WHEN CODES MEET COURTROOMS- EXAMINING THE ENFORCEABILITY OF BLOCKCHAIN BASED ARBITRAL AWARDS UNDER THE NEW YORK CONVENTION AND INDIAN LAW

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ABSTRACT

One of the most intriguing and perhaps trail-brazing phenomena that the modern day blockchain revolution has produced is the emergence of crowdsourced, blockchain based dispute resolution platforms. This article seeks to probe into a description of the functioning of these blockchain based arbitrations, along with some of the advantages they present as compared to traditional arbitrations. The major focus of this article, however, would be to probe into the question of enforceability of the awards resulting from blockchain based arbitrations, both under the New York Convention as well as Indian law. This will be done by focusing on four key issues- the requirements of agreement in writing, a seat of arbitration, due process, and reasoning of awards. Where the agreement in writing aspect is concerned, the article will be probing into the recommendations of the 246th Law Commission in the Indian context, beyond examining the solutions presented in this regard for the New York Convention. Where the issue of seats is concerned, the article seeks to draw an analogy between blockchain arbitral awards and 'a-national' awards enforced under the New York Convention. Further, it disputes the 'Hybrid Model' which has been commonly advanced in literature as a solution to the issue, and presents alternatives. For both due process and the reasoning requirements, the focus is on party autonomy, as the article examines the extent to which parties to a blockchain arbitration can contract out of such requirements and still have their award enforced. For all the four

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issues, this article finds that blockchain arbitration is often at odds with the existing legal requirements. While the paper proposes solutions in this regard, ultimately, both the law and blockchain arbitration platforms may have to shift to accommodate each other for blockchain arbitration to become a mainstream form of dispute resolution mechanism.

1. INTRODUCTION

In December 2023, exciting news came from Mexico- it unveiled its new general law on ADR,[1] which became the first law in the world regulating decentralised justice systems, also known as blockchain based arbitration systems. Chapter VI of the law regulates Online Dispute Resolution including decentralised justice systems, and lays down key definitions as well as rights and obligations of parties and facilitators of these systems.[2]

Like almost everything else in the current Web3 driven '*information age,*'[3] arbitration has also gone on-the-chain. This includes the entire process being digitised, than merely offline proceedings being mediated through video-conferencing or communication messengers.[4] Blockchain arbitration is then, simply put, arbitration that occurs entirely on the blockchain, from filing a claim to enforcement of the award. It combines the best traits that blockchain has to offer such as privacy,[5] security,[6] transparency,[7] with contemporary arbitration's needs and parties' desire for a heightened privacy[8] and security,[9] less delays,[10] and concerns regarding independence

1. General Law on Alternative Dispute Mechanisms, approved 5 December 2023 (Mexico).
2. ibid ch 6.
3. Cambridge Dictionary, 'Information Age' <https://dictionary.cambridge.org/dictionary/english/information-age> accessed 28 December 2024.
4. Marina Kasatkina, 'Dispute Resolution Mechanism for Smart Contracts' (2022) 16(2) Masaryk University Journal of Law and Technology 143, 149-154.
5. Saah, AE, Yee, J-J and Choi, J-H, 'Securing Construction Workers' Data Security and Privacy with Blockchain Technology' (2023) 13 Applied Sciences 13339.
6. ibid.
7. Javier Canosa and Bruno Banfi, 'Blockchain: An Innovative Tool for Enhanced Transparency' <https://www.financierworldwide.com/blockchain-an-innovative-tool-for-enhanced-transparency> accessed 16 August 2024.
8. Teramura, N and Trakman, L, 'Confidentiality and Privacy of Arbitration in the Digital Era: Pies in the Sky?' (2024) Arbitration International.
9. Norton Roose Fulbright, *Data Protection and Cyber Risk Issues in Arbitration* <https://www.nortonrosefulbright.com/en-in/knowledge/publications/3974fe18/data-protection-and-cyber-risk-issues-in-arbitration> accessed 17 August 2024.
10. Pandey, A, 'Speedy Justice and Lengthy Delays, the Arbitration Process' <https://www.livelaw.in/articles/speedy-justice-and-lengthy-delaysthe-arbitration-process-240252>

and bias of arbitrators.[11] Blockchain arbitration aims to strike the delicate balance between innovative technological potential and ground legal realities.

2. WHAT IS BLOCKCHAIN ARBITRATION?

To understand blockchain arbitration, it is important to understand blockchain first. Blockchain can be defined as '*an immutable (unchangeable, meaning a transaction or file recorded cannot be changed) distributed digital ledger (digital record of transactions or data stored in multiple places on a computer network) with many use cases beyond cryptocurrencies.*'[12] Essentially, Blockchain Arbitration is a case in which Blockchain is used as a method of arbitration. It is not merely a digital venue for an offline process, nor a mere record-keeping service for parties' claims, evidences and documents – rather, it involves the whole activity to occur not just *via* Blockchain but *on* and *off* it.

An important actor to understand Blockchain Arbitration before going into its functioning directly is the concept of a smart contract. Smart contracts involve a '*self-executing computer program that automatically executes the terms of a contract without the involvement of third parties.*'[13] A misnomer of sorts, these are not in the form of legal contracts but are merely lines of code, based on '*if-then*' statements written into the Blockchain[14] (the immutable, decentralised ledger) to execute desired terms and conditions. For example, let us imagine a sale transaction between a freelance website designer and a business owner. Both of them decide to create a smart contract. It is decided that the payment for this website will be Rupees 5000, which is stored as a deposit in the smart contract by integrating it with any available wallet. No one can touch this money meanwhile. After the website is finished, and both parties assent the same on the smart contract, the money is automatically transferred to freelancer's wallet.

accessed 17 August 2024.

11. Dunoff, J, Giorgetti, C, Hamamoto, S, Nottage, L, Ratner, S, Schill, S, and Waibel, M., 'Lack of Independence and Impartiality of Arbitrators' (2019) UvA-DARE (Digital Academic Repository).
12. Ameer Rosic, 'What is Blockchain Technology: A Step-By-Step Guide for Beginners' <https://blockgeeks.com/guides/what-is-blockchain-technology/> accessed 28 December 2024.
13. Nick Barney, 'Definition — Smart Contract' <https://www.techtarget.com/searchcio/definition/smart-contract> accessed 28 December 2024.
14. IBM, 'What are Smart Contracts on Blockchain?' <https://www.ibm.com/topics/smart-contracts> accessed 28 December 2024.

There is no need for a bank or a third party to hold the money or make sure the agreement is followed, all of this is done by the smart contract.

The connection between Blockchain arbitration and smart contracts is established by connecting a smart contract to a blockchain arbitration platform. The smart contract's dispute resolution clause is instantly triggered when a party alleges a breach, which initiates instantly a case on a blockchain arbitration platform like Kleros.[15] Smart contracts can form both the subject matter of disputes to be solved by Blockchain Arbitration,[16] and are the tools used to enforce decisions arrived at by Blockchain arbitration – for instance, by triggering a smart contract to execute an award by sending money to an escrow account.[17] Thus, the arbitral award can be instantly executed via a smart contract without any need for a third party, such as courts.

The disputes that blockchain arbitration invites can involve elements regarding Web3 and allied technologies which offer integration with the Blockchain ecosystem such as disputes regarding coding and content of smart contracts (on the chain dispute).[18] Or it could concern other disputes which do not directly concern Blockchain or any allied integration but rather the chosen method to solve the dispute can still be Blockchain arbitration such as a freelancing contract dispute arbitrated in Kleros (off the chain dispute). Application of the technology has already contemplated for construction work industry[19] and e-commerce sector[20] disputes.

Coming to how exactly arbitration occurs on Blockchain, it is important to note that this can be done in many ways however, this paper focuses on the Crowdsourced Blockchain Arbitration model, most commonly employed

15. Kleros, 'Decentralised Justice Based Blockchain Arbitration Platform' <https://kleros.io/> accessed 28 December 2024.
16. Gide Loyrette Nouel, 'Blockchain, Smart Contracts and Alternative Dispute Resolution' <https://www.gide.com/en/news/blockchain-smart-contracts-and-alternative-dispute-resolution> accessed 28 December 2024.
17. Zhen Er Low, 'Execution of Judgements on the Blockchain — A Practical Legal Commentary' <https://jolt.law.harvard.edu/digest/execution-of-judgements-on-the-blockchain-a-practical-legal-commentary> accessed 28 December 2024.
18. Amy J Schmitz, 'Metaverse Arbitration for Resolving Blockchain Disputes 1.0….' (2022) Ohio State Legal Studies Research Paper No 713 1,2.
19. Pham Vu Hong Son and Pham Ngoc Lien, 'Blockchain Crowdsourced Arbitration in Construction Project Delay Resolution' (2022) 16(4) JSTCE - HUCE 1, 7.
20. Shrinivaas Balaji and Mohammed Zuhayr, 'A Study on Implementation of Blockchain Arbitration in the E-Commerce Sector' (2022) 5(6) IJLMH.

by services such as Kleros, Aragon, and Jur.[21] Blockchain, Crowdsourcing *(involving a wide range of jurors in dispute resolution),* and Game theory *(a mathematical method for studying optimal strategies in games)* remain three basic components of this system.[22] To illustrate an excellent use case, this article relies on the Kleros model to explain the whole process.[23]

The Kleros dispute resolution system involves voting on the blockchain with tokens (cryptocurrency) to come upon an arbitral decision by completely anonymous, independently chosen jurors. 'Jurors' is a term to describe the arbitrators for a dispute on Blockchain arbitration. Essentially, everyday people buy tokens, such as the PNK cryptocurrency for Kleros through fiat money.[24] These jurors then stake these tokens, and an algorithm assigns these jurors to various disputes. The jurors are then shown evidence for the dispute and given time for voting.[25] Jurors lose tokens if their vote was on the losing side (against the majority choice) and get rewarded for the opposite.[26] Thus, for an average juror, it becomes financially necessary to choose the option that would be chosen by the majority (which would be the most palatable to all).

This relies on the game theory concept of 'Schelling's Focal Point'[27] where people always inevitably come across a common point to resolve disputes in absence of any communication or trust.[28] Moving further in the process, the jurors are compensated according to their decisions. After the decision is made, the same is enforced either automatically via a smart contract or by court arbitral award enforcement. If there are any issues, the parties can also file an appeal and the same process will begin again.

21. James Metzger, 'The Current Landscape of Blockchain-Based, Crowdsourced Arbitration' (2019) 19 Macquarie L J 81, 92-99.
22. Elena Ermakova, 'Blockchain, Metaverses and NFT in Civil Procedure and Arbitration in Russia, China and USA' (2023) 27(1) RUDN Journal of Law 148, 154.
23. Federico Ast, Clément Lesaege and William George, 'Whitepaper Kleros' <https://kleros.io/whitepaper.pdf> accessed 28 December 2024.
24. Amy J Schmitz, 'Resolving NFT and Smart Contract Disputes', in N G Packin (ed), *The Cambridge Handbook of Law and Policy for NFTs* (Cambridge: Cambridge University Press (Cambridge Law Handbooks 2023) 372, 386.
25. ibid.
26. ibid.
27. Thomas C Schelling, *The Strategy of Conflict* (Harvard University Press 1960).
28. ibid; Elena Ermakova, 'Blockchain, Metaverses and NFT in Civil Procedure and Arbitration in Russia, China and USA' (n 22).

3. BENEFITS OF BLOCKCHAIN ARBITRATION

The wisdom of the crowds over an individual turns out to be one of the most attractive features of Blockchain arbitration.[29] Pluralism of opinions and diverse backgrounds of jurors is said to facilitate fairness and justice.[30] Moreover, as discussed above, by its very nature, it also incentivises fair, honest and independent decision making. An interesting comparison furthering the argument of heightened fairness provided by blockchain arbitration over ordinary arbitration proceedings is that of the Rawlsian '*Veil of Ignorance*'[31] and blockchain arbitration.[32] Tulsayan argues that jurors behind the blockchain arbitration decision making act as if behind the 'proverbial veil of ignorance' since they have no relation or knowledge of a relation to the disputants, freeing them from personal biases to render a '*fair*' decision (present economic incentives in blockchain arbitration = self-interest after the veil is lifted); and decisions are being made on *ex aequo et bono* basis rather than 'legal' correctness which is similar to how actors behind the 'veil' would have decided.[33]

Blockchain arbitration's appeal over traditional arbitration lies in its added advantages that blockchain offers for privacy[34] and security concerns.[35] This is because of Blockchain's strong potential for ensuring confidentiality via its almost airtight cybersecurity.[36] Blockchain arbitration also offers a *trustless* method of dispute resolution which can be better than traditional system, which relies on personal relationships to a certain extent. This is because the parties to the dispute do not have to trust the jurors personally or even know them (which preserves the privacy of parties as well), the parties can rest easy on the fact that a fair decision will be made owing to

29. Aleksei Gudkov, 'Crowd Arbitration: Blockchain Dispute Resolution' (2020) 3 Legal Issues in the Digital Age 59, 65.
30. ibid.
31. John Rawls, *A Theory of Justice* (Cambridge, Massachusetts: The Belknap Press of Harvard University Press 1971).
32. Aryan Tulsyan, 'Arbitration Tech Toolbox: The Rawlsian "Veil of Ignorance" and Blockchain Arbitration' <https://arbitrationblog.kluwerarbitration.com/2023/07/17/arbitration-tech-toolbox-the-rawlsian-veil-of-ignorance-and-blockchain-arbitration/> accessed 28 December 2024.
33. ibid.
34. Javier Canosa and Bruno Banfi, 'Blockchain: An Innovative Tool for Enhanced Transparency' (n 7).
35. Sharath Mulia and Romi Kumari, 'Smart Contracts, Blockchain and Arbitration' <https://www.foxmandal.in/blockchain-arbitration-the-future-of-dispute-resolution/> accessed 28 December 2024.
36. ibid.

game theory principles rather than any presence of a personal relationship. This also capitalises on transparency benefits offered by Blockchain which records everything, and remains visible to all involved actors and is extremely difficult to change or tamper with due to its immutable nature.[37] The Blockchain this way holds the potential to be one of the most disruptive technologies by '*promising to mediate interactions of mutually distrusting individuals without a trusted third party.*'[38] This trustless and transparency promise of the Blockchain is highly appealing against the backdrop of the contemporary legal and adjudicative community rife with nepotism,[39] mistrust,[40] corruption,[41] and bias allegations.[42]

Moreover, the immutability of blockchain and decentralised decision making helps Blockchain Arbitration comply to present justice systems as well.[43] This is because the computer code mandated procedure will conform to a predictable *due process,* and fairness is promoted as no single individual can make any decision.[44] Additionally, decreased costs offered by Blockchain Arbitration will inevitably increase access to justice.[45]

Its benefits also become highly relevant for the uniquely Indian context. It offers the most compelling advantage of over traditional arbitration by addressing guerilla tactics: a present menace for dilatory practices in

37. Norton Roose Fulbright, *Data Protection and Cyber Risk Issues in Arbitration* (n 9).
38. Yannick Gabuthy, 'Blockchain Based Dispute Resolution: Insights and Challenges' (2023) 14 Games 34, 1.
39. Avani Bansal, 'Where Dynasty Rocks: Nepotism is Serious not Just in Politics and Bollywood, but also in the Legal Profession' <https://timesofindia.indiatimes.com/blogs/toi-edit-page/where-dynasty-rocks-nepotism-is-serious-not-just-in-politics-and-bollywood-but-also-in-the-legal-profession/?source=app&frmapp=yes> accessed 28 December 2024.
40. *See* Shreya Tinkhede, 'Encounters don't Kill Tendency to Rape, Show Mistrust in Law' *Times of India* <https://timesofindia.indiatimes.com/city/nagpur/encounters-dont-kill-tendency-to-rape-show-mistrust-in-law/articleshow/72447106.cms> accessed 28 December 2024.
41. Upasana Sajeev, 'Corruption in India Pervades All Levels, Not Even Sparing IAS, IPS and Judicial Service: Madras High Court' <https://www.livelaw.in/high-court/madras-high-court/madras-high-court-corruption-pervades-all-levels-including-ias-ips-and-judicial-service-232704> accessed 28 December 2024.
42. Alok Prasanna Kumar, 'Two Papers on Judicial Bias in India' Law and Society <https://www.epw.in/journal/2021/8/law-and-society/two-papers-judicial-bias-india.html> accessed 28 December 2024.
43. ibid; Elizabeth Chan and Emily Hay, 'Something Borrowed, Something Blue: The Best of Both Worlds in Metaverse-Related Disputes' (2022) 15(2) Contemp Asia Arb J 205, 217-218.
44. ibid.
45. ibid.

the Indian arbitration space.[46] These tactics which can include delays, bribery, intimidation, etc. are all subverted by Blockchain rbitration by its very design. Bribery is reduced dramatically by the anonymous nature of arbitrator-jurors in Blockchain arbitration. The same is true for intimidation and harassment. Owing to the incredibly cyber-secure nature of Blockchain; wire-tapping and surveillance is also practically near impossible for an average party to arbitration and his aides to undertake.

4. EXAMINING THE ENFORCEABILITY OF BLOCKCHAIN BASED ARBITRAL AWARDS

In the previous chapters, the article elaborated on the functioning and advantages of blockchain based arbitrations. This section will probe into the question of enforceability of arbitral awards arising from such systems, and analyse the challenges and solutions in this regard. It is important to clarify that there can be broadly two types of enforcement of awards resulting from blockchain-based arbitrations – on-chain and off-chain. On-chain enforcement takes place completely on the blockchain–once rendered, the award is automatically executed by a smart contract, which can be programmed to partially or totally release funds in escrow, or transfer funds between digital wallets.[47] Since the process is completely automated and self-executing, it bypasses the need to approach any court for enforcement of the award, and resultantly, enforcement regimes under the New York Convention and domestic arbitral laws become irrelevant.[48]

However, there can be a need for enforcement off-chain as well, aka situations wherein blockchain based arbitral awards would need to be enforced via the court mechanism, the same way any other arbitral award would be. These include instances where the assets or compensation involved is non-digital in nature, where the amount ordered to be paid exceeds the amount available in the escrow account, where compliance of third parties or interim measures are needed, etc.[49] All these situations could force an unsuspecting party to approach national courts seeking enforcement of the award. Thus, the main objective of this section would

46. Vijayendra Pratap Singh, Abhijnan Jha and Abhisar Vidyarthi, 'The More Things Change, the More they Stay the Same: Guerrilla Tactics in Arbitration in India' <https://www.azbpartners.com/bank/the-more-things-change-the-more-they-stay-the-same-guerrilla-tactics-in-arbitration-in-india/> accessed 28 December 2024.
47. Elizabeth Chan and Emily Hay, 'Something Borrowed, Something Blue' (n 43) 217-218.
48. ibid.
49. ibid.

be to gauge the reaction of a court if enforcement is sought before it for an award from a blockchain arbitral system on four aspects which could affect its enforcement – agreement in writing, the seat of arbitration, due process requirements, and the lack of reasoning in the award This will be done first through the lens of the New York Convention, since it is the framework treaty at the multinational level setting the minimum standards for enforcement of foreign arbitral awards,[50] implemented by states through their domestic law, which may impose additional requirements above the same.[51] The same issues will then be analysed under Indian law.

A. Agreement in Writing

The New York Convention, as well as most domestic arbitration legislations stipulate that an arbitration agreement must be an '*agreement in writing*.' This requirement has been traditionally understood to mean a physical agreement on paper. However, the advent of the digital age and the e-commerce revolution has put this understanding to a test, and most jurisdictions do recognise the 'agreement in writing' requirement to be satisfied through electronic means as well. In this section, the question to be explored through the lens of both the New York Convention and Indian law is whether the 'agreement in writing' requirement can cover arbitration agreements embedded in smart contracts, so as to establish their legal validity and guarantee the enforceability of the awards arising out of the same.

1. 'Agreement in Writing' Under the New York Convention

Article II(1) of the New York Convention stipulates that the contracting states shall recognise *'an agreement in writing*' under which parties undertake to submit to arbitration all or any differences that have arisen or may arise between them.[52] Article II(2) further states that the term 'agreement in writing' shall include an arbitral clause in a contract or an arbitration agreement, signed by the parties or contained in an exchange of letters and telegrams.[53]

50. Mark Baker, 'Marking the 60th Anniversary of the New York Convention' <https://www.nortonrosefulbright.com/en/knowledge/publications/c0f0d4f3/marking-the-60th-anniversary-of-the-new-york-convention> accessed 7 January 2025.
51. ibid.
52. The Convention on the Recognition and Enforcement of Foreign Arbitral Awards (opened for signature 10 June 1958, entered into force 7 June 1959) art II(1) ('New York Convention').
53. ibid, art II(2).

Given that the New York Convention was drafted shortly after World War II, in an era where digital arbitration agreements were unfathomable, an argument can definitely be made that Article II should be interpreted broadly to include agreements in the digital form. It must be noted that Article II(2) does not define per se the term 'agreement in writing,' just states that it *includes* an arbitral clause in a contract or an arbitration agreement, signed by the parties or contained in an exchange of letters and telegrams.[54] The usage of the word '*includes*' has led commentators to suggest that this Article is non-exhaustive in nature,[55] and includes types of arbitral agreements besides those expressly mentioned. Indeed, validity has been granted to arbitral agreements existing in the digital format under various soft law instruments, such as the UNCITRAL's recommendation in its 39th session to extend the application of Article II(2) to electronic communications.[56] Similarly, the International Council for Commercial Arbitration's guide to judges applying the New York Convention states that Article II(2) can reasonably cover modern means of communication.[57] Thus, the trend has been construing Article II of the New York Convention liberally so as to include within its ambit arbitral agreements in digital forms. Given the inclusive and non-exhaustive nature of Article II, an argument can be put forward that it can be interpreted to include blockchain based arbitral agreements.

However, there are multiple issues that put this argument to a test. Firstly, it must be kept in mind that Article II of the New York Convention is an autonomous standard that does not get altered by the abovementioned soft law instruments.[58] While it has been advanced that the UNCITRAL's recommendations in its 39th session operates as a subsequent agreement between parties to the New York Convention extending Article II's application to digital arbitral agreements, the same is arguable.[59] Hence,

54. ibid, art II(2).
55. Toby Landau and Salim Moollan, 'Article II and the Requirement of Form' in E Gaillard and D Di Pietro (eds), *Enforcement of Arbitration Agreements and International Arbitral Awards — The New York Convention 1958 in Practice 189* (2008) 244-47.
56. Recommendation regarding the interpretation of art II, para 2, and art VII, para 1, of the Convention on the Recognition and Enforcement of Foreign Arbitral Awards, done in New York, 10 June 1958 (2006). Official Records of the General Assembly, Sixty-first Session, Supplement No. 17 (A/61/17), paras. 177-81 and Annex II <www.uncitral.org/pdf/english/texts/arbitration/NY-conv/A2E.pdf>.
57. International Council for Commercial Arbitration, *ICCA's Guide to the Interpretation of the 1958 New York Convention, a Handbook for Judges* (ICCA Publishing 2011) 50.
58. Elizabeth Chan and Emily Hay, 'Something Borrowed, Something Blue' (n 43) 219.
59. ibid.

the plain text of Article II(2) does not by itself extend validity to digitally concluded arbitral agreements, much less blockchain-based arbitral agreements. Granted, the inclusive nature of Article II still stands. However, if we are to take the abovementioned soft law instruments out of the picture, all we get is an inclusive definition of 'agreement in writing,' with no clarity as to where exactly the inclusivity ends.

This brings us to the next point- serious doubts exist as to what extent can the liberal interpretation of Article II covering digital agreements be stretched. The abovementioned soft law instruments recommended broadening Article II(2)'s scope to include 'modern means of communications' or 'electronic communications. This would include, generally speaking, widely used means of communications such as emails or fax. However, arbitral agreements concluded through blockchain are radically different from the ones contained in these 'modern means of communication.' They are composed entirely of code, and hence are unreadable.[60] This aspect of unreadability further worsens the case for blockchain arbitral agreements under the New York Convention. Under Article IV(b) of the New York Convention, at the time of enforcement, parties are required to present before the court a copy of their arbitral agreement.[61] If the agreement in question is in a coded format, how can we expect the court to read the same, much less enforce the award arising out of the same? Thus, it is doubtful as to whether blockchain based arbitral agreements can fall under Article II(2).

However, there is still an 'escape hatch' of sorts out of this predicament. Article VII of the New York Convention states that it shall not deprive any interested party of any right he may have to avail himself of an arbitral award in the manner and to the extent allowed by the law or the treaties of the country where such award is sought to be relied upon.[62] This provision allows a party to rely on a *more favourable treaty or domestic law* concerning enforcement, instead of the New York Convention. Thus, the parties can avail more favourable provisions in the prevailing domestic law or treaty regime in the jurisdiction where the award is sought to be enforced, even if they contradict or lack certain requirements under the New York Convention. Indeed, courts have utilised this Article to allow enforcement even when the arbitral agreement in question satisfied the

60. ibid, 222.
61. New York Convention, art IV(b).
62. New York Convention, art VII.

more liberal conditions stipulated in domestic law, but not the New York Convention.[63]

How would this Article be of aid to a party seeking enforcement of a blockchain based arbitral award? The validity of digital arbitral agreements does not hinge solely on the soft law instruments mentioned above. In addition to those, various domestic laws, such as that of India,[64] and international treaties expressly grant validity to contracts concluded through digital means, which include the arbitral agreements contained therein. The treaty regime relevant to our discussion is United Nations Commission on International Trade Law's Model Law on Electronic Commerce, 1996 (*hereinafter*, 'UNCITRAL Model Law'),[65] and the United Nations Convention on the Use of Electronic Communications in International Contracts, 2005 (*hereinafter*, 'Convention on Electronic Communications').[66]

The UNCITRAL Model Law provides under Article V that an instrument should not be invalidated if it is in the form of a *data message*.[67] Article VI lays down that where the law requires information to be in writing, that requirement is met by a data message if the information contained therein is *accessible so as to be usable for subsequent reference*. Per the UN Commentary on the UNCITRAL Model Law, '*accessible*' is meant to imply that information in the form of computer data should be *readable and interpretable*, and that the software necessary to render such information readable should be retained.[68] The Convention on Electronic Communications, which applies to formation and performance of contracts between parties from different states, provides under Article 9(1) that a

63. Arijit Sanyal, 'Arbitration Tech Toolbox: Can the New York Convention Stand the Test of Technology Posed by Metaverse Awards?' <https://arbitrationblog.kluwerarbitration.com/2022/12/20/arbitration-tech-toolbox-can-the-new-york-convention-stand-the-test-of-technology-posed-by-metaverse-awards/> accessed 13 December 2024.
64. *See* ch III(A)(ii).
65. United Nations Commission on International Trade Law's Model Law on Electronic Commerce, 1996 (adopted 12 June 1996) ('UNCITRAL Model Law').
66. United Nations Convention on the Use of Electronic Communications in International Contracts (adopted 23 November 2005, entry into force 1 March 2013) ('Convention on Electronic Communications').
67. UNCITRAL Model Law, art V.
68. United Nations Commission on International Trade Law, *UNCITRAL Model Law on Electronic Commerce, with Guide to Enactment, 1996: With Additional Article 5 Bis as Adopted in 1998*, 36 <https://uncitral.un.org/en/texts/ecommerce/modellaw/electronic_commerce>.

contract or any communication need not be evidenced in a *particular form*.[69] Additionally, it states under Article 9(2) that when national laws require the contract to be evidenced in writing, such a requirement is satisfied if the information contained in the contract is accessible in a manner which makes it '*usable for subsequent reference*.'[70]

Thus, unlike the New York Convention, these regimes grant express validity to contracts concluded through digital means. To qualify as an agreement 'in writing' under these regimes, the agreement in question will have to be accessible for subsequent reference. If an arbitration agreement is embedded in a blockchain, it could provide an accessible record of an agreement.[71] However, the Commentary on the Model Law stresses the element of readability and interpretability as qualifying elements for being '*accessible*.'

Could blockchain agreements ever be readable and interpretable? Surprisingly, yes. Herein, it is important to introduce the concept of *Ricardian Contracts*. Ricardian contracts are blockchain-based contracts that include two components. One is the digital based component in code that can be read by machines, and the other is a text-based component that can be read by humans.[72] Thus, Ricardian contracts, containing both digital code as well as its 'translation' of sorts in other languages- could definitely be read and interpreted by courts, meeting the agreement in writing requirement under both the abovementioned treaties. Moreover, such a blockchain arbitral agreement also solves the issue regarding its presentation at the time of enforcement under Article IV(b) mentioned above. In recent years, Ricardian contracts have seen increased popularity, with adoption by platforms like Mattereum, a blockchain-based project dealing with the transfer of digital assets,[73] and Aragon, a blockchain-based dispute resolution platform.[74] Indeed, the adoption of Ricardian contracts seems the best way forward for blockchain-based arbitral agreements to meet the 'agreement in writing' requirement.

69. Convention on Electronic Communications art 9(1).
70. Convention on Electronic Communications art 9(2).
71. Elizabeth Chan and Emily Hay, 'Something Borrowed, Something Blue' (n 43) 222.
72. Diego Geroni, 'What are Ricardian Contracts? A Comprehensive Guide' <https://101blockchains.com/ricardian-contracts/> accessed 8 December 2024.
73. Mattereum, 'Working Paper' <https://mattereum.com/2020/02/03/working-paper/> accessed 15 December 2024.
74. Aragon Network, 'White Paper' <https://github.com/aragon/whitepaper> accessed 10 December 2024 ('Aragon White Paper').

Thus, the parties under Article VII of the New York Convention, may use provisions of the UNCITRAL Model Law and the Convention on Electronic Communications to establish the validity of blockchain-based arbitration agreements contained in Ricardian contracts, if the jurisdiction where they seek to enforce the award is a signatory of these treaty regimes.

2. 'Agreement in Writing' Under the Indian Law

Just like the New York Convention, the Indian Arbitration and Conciliation Act, 1996 (*hereinafter*, 'Arbitration Act') also stipulates that an arbitration agreement must be '*in writing*' in Section 7(3).[75] The Arbitration Act further mentions that an arbitration agreement is 'in writing' if it is contained in a document signed by the parties or an exchange of letters, telex, telegrams or other means of telecommunication, *including communication through electronic means* which provide a record of the agreement.[76]

While the validity of arbitral agreements through electronic means is established under the Arbitration Act, the practical issues remain, since the legislature omitted to define '*electronic means*.' Indian law requires parties to present before the court the arbitral agreement at the time of enforcement of the award, under Section 47(b) of the Arbitration Act in case of a foreign seated award.[77] In case of a domestically seated award, there is no explicit stipulation to present the arbitration agreement, but the court may still examine the validity of the same if a party seeks to set aside the award under Section 34.[78] The fact still remains that a blockchain arbitration agreement would not be capable of being read or interpreted, unless it is contained in a Ricardian contract. Thus, simply according formal validity to blockchain arbitration agreements would only be a job half done-the execution of blockchain arbitral awards needs to be made practically workable. In this light, the Report of the 246th Law Commission is of immense utility.

Unlike the legislature which omitted to define the scope of the word 'electronic means,' the Report of the 246th Law Commission (*hereinafter*, 'the Report') recommended the insertion of Section 3A in the Arbitration Act, which would state that 'an arbitration agreement is in writing if its

75. Arbitration and Conciliation Act 1996 s 7(3) ('Arbitration Act').
76. Arbitration Act 1996 s 7(4)(b).
77. Arbitration Act s 47(1)(b).
78. Arbitration Act s 34.

content is *recorded in any form*.'[79] The Report further recommended the insertion of Section 3B, which stated that the requirement that an arbitration agreement be in writing is met by an electronic communication if the information contained therein is *accessible so as to be useable for subsequent reference*. These stipulations were added in order to bring Indian law in line with the UNCITRAL Model Law.[80]

This stipulation provided for in the Report is much more apt, compared to the Arbitration Act's current provisions. The requirement of being accessible and retrievable for a subsequent reference, is of immense practical utility, since as discussed above, courts at times may need to examine the arbitration agreement. If this requirement is stipulated, only those agreements which be read and interpreted by the courts would be covered by the Section. As explained above, the requirement of being readable and interpretable can be fulfilled by Ricardian contracts.

B. Requirement of the Seat of Arbitration

An essential feature of arbitration is the seat or place of an arbitral proceeding. The seat of an arbitration is its '*legal home'* or '*anchor,*' the country or place whose laws regulate the conduct of the arbitration proceedings (*lex loci arbitri*), and whose courts exercise jurisdiction over the same. While seats are a commonplace feature of traditional arbitrations, blockchain arbitrations are unique in this aspect. Parties often omit to designate a seat in the blockchain arbitration agreement as their expectation would be that the entire process would take place within the blockchain environment, without any involvement from the courts.[81] Moreover, the parties are anonymous vis-à-vis each other and may be located in different parts of the same country or different countries altogether, making it very hard for them to mutually agree on a seat.

Ordinarily, in a physical arbitration or Online Dispute Resolution (*hereinafter*, 'ODR'), it would have been the arbitral tribunal that would determine the seat in case of a failure by the parties to do specify one in the arbitration agreement. In a physical arbitration, the arbitrators would use tests such as 'the closest and most intimate connection' test, to designate

79. Law Commission of India, 246th Report on Amendments to the Arbitration and Conciliation Act, 1996 (5 August 2014) 42.
80. ibid.
81. Jun Hong Tan, 'Blockchain "Arbitration" for NFT-Related Disputes' (2023) 16(1) Contemp Asia Arb J 145, 170.

a place the parties or the contract is closely connected with as the seat.[82] In the context of ODR, arbitrators may use connecting factors, such as the location of the website where the case is administered, the servers, computers, e-arbitration providers, in addition to traditional factors such as the nationality and place of business of the parties.[83] However, blockchain arbitrations are truly a different ball game altogether. In blockchain arbitration, jurors typically have limited binary voting rights on the merits of the case and do not make procedural decisions.[84] Thus, they may not be able to designate the seat on behalf of the parties. Moreover, unlike ODR, where all relevant characters are geographically dispersed but readily identifiable,[85] parties to a blockchain arbitration are completely anonymous, and the arbitrators would be ignorant of the relevant factors regarding the parties that could aid them to conclude what the seat ought to be. For the same reasons, this task cannot be delegated to the enforcing courts either, as would usually occur in traditional arbitrations if the arbitral tribunal failed to designate the seat.

In this section, we examine whether the lack of a seat in blockchain based arbitrations can be reconciled with the New York Convention and the Indian law, and how the potential enforcement hurdles stemming from the same can be overcome.

1. Under the New York Convention

The New York Convention does not explicitly mandate arbitrations to have a seat. However, it operates on a *presumption of territoriality*, i.e., that the award is tied to the legal system of a state. This is reflected in Article I(1), which provides that the New York Convention shall apply to the recognition and enforcement of arbitral awards *made in the territory of a State* other than the State where the recognition and enforcement of such awards are

82. Alok Vajpeyi, 'Determination of Seat Law by the Indian Courts' <https://www.scconline.com/blog/post/2019/07/29/determination-of-seat-law-by-the-indian-courts/#:~:text=Principally%2C%20parties%20are%20required%20to,Arbitration%20and%20Conciliation%20Act%2C%201996.> accessed 5 December 2024.

83. Cemre Kadioglu, 'Virtual Hearings to the Rescue: Let's Pause for the Seat?' <https://arbitrationblog.kluwerarbitration.com/2020/07/13/virtual-hearings-to-the-rescue-lets-pause-for-the-seat/> accessed 21 December 2024.

84. Despoina Kottaridou, 'The Use of Arbitration for the Resolution of Disputes Arising from the Use of Blockchain Technology' (LLM Thesis, International Hellenic University 2023) 95.

85. Michael Buchwald, 'Smart Contract Dispute Resolution: The Inescapable Flaws of Blockchain-Based Arbitration' (2020) 168(5) U Pa L Rev 1369, 1400.

sought.[86] Moreover, several provisions of the New York Convention imply that arbitral awards must be subject to a national law, i.e., the law of the seat. Article V(1)(a) states that an enforcing court may refuse enforcement where the arbitration agreement is invalid under the law to which the parties have subjected it, or, failing any indication thereon, under the law of the country where the award was made.[87] Article V(1)(e) further states that a court may also refuse an award that has been set aside by a court of the country in which, or under the law of which, that award was made.[88]

Based on a reading of these provisions, most importantly the territoriality condition set out in the first part of Article I(1), many commentators have advanced that blockchain arbitral awards will not fall under the New York Convention and cannot be enforced under the same.[89] The reason for the same is evident in the very nature of blockchain arbitrations. They are completely delocalised, and cannot be said to be attached or related to any particular State- they are not made in any '*territory*' at all. There is no physical or virtual link to any nation, as the award is embedded within the blockchain.[90]

However, a reading of the second part of Article I(1) can lead us to a totally opposite conclusion.[91] It states that the New York Convention shall also apply to awards '*not considered as domestic awards*' in the state where the recognition and enforcement is sought. The drafting history of this Article suggests that the second part was inserted on account of some state's apprehensions that the first part of Article I(1) was placing too much emphasis on the seat of the arbitration as a factor to bring awards within its ambit.[92] It was inserted in order to enable courts to consider factors other

86. New York Convention art I(1).
87. New York Convention art V(1)(a).
88. New York Convention art V(1)(e).
89. Mauricio Virues Carrera, 'Accommodating Kleros as a Decentralised Dispute Resolution Tool for Civil Justice Systems: Theoretical Model and Case of Application' (2020) 8-9 ('Carrera Report').
90. ibid.
91. Lafi Daradkeh, 'Blockchain Investment Award under New York Convention of 1958: The Need for New Interpretation to Motivate Blockchain Investments' (2020) 8 Kilaw Journal 69, 81.
92. United Nations Commission on International Trade Law, Guide to the 1958 New York Convention, art I, <https://newyorkconvention1958.org/index.php?lvl=cmspage&pageid=10&menu=617&opac_view=-1#:~:text=Article%20I%20(1)%20provides%20that,%2C%20whether%20physical%20or%20legal%E2%80%9D> accessed 21 December 2024.

than the seat of arbitration for the application of the New York Convention.[93] Thus, satisfying either the first or second part of Article I(1) is enough to bring the award within the New York Convention's ambit.[94]

Where blockchain based arbitral awards are concerned, there is judicial precedent available which strongly supports the enforcement of such 'a-national' or 'non-national' awards under the New York Convention. Based on a reading of the second part of Article I, the United States Court of Appeals for the Ninth Circuit has held that the language of the Article makes it evident that it does not contain a separate jurisdictional requirement that the award be rendered subject to a national law for enforcement.[95] Similarly, the Dutch Supreme Court held that the intention of the New York Convention was to recognise as arbitral awards also those awards which cannot be deemed to be connected with the law of any specific country.[96] Beyond judicial pronouncements, this recognition of a-national awards has also been granted by nations such as Egypt[97] and Jordan,[98] which permit the enforcement of an arbitral award if no seat has been designated by the parties. Thus, the second part of Article 1(I) suggests that blockchain arbitration awards may be enforced under the New York Convention.

2. Under Indian Law

However, such a recognition of 'a-national' or 'non-national' awards is far from universal. A cursory look at the majority of arbitration legislations around the globe would reveal that they mandate a seat to be designated by the parties or require the arbitral tribunal or the courts to designate a seat in case of a failure by the parties to designate the same. India falls in this category. Part I of the Arbitration Act applies only to arbitrations seated in India.[99] Section 31 contained therein mandates the arbitral award must mention the place of arbitration, aka the seat.[100] Part II of the Arbitration

93. ibid.
94. ibid.
95. *Ministry of Defense of the Islamic Republic of Iran v Gould Inc, Gould Mktg, Inc, Hoffman Export Corpn, and Gould International, Inc*, 969 F 2d 764 (9th Cir 1992).
96. Société Européenne d'Etudes et d'Entreprises (S.E.E.E.) v. Federal Republic of Yugoslavia, Supreme Court, Netherlands, 7 November 1975, I Y B Com Arb 195 (1976).
97. Law No 27/1994 Promulgating the Law Concerning Arbitration in Civil and Commercial Matters, art 28.
98. Law No 31 of 2001 Jordan Arbitration Law, art 27.
99. Arbitration Act pt I.
100. Arbitration Act s 31.

Act deals with foreign seated arbitral awards,[101] and mirrors the New York Conventions stipulations regarding the court's power to refuse enforcement of the award if the agreement is invalid under the law of the place to which parties have subjected their proceedings or where the award was made, or has been set aside by the courts of the same place.[102] Thus, before enforcement of an award, Indian courts will necessarily have to inquire whether the arbitration is seated in India or outside,[103] and are mandated by judicial precedent to determine the seat in case of a failure by the parties or the arbitral tribunal to designate the same.[104]

Thus, the designation of a seat in the blockchain arbitration agreements is one that cannot be bypassed in all circumstances. Moreover, having a seat is not just a matter of mere legalistic formality to make the award enforceable under the relevant law. Many practical aspects of an arbitration proceeding relating to the parties' rights, the remedies available, and the substantive conduct of the parties' hinge on the law of the seat.

Therefore, the next question to be probed is to establish how exactly we reconcile blockchain arbitrations, with the expectation that awards must be based on the national law of some State? In the following sub-section, we examine the potential modes by which the seat of arbitration on the blockchain may be determined.

3. Evaluating the Hybrid Model as a Method of Designating the Seat

One interesting and unique viewpoint called the 'Hybrid Model' has been advanced in the Carrera Report.[105] It is based on a 2020 case in Mexico involving Kleros, a popular blockchain based arbitral platform.

The case concerned a leasing dispute where the arbitration agreement provided that after receiving the claims of the parties, the arbitrator would draft a Procedural Order addressed to Kleros which would then issue a decision.[106] The arbitral clause directed the arbitrator to *incorporate the decision received from Kleros* into his arbitral award to govern the substance of the ruling.[107] Thus, the decision by Kleros was incorporated

101. Arbitration Act pt II.
102. Arbitration Act s 48.
103. Alok Vajpeyi, 'Determination of Seat Law by the Indian Courts' (n 82).
104. ibid.
105. Carrera Report (n 89) 16-19.
106. ibid.
107. ibid.

in the final arbitral award by the arbitrator.[108] Subsequently, the landlord requested enforcement of the arbitral award before a local Mexican court, which was granted.[109]

the idea herein is to use the blockchain arbitration platform as a tool to adjudicate the *merits* of the dispute. Once that is done, the decision on the merits will be incorporated and adopted into the final award by the subsequent arbitral tribunal in the final award. The final award will be one that emerges from the traditional arbitration process, and thus will be having a seat and connected to a national legal system.[110] The subsequent arbitral tribunal would thus be indirectly giving legality to the blockchain arbitral award, which, under the existing arbitration framework, might have been denied enforcement.

At the first glance, the Hybrid Model seems like an ideal solution, a sort of 'best of both worlds' approach to dealing with the question of enforcement of blockchain arbitral awards. However, the true picture is not that rosy. The 'Hybrid Model' is based on the peculiar facts of the Mexican case. Therein, the parties were located in the physical world, knew each other beforehand, and thus, agreeing on the details, modalities, and seat of the subsequent arbitration would not have been that cumbersome. Moreover, the contract in question was not a smart contract. In contrast, consider a scenario of two parties to a smart contract located on different sides of the globe, completely anonymous vis-a-vis each other, trying to reach an agreement as to the modalities of the subsequent arbitration. Determining the seat that is mutually convenient to both parties, selecting an arbitrator(s), and institutional arbitral rules that are mutually agreeable may prove to be a hassle. Moreover, the parties may have to reveal their identities and sacrifice their anonymity in the subsequent arbitration, as the anonymity of parties may not be permitted in most domestic arbitral regimes or institutional rules. Moreover, having to reveal their identities may be against the parties' wishes themselves, given that anonymity is one of the advantages of blockchain arbitrations. Adding to these complications is the fact that the hybrid model makes the parties go through two arbitrations for essentially the same dispute, increasing the complexity and time taken of the whole process. As explained above,[111] the simplicity, flexibility, and

108. ibid.
109. ibid.
110. ibid.
111. *See* ch I.

speed of blockchain arbitrations make them an attractive option, and such an approach could negate the same.

Even if all of these issues are overcome or ignored, there is nothing *per se* stopping the subsequent arbitrator(s) from annulling the decision on merits by the blockchain arbitral platforms and issuing another decision on merits contrary to it, or at least modifying the same.[112] This is not a hypothetical possibility, but an actual probability. As was elaborated in the introduction,[113] the decision-making process in blockchain arbitration platforms is starkly different from traditional ones and involves minimal legal discussions- this may not be agreeable to arbitrators in the real world. An overruling of the decision on merits or a modification of the same would frustrate the very purpose of submitting it to blockchain arbitral platform in the first place.

To remedy this, it could be argued that parties could stipulate a condition curtailing the subsequent arbitral tribunal's decision-making powers on the merits. Granted, the parties are empowered to tweak to a substantial degree the arbitrators' powers to rule on the merits. For example, they can stipulate that the arbitrator can rule *ex aequou et bono*, i.e., with reference to notions of fairness and justice as opposed to any legal standards.[114] Theoretically, the notion of party autonomy can allow them to exclude the arbitrators' decision-making powers altogether, for example, in an agreement where the dispute is settled by a coin toss or a race where the arbitrator merely acts as the referee. However, depending on the applicable national law, such agreements may be held invalid on grounds of violating public policy.[115] Thus, it is unclear if using the subsequent arbitral tribunal as only a rubber stamp of sorts for ensuring enforceability of the award on the merits with no decision-making power would be acceptable.

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112. Maxime Chevalier, 'Arbitration Tech Toolbox: Is a Mexican Court Decision the First Stone to Bridging the Blockchain Arbitral Order with National Legal Orders?' <https://arbitrationblog.kluwerarbitration.com/2022/03/04/arbitration-tech-toolbox-is-a-mexican-court-decision-the-first-stone-to-bridging-the-blockchain-arbitral-order-with-national-legal-orders/> accessed 11 December 2024.
113. *See* ch I.
114. Nobumichi Teramura, 'Ex Aequo et Bono: An Overlooked and Undervalued Opportunity for International Commercial Arbitration' <https://arbitrationblog.kluwerarbitration.com/2018/11/18/ex-aequo-et-bono-an-overlooked-and-undervalued-opportunity-for-international-commercial-arbitration/> accessed 11 December 2024.
115. Anothony J Sebok, 'The Unwritten Federal Arbitration Act' (2016) 65(2) DePaul L Rev 687, 698.

It can also be argued that the doctrine of *res judicata* ought to preclude the subsequent arbitral tribunal from modifying or overruling the blockchain arbitral platform's decision. However, the operation of this doctrine depends on whether the former regards the latter as a legitimate authority whose decision must be respected.[116] This again, may depend from arbitrator to arbitrator, and many may not be inclined to do so because of the nature of decision making in blockchain arbitral platforms. Moreover, this doctrine only applies to awards which have become final and binding in nature.[117] Given that awards by some blockchain arbitral platforms can be appealed in the system itself,[118] this doctrine may not be attracted. In any case, even if the appeal procedure is complete or that the platform in question does not have one, the fact of submitting an award to another arbitrator to make it enforceable itself implies that it has not become final. Thus, the Hybrid Model may not be the most feasible way of connecting the blockchain award within some nation's legal system.

The way out of this predicament, thus, would be if parties were to designate a seat in their arbitration agreement when entering into the smart contract, given the vagrancies of the Hybrid Model. It is understandable if parties generally omit to do so since it would be difficult to predict if recourse to courts would actually be needed in the blockchain arbitral process. Further, mutually agreeing upon a seat in a digital, anonymous environment is naturally challenging. However, the designation of a default seat may help overcome these challenges. Default seats are commonplace in the rules of many arbitral institutions in the real world, in case of a failure by the parties to reach an agreement. Where disputes in the blockchain world are concerned, the UK's Digital Dispute Resolution Rules, 2021, for instance, stipulate the UK as the default seat.[119] Parties can incorporate a reference to such rules in their arbitration agreement to avail the benefits of having a seat. Another solution could be for the blockchain platforms to grant the parties an option to mutually choose the seat of arbitration, *ex ante* the dispute arising, if the parties have omitted to designate the same in their

116. Maxime Chevalier, 'Arbitration Tech Toolbox' (n 112).
117. Selin Ece Tekin, 'Res Judicata: An Analysis for the Sake of Public Policy' < https://arbitrationblog.kluwerarbitration.com/2019/02/24/res-judicata-an-analysis-for-the-sake-of-public-policy/> accessed 19 December 2024.
118. Ibrahim Shehata, 'Arbitration of Smart Contracts Part 3 – Issues to Consider When Choosing Arbitration to Resolve Smart Contracts Disputes' <https://arbitrationblog.kluwerarbitration.com/2018/08/30/arbitration-smart-contracts-part-3/> accessed 22 December 2024.
119. UK Digital Dispute Resolution Rules (April 2021) r 16.

arbitration agreement.[120] However, the parties must ensure that the selected seat is a jurisdiction that validates arbitration agreements embedded within smart or digital contracts.[121] This is because under both the New York Convention[122] and most domestic laws such as the Arbitration Act,[123] the enforcement of an award may be refused if the underlying agreement is not valid under the law applicable to the arbitration proceedings.

C. Requirements of Due Process

Some of the differences present in blockchain based arbitrations compared to their off-chain counterparts, raise concerns regarding due process, a basic feature of arbitration. Due process underpins not only the legal soundness of any adjudicatory mechanism, but also determines the people's faith in the same. In this light, examining the due process concerns that arise out of blockchain arbitrations differences becomes imperative.

But first, clarity is needed with regards to what exactly due process entails in the arbitration context. Under Article V(1)(b) of the New York Convention, due process rights of the parties involve two elements - proper notice of the proceedings, and the ability of a party to present its case.[124] Domestic legislations mimic these requirements- the two abovementioned grounds can be used to refuse enforcement of a foreign seated award under Section 48 of the Indian Arbitration Act.[125] For arbitrations seated in India, Section 21 stipulates notice of the arbitral proceedings as a mandatory requirement for the commencement of the proceedings,[126] and Section 18 mandates that the parties ought to be treated equally and have an equal opportunity to present their case.[127] A violation of these due process requirements are grounds for challenging the enforcement of domestic awards.[128]

120. Despoina Kottaridou (n 84) 102.
121. Aishwarya Julinka Anand and Shreya Gupta, 'Smart Legal Contracts – The Only Viable Approach to the Arbitration of Blockchain Disputes?' <https://www.rgnulcadr.in/post/smart-legal-contracts-the-only-viable-approach-to-the-arbitration-of-blockchain-disputes> accessed 22 December 2024.
122. New York Convention art V(1)(a).
123. Arbitration Act s 48(1)(a).
124. New York Convention art V(1)(b).
125. Arbitration Act s 48(1)(b).
126. Arbitration Act s 21.
127. Arbitration Act s 18.
128. Saniya Mirani, 'Due Process Concerns in Virtual Witness Testimonies: An Indian Perspective' <https://arbitrationblog.kluwerarbitration.com/2020/11/17/due-process-concerns-in-virtual-witness-testimonies-an-indian-perspective/> accessed 23 December 2024.

Thus, the requirements of notice and equal opportunity to present the case are the two-criterion based on which blockchain based arbitral platforms will need to be evaluated. For this analysis, we will be taking Kleros as a representative example. Surprisingly, Kleros' platform infrastructure is mostly compliant with the due process framework, since compliance with due process requirements is a built-in feature of the protocol since proper notice and exchange of evidence and comments of the parties are executed automatically by smart contracts.[129]

To initiate the proceedings in the Kleros System, the claimant has to complete a simple form explaining its claim, and Kleros sends an email to the respondent notifying it that a dispute has been raised-this appears to fulfil the notice requirement.[130] However, in proceedings where a party resists the enforcement of an award on grounds of non-receipt of notice, courts tend to assess the fulfilment of the notice requirement *based on the conduct and knowledge of the parties*.[131] However, this assessment becomes near impossible in the blockchain arbitration context where the proceedings are virtual with hardly any interaction between the parties. While courts may in the future adopt a different frame of analysis with regards to assessment of notice in blockchain arbitrations, platforms would nevertheless be advised to ensure availability of evidence of the notice delivery and receipt so there is proof regarding the adequacy of the notice. This can take the form of an acknowledgement of receipt sent to the platform and the opposing party once the respondent has opened the notice.[132]

Where the ability of a party to present its case is concerned, a breach occurs when a party is prevented from submitting crucial evidence, from receiving evidence from an opposing party, or is denied the right to comment on or respond to evidence and arguments from the opposing

129. Kleros.IO, 'Dispute Revolution: The Kleros Handbook of Decentralized Justice' (2020) 184.

130. Joe Tirado and Gabriela Cosio, 'Lex Cryptographia: Guidelines for Ensuring Due Process in Transnational Blockchain-Based Arbitration' <https://www.ibanet.org/lex-cryptographia-due-process-blockchain-based-arbitration#:~:text=Ensuring%20due%20process%20in%20Arbitration,arbitration%20available%20to%20the-%20public.> accessed 22 December 2024.

131. United Nations Commission on International Trade Law, Guide to the 1958 New York Convention Article, V(1)(b) < https://newyorkconvention1958.org/index.php?lvl=cmspage&pageid=10&menu=622&opac_view=-1> accessed 26 December 2024.

132. Joe Tirado and Gabriela Cosio, 'Lex Cryptographia: Guidelines' (n 130).

party.[133] While the Kleros system permits the parties to submit evidence to support their respective cases, it does not provide for the parties to have an opportunity to rebut to the evidence and arguments submitted by the opposing party This can be remedied by a simple modification in the platform architecture to provide for an opportunity to rebut the opposite parties' submission. This would be in line with the UNCITRAL's Notes on Organising Arbitration Proceedings as well, which prescribe the structure of the written submissions to include submissions by the Claimant and Respondent along with rebuttals.[134] While this could prove to be a lengthier process, it would still function to grant the parties reasonable opportunities to analyse and rebut each other's evidences, and the insights reached from this process could in turn enable the jurors to reach a better conclusion. Moreover, this could also make the blockchain arbitral process more adjudicatory in nature, resembling traditional arbitration, as it has been criticised for lacking this aspect.[135]

Thus, presently, Kleros' infrastructure is not completely compliant with the standards of due process expected in arbitration. There could be other platforms which perform even more poorly in due process considerations. In cases where parties choose to submit their disputes to such platforms, the question arises as to whether the parties can be said to have waived their due process rights. Indeed, due process requirements do not have to be followed to a 't'- parties also have a right to modify and contract out of them. This is recognised in Article V(1)(d) of the New York Convention,[136] which asserts the supremacy of the parties' agreements with respect to the procedure of the arbitration.[137] However, while a limited waiver of the rights relating to notice and equal treatment under Article V(1)(b), such as waiving off certain procedures and deadlines,[138] is possible, courts would not be inclined to accept a *full waiver* of all due process requirements.

133. ibid.
134. United Nations Commission on International Trade Law, Notes on Organising Arbitration Proceedings (2016) 65.
135. Alex Yueh-Ping Yang, 'The Crowd's Wisdom in Smart Contract Dispute Resolution: Is Crowdsourced Dispute Resolution Arbitration?' (2022) 15(2) Contemp Asia Arb J 175, 189-196.
136. New York Convention art V(1)(d).
137. Kleros Handbook on Decentralised Justice (n 129).
138. United Nations Commission on International Trade Law, Guide to the 1958 New York Convention art V(1)(b) <https://newyorkconvention1958.org/index.php?lvl=cmspage&pageid=10&menu=622&opac_view=-1#:~:text=Article%20V%20(1)(b)%20requires%20that%20a%20party,are%20aware%20of%20the%20proceedings> accessed 21 December 2024.

The Dutch case of *X* v. *Y* is an example.[139] In that case, bitcoin loans were concluded on an online platform. The terms of use of the platform provided for automatic triggering of the arbitration process in case of a default with no notice requirement, and as a result the defendant was not notified of the proceedings and was unable to contest the claims. While it could be argued that agreeing to the terms of use could imply a waiver of the notice requirements, the Amsterdam Court of Appeal refused to enforce the award.[140] Thus, it appears that parties cannot waive off due process requirements in a wholesale manner. Therefore, platforms whose system infrastructures at the present does not provide for notice and equal case presentation opportunities may render unenforceable awards.

D. Requirement of Reasoning in Arbitral Awards

Another major difference the blockchain based arbitral process presents as compared to traditional arbitration is the lack of reasons being specified in the award.[141] While some blockchain arbitral platforms, such as Kleros,[142] require the Jurors to give reasons for their decision, many omit to do so.[143] This is a corollary of the principle behind the working of the blockchain arbitrations, i.e., to reduce, if not eliminate, legal discussions.

Where the question of enforcement hurdles stemming from this lack of reasoning is concerned, the New York Convention does not mandate awards to contain a reasoning. However, Article V (1)(d) enables courts to refuse recognition and enforcement of awards wherein the arbitration procedure was not in accordance with the agreement of the parties, or failing the same, the agreed upon national law.[144] Thus, if the parties' agreement, or the agreed or the agreed upon national law, require the award to contain reasons, the failure to provide reasons may be a ground for refusal of enforcement of the award.[145] Where blockchain based

139. Sophie Nappert and Elisabeth Zoe Everson, 'The Model Law for Decentralized Autonomous Organizations – Reinventing Due Process' <https://delosdr.org/the-model-law-for-decentralized-autonomous-organizations-reinventing-due-process/> accessed 28 December 2024.
140. ibid.
141. Jun Hong Tan, 'Blockchain "Arbitration" for NFT-Related Disputes' (2023) 16(1) Contemp Asia Arb J 145, 172-173.
142. Kleros Handbook on Decentralised Justice (n 129) 271.
143. Jun Hong Tan, 'Blockchain Arbitration'(n 141).
144. New York Convention art V(1)(d).
145. United Nations Commission on International Trade Law, 1958 New York Convention Guide, art V(1)(d) <https://newyorkconvention1958.org/index.php?lvl=cmspage&pageid=10&menu=628&opac_view=-1> accessed 26 December 2024.

arbitration is concerned, it can be argued that submitting a dispute to the same amounts to an implicit agreement waiving the reasoning requirement. Moreover, even if the national law agreed upon by the parties stipulates the reasoning requirement to be mandatory, the same should not prove to be an enforcement concern as parties' agreements with regards to the procedure of the arbitration overrides provisions of the national law under Article V(1)(d).[146]

However, it has also been held in certain case laws that *the requirement of reasoning of arbitral awards does not fall under the 'procedure' of the arbitration* in the first place.[147] While this interpretation is not universal, going by the same, the parties' agreement regarding the reasoning requirements, whether explicit or not, would not be covered under '*arbitral procedure*' mentioned in Article V(1)(d). The national law would then be the determining factor for assessing the validity of the arbitral procedure where the reasoning requirement is concerned. Thus, if the parties' agreed upon national law mandates arbitral tribunals to provide reasonings for awards, their agreements to the contrary may not override the same under Article V(1)(d) and the lack of reasoning in the blockchain arbitral award may prove to be an enforcement hurdle.

Where Indian law is concerned, the Arbitration Act does mandate awards to be reasoned, unless parties have agreed that the award shall not contain any reasons.[148] Again, it can be argued that the very act of submitting a dispute to platforms which do not require awards to specify reasons should amount to an implicit waiver of the reasoning requirement. Nevertheless, all domestic laws may not allow waiving off the reasoning requirement, and if mandatory, enforcement hurdles are may follow, going by the interpretation which regards reasoning requirements to not be a matter of procedure.

Beyond enforcement issues, being appraised of the logic and legal basis behind every decision in an adjudicatory process is a basic expectation that any party would have. The requirement to provide reasonings behind legal decisions has been a principle of natural justice and fair play since time

146. ibid.

147. *Food Services of America, Inc (Amerifresh) v Pan Pacific Specialties Ltd*, Supreme Court of British Columbia, Canada, 24 March 1997, A970243, XXIX YB Com Arb 581 (2004).

148. Arbitration Act s 31(3).

immemorial.[149] Further, the lack of reasoning in the awards bolsters the criticisms that blockchain based arbitrations are not merit based or even adjudicatory in nature.[150] Therefore, where the reasoning requirement is concerned, Kleros' platform architecture seems to be the best out of all the blockchain arbitration platforms. Jurors at Kleros are mandated to write a short paragraph explaining the reasoning for their decision, which is revealed to the parties as well as to other jurors after the voting is complete.[151] Although there is currently no international standard establishing the level of detail and particularity the reasons in the award must contain, succinct statements dealing with the arguments, evidences, and explaining the basic rationale behind the decision are generally considered sufficient.[152] This is reflected in the Chartered Institute of Arbitrators' Guidelines on Drafting Arbitral Awards.[153] Thus, for a seamless enforcement process, a practice similar to the Kleros Model would be recommended for all blockchain arbitration platforms.

5. CONCLUSION

Through this article, the objective of the authors was to delve deep into the world of crowdsourced, blockchain based arbitrations. In this journey, we outlined some of the major advantages these systems have to offer from an arbitral policy perspective. Beyond policy benefits, our major focus was on the compatibility of blockchain arbitral awards with the enforcement regimes under the New York Convention and Indian law. By no means are the issues analysed above the only ones that can arise in the blockchain arbitration award enforcement context. There are certain additional concerns which, beyond potential enforcement concerns, may also influence the legislators' attitudes towards assimilating blockchain arbitrations in the legal system. Many of these hurdles may arise due to the requirements of the law, ranging from those regarding the form and content of the

149. V S Chauhan, 'Reasoned Decision: A Principle of Natural Justice' (1995) 37(1) JILI 92.
150. Yueh-Ping Yang 'The Crowd's Wisdom in Smart Contract Dispute Resolution' (n 135) 184.
151. Kleros, 'Kleros FAQ' <https://docs.kleros.io/kleros-faq> accessed 5 January 2025.
152. Roman Pekob and Peter Pethő, 'The Standard of Reasoning in Arbitral Awards' in Alexander J Bělohlávek and Naděžda Rozehnalová (eds), *Czech (& Central European) Yearbook of Arbitration* vol 8 (LexLata 2018) 157, 164.
153. Chartered Institute of Arbitrators, Drafting Arbitral Awards Part I — General (CIArb 2021) 12.

awards,[154] public policy concerns,[155] requirements of disclosure of names of parties which contradicts the anonymity of blockchain arbitrations,[156] etc. However, it is beyond the scope of the article to analyse these issues.

It must be remembered that if blockchain based arbitrations are to become a mainstream, and most importantly a legally compatible avenue of dispute resolution, both the law and these platforms may have to shift to accommodate each other. It is only through a symbiotic process of mutual adjustments in different spheres can this goal be actualised. For instance, where due process is concerned, arbitration law's positive attitude towards minor waivers grants some leniency to these platforms. The same may also be true for the lack of reasoning in blockchain based arbitral awards. However, where fundamental incompatibilities are present, blockchain based arbitral platforms must strive to rectify the same. They should also ideally grant parties the option of designating a seat. Making such changes would be very favourable for these platforms. Rendering awards capable of smooth off-chain enforcement in addition to automatic on chain enforcement would naturally make them an attractive avenue for parties to submit their disputes. Empirical studies have found that even in industries such as crypto trading and NFT's, traditional arbitration and litigation have remained the primary methods of resolving disputes.[157] Due to the limited scale of business and intensive competition, blockchain based arbitral platforms may encounter challenges.[158] Thus, enhancing their platform design which facilitate awards capable of smooth enforcement should be a priority in their business strategies.

Additionally, if the arbitral system of any nation seeks to absorb the policy benefits of blockchain arbitrations, the legislators may have to undertake some amendments in the law to facilitate enforcement. In the Indian context, a more comprehensive definition of '*electronic means*' in the Arbitration Act, as envisioned in the 246th Law Commission Report, would be an example. In conclusion, the interaction of blockchain based arbitrations with arbitration law as it stands today, presents to us both a

154. Raghav Saha and Harshit Upadhyay, 'Blockchain Arbitration in India: Adopting the Hybrid Model Envisaged by Mexican "Kleros" Case' <https://indiacorplaw.in/2022/06/blockchain-arbitration-in-india-adopting-the-hybrid-model-envisaged-by-mexican-kleros-case.html> accessed 29 December 2024.
155. Elizabeth Chan and Emily Hay, 'Something Borrowed, Something Blue' (n 43) 239.
156. ibid 223.
157. Yueh-Ping Yang, 'The Crowd's Wisdom in Smart Contract Dispute Resolution' (n 135) 199.
158. ibid.

challenge and an opportunity. Off-chain enforcement concerns are one of the challenges, and adapting arbitration to the rapidly digitalising world to overcome some of its traditional drawbacks is an opportunity. It remains to be seen, however, how legislators and policymakers all over the world and in India, respond to these twin sets of challenges and opportunities.