

**ADDRESSING CHALLENGES IN THE ENFORCEMENT OF INTERNATIONAL ARBITRAL AWARDS
RENDERED IN SMART CONTRACT DISPUTES ON THE BLOCKCHAIN**

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I. INTRODUCTION

Blockchain technology has been deployed in a multitude of industries and sectors. As a result of such sector-wide applications, several forms of disputes have arisen out of smart contracts in the blockchain. These not only include disputes about errors in the automated execution of the pre-coded standards but also pertain to disputes on the underlying transactions. Arbitration of smart contract disputes in the blockchain has so far, comprised of pure blockchain arbitrations as well as hybrid blockchain arbitrations.¹ In pure blockchain arbitrations, decisions are taken by ‘jurors’ using the voting system. The Award-holder is awarded with the escrow amount maintained on the blockchain by the parties during the initiation of the dispute.² Due to the lack of sufficient opportunity for the parties to present their submissions, the lack of proper discovery of evidence processes and the lack of legal expertise by the jurors rendering a decision based on voting in blockchain arbitrations, preference has been given to hybrid blockchain arbitrations.³ In hybrid blockchain arbitrations participation of international arbitration institutions, Arbitrators, as well as Courts of the legal seat, has been made possible with the use of ‘blockchain oracles’⁴ which permit parties to effectively present their submissions, enable Arbitrators to undertake proper discovery of evidence and allows parties to seek interim relief in the Court of the legal seat. However, the Awards passed in both forms of blockchain arbitrations have faced tremendous issues about enforcement due to the lack of recognition of smart contracts in most jurisdictions and the lack of recognition of Awards rendered in the blockchain under the New York Convention creating a multitude of

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¹ Zoe Can Koray, *Blockchain, Smart Contracts and Alternative Dispute Resolution*, GIDE LOYRETTE NOUEL (Apr. 18, 2024, 2:58 PM), <https://www.gide.com/en/news/blockchain-smart-contracts-and-alternative-dispute-resolution>.

² Michael Buchwald, *Smart Contract Dispute Resolution: The Inescapable Flaws of Blockchain- Based Arbitration*, 168 UNIVERSITY OF PENNSYLVANIA LAW REVIEW 1369 (2020).

³ *Id.*

⁴ Chainlink, *Hybrid Smart Contracts*, CHAINLINK (Apr. 18, 2024, 3:05 PM), <https://chain.link/education-hub/hybrid-smart-contracts>.

enforceability issues for parties.⁵ Using doctrinal research, this paper aims to highlight as well as address the issues faced while enforcing international arbitral awards rendered in smart contract disputes on the blockchain with an intent to formulate best practices that may be opted by parties and counsels that may ensure a more efficacious manner of enforcement of such Arbitration Awards.

II. UNDERSTANDING BLOCKCHAIN ARBITRATION

Smart Contract Disputes on the Blockchain

Considering the fact that transactions on the blockchain are executed with the help of smart contracts, it is necessary to understand how smart contracts function. Smart contracts are contracts between two or more parties which are generally in the form of computer codes that execute in an automated fashion, either one or more portions or the entire contract between such parties.⁶ Such automated execution is based upon the fulfilment of pre-determined parameters that have been programmed to such computer codes.⁷ The execution of smart contracts takes place on a blockchain network for which gas fees (also referred to as transaction fees) are paid by the parties.⁸ Numerous forms of smart contract disputes can arise. These include disputes about the underlying technology such as technical errors resulting in non-execution or ineffective execution,⁹ disputes about the underlying transaction such as defective goods or deficient services¹⁰ and disputes about external factors such as a change in law or *force majeure* events that either render the contract impossible to perform, frustrated or render such contract to be illegal in its entirety.¹¹

⁵ Sharath Mulia and Romi Kumari, *Blockchain Arbitration: The Future of Dispute Resolution*, FOX MANDAL SOLICITORS & ADVOCATES (Apr. 18, 2024, 3:08 PM), <https://www.foxmandal.in/blockchain-arbitration-the-future-of-dispute-resolution/>.

⁶ Manohar Samal, *Arbitrability of Smart Contract Disputes in India*, VISUAL LEGAL ANALYTICA (Apr. 18, 2024, 3:32 PM), <https://www.indiapacific.com/post/arbitrability-of-smart-contract-disputes-in-india>.

⁷ *Id.*

⁸ LCX Team, *A Short Guide to Smart Contracts and Gas Fees*, LCX (Apr. 18, 2024, 3:44 PM), <https://www.lcx.com/a-short-guide-to-smart-contracts-and-gas-fees/>.

⁹ Harriet Fenleigh and Adam Sanitt, *Arbitrating Smart Contract Disputes*, NORTON ROSE FULLBRIGHT (Apr. 18, 2024, 3:45 PM), <https://www.nortonrosefulbright.com/en-gb/knowledge/publications/ea958758/arbitrating-smart-contract-disputes>.

¹⁰ Asli Budak and Seher Kose, *Arbitration in the Era of Smart Contracts*, MONDAQ (Apr. 18, 2024, 3:46 PM), <https://www.mondaq.com/turkey/fin-tech/841140/arbitration-in-the-era-of-smart-contracts>.

¹¹ Eric Tjong Tjin Tai, *Force Majeure and Excuses in Smart Contracts*, 26 EUROPEAN REVIEW OF PRIVATE LAW (2018).

Looking at the fact that smart contracts may, almost always be in coded form and not in natural language form, a new form of arbitration known as ‘blockchain arbitration’ was introduced by companies that host blockchain platforms and blockchain networks to resolve disputes arising out of smart contracts and this is discussed in the next part of this paper.

Structure of Blockchain Arbitration

Unlike the traditional arbitration process, there are some inherently distinctive elements of blockchain arbitration. The blockchain arbitration process starts with the deposit of cryptocurrencies in an on-chain escrow account which will be automatically paid to the Award-holder (winner of the arbitration proceedings).¹² The adjudication in an on-chain arbitration process is conducted by ‘jurors’. These jurors volunteer by depositing cryptocurrencies or crypto tokens and are chosen to adjudicate based on a lottery system hosted by the blockchain network.¹³ A decision is rendered based on juror voting, post- which the arbitration fees which is deposited by the parties at the beginning of the process itself are distributed amongst the jurors. During the process of blockchain arbitration, the parties do not have the opportunity to present evidence and make arguments unlike the traditional arbitration process but only are permitted to present their arguments in a text box in the initial stages during which they can upload documents, images and other forms of media to substantiate their claims.¹⁴ There is no mechanism for seeking further evidence either by the other party of the dispute or by the jurors.¹⁵ During the entire process of blockchain arbitration, anonymity is maintained since neither the identities of the parties nor of the jurors are disclosed to each other. Some blockchain platforms provide an appeal mechanism whereas some treat the decision rendered by the jurors in the first instance as final and do not permit an appeal mechanism.¹⁶ Once the decision is rendered, the cryptocurrency amount in the escrow account is automatically transferred to the Award-holder’s account resulting in automated enforcement. Blockchain arbitrations have so far proved to be useful in disputes having small claims and have proved to be quite challenging for complex disputes, out of which enforcement remains one of the most pressing challenges, intricacies of which are discussed in the next part.

¹² *Id.* 2.

¹³ Yannick Gabuthy, *Blockchain- Based Dispute Resolution: Insights and Challenges*, 14(3) GAMES 34 (2023).

¹⁴ Wulf Kaal and Craig Calcaterra, *Crypto Transaction Dispute Resolution*, 73(1) THE BUSINESS LAWYER 109 (2017).

¹⁵ *Id.*

¹⁶ *Id.* 2.

III. ISSUES IN ENFORCEMENT OF ARBITRAL AWARDS RENDERED ON THE BLOCKCHAIN

Challenges in Off-Chain Enforcement

In several instances, a requirement may arise where either absolute enforcement or partial enforcement might be required off-chain (in the real world). This need may arise due to several reasons such as the need for attaching movable as well as immovable property including bank accounts or to enforce the restriction, continuation or specific relief of a particular act.¹⁷ In such instances, there are significant qualms created by blockchain arbitration since on-chain enforcement is completely based upon the transfer of cryptocurrencies or crypto assets that are transferred to an escrow account during the initiation of the respective smart contract dispute. This prevents the parties from effectively realizing off-chain enforcement.

Another significant issue with the blockchain arbitration process is that the recognition of blockchain arbitration is remote and arguably, even absent from the international law framework. This has resulted in the lack of an effective off-chain enforcement mechanism for Awards rendered in blockchain arbitrations as neither the United Nations Convention on the Recognition and Enforcement of Foreign Arbitral Awards, 1958 (New York Convention) nor the United Nations Commission on International Trade Law (UNCITRAL) Model Law on International Commercial Arbitration, 1985 has any mechanism for enforcements of Arbitral Awards rendered on blockchain platforms through national Courts.

The absence of mechanisms for enabling national Courts to integrate blockchain oracles for off-chain enforcement is another impediment which arises out of the non-recognition of enforcement of blockchain Arbitral Awards. Undoubtedly, there have been isolated incidents of national Courts enforcing blockchain Arbitral Awards. One of the most prominent examples of the same is the Judgment of the Fourth Civil Judge of the First Judicial District in the State of Jalisco which had enforced a blockchain Arbitral Award rendered on the blockchain platform

¹⁷ Pietro Ortolani, *Chapter 21: Recognition and Enforcement of the Outcome of Blockchain- Based Dispute Resolution*, BLOCKCHAIN AND PRIVATE INTERNATIONAL LAW (2023), <https://brill.com/edcollchap-0a/book/9789004514850/BP000030.xml?language=en>.

Kleros.¹⁸ The Arbitral Award rendered on the blockchain platform had arisen out of a real estate leasing agreement wherein a Sole Arbitrator was appointed. However, as per the agreement between the parties, the Sole Arbitrator had to refer the dispute to the Kleros Protocol blockchain platform where the jurors would vote and render a decision.¹⁹ After the procedural order was issued, the Sole Arbitrator referred the dispute to the Kleros Protocol and three jurors rendered their decision. The Sole Arbitrator then followed the decision of the jurors of the Kleros Protocol and passed the Arbitral Award. Upon an application of enforcement, the Fourth Civil Judge of the First Judicial District in the State of Jalisco enforced the said Arbitral Award.²⁰

It is noteworthy that, even though the decision rendered on the Kleros Protocol was enforced, the Award in which enforcement was sought before the Fourth Civil Judge of the First Judicial District in the State of Jalisco was the Sole Arbitrator's Award who had *ad verbatim* followed the decision rendered by the jurors on the Kleros Protocol. Therefore, there was a traditional Arbitral Award presented before the Mexican Court which satisfied the requirements of an Award under the New York Convention. In pursuance of the same, it can be argued that an Arbitral Award purely rendered on the blockchain is yet to be enforced by a national Court under the New York Convention as there is little or no evidence of Blockchain Awards directly being brought for enforcement before a national Court. Hence, the impediment caused by the lack of integration of the blockchain with the real world through blockchain oracles continues to prevail.

Challenges Relating to Seat of Arbitration

It has proven to be quite difficult to ascertain the seat of arbitration in a smart contract dispute where the smart contract has been executed purely in a coded form. Undoubtedly, some parties certainly convert smart contract obligations into a natural language contract where clauses about the seat of arbitration may be present. But otherwise, it is quite difficult to ascertain the

¹⁸ Mauricio Virues Carrera, *Accommodating Kleros as a Decentralised Dispute Resolution Tool for Civil Justice Systems; Theoretical Model and Case of Application*, KLEROS (2020), <https://ipfs.kleros.io/ipfs/QmfNrgSVE9bb17KzEVFoGf4KKA1Ekaht7ioLjYzheZ6prE/Accommodating%20Kleros%20as%20a%20Decentralized%20Dispute%20Resolution%20Tool%20for%20Civil%20Justice%20Systems%20-%20Theoretical%20Model%20and%20Case%20of%20Application%20-%20Mauricio%20Virues%20-%20Kleros%20Fellowship%20of%20Justice.pdf>.

¹⁹ *Id.*

²⁰ *Id.*

same. The reason for this is that due to the automated nature of smart contracts, the need for off-chain enforcement was seen as otiose by blockchain developers and therefore, only the execution parameters are included in smart contracts and all elements that may be required to initiate a dispute are not coded into the smart contract, the seat of arbitration being one of the many elements. Over the years, the ground reality that smart contracts are not foolproof has been explicated²¹ creating a significant hurdle in the mechanism which albeit blockchain arbitrations have attempted to address but have failed to achieve due to their suitability for smaller-sized claims.

The absence of a seat of arbitration can cause significant difficulties, especially when the smart contract dispute is being resolved through hybrid arbitrations. This is because the seat of arbitration is inextricably linked to the national Court that will exercise supervisory jurisdiction for interim relief, an extension of the mandate, enforcement, the challenge of the award and like circumstances.²² Even in purely on-chain arbitrations (blockchain arbitrations), in case partial off-chain enforcement is required, there continues to remain an impending risk of the national Court refusing such partial off-chain enforcement on the ground of, *inter alia*, the seat of the Arbitration not being definitive and ascertained. It is undeniable that the seat of arbitration is a mandate. Article 20 of the UNCITRAL Model Law asserts the need for a place (in the context of Article 20 can be treated as the ‘seat’) of arbitration, which if not determined by the parties, has to be determined by the Arbitral Tribunal.²³ Even in domestic legislation, the requirement of a seat of arbitration (occasionally referred to as a place of arbitration) is indispensable. This is evident from Section 3 of the Arbitration Act, 1996,²⁴ Section 20 of the Arbitration and Conciliation Act, 1996,²⁵ Section 46 of the Arbitration Act, 2001,²⁶ Article 1068 of the Netherlands Arbitration Act, 2014²⁷ and Article 28 of the Federal Law of Arbitration, 2018²⁸.

²¹ Stuart D. Levi and Alex B. Lipton, *An Introduction to Smart Contracts and their Potential and Inherent Limitations*, HARVARD LAW SCHOOL FORUM ON CORPORATE GOVERNANCE (May 03, 2024, 3:42 PM), <https://corpgov.law.harvard.edu/2018/05/26/an-introduction-to-smart-contracts-and-their-potential-and-inherent-limitations/>.

²² RASHDA RANA, INTERNATIONAL ARBITRATION- WORKBOOK, MODULE- I, LAW, PRACTICE AND PROCEDURE (Chartered Institute of Arbitrators, 2021).

²³ UNCITRAL Model Law on International Commercial Arbitration, 1985.

²⁴ Arbitration Act, 1996 (United Kingdom).

²⁵ Arbitration and Conciliation Act, 1996 (India).

²⁶ Arbitration Act, 2001 (Singapore).

²⁷ Netherlands Arbitration Act, 2014 (Netherlands)

²⁸ Federal Law of Arbitration, 2018 (United Arab Emirates).

In the multi-faceted possibilities of hybrid arbitrations, rare instances may showcase that parties can opt for smart contract execution on-chain and dispute resolution off-chain through a natural language contract for dispute resolution. Under such circumstances, the seat of arbitration may be determined. In all other forms of hybrid arbitrations and purely blockchain arbitrations, the seat of arbitration is often a dilemma not foreseen by parties in the execution stages which may result in the aggrieved party losing out on other available remedies apart from the standard receipt of escrow cryptocurrency amount through on-chain enforcement. The limited powers of jurors in blockchain arbitrations also make it an impossibility for the on-chain Arbitral Tribunal to determine the seat of arbitration in the absence of explicit mention of the seat in the arbitration agreement. Although the international arbitration framework provides for the respective national Courts to determine the seat based on underlying facts and circumstances, the threat of the parties being relegated to different national Courts for determination of seat and enforcement continues to exist currently.

Lack of Recognition of Smart Contracts as an Enforceable Contract

There has been lengthy discussion and debate amongst the international arbitration community concerning the validity of smart contracts under the respective contract laws of various domestic legal systems. Some jurisdictions have taken proactive steps to confer legal recognition to smart contracts. To illustrate, the United States of America which has been at the forefront of assigning legal status to smart contracts has reportedly several of its States such as Wyoming, Arizona, Nevada, Delaware and Tennessee that have enacted legislation that legally recognizes smart contracts and its underlying transactions related to crypto assets.²⁹ The United Kingdom is another jurisdiction, which although may not have created separate legislation, confers legal status to smart contracts. The United Kingdom Law Commission conducted an in-depth study and concluded that the United Kingdom's legal framework certainly does recognize smart contracts as a valid contract.³⁰ Italy is another jurisdiction which through Law Decree No. 135/2018 has conferred legal recognition to smart contracts.³¹ Beyond domestic

²⁹ Sibilla Grenon, *Codifying Code? Evaluating US Smart Contract Legislation*, INTERNATIONAL BAR ASSOCIATION (2019), <https://www.ibanet.org/MediaHandler?id=C8D2EBA4-57D1-4F01-8AA5-24C9CFF2B447>.

³⁰ United Kingdom Law Commission, *Smart Legal Contracts: Advice to Government*, HH ASSOCIATES (2021), <https://cloud-platform-e218f50a4812967ba1215eaccede923f.s3.amazonaws.com/uploads/sites/30/2021/11/Smart-legal-contracts-accessible.pdf>.

³¹ Mateja Durovic and Franciszek Lech, *The Enforceability of Smart Contracts*, 5(2) THE ITALIAN LAW JOURNAL 493 (2019), <https://theitalianlawjournal.it/data/uploads/5-italj-2-2019/493-durovic-lech.pdf>.

law, the United Nations Convention on Contracts for the International Sale of Goods (CISG) (as a governing law of a smart contract) contains provisions that are capable of resolving smart contract disputes as a smart contract satisfies the essential ingredients of contract under the Convention.³²

Albeit the fact that smart contracts may be treated as valid contracts, the question which continues to remain is whether such contracts are enforceable contracts for arbitration law. For enforceability, the New York Convention requires the agreements to be in writing. In case parties have entered into a natural language version of the smart contract or have specifically included a few natural language clauses by way of a separate agreement, then such a natural language agreement can certainly be treated as an enforceable agreement under the New York Convention. However, the risk of a national Court declining the enforcement of a purely coded smart contract is quite possible on the ground that the smart contract is not tantamount to an ‘agreement in writing’.³³ Furthermore, the New York Convention and consequently, domestic laws of several jurisdictions also require that the arbitration agreement must be sufficiently stamped/ registered or an original or authenticated true copy must be furnished before the national Court where enforcement is sought. This can be quite challenging in the context of smart contracts as it is not possible to stamp such agreements or furnish original or authenticated true copies before the enforcing Court resulting in the enforcing Court refusing enforcement.

Challenges in the Juror Voting System

The juror voting system which forms the substratum of blockchain arbitrations is incapable of addressing even the most basic forms of party autonomy principles, procedural fairness and principles of natural justice tenets. This is because, as discussed earlier, unless hybrid arbitration is opted for through a blockchain oracle in the real world, a pure blockchain arbitration permits parties to only make one round of submissions through a text box and image/ video/ audio upload box and permits the other side to respond once.³⁴ There is no opportunity for either the jurors to seek further evidence or for the parties to present any form of additional

³² Anna Duke, *What Does the CISG Have to Say About Smart Contracts? A Legal Analysis*, 20 CHICAGO JOURNAL OF INTERNATIONAL LAW (2020), <https://cjil.uchicago.edu/print-archive/what-does-cisg-have-say-about-smart-contracts-legal-analysis>.

³³ *Id.* 17.

³⁴ *Id.* 2.

evidence.³⁵ The parties are unable to determine the qualifications of jurors or appoint the preferred juror for blockchain arbitration, resulting in the paramount undermining of the party autonomy principle.³⁶

Over the years, concerns have been raised over the authenticity and genuineness of the juror voting system which is the substratum of the pure blockchain arbitration process. Some blockchain platforms have introduced safeguards. To illustrate, the platform Kleros has attempted to de-incentivize lazy and careless voting by jurors by providing additional economic benefits to jurors that provide majority opinion as opposed to the minority opinion.³⁷ On the contrary, the Aragon Network does not provide any economic incentives for jurors to preserve the authenticity of the decision taken by them.³⁸ Similarly, blockchain platforms use the hash commit reveal scheme to preserve unanimity and protect the data security of claims and evidence presented before the jurors during blockchain arbitration.³⁹ What is quite clear is that there is a lack of standard practices amongst blockchain platforms in pure blockchain arbitrations. Irrespective of the safeguards undertaken by the blockchain platforms, the fact that jurors are selected by a random pool in all the blockchain arbitrations itself impedes the expertise of the jurors in the subject matter is questionable. Therefore, the fact that the juror voting system undermines party autonomy and procedural fairness, are sufficient reasons for national Courts to refuse enforcement.

IV. POTENTIAL RECOMMENDATIONS TO TACKLE THE ISSUES OF ENFORCEMENT

There is a significant revamp that will be required to ensure ease of enforcement in pure blockchain arbitrations. As the number of arbitral institutions with specific rules in place for

³⁵ *Id.*

³⁶ Pedro Lacasa, *Can Blockchain Arbitration Become A Proper 'International Arbitration?' Jurors v. Arbitrators*, CONFLICT OF LAWS (May 04, 2024, 8:01 PM), <https://conflictoflaws.net/2022/can-blockchain-arbitration-become-a-proper-international-arbitration-jurors-vs-arbitrators/#:~:text=Blockchain%20arbitration%20models%20do%20not,%2C%20the%20applicable%20law%2C%20etc.>

³⁷ Clement Lesaege, Federico Ast and William George, *Kleros Short Paper v. 1.0.7*, KLEROS (2019), <https://kleros.io/whitepaper.pdf>.

³⁸ Facus Pagnuolo, *Aragon White Paper*, GITHUB (May 04, 2024, 8:19 PM), <https://github.com/aragon/whitepaper>.

³⁹ Patrick McCorry, Surya Bakshi, Iddo Bentov, Sarah Meiklejohn and Andrew Miller, *Pisa: Arbitration Outsourcing for State Channels*, CORNELL UNIVERSITY (May 04, 2024, 8:23 PM), <https://www.cs.cornell.edu/~iddo/pisa.pdf>.

blockchain arbitrations is quite low, the fact that several jurisdictions are yet to make a switch to institutional arbitration from *ad-hoc* arbitrations and that amending a multilateral Convention like the New York Convention may be a distant dream due to the close nexus of geopolitics with international law, potential best practices can be adopted by the international arbitration community to ensure better enforceability of awards rendered out of smart contract disputes on the blockchain. The natural question which would arise at this stage is why should parties even go through the trouble of entering into smart contracts if the blockchain arbitration mechanism is not on par with traditional methods in terms of procedural fairness, party autonomy and enforceability. The reason for this is that few industries and sectors such as insurance, airline, shipping, logistics, healthcare, banking and finance have reaped significant benefits from the automated execution capabilities of smart contracts and the immutability provided by blockchain networks.

One of the most apparent reforms that could be adopted is at the stage of the deal negotiation itself where parties can agree to the execution of the transaction by a smart contract with the exception that the arbitration agreement is entered in natural language form. Due to the inherent severability of the substantive portion of the agreement with the arbitration agreement,⁴⁰ parties can alleviate difficulties in the event of a dispute arising out of the said smart contract. Naturally, the legal seat (in some jurisdictions referred to as “place of arbitration”), procedural rules, governing law, language and pre-initiation steps are also paramount determinative factors which can be chosen as per the substance and nature of the arrangements between the parties. Having a natural language arbitration agreement in place can also help parties sufficiently comply with the stamping/authenticating requirements and furnish an original copy of the arbitration agreement before the respective national Court of enforcement.

Another solution that could be adopted is the choice of procedural rules and forums. This is because procedural rules which recognize smart contracts and are capable of stipulating specific procedures in its respect would be better suited for parties to smart contracts. The Digital Dispute Resolution Rules of the United Kingdom Jurisdiction Taskforce⁴¹ and the draft JAMS Smart Contract Clause and Rules⁴² are two of the most prominent procedural rules of arbitration available for parties executing transactions through a smart contract. Similarly, in

⁴⁰ *Id.* 22.

⁴¹ Digital Dispute Resolution Rules, 2021 (United Kingdom).

⁴² JAMS Rules Governing Disputes Arising out of Smart Contracts, 2024 (United States of America).

terms of international arbitration institutions, although all major institutions such as the International Chamber of Commerce Court of Arbitration, London Court of International Arbitration, Singapore International Arbitration Centre, Hong Kong International Arbitration Centre and the Mumbai Centre for International Arbitration are capable of administering disputes arising out of smart contracts, specific international arbitration institutions such as the Blockchain Arbitration and Commerce Society International Tribunal have also begun to operate in the realm of providing administration of smart contracts dispute resolution services.

The other reform that could be adopted if parties wish to refer the dispute to a pure blockchain arbitration mechanism with jurors is to permit the involvement of an international arbitration institution through a blockchain oracle to enable the presentation of additional submissions, additional evidence, examination of witnesses and experts so that the Award- sufferer does not challenge and succeed in setting aside the Award rendered by the jurors to be non-compliant with procedural fairness and principles of natural justice requirements.

Another solution that parties can opt for is the inclusion of the qualifications of jurors in the coded version of the smart contract itself. This will in turn result in jurors with a particular set of qualifications being chosen instead of a randomized pool of jurors. Naturally, this would also mean that parties will have to choose the execution of their smart contract in a blockchain network that has a more diverse pool of jurors. However, what is to be kept in mind is that the arrangements made by the parties in the case before the Fourth Civil Judge of the First Judicial District in the State of Jalisco must not be imitated since the Sole Arbitrator therein had delegated the essential function of adjudication to the Kleros jurors. Albeit the fact that such an Award was granted enforcement in Mexico, there is a huge chance that a similar Award would be set- aside by national Courts of most jurisdictions on the grounds of excessive delegation of the essential functions of an Arbitrator.

Additionally, parties can also include a juxtaposed enforcement clause in their Arbitration Agreement where in case of a requirement of partial off-chain enforcement in an Award rendered by blockchain network jurors, a national Court must be able to assist in such off-chain enforcement through a blockchain oracle and in the need of a national Court Order for enforcement to be effectuated on- chain, such national Court Order for enforcement must be enforced on-chain through a blockchain oracle. This would as a pre-requisite, require the

parties to enter into a separate agreement with a company providing services as a blockchain oracle.

V. CONCLUSION

As arbitration in the international sphere continues to be driven by stakeholders at the forefront which not only include the parties, counsels, tribunal secretaries, secretariats and arbitral institutions but also include arbitrators, the reform in this sphere is not dependent on a straitjacket formula or an isolated instance of unilateral effort but is an outcome which can only be achieved by pivotal participative process from all the stakeholders involved in traditional and smart contracts arbitrations alike.

Under the detailed discussions undertaken on the subject matter, it is safe to conclude that even though blockchain arbitration shows immense promise, the traditional legal system has not provided an effective mechanism for smooth transitioning from on-chain to off-chain execution and enforcement resulting in the parties and arbitral institutions have to adopt best practices to fill the gap, up till a significant revamp to the international arbitration legal system in this respect is witnessed.