The Role of the Seat in Smart Contract Disputes

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Abstract

Over the past few decades, international commercial arbitration has experienced major developments in various fields. A major recent development that will spread widely in the years to come relates to technology and the necessity of international commercial arbitration to adapt to the new needs of the market. The path of technological development in commerce is determined by forces other than the needs of legal practitioners. Moreover, the lack of real connection to a sole place, in disputes where the multi-parties have not selected the seat, can create serious obstacles for the arbitral proceedings in blockchain technology disputes. In this regard, smart contracts, however, appear to have identifiable parties with an identified physical point of connection that ultimately can be adapted to the existing place of the arbitration theory within the international arbitration legal framework.

Keywords: smart contracts, international commercial arbitration, blockchain technology, online arbitration.

1 Introduction

Blockchain technology was created to provide a technical infrastructure for bitcoins in 2009.[1] At the time, blockchain technology itself was considered to be a by-product of the cryptocurrency; the term blockchain was not even relevant in Satoshi Nakamoto's White Paper. It was not until the bitcoin was created that the capacity of the blockchain technology, as a distributed ledger's infrastructure, was noticed. The possibilities raised by this application layer are perceived to inaugurate the third era of the Internet.[2]

Likewise, the introduction of blockchain technology has given rise to smart contracts technology, which enables the development of complex and decentral-

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1 S. Nakamoto, 'Bitcoin: A Peer-to-Peer Electronic Cash System', 2009. Available at: https://bitcoin.org/bitcoin.pdf (last accessed 19 June 2019).

2 R. Houben, 'Cryptocurrencies and Blockchain: Legal Context and Implications for Financial Crime, Money Laundering and Tax Evasion', European Union, Policy Department for Economic, Scientific and Quality of Life Policies, Study Requested by the TAX3 Committee, 2018.

doi: 10.5553/IJODR/235250022020006001004

ized transactions of digital assets.[3] In this regard, a lot of the existing material fails to distinguish between the core components of blockchain technology and the various ways in which the technology can be applied for law. The delocalized terminology used to describe smart contracts, thus, is often unclear or inconsistent.[4] As a result, in the field of international arbitration, this misunderstanding has raised discussions in relation to the localization of potential smart contracts disputes and the role of the arbitral seat in it. In a conference given at the University of Oxford (Wolfson College), regarding the III Oxford Symposium on Comparative International Commercial Arbitration in November 2018, Professor Geneviève Helleringer stated that smart contracts contain elaborated cross-border transactions with no precise identifiable parties or location, which eventually again raises the question as to whether international arbitration has to follow the delocalized theory of the seat to adapt to distributed technology.

By examining the essential characteristics of smart contracts, an identifiable point of access for physical regulation is noted, which could potentially help the existing regulation of international arbitration to cope with new trends in technology without the need to modify the law in accordance to something that is already not yet fully developed.

2 Overview of the Existing Regulation in Online Arbitration and an Introduction to Smart Contracts

2.1 Comparative Analysis: Existing Regulation in ODR for Online Disputes

Online dispute resolution (ODR) still suffers from a lack of a uniform definition.[5] Some use the term to refer only to organized technology models in dispute resolution, while others include case management. Kaufmann-Kohler explains that, nonetheless, they all have in common the implementation of technology to dispute resolution in order to provide a more efficient conflict management.[6]

2.1.1 The Role of the Seat in ODR for the Validation of Digital Arbitration Agreements and Arbitral Awards

The validation form of arbitration agreements in international arbitration is mainly ruled by the New York Convention, setting out an autonomous standard form for the recognition and validation of foreign arbitration agreements. Presently, due to technological demands, the said Convention has successfully

3 L. Cheng, 'A Next-Generation Smart Contract and Decentralized Application Platform', 2016. Available at: https://github.com/ethereum/wiki/wiki/White-Paper (last accessed 25 June 2019).

4 J. Bacon *et al.*, 'Blockchain Demystified: An Introduction to Blockchain Technology and Its Legal Implications', Queen Mary University of London, School of Law Legal Studies Research Paper No. 268, 2017.

5 R. Koulu, 'Three Quests for Justification in the ODR Era: Sovereignty, Contract and Quality Standards', *Lex Electronica* 19(1), 2014, pp. 43-71.

6 G. Kaufmann-Kohler & T. Schultz, *Online Dispute Resolution: Challenges for Contemporary Justice,* The Hague, Kluwer Law International 2004, pp. 5-10.

implemented principles of technological neutrality and functional equivalence by accepting electronic means for the formality of the said arbitration agreements.[7]

The law applicable for the validity of arbitration agreements is also not harmonized, thus, no general determination may be made as to how electronic agreements are concluded in a digital environment. Normally, party autonomy is respected by most jurisdictions as the first principle applicable for the contract; however, when the parties do not agree on the applicable law for the validation of the arbitration agreement, the applicable law will be one of the place of the arbitration.[8] This is important to consider as contracts that are concluded though web applications that require click-wrap declarations could, in some jurisdictions, not be considered as a valid agreement.[9]

In this context, digital arbitration agreements and digital arbitral awards in online arbitration for e-commerce disputes are currently still being regulated and limited by national laws. However, there are efforts from international instruments to harmonize form requirements for electronic arbitration agreements and awards. In 2011, drafted as a proposal of procedural rules, the United Nations attempted to create an international instrument for online disputes, titled "UNCITRAL: Online Dispute Resolution for cross-border electronic commerce transactions". This attempt failed as it required more delocalized regulation. Further to this, the proposal of an international law for online disputes, and a more multilingual standard, were not accepted by states. Subsequently, the regulation of e-commerce disputes has continued to be solved by the traditional legal framework of international arbitration, though the necessity to develop a new system based on delocalized theory, as proposed in the above-said failed attempt by the United Nations, has remained clear.[10]

2.2 Smart Contracts and International Arbitration

The approach to smart contracts is still unclear; there is little legal literature on them, the case law is non-existent and even an exact definition of smart contracts is lacking. The terminology dates back to 1994 when Nick Szabo defined a smart contract as "a set of promises, specified in digital form, including protocols within which the parties perform on these promises".[11] Thus, a smart contract is an automated software program built on a blockchain protocol; in other words, they are programmable contractual tools. They can contain the contractual agreement

7 G. Born, 'Chapter 11: Legal Framework for International Arbitration Proceedings', *in International Commercial Arbitration,* 2nd ed., Kluwer Law International2012, p. 1535.

8 UNCITRAL, 'Model Law on International Commercial Arbitration', UN, Article 34(2)(a)(i), 2006.

9 P. Nacimiento *et al., Recognition and Enforcement of Foreign Arbitral Awards: A Global Commentary on the New York Convention*, Alphen aan den Rijn: Kluwer Law International 2010, p. 224.

10 M. Wahab, M. Ethan Katsh & D. Rainey, *Online Dispute Resolution: Theory and Practice: A Treatise on Technology and Dispute Resolution,* The Netherlands, Eleven International Publishing, 2012, p. 111.

11 N. Szabo, 'Smart Contracts: Building Blocks for Digital Markets', 1996. Available at: https://www.fon.hum.uva.nl/rob/Courses/InformationInSpeech/CDROM/Literature/LOTwinterschool2006/szabo.best.vwh.net/smart_contracts_2.html (last accessed 18 June 2019).

doi: 10.5553/IJODR/235250022020006001004

itself, the governance of the preconditions necessary for the contractual obligations to take place and the execution of the contract.

In this context, international arbitration appears to be the most suitable dispute resolution mechanism to deal with emerging decentralized digital assets, for its neutrality, cross-border enforceability and the flexibility to tailor specific arbitration rules.[12]

3 Challenges Presented for the Arbitral Seat in Smart Contracts

3.1 Smart Contracts' Essential Characteristics

Blockchain technology is a type of database, commonly programmed to track transactions, often referred to as 'ledgers'. It is a structured collection of information that aims to achieve the requirements of data integrity and identity authentication, where predetermined rules decide how to update a ledger. A distributed ledger is a mechanism for authenticating transactions in a network of computers whereby all participating nodes update a complete ledger of transactions.[13] This ultimately hints at the popular characteristic of blockchain technology as a decentralized infrastructure.

In the same manner, smart contracts need to be generated by miners[14] in accordance with a decentralized consensus protocol.[15] They are automatically executing computer programs that can verify whether a relevant instruction occurred or not by following a sequence of instructions that a miner runs according to an 'if/then' relation for wider contextual factors.

3.1.1 Coding

There are several technical concerns surrounding the technology that smart contracts involve for the application of online arbitration.

The first issue concerns the fact that a smart contract is built upon an algorithm expressed in a specific programming language, that is, code. Consequently, the contract will need to be agreed under specific operational semantics, all agreed by the parties, which ultimately require technical language and legal advice.[16]

Blockchain technology, as explained previously, is a consensus-based system where each node[17] on the blockchain has to be executed in accordance with its

12 S. Maynard *et al.*, 'Decrypting Cryptocurrencies: Why Borderless Currencies May Benefit from Borderless Dispute Resolution', Kluwer Arbitration Blog, 2017.

13 S. Green, 'Smart Contracts', Research Collection: Law and Technology, University of Oxford, Associated research blog, 2017.

14 V. Buterin, 'A Next Generation Smart Contract & Decentralised Application Platform', 2013. Available at: https://github.com/ethereum/wiki/wiki/White-Paper (last accessed 20 July 2019).

15 J. Bacon *et al.*, 'Blockchain Demystified: A Technical and Legal Introduction to Distributed and Centralised Ledgers', *Richmond Journal of Law & Technology*, Vol. 25, No. 1, 2018, p. 12.

16 M. Hulicki, 'The Legal Framework and Challenges of Smart Contract Applications', 2017. Available at: www.cs.bath.ac.uk/smartlaw2017/papers/SmartLaw2017_paper_3.pdf (last accessed 7 August 2019).

17 Buterin, 2013.

instructions in order to avoid the need for each separate node to download and verify external data.[18] Thus, the most important challenge that smart contracts present to arbitration is the necessity to codify every possible scenario that could arise, which leaves no ambiguity or flexibility for the parties involved in a contract for further modification if one scenario was not previously agreed. Hence, an arbitration agreement, as a separate contract, would also need to contemplate all possible scenarios and their consequences on an 'if/then' database.

Regarding arbitral awards, the rigidity of the blockchain software means that it reduces scope for the flexibility required to understand ambiguous language of terms such as 'good faith' or 'force majeure'. Once the code is executed, there is little or no discretion in how obligations are performed as smart contracts generally cannot be modified.[19]

Codifying in a blockchain requires distributed ledgers; however, today's technology is recognized as generally insufficient for the ledgers required for the functioning of smart contracts. In this view, only few people have the complex skills required to develop and deploy smart contract systems.[20]

3.1.2 Irrevocability

Another characteristic of a smart contract and, at the same time, a significant challenge for online arbitration is its irrevocability. A smart contract becomes irrevocable once the coded agreement has been deployed on a distributed ledger. In this context, "smart contracts benefit from the tamper-proof nature of the underlying blockchain infrastructure and thus cannot be stopped by a single party".[21] The Institute of International Finance, in this regard, has noted that the rigidity of the smart contracts' coding could hinder the possibility of law to amend a contract when mutually desired or when deemed legally necessary.[22]

In other words, the software that blockchain technology requires cannot be rolled back; once the agreement is made, changes cannot be made to it. Thus, there could arise legal problems as a lack of capacity of one of the parties could not be solved at an early stage.[23] As a result, parties may prefer the flexibility afforded by legal contracts over the rigidity of an automated software. As noted by Finck, whereas the role of the law is to fill in gaps in agreements, smart contracts' infrastructure necessitates complete coding with no gaps.

18 K. Silverberg *et al., Getting Smart: Contracts on the Blockchain,* Institute of International Finance, Westlake, Deloitte University Press, 2016.

19 M. Zou, G. Cheng & M.S. Heredia, 'In Code We Trust? Trustlessness and Smart Contracts', 2019. Available at: https://ssrn.com/abstract=3381622 (last accessed 10 July 2019).

20 Silverberg *et al.*, 2016.

21 P. De Filippi & A. Wright, *Blockchain and the Law,* 1st ed., Cambridge, Harvard University Press, 2018, p. 29.

22 Silverberg *et al.*, 2016.

23 M. Finck, *Blockchain Regulation and Governance in Europe,* 1st ed., Cambridge, Cambridge University Press, 2018, pp. 15-27.

3.1.3 Self-execution

The automatized execution characteristic in smart contracts is perceived as the most important one, given the benefits offered to the parties, as to the lack of need for third parties to be involved.

However, smart contracts are not smart in an artificial intelligence sense, rather, as has been noted previously, they follow an external verification system according to the codes/rules with which they have been programmed. In this sense, smart contracts are not controlled by a central authority but rather operate autonomously on a decentralized, peer-to-peer network.[24]

A smart contract has four life cycles; beginning with creation, followed by freezing, execution and ultimately finalization.[25] During the creation, the smart contract is coded. The software is then frozen while being added to the chain through the relevant consensus process, and then executed. Lastly, the smart contract cycle finalizes with the resulted transactions being stored in the distributed ledger.[26] Indeed, while automated execution accordingly presents many advantages, it also has drawbacks that should not be ignored. As has been stated before, a software is automatically executed on-chain, and unwanted transactions cannot be rolled back.[27]

To say that smart contracts are self-enforceable means that the software allocates digital assets autonomously and regardless of trust between the parties. For instance,

> receiving a payment for sold goods is then no longer dependent on the willingness of the debtor to make the payment nor affected by bankruptcy proceedings that take place after entering the contract.[28]

Thus, no external monitoring of contractual obligations or enforcement is needed.

3.2 Challenging Issues of Jurisdiction

In addition to the above-said characteristics present in smart contracts, another apparent problem regarding the regulation of this new technology for international arbitration is their delocalized infrastructure in blockchain technology.

De Filippi explains that a blockchain technology is composed of multiple layers. The first layer is an Internet protocol, the second is data management and

24 C. Sillaber & B. Waltl, 'Life Cycle of Smart Contracts in Blockchain Ecosystems', Datenschutz Datensich 41, 497–500, 2017. Available at: https://link.springer.com/article/10.1007%2Fs11623-017-0819-7 (last accessed 16 July 2020).

25 *Ibid.*

26 J. Fairfield, 'Smart Contracts, Bitcoin Bots, and Consumer Protection', *Washington & Lee Law Review Online*, Vol. 71, 2014, p. 36.

27 Finck, 2018, p. 27.

28 R. Koulu, 'Blockchain and Online Dispute Resolution: Smart Contracts as an Alternative to Enforcement', 2016. Available at: https://script-ed.org/article/blockchains-and-online-dispute-resolution-smart-contracts-as-an-alternative-to-enforcement/ (last accessed 20 July 2019).

the third serves as a decentralized infrastructure.[29] Thus, their replicated structure and decentralized management make the parties involved not trustable.[30] Here, the absence of a third-trust leads to the assumption that smart contracts are also delocalized networks.

Transactions made using blockchain technology are widely distributed, both among actors and jurisdictions. This leads to issues regarding regulation, as it can be difficult, if not impossible, to ascertain the appropriate place for the arbitral proceedings. Blockchain technology leads to issues arising from the multiplicity of overlapping applicable jurisdictions where an activity could be subject to multiple and contradictory regulation, or no regulation whatsoever.[31]

Further, the usage of old territorial existing law for the regulation of e-commerce disputes is based on physical world rules that assumes the presence of physical world objects and human decision-making. Hence, the territorial theory continues to be applied for online arbitration in the present day.[32]

Due to constraints of state sovereignty, there is not yet a global legal instrument for regulating legal issues related to cross-border online disputes. This means that the choice of jurisdiction is determined based on national laws, which may often lead to complicated scenarios.[33]

Smart contracts, on the other hand, are becoming the potential future in electronic commerce, and issues of jurisdiction for electronic disputes are still unclear for blockchain technology. They attempt to be limited by parochial laws where infrastructure is yet to be developed to recognize and regulate new technologies.

In this regard, party autonomy principle is at risk of being undermined if an online arbitration that successfully passes all the challenges that a smart contract dispute presents, remains ultimately set aside by national laws with a lack of infrastructure in their jurisdictions.

Regarding this issue, Yeung, while examining the relationship between blockchain technology and law, notes the importance of determining how law should react to this new technology. Considering the characteristics that smart contracts present, they determine that it might be important to re-examine legal concepts such as jurisdiction.[34]

29 Finck, 2018, p. 48.
30 Zou *et al.*, 2019.
31 Finck, 2018, p. 308.
32 *Ibid.*, p. 308.
33 Koulu, 2014.
34 K. Yeung, 'Blockchain, Transactional Security and the Promise of Automated Law Enforcement: The Withering of Freedom Under Law?', 2017. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2929266 (last accessed 18 June 2019).

4 An Identifiable Point of Access for the Arbitral Seat Regulation in Smart Contracts Disputes

4.1 The Role of the Arbitral Seat in Smart Contracts

Blockchain technology is popularly known for its inherent decentralization platform, as stated above, which enables the development of smart contracts without the necessity of a trusted institutional third party.[35] Whereas traditionally a contract operates by the authority of a trusted impartial and independent third party, smart contracts achieve credibility by authenticating the technical protocol in itself.

Blockchain technology can be divided into three distinct categories: cryptographic keys, a distributed network and a network servicing protocol. An example of the first category, bitcoin, a cryptographic digital currency, enables the processing of online transactions without the need to resort to a third-party intermediary.[36] Thus, bitcoin technology is considered to be a decentralized infrastructure, known as a public blockchain.

However, Finck clarifies that a public blockchain is not the only way to build a blockchain. Blockchains can be built to require permission to read the information on the chain, known as permissioned blockchains. This category of blockchain can determine the validator within the chain and build its own nodes, therefore, controlling the locations of said nodes around the world.[37] Thus, permissioned blockchains are by definition not decentralized, contrary to bitcoin technology, as they have a centralized software and hardware that can be tracked at a consortium level. These are in contrast to public, permission-less blockchains, whose inherent transnationalism can lead to complex questions of jurisdiction.

The confusion between blockchain technology and smart contracts has led to recognizing smart contracts as a delocalized system. A recent article by the Faculty of Law at Oxford University states the difficulties that smart contracts present potentially complex cross-border nature, given that they are generally operated by "computers located in different jurisdictions", creating complications to identify the applicable law or jurisdiction to the contract.[38]

Smart contracts, however, are a network servicing protocol and *permissioned* blockchain, with a centralized ledger in the hands of identifiable users that are able to store a local copy of the blockchain and control blocks for inclusion, requiring a level of trust from participants. To achieve this, they rely on a network of light nodes to store copies across a peer-to-peer network and miners to propose new blocks. In terms of operation, however, as explained above, a net-

35 Koulu, 2016.

36 Finck, 2018, p. 63.

37 *Ibid.*

38 M. Durovic, 'How to Resolve Smart Contract Disputes: Smart Arbitration as the Solution', 2017. Available at: www.law.ox.ac.uk/business-law-blog/blog/2018/06/law-and-autonomous-systems-series-how-resolve-smart-contract-disputes (last accessed 21 June 2019).

work of light nodes can ultimately be controlled by a full node,[39] thereby allowing these transactions to be inspected and identified by other participants.[40]

Further, Reed explains that even though the cyberspace has no physical existence, the concept of an autonomous jurisdiction in which rules do not apply is a fallacy. Reed notes that the problem with cyberspace is that its constituent elements are located in different legal jurisdictions. Hence, "these corporeal elements of cyberspace are sufficient to give national jurisdictions a justification for claiming jurisdiction over, and the applicability of their laws to, an Internet transaction".[41]

Blockchain technology, as a network based on nodes replicated around the globe, provokes problems of territorial competence, which is becoming a new challenge for states' regulation.[42] However, smart contracts used for private and permissioned purposes, that can run on a private network, do not present such territorial problems. Thus, as permissioned systems, parties' identities are known and controlled, as only parties with specific attributes are admitted to the system.[43] This system is, therefore, controlled by a determined party or a consortium that whitelists nodes and determines the system's rules of operation, wherein the consortium or vendor facilitates coordination.[44] Consequently, smart contracts are not completely delocalized, as, ultimately, it requires the parties involved in the contract to code the rules for the behaviour of this technology.[45]

> Indeed, the hardware layer may be centralised when there are few nodes or when nodes are owned by small group of individuals and stores in close geographic proximity. While it is often assumed that nodes are run by individuals in an isolated fashion, in reality they are often clustered in data centres.[46]

Certainly, smart contracts are frequently misunderstood as systems in which technology can replace humans. However, as noted by Finck, human input is ultimately used to set the objectives of the programme, as humans are behind the codes.[47] Further, "a consortium might rely on a blockchain located on nodes across the globe but the blockchain might be centrally managed by a single entity".[48]

39 "Full nodes store a copy of the entire blockchain, while light nodes hold only a subset of the blockchain in order to verify transactions." *See* Bacon *et al.*, 2017.

40 Bacon *et al.*, 2017.

41 C. Reed, *Internet Law: Text and Materials*, 1st ed., Cambridge, Cambridge University Press, 2004, p. 218.

42 J. Barlow, 'A Declaration of the Independence of Cyberspace', 1996. Available at: www.eff.org/cyberspace-independence (last accessed 28 June 2019).

43 Finck, 2018, p. 13.

44 *Ibid.,* p. 195.

45 S. Davidson, P. De Filippi & J. Potts, 'Economics of Blockchain', HAL Archives Ouvertes hal-01382002, Fort Lauderdale, 2016.

46 A. Gencer *et al.*, 'Decentralization in Bitcoin and Ethereum Networks', 2018. Available at: https://arxiv.org/pdf/1801.03998.pdf (last accessed 16 July 2020).

47 Finck, 2018, pp. 182-183.

48 *Ibid.*, p. 195.

doi: 10.5553/IJODR/235250022020006001004

From the international arbitration perspective, *smart contracts are capable of following the existing theory of territorialism stated under the current international legal framework for the arbitral seat in international arbitration*. Its particular characteristics allow law to track an ultimately physical place, enabling territorialism, the current leading theory in international instruments, to regulate smart contracts disputes.

This proposal, thus, clarifies the misconception given to smart contracts as a decentralized technology and enables international arbitration to avoid exhausting modification of the existing regulation.

Indeed, the importance to have an identifiable component of localization within smart contract disputes stems from considering that the existing legal theory of territorialism is feasible to be followed by smart contracts without the need to wait for the delocalized theory to be applied in international instruments.

In this context, during discussion at the New York Convention, the drafters adopted a considerable number of suggestions in order to reduce the importance of the place of arbitration. However, even though the international instrument recognized that it was not yet prepared to follow the delocalized theory of the arbitral seat, it, at least, embraced the idea for the near future.[49]

4.2 Validation of Coded Arbitration Agreements and Recognition of Coded Arbitral Awards

4.2.1 The New York Convention and the Self-Enforceability Characteristic of a Smart Contract

The New York Convention is arguably one of the most successful international conventions in international commercial arbitration, considered by many as one of the main instruments for the international legal framework of the field. The importance of the Convention focuses on the regulation of the arbitration agreements and the arbitral awards, as well as guidance for allocation competences between national courts and the arbitral tribunals.[50] Likewise,

> it is uncontested that one of the biggest achievements of the New York Convention in order to facilitate the circulation of awards was to reduce the importance of the seat of arbitration for the enforcement of the award.[51]

49 Committee on International Commercial Arbitration, 'Enforcement of International Arbitral Awards, 1953. Available at: www.newyorkconvention.org/travaux-preparatoires/history-1923-1958 (last accessed 5 July 2019).

50 R. Koulu, 'Where Law, Technology, Theory and Practice Overlap: Enforcement Mechanisms and System Design', *in* C. Adamson (Ed.), *Online Dispute Resolution. An International Approach to Solving Consumer Complaints,* Bloomington, Author House Publishing NetNeutrals, 2015, pp. 57-68.

51 S. Kroll, 'Chapter 6: The Concept of Seat in the New York Convention and the Autonomy of Arbitral Award', *in* S. Brekoulakis *et al., The Evolution and Future of International Arbitration, International Arbitration Law*, Kluwer Law International, 2016, pp. 79-96.

In this context, Koulu proposes the possibility to promote direct private enforcement in smart contracts, allocating liability without the need of human-intervention in an automated process.[52]

However, it is suggested that decisions reached in smart contracts, through their self-execution characteristic, instead, enhance a coordinated regulation of arbitral awards, following the principle of pro-enforcement under the New York Convention.

Smart contracts can be enforced by themselves with the assistance of online arbitration in order to comply with the regulations of the place of the arbitration, and ultimately, deliver an effective award.

Indeed, self-regulation on the Internet has been the subject of a great deal of discussion. It has been claimed that the only way to control information on the web is to rely on users. As noted in the case *Reno v. ACLU*, it was argued that the power to control information has been placed outside the hands of national courts and into the hands of individuals.[53] Ultimately, the US Supreme Court dropped the possibility for individuals to be free from rule on the Internet; therefore, co-regulation, which enables "the sovereign to retain some control over the outcome of the self-regulatory process as well as some control over the procedure that is being used," is a more realistic proposal.[54]

Further, as analysed by Professor Koulu previously, private governance is, in itself, nothing new. For instance,

> institutionalised legal regimes are a method of providing soft law instruments, e.g., contractual practices, codes of conduct, methods of conflict management, that aim at reducing the risks of cross-border commerce.[55]

Koulu, thus, by highlighting the characteristic of self-execution of the smart contracts, ultimately recognizes its additional assistance to international arbitration to enhance the pro-enforcement principle of arbitral awards stated under the international legal framework for international arbitration.

5 Conclusion

Internet law, like every other branch of law, is constantly in the process of evolving in response to new technologies. Indeed, blockchain technology's blurring of national boundaries creates a variety of new dilemmas for law.

However, smart contracts technology, in particular, presents a centralized regulatory access point which enables the existing theory of the place of the arbi-

52 Koulu, 2016.

53 *Reno v. ACLU*, 521 US 844 (1997), Solum 2004, Garry 2004.

54 T. McGonagle, 'Co-regulation of the Media in Europe: The Potential for Practice of an Intangible Idea' (Supplement of IRIS, Legal Observations of the European Audiovisual Observatory, IRIS Plus 2002), p. 2.

55 Koulu, 2016.

tration in international arbitration to be suitable to regulate this new technology with a physical territorial perspective.

At least initially, national legislatures are not likely to enact entirely new statutory schemes to adapt to new technologies such as smart contracts. Instead, national courts will conversely want to adapt these new technologies to traditional legal rules.

However, the existing regulation might be unable to continue functioning in this manner for blockchain technologies in general. Each section of this article confirms the need for global solutions due to the nature of blockchain technology and the Internet's cross-border environment, which inevitably creates complex legal dilemmas of jurisdiction. Harmonization between the radically different legal cultures connected to the Internet is essential to tackle the growing cross-border Internet litigation. International arbitration, and indeed, national laws, must become a moving stream rather than an obstacle, constantly evolving to meet the new risks in the present era of information.