SCOPE

- 2.1. A transaction in a financial instrument or asset on a DLT system (where a transaction is taken to involve the transfer of value, whether by disposition or charge, from one participant to another participant, resulting in a change of legal rights and duties of each participant) may give rise to numerous issues: under private law, contractual, tortious and property; under insolvency law, and criminal law.
- 2.2. In this paper, in order to discourage prolixity and to encourage clarity of thought, the FMLC will focus on the proprietary effects of DLT transactions in financial instruments or assets.⁷ This focus on the proprietary effects is not, however, entirely artificial, given the need for certainty as to how proprietary issues of transfer, priority, and security perfection will be governed within a financial services context. The choice is also informed by the significant uncertainties—to be explored in full below—that arise when attempting to ascertain the governing law in respect of the proprietary effects of DLT transactions: uncertainties which are perhaps less pronounced for other areas of law. Finally, the reader may recall that similar concerns as regards proprietary effects followed the rise of computerisation in financial services; concerns associated with the holding of dematerialised securities on an intermediated basis through custodians in a holding system. Owing to some (at least superficial) similarities between these two developments—both involve the holding of assets in a novel way through a computerised system—the historical proprietary treatment of transactions in intermediated securities will inform some of the analysis below.⁸
- 2.3. This paper will examine what is meant by “DLT system” (Section 3). From this foundation, the paper will then consider the issue of legal uncertainty (Section 4) and its impact (Section 5), before considering possible solutions (Section 6) and, ultimately,

⁷ Readers are asked to bear in mind that remit of the FMLC is limited to the study of issues affecting the wholesale legal markets.

⁸ National legal systems may reach divergent positions as to whether DLT-system-based tokens qualify as an object of ownership and tests for determining owners (undermining the possibility for proprietary claims), but such fundamental legal uncertainty may be mitigated if the governing law is predictable. See Takahashi, K “Implications of the Blockchain Technology for the UNICTRAL Works” at p.17, available at: http://www.uncitral.org/pdf/english/congress/Papers_for_Programme/30-TAKAHASHI-Implications_of_the_Blockchain_Technology_and_UNCITRAL_works.pdf

setting out the FMLC’s proposed solution (Section 7).

3. DLT SYSTEMS

3.1. The European Securities Markets Authority (“ESMA”) has observed that DLT systems can be characterised as:

- a) records of electronic transactions which are maintained by a shared or “distributed” network of participants (known as “nodes”), thereby forming a distributed validation system; that
- b) make extensive use of cryptography i.e. computer-based encryption techniques such as public/private keys and hash functions which are used to store assets and validate transactions on distributed ledgers.⁹

3.2. Different nodes may have different rights with respect to, for example, reading and writing data.¹⁰ Fully decentralised networks, where there is no central validation system and no central point of control, are a further subset of distributed networks.¹¹ It is worth noting that distributed ledger technology is sometimes referred to as “blockchain”, owing to the fact that some iterations of the technology operate to create a chain of blocks (or files) containing transaction data.¹²

3.3. The specifics of DLT systems (and their underlying technology) are diverse and the category is still evolving. Nevertheless, the FMLC is given to understand that three broad distinctions may be drawn out which provide a helpful base for legal analysis:

⁹ ESMA Report, *supra* n.2 at p.4.

¹⁰ FCA, *Discussion Paper on distributed ledger technology* (April 2017) DP 17/3, p.10, available at: <https://www.fca.org.uk/publication/discussion/dp17-03.pdf>.

¹¹ For background on how different ledger technologies vary in their degrees of centralisation, see U.K. Government Office for Science *Distributed Ledger Technology: beyond block chain* (19 January 2016) at p.35, available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/492972/gs-16-1-distributed-ledger-technology.pdf.

¹² In such a system, each new block contains a derived form (i.e., a hash) of the previous block. These blocks are stitched together in a chain of increasing length, the authenticity of which is verified by the combined computing power of multiple users on the network. The chain is extended when new transactions are organised into new blocks which are then added to the end of the existing blockchain and resubmitted to the network. Once accepted by the distributed network, a block cannot be changed or removed. A block which is created but rejected by the network becomes orphaned and cannot be reintegrated into the system. This is designed to prevent transactions being duplicated and to eliminate the re-use (or “double spend”) of coins or tokens. See FMLC “Issues of legal uncertainty arising in the context of virtual currencies” (July 2016) p.2, available at http://www.fmlc.org/uploads/2/6/5/8/26584807/virtual_currencies_paper_-_edited_january_2017.pdf.

- a) **Permissionless and permissioned systems:** permissionless systems are open to the public, and members of the public may effect and verify changes to the ledger. By contrast, in permissioned systems only authorised participants are able to create records and verify changes to the ledger (and different participants may have different authorisations).¹³
- b) **Record and title ledgers:** record ledgers evidence or record title transfers carried out through underlying transaction documentation (and can, for instance, be used for transaction reporting). Title ledgers, by contrast, transfer title directly on the ledger. For some classes of assets, a title transfer will only be effective if the ledger is authoritative and constitutive and, normally, a change in the law will be required to confer the requisite authority. In the case of shares, for example, the ledger will need to be deemed equivalent to a company’s register of members in order for legal title to transfer.¹⁴
- c) **Off-platform asset tokens and on-platform asset tokens:**¹⁵ DLT systems may circulate (and effect transactions via) off-platform asset tokens, which represent or are “pegged to” underlying “real world” assets. These assets could be tangible (like land, coffee beans or oil), or intangible (like debt or shares).¹⁶ DLT systems may also circulate (and effect transactions via) on-platform asset tokens (or “virtual assets”) which are assets created within—and have value that is entirely derived from—the sphere of the DLT system, with no underlying asset referenced. They can be monetary tokens (i.e. cryptocurrency), a well-known example of which is Bitcoin, or digital securities.¹⁷ Both kinds of tokens can be a mere record of ownership, or can be “smart” and have rights and obligations attached to them. In future, the

¹³ The FMLC is aware of a further distinction between permissioned and private systems. In permissioned systems, the ledger may be viewed by members of the public, but only accessed by authorised participants. Private systems are only able to be viewed and accessed by authorised participants. For the purposes of this paper, “permissioned” systems will be taken to encompass private systems.

¹⁴ In such a scenario, a share token will be a digital version of a share certificate. See ENISA *Distributed Ledger Technology & Cybersecurity; Improving information security in the financial sector* (December 2016), at p. 25, available at: <https://www.enisa.europa.eu/publications/blockchain-security>.

¹⁵ An introduction to this distinction can be found at Lewis “A gentle introduction to digital tokens” (28 September 2015), available at <https://bitsonblocks.net/2015/09/28/a-gentle-introduction-to-digital-tokens/>, and a SWIFT presentation entitled “Distributed Ledger Technologies” (Alexandre Kech, 11 May 2016) available at <https://www.swift.com/file/27666/download?token=e6t9sW0p>.

¹⁶ On tangible and intangible assets, see Dicey, Morris & Collins, *The Conflict of Laws*, 15th ed, §22-010.

¹⁷ Note that digital securities are distinct from dematerialised securities, which are created under the Uncertificated Securities Regulations 2001 (SI 2001/3755) as amended in 2003 (SI 2003/1633), 2009 (SI 2009/1889) and 2013 (SI 2013/632).

distinction between off-platform asset tokens and on-platform asset tokens is likely to blur, as it is possible that when certain assets are “digitised” and represented on a DLT system, the new digital assets may end up replacing the original real world assets. It will be for regulators—on a case-by-case basis—to determine how assets traded on a given DLT system are to be classified for regulatory purposes; that is, whether in the specific instance they are securities, commodities, funds, money, instruments of payment, derivatives, records or something else altogether in relation to each relevant regulation.¹⁸

- 3.4. While many other distinctions may be drawn (for instance, between those ledgers where there are tokens and those which are entirely tokenless), it is these three that will prove most productive for the purposes of the conflict of laws questions posed in this paper. The paper will, moreover, focus on title ledgers, and references to “DLT systems” in the paragraphs below should be taken to mean DLT systems with title ledgers. This is because, in the case of record ledgers, the question of governing law in relation to the proprietary effects of transactions on the ledger will be determined through the application of traditional conflict of laws rules to the underlying transaction that is being recorded; as a result, the governing law is not uncertain in respect of record ledgers.

4. THE ISSUE OF UNCERTAINTY

- 4.1. The traditional property rules of private international law—given a natural historical focus on tangible goods—dictate that a question as to rights or entitlement should be governed by the law of the place in which the property or claim to property is situated (*lex situs*). As per Dicey, Morris & Collins (§22-025):

...the rationale for the application of the *lex situs* to many questions of property law is, first, that the *situs* is an objective and easily ascertainable connecting factor to which third parties might

¹⁸ For example, the Securities and Exchange Commission in the U.S. has stated that tokens offers and sales of digital assets by “virtual” organisations could be subject to the requirements of the federal securities laws, highlighting that whether a particular investment transaction involves the offer or sale of a security—regardless of the terminology or technology used—will depend on the facts and circumstances, including the economic realities of the transaction. A press release to this effect, dated 25 July 2017, can be found here: <https://www.sec.gov/news/press-release/2017-131>

See also the FMLC’s paper on the legal and regulatory classification of virtual currencies, (*supra*, n.13), with an addendum to this paper available at http://www.fmlc.org/uploads/2/6/5/8/26584807/an_addendum_to_the_fmlc_discussion_paper.pdf.

reasonably look to ascertain questions of title and, secondly, that the country of the *situs* has control over the property and a judgment in conflict with the *lex situs* will often be ineffective.

- 4.2. This rationale has less force the further that one moves from that paradigm case. The very concept of a single *situs* for the asset becomes difficult to apply in the case, first, of intangibles, second, of digitised assets and, third, of assets constituted on a distributed network or platform. In England and Wales, for example, at common law, a *chose* in action was at one time thought to have no *situs*,¹⁹ but rules were subsequently developed to identify the *situs* for a variety of *choses* in action (e.g. in the case of a debt, the place where the debtor resides; or, in the case of a share in a company, the place of incorporation of the company or the place of the register upon which any transfer must be registered to be effective).²⁰ Notwithstanding the fact that the common law of England and Wales had arrived at a solution to the problem of intangible property by this route, however, European law took a different approach. The Convention on the law applicable to contractual obligations (the “**Rome Convention**”), and later Regulation (EC) No 593/2008 on the law applicable to contractual obligations (the “**Rome I Regulation**”), determined that *inter partes* proprietary questions arising from transactions in *choses* in action would be governed not by the *lex situs*—a cumbersome, difficult rule to apply in this context—but by the governing or applicable law of the contract giving rise to the claim.²¹
- 4.3. When attempting to determine the proprietary effects of a transaction there are, therefore, well-established precedents for both adapting—and even departing from—the *lex situs* rule where necessary.

Lex situs as applied to DLT systems

- 4.4. In addition to its traditional use, in recent years the *lex situs* has been employed in respect of intermediated securities via the so-called PRIMA principle. As noted above, at first glance there may appear to be certain parallels between the market developments which introduced securities intermediation and those which relate to the introduction of DLT systems. The advent of dematerialisation and intermediation in

¹⁹ *Lee v Abdy* (1886) 17 QBD 309, 312.

²⁰ Dicey, Morris & Collins, at §22-044.

²¹ Regulation (EC) No 593/2008 of the European Parliament and of the Council of 17 June 2008 on the law applicable to contractual obligations (Rome I), available at: <http://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A32008R0593>.

the securities market created a new “thing” (i.e. the book-entry) which was initially viewed as a means of record-keeping in the custody and holding chain but which subsequently came to be recognised and fully-accepted as the locus of proprietary rights.

- 4.5. The PRIMA principle was initially developed during negotiations for The Hague Convention of 5 July 2006 on the Law Applicable to Certain Rights in Respect of Securities (effective as of 1 April 2017, the “**Hague Securities Convention**”), and pinpoints a method to determine the *lex situs* of securities held with an intermediary, looking to the jurisdiction of the “place of the relevant intermediary account”.²² This original PRIMA principle, although not incorporated into the Hague Securities Convention, now appears in E.U. law in three different instruments relating to book-entry securities: Directive 2002/47/EC on financial collateral arrangements (the “**FCAD**”); Directive 98/26/EC on settlement finality in payment and securities settlement systems (the “**SFD**”); and Regulation (EU) No 909/2014 on improving securities settlement in the European Union and on central securities depositories (the “**CSDR**”).
- 4.6. The *lex situs* does not, however, translate well when applied to a DLT system. The *situs* of an asset constituted on a DLT ledger—which by definition is distributed—is not immediately obvious. A network can span several jurisdictions and—in the case of a ledger which is fully decentralised—there is no central authority or validation point.
- 4.7. The application, then, of the *lex situs* as a connecting factor—or of any conflict of laws rule anchored in geography—is problematic in the DLT context. It gives rise to difficulty in attempting to answer key questions:
 - a) What are the legal nature and effects against third parties of a disposition of an asset recorded on a DLT system?
 - b) What are the requirements—if any—for the perfection of a disposition of an asset recorded on a DLT system?
 - c) What are the requirements—if any—for the realisation of an interest in an asset recorded on a DLT system?

²²

This is because in an intermediated holding system it is impractical to apply the law of the place where the securities are located at the time of the transfer (in this context, *lex cartae sitae*). See the HCCH, *Hague Securities Convention, Explanatory Report*, second edition, at 18 for reasoning, available at: <https://assets.hcch.net/docs/d1513ec4-0c72-483b-8706-85d2719c11c5.pdf>.

- d) Does a disposition of an asset recorded on a DLT system extend to entitlements to dividends, income, or other distributions, or to redemption, sale or other proceeds?
- e) What are the legal nature and effects against the transferor of a disposition of an asset recorded on a DLT system? and
- f) What are the circumstances in which a person's interest in an asset recorded on a DLT system will extinguish or have priority over another person's interest?²³

4.8. Before abandoning the *lex situs* as a connecting factor altogether, however, it is important to note that where DLT arrangements purport to be dispositive of title to tangible property, and immovable property in particular, it appears unlikely that a court will apply any law other than the *lex situs* of the underlying asset. The conflict of laws analysis in respect of a DLT system need not necessarily, then, be radically different just because there is new technology underpinning a transaction. In fact, in some contexts, a traditional conflict of laws analysis may be the most appropriate route to the answer.

4.9. Overall, it is clear that further investigation is needed into the application of conflict of laws rules other than—or, at the least, in addition to—the *lex situs* to deal with new challenges posed by DLT.

Excluded issues

4.10. There are a number of peripheral and interconnected issues of legal uncertainty that arise when considering the governing law of the proprietary aspects of transactions conducted on a DLT ledger. In order to give focus to this paper, they will not be considered here. The FMLC thought it worth flagging these issues, however, as they are relevant and may merit future consideration; they are listed in the form of questions at Appendix A.

4.11. In addition to these issues, this paper does not attempt to address ancillary conflict of laws questions such as the application of *renvoi* (the process through which the court adopts the rules of a foreign jurisdiction where a conflict of laws issue arises) and/or the need for public policy exceptions.

²³ Article 2 of the Hague Securities Convention was used as a reference when creating this list of issues.

5. IMPACT

- 5.1. It is clearly desirable that participants in a DLT system have confidence that transfer, priority and security perfection benefit from legal finality. Moreover, from a regulatory perspective, and from the perspective of legal or natural persons participating within the DLT system, legal certainty on the issues discussed in this paper will be a prerequisite to the mainstream adoption of DLT systems in financial transactions.
- 5.2. A complementary point has been highlighted in a paper published by *Long Finance* in July 2017. Despite often being described as “trustless” (owing to their structure), DLT systems are built on trust, and factors such as theft, security, and dispute resolution affect trust. If trust is eroded, the number of users of DLT systems will decrease and the value of the network to the remaining users is diminished. Applying this reasoning, legal uncertainty as to the governing law of the proprietary effects of a transaction on a DLT system could diminish trust in the system, and thereby diminish its value.²⁴
- 5.3. Continuing legal uncertainty in this area has, therefore, the potential to stifle the growth of DLT within the financial sphere, and reduce the benefits and efficiencies that many claim it has to offer. A recent report published by the European Union Agency for Network and Information Security (“**ENISA**”), succinctly describes these as:
- a) **cost reductions:** the opportunity for financial institutions to unplug legacy systems and reduce the amount of layers for data sharing, as well as reducing reconciliation time;
 - b) **risk-management:** the ability to predict and avoid overextending an institution’s liabilities; and
 - c) **regulatory compliance:** compliance with the requirements of various sets of legislation, as well as conducting only authorised transactions can be automated to a great degree.²⁵

²⁴ S.Mills and B.McDowall, *Long Finance*, “Responsibility without power? The governance of mutual distributed ledgers (aka blockchain)” (July 2017) at p.20, available at: http://www.longfinance.net/images/Responsibility_Without_Power.pdf.

²⁵ ENISA, *supra* n.15.

- 5.4. As the technology matures, moreover, new benefits to DLT are likely to be identified. The impact of legal uncertainty in this area is, in any event, significant and it is a matter of relative urgency that a solution is found. It is to the question of a solution that this paper now turns.

6. POTENTIAL SOLUTIONS

- 6.1. It was highlighted at the beginning of this paper that DLT systems are often international in their reach, involving participants from all over the globe. As a result, and in order to be effective, any solution will have to be adhered to on an international basis. As a means of achieving this goal, the FMLC advocates that guidelines model conflicts rules are adopted by an international body or group, such as the Hague Conference, perhaps in collaboration with the International Institute for the Unification of Private Law (“UNIDROIT”).
- 6.2. What follows is a description of a number of potential solutions—or rather, connecting factors—which present themselves when considering possible choice of law rules for the proprietary effects of transactions conducted on DLT systems. Advantages and disadvantages of each solution are also analysed, and principles such as the need for the connecting factor to be objective and easily ascertainable, practical to apply, and for the country in question to have control over the asset have been taken into account.²⁶ This is followed with the FMLC’s proposed solution at Section 7, below.

Lex Situs

- 6.3. Paragraphs 4.6 and 4.7, above, examine the limitations of the *lex situs* as a connecting factor in the context of the transfer of intangibles on a distributed system. These paragraphs also observe, however, that where DLT arrangements merely record transfers of immovable property, it seems unlikely that a court will apply any law other than *lex situs* of the underlying asset. And where the system is set up to record transfers of moveable, tangible assets, the *lex situs* approach would also reflect a conflicts of law rule which is, today, (almost) universally adopted for that purpose. As such, while the application of *lex situs* will be inappropriate in the case of many of DLT transactions—particularly in respect of virtual assets—there may be specific contexts in which it could be considered germane. Another way to look at this distinction is to observe that DLT arrangements can be dispositive of title or merely a means of keeping

²⁶ On such principles see Dicey & Morris, §1295.

records. Where the arrangements are not dispositive, but rather reflective, of title in the “real world”, proprietary questions will be governed by the traditional conflicts of laws rules that apply to property, including the *lex situs*.

Elective Situs

- 6.4. The PRIMA principle, highlighted at paragraph 4.5 above, was not ultimately incorporated in the Hague Securities Convention. Instead, a revised or adjusted PRIMA principle, termed PRIMA+, was adopted, which abandons the idea of attributing a location to book-entry instruments and replaces it with an approach giving effect to an express agreement on governing law between an account holder and an intermediary, subject to certain limiting requirements (e.g. the “**Qualifying Office**” requirement that the choice of governing law must favour a jurisdiction in which the relevant intermediary has a qualifying office).²⁷
- 6.5. Extrapolating this approach and applying it in a DLT context, one possible solution could be that the proprietary effects of transactions on a DLT arrangement should be governed by the system of law chosen by the network participants for the DLT system. This approach is sometimes referred to as “elective *situs*” to preserve an analogy with the *lex situs* conflicts rule. Participants in the DLT system would be able, on this approach, contractually to choose the law governing ownership, transfer and use of assets.
- 6.6. One advantage of an elective *situs* approach is that the proprietary effects of all transactions on the system would be subject to the same governing law. Furthermore, the applicable law of the transaction is fully transparent to participants and can be accurately reported for regulatory reasons, without the need for detailed supporting legal opinions.
- 6.7. Two threshold issues which would need to be considered and resolved with respect to this approach are that party autonomy is not universally accepted as a choice-of-law principle for proprietary issues,²⁸ which may constitute a bar to the adoption of a single rule among different jurisdictions, and that it may be more difficult to apply the rule in respect of permissionless systems. In the case of permissioned systems, however,

²⁷ See Article 4 Hague Securities Convention, available at <https://assets.hcch.net/docs/3afb8418-7eb7-4a0c-af85-c4f35995bb8a.pdf>.

²⁸ See Takahashi *supra* n.9 at page 17.

acceptance of a particular governing law could be included in the terms for accession to the system (as is currently the case with, for example, clearing houses).

- 6.8. A more significant issue is likely to be the perceived regulatory risks in allowing an unfettered choice of law by the system's participants. One of those perceived risks is likely to be the possibility—albeit remote—that the participants will chose a system of law which is unrelated to the assets and subject to significant undue external or private influence. This could ultimately facilitate the mass transfer of assets in the system by means of a legal adaption (most likely, new legislation) in the jurisdiction identified by the connecting factor. These risks will be understood to be more acute in cases where the participants in the system are intermediaries acting on behalf of clients.

Modified Elective Situs

- 6.9. To meet this problem, participants' choice of *situs* could, in theory, be restricted in a variety of ways by regulation and/or by technology, creating the opportunity for a modified elective *situs* rule. 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.²⁹ Regulators may consider this necessary if they perceive that the uninhibited choice of the parties might be used for avoidance purposes, or that such free choice could run counter to public policy.
- 6.10. The Rome I Regulation provides a precedent, in an E.U. context, for restrictions on party autonomy as regards choice of law, both in the case of consumer contracts and to preserve the effect of certain overriding mandatory provisions of national or European law.³⁰ It does not, however, restrict the options available to the parties in respect of the express choice of law but rather preserves certain protective rules notwithstanding that express choice. A rule requiring approval by one or more regulators would face the difficult but not insuperable challenge inherent in identifying the competent authority or authorities for a distributed system.

²⁹ On such possible restrictions, see Paech, "Integrating global Blockchain securities settlement with law and regulation—Policy considerations and international principles" (August 2016) at p.7, available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2792639.

³⁰ See Article 6, (which is subject to an exemption for financial instruments at Article 6(4)(d)) and Article 9 (on overriding mandatory provisions), respectively. Overriding mandatory provisions are provisions respect for which is regarded as crucial by a country for safeguarding its public interests, such as its political, social or economic organisation, to such an extent that they are applicable to any situation falling within their scope, irrespective of the law otherwise applicable to the contract under Rome I Regulation.

Deemed Election

- 6.11. An alternative solution is another variant of elective *situs*, which looks to deemed election determined by the relevant primary regulatory or competent authority, where applicable. Advantages of such an approach include that the proprietary effects of all transactions are subject to the same governing law, and that this governing law would be transparent to third parties, on the (likely) assumption that such deemed election would be public knowledge. The question of specifically how—and on what basis—a given DLT system would come under the purview of a particular national regulatory or competent authority, however, provides a significant obstacle to the efficacy of this solution.

Chosen law of the transaction / transfer / assignment

- 6.12. Legal questions about entitlements to property chiefly arise in the context of one or more transfers of an asset. In the case of DLT arrangements these transfers are the transactions recorded in the ledger. Two choice of law rules for transfers of intangible assets in the form of claims (i.e., broadly, *choses in action*) can be found in Article 14—*voluntary assignment and contractual subrogation*—of Rome I Regulation. Of these two rules, one deals with questions arising between assignor and assignee (which are allocated to the applicable law of the assignment) and one deals with questions about the assignability of the claim and its enforcement to the “law governing the assigned claim”. Neither rule, however, expressly deals with the kind of proprietary issues which can arise in relation to third parties, e.g. *vis-à-vis* an assignee of the claim whose title or interest is in doubt or in competition with another entitlement.
- 6.13. In a recent *Consultation Document on conflict of laws rules for third party effects of transactions in securities and claims* (the “**Article 14 Consultation**”), the European Commission proposed to close this gap and asked consultees to consider three choice of law rules for the proprietary effects of an assignment of a claim or claims.³¹ The first of these is the applicable law of the assignment.
- 6.14. The virtue of applying the law of the assignment (i.e. transaction, which in Rome I may be an outright transfer of the claim or an assignment by way of security interest) to determine the proprietary effects of the transaction is chiefly that it allows the parties to the transaction to choose the law which will govern its proprietary effects.

³¹ Available at: https://ec.europa.eu/info/finance-consultations-2017-securities-and-claims_en. This consultation has since given rise to a Proposal for a Regulation on the law applicable to the third-party effects of assignments of claims, available at: https://ec.europa.eu/info/law/better-regulation/initiative/184489/attachment/090166e5b927bdfb_en.

- 6.15. Other advantages are said to be simplicity and coherence with the choice of law rule on contractual effects. One significant disadvantage, however, is that the rule offers no answer to the problem of competing entitlements in some cases where successive transfers take place under different governing laws. It also requires participants within a DLT system, who are party to a transaction, to co-ordinate and agree which law should govern the proprietary effects of the transaction. Such a requirement introduces practical difficulties and inefficiency to a technology that is otherwise intended to improve the speed and efficiency with which transactions can be concluded. Finally, it will lead to fragmentation within a given DLT system, with the transactions recorded thereupon being subject to multiple different laws.

Place of the Relevant Administrator/Operating Authority/Private Encryption Master key-holder (PROPA/PREMA)

- 6.16. This proposed solution looks to the place of the relevant administrator or operating authority (in either case, the “**R(O)A**”) which approach could be termed “**PROPA**” (Place of the Relevant OPerating Authority/Administrator). This approach presupposes that a DLT system in a financial markets context should necessarily be both: (i) permissioned and (ii) not decentralised, and under the control of a central operating authority or administrator (i.e. one which performs core functions, acts as a point of contact for regulators and provides a gatekeeper function).
- 6.17. The governing law in such a DLT system would either be that of the location of the R(O)A, or alternatively the R(O)A could be responsible for determining the governing law. While neat, and providing a high level of immediate certainty, this solution could present problems if the R(O)A needs to move jurisdiction (in, for example, a Brexit-type scenario). Moreover, in some cases it may not be entirely clear who the R(O)A is, and this could give rise to significant complications. For example, it is possible that there will be some administrators whose role is limited to the verification of the identity of participants (in order to enforce anti-money laundering policies) and/or the provision of technical access to the ledger. Is such an administrator an R(O)A? As a further example, there could be two candidates for the R(O)A title located in different jurisdictions with equivalent powers, generating a need for additional rules in order to enable a choice between the two.
- 6.18. A very similar approach would look to the location of the private master key for the DLT system (for those systems where such a key exists), i.e. the key by which the R(O)A or other related DLT enterprise ultimately controls the ability to transfer a

digital asset. This location would presumptively be the primary residence, centre of main interests or, possibly, domicile, of the master key-holder. An approach which reflected and crystallised this presumption could thus be termed “**PREMA**”—referring questions to the law of the Primary Residence of the Encryption Private MAster key-holder. A significant disadvantage which this approach would have to resolve would be the increasing prevalence of tertiary “warrant” keys—in addition to encryption master and user keys—which allow DLT enterprises to decrypt data if they are served with a court order.

- 6.19. The FMLC is informed by stakeholders that, in respect of both of these approaches, establishing the location of a person (such as the R(O)A, or a master key holder) will necessitate complex legal opinions, thereby increasing costs for market participants.

Location of the Issuer Master Account

- 6.20. An analogous approach would look to the location of the issuer master account in relation to securities issues where there is no intermediary and investors hold securities directly from the issuing company (and where, most likely, each issue would be based on its own blockchain). Many of the advantages and disadvantages are the same as those outlined immediately above. An additional advantage is likely to be alignment between the choice of law and the legal system under which claims must be ultimately be enforced against the issuer. A further disadvantage is a lack of alignment between the choice of law and the legal system under which regulatory or legal action against the system administrator can be taken most effectively.

Location of the Participant/ Transferor/ (User) Private Encryption Key

- 6.21. A wholly different approach would apply the law of the place where the system participant who is transferring the assets is resident, has its centre of main interests or is domiciled.
- 6.22. This approach flows from another rule put forward by the European Commission in its Article 14 Consultation, further to the chosen law of the transaction/transfer/assignment referenced above; the rule that the third party effectiveness of an assignment of an asset should be governed by the law of the assignor’s habitual residence.³² In a DLT arrangement, this person would be the transferor of the asset subject to the transaction recorded in the distributed ledger. The main advantage of the rule is said to be that it is particularly appropriate for the

³² This is the rule now incorporated by the European Commission in its Proposal for a Regulation on the law applicable to the third-party effects of assignments of claims, *ibid*.

transfer of assets in bulk, because it avoids the problem which would otherwise be posed for transferees of having to conduct due diligence on each asset under its own governing law or *lex situs*. The relevance of this benefit in a DLT environment is, however, questionable. A major disadvantage of this rule, moreover, is that it will often give no clear answer to questions of entitlement in circumstances of joint transferors, chains of assignments, or a change in habitual residence by the transferor. It also artificially splits up the distributed ledger record.

- 6.23. A very similar approach would look to the location of the private user key for the DLT system, i.e. the key by which a participant in the system controls the digital asset. This location would presumptively be the primary residence, centre of main interests or, possibly, domicile, of the user key-holder. It may, however, be difficult to objectively determine the location of the private user key, particularly as one key may be made up of several components held across multiple jurisdictions.
- 6.24. Furthermore, and as flagged at paragraph 6.19 above, establishing the location of the relevant person in the case of both of these solutions will necessitate complex legal opinions (and cost).

Law of the assigned claim

- 6.25. The final rule in the Article 14 Consultation is that the proprietary effects of a transaction should be governed by the applicable law of the assigned claim. Occasionally, this is understood to be a kind of *situs* rule for intangible assets, where the *situs* is deemed to be in the place connected to the legal system identified as the applicable law of the asset. More often it is understood to be a *sui generis* conflicts of law rule.
- 6.26. Where a DLT system is used to record transfers of assets which comprise a credit claim against an issuer established independently of the system, this approach would not only have many of the advantages of elective *situs* (but where the election is made by the parties to the claim, rather than participants in the system), it would also have the advantage, in the E.U. at least, of aligning with the wider conflicts of law regime.
- 6.27. This option can only be implemented in respect of intangible assets which have a separate existence from the DLT system (i.e. not tangible assets or virtual tokens). Logically, the proprietary effects of the residue of transactions would be left to the *lex situs*, in the case of intangible assets, and to a rule tailor-made for a distributed system, in the case of virtual tokens.

Lex Codicis

- 6.28. This final possible solution looks to the governing law of the code that was used to create the original distributed ledger programme. This is usually taken to be the primary residence of the original coder. This could be referred to as the *Lex Codicis* or *Lex Digitalis*,³³ or, more accurately, “**PResC**” (Primary Residence of the Coder). A significant disadvantage of this solution is that it is difficult to explain why the original coder should impact the ongoing life of the distributed ledger where s/he is not also the system administrator.

7. THE FMLC’S PROPOSED SOLUTION

- 7.1. This canter through potential solutions makes it clear that no one solution can fit all possible DLT systems. The appropriate connecting factor may vary depending on the type of DLT system (for instance, whether it has an R(O)A at its centre or if it is fully decentralised) or on the nature of the assets that are circulated on the ledger (for instance, whether there are off-platform tokens referencing an immovable asset, or a cryptocurrency like Bitcoin). It may also be that, as the technology develops and evolves, so too does the appropriate solution.
- 7.2. Yet in order to avoid the negative consequences that stem from the status quo, beset as it is with legal uncertainty, it is necessary to create a framework within which the governing law of the proprietary effects of transactions on a DLT system can be determined. This need is particularly pressing in the case of assets which have no existence which is independent of the DLT system (the greater part of which can be covered by the soubriquet “virtual tokens”).
- 7.3. It is the view of the FMLC that elective *situs* should be the starting point for any analysis of a conflicts of law approach to virtual tokens. This solution meets the requirements of being objective and easily ascertainable by the parties themselves and provides the clearest route for establishing the governing law within the context of this new technology.

³³ Computer code itself, of course, cannot be said have a particular *locus*. With the advent of smart contracts, certain providers were keen to proliferate the view, encapsulated in the expression “the code is the contract”, that automated decision-making on a DLT system had excluded the possibility of legal ambiguity and thereby “done away with” the need for legal advice as to contractual or proprietary rights. The FMLC does not share this view. The point is discussed in a whitepaper published jointly by ISDA and Linklaters, available at: <https://www.isda.org/a/gsiDE/smart-contracts-whitepaper-press-release-final1.pdf>.

- 7.4. Objections to this solution may be raised in relation to the risks perceived in allowing an unfettered choice of law by the system’s participants. One of those risks is likely to be the possibility—albeit remote—that the participants will chose a system of law which is subject to significant undue external or private influence. It may be said that this could ultimately facilitate the mass transfer of assets in the system by means of a legal adaption (most likely, new legislation) in the jurisdiction identified by the connecting factor. These risks will be understood to be most acute, however, either in cases where the participants in the system are intermediaries acting on behalf of clients; and/or where the assets being transferred on the system are “real world” assets located in a different legal system than the one chosen by the participants.
- 7.5. In situations where a truly elective *situs* or governing law (in the sense of a free choice) cannot readily or sensibly be implemented, the PROPA approach or the location of the user test might be thought to reflect a more desirable result. The desired outcome, however, can be usually be realised in such cases by requiring regulated entities to agree upon a particular choice of law in their contracts—that is provided that the issuer (in cases where the system constitutes the assets), the system administrator and the participants are regulated under new or existing legislation. In other words, the correct substantive result can still be achieved by means of election, but the election itself may be subject to regulatory constraints.
- 7.6. On a point of caution, however, the FMLC notes that the current model of regulation may evolve as new technologies galvanise changes to the framework of the financial markets. FMLC stakeholders with expertise in technology have expressed the belief that the greatest future advances within the DLT sphere will be delivered via permissionless, fully decentralised DLT systems with no R(O)A. In such a future, connecting factors which do not depend on centralised coordination, such as the chosen law of the transaction/transfer/assignment and the location of the participant/transferor will be of increased relevance (even if encumbered by practical difficulties, as discussed above).
- 7.7. In summary, the FMLC adopts the view that a governing law can be selected for most of the DLT systems being designed and built today and that this particular approach, coupled with intelligent regulation, leads to the most efficient and clear way of arriving at a solution to this issue of legal uncertainty.
- 7.8. Finally, the FMLC also proposes that where the asset has an existence which is wholly independent of the system—such that the system serves purely as a means of recording

the transaction and neither title nor the asset is constituted thereby—the proprietary effects of the transaction should be determined according to the conflicts of rules which would ordinarily apply outside the system. In the case of transfers of immovable assets, in particular, it is almost inconceivable that a court would apply a different rule, in any case.

8. CONCLUSION

- 8.1. This paper has identified a number of possible connecting factors to be used when identifying the governing law for the proprietary effects of transactions conducted on a DLT system. It has concluded that—subject to a special rule in respect of tokens referencing an immovable asset—elective *situs* should be the first port of call, in combination with regulatory constraints on the election, where necessary. The FMLC further recommends that any solution is promulgated by a body such as the Hague Convention, UNIDROIT or ISDA, in order to ensure that it is adhered to on an international basis.

Appendix A

1. Additional issues of legal uncertainty:

- a) where property rights to an asset are transferred or “converted” onto a distributed ledger (rather than originating within the distributed ledger system), are these rights replaced by new digital rights, or will there be multiple sets of rights acting in parallel?
- b) might this answer alter depending on the jurisdiction, leading to the conclusion that where a real world asset is “converted” (so that it is represented on a DLT system) the law applicable to such a conversion will be of vital importance?
- c) does the nature of an asset change when represented on a DLT system?
- d) does the exact nature of participants’ rights on a system change where there is a real world asset involved?
- e) which law determines whether a system can be characterised as permissioned or permissionless? And whether a ledger is a record ledger or a title ledger? Is it possible that these questions can be judged on the facts?
- f) will alternative legal remedies be needed to address circumstances where the valid award of a court applying the elective governing law of a DLT system, e.g. to restore a proprietary interest, is incapable of enforcement because relevant nodes controlling the ledger operate outside the jurisdiction of that court.

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