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BLOCKCHAIN ARBITRATION IN INDIA-A BRIDGE TO FUTURE OR A BRIDGE TOO FAR

AUTHORED BY - MUSKAN ARORA & DEVESH DUBEY

ABSTRACT

Blockchain arbitration is revolutionizing dispute resolution by leveraging smart contracts and decentralized platforms for unmatched efficiency, transparency, and automation. This paper explores platforms like Kleros, highlighting their potential while addressing key enforcement challenges within India's legal framework, including consent verification, evidentiary requirements, and alignment with the Arbitration and Conciliation Act. Proposing innovative solutions such as legal reforms, updated evidentiary standards, and a blockchain-compatible regulatory framework, the paper examines the feasibility of these measures in the near future. It advocates a hybrid model where blockchain arbitral awards complement traditional arbitrators, ensuring efficiency without compromising legal safeguards. By integrating technological advancements with established legal systems, the study envisions blockchain arbitration as a transformative tool that bridges the gap between innovation and practical justice delivery, offering a future-ready approach to resolving disputes.

INTRODUCTION

The advent of blockchain technology is revolutionizing the dispute resolution landscape, unlocking unprecedented efficiencies, security, and decentralization. At the forefront of this transformation is blockchain-based arbitration, a groundbreaking innovation poised to reshape the way conflicts are resolved globally. A striking example is the Kleros arbitration case¹, where a blockchain platform not only resolved a dispute but also secured enforcement by a Mexican court², showcasing its global potential.

At the heart of this innovation lies smart contracts—self-executing agreements encoded with predefined terms. These contracts streamline transactions, but when disputes arise, blockchain

¹ Maxime Chevalier, 'Arbitration Tech Toolbox: Is Mexican Court Decision the First Stone to Bridging the Blockchain Arbitral Order with National Legal Orders' (*Kluwer Arbitration Blog*, 4 March 2022) <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 18 December 2024.

² *ibid.*

arbitration platforms step in to deliver immutable, digitally signed resolutions stored securely on the blockchain. Yet, despite its promise, the path from resolution to enforcement remains fraught with challenges, particularly within traditional legal frameworks.

In India, the enforcement of blockchain arbitration awards encounters significant obstacles, highlighting a growing disconnect between technological progress and legal infrastructure. As the world races toward a blockchain-driven future, this disparity raises pressing questions: Is blockchain arbitration a bridge to the future, or does the current legal framework render it a bridge too far?

In the first part of this article, we explain the concept of smart contracts and blockchain arbitration, both of which harness the technology of blockchain for entering into contract and resolving the disputes respectively. The second part explores a real-world case study of the Kleros platform. The third part identifies the challenges faced in enforcing blockchain arbitration awards in India. The fourth part proposes practical solutions to address these challenges. Finally, the article concludes by evaluating whether blockchain arbitration represents a promising path forward or an overly ambitious and impractical endeavour.

I- UNDERSTANDING BLOCKCHAIN ARBITRATION

Smart Contracts: The Backbone of Blockchain Arbitration

A smart contract is a self-executing digital agreement stored on a blockchain, where the terms are automatically carried out when specific conditions are met. Like a vending machine, it removes the need for intermediaries by performing actions (e.g., transferring funds or granting access) instantly and securely once the conditions are fulfilled. Smart contracts are transparent, unchangeable, and efficient, making transactions faster, more reliable, and cost-effective. This means their terms can't be tampered with, and their execution is final, offering a reliable and secure way to manage digital agreements³

Smart contracts are often celebrated for their ability to automate agreements and minimize disputes, but they are not entirely conflict-proof. While their self-executing nature reduces reliance on intermediaries and enhances efficiency, disputes can still arise due to both technical and non-technical limitations, underscoring the need for effective resolution mechanisms⁴

³ Manohar Samal, 'Addressing challenges in the enforcement of International Arbitral awards rendered in Smart chain disputes on the blockchain' 2024 IRI Arb 25.

⁴ Harriet Fenleigh, Adam Sanitt, 'Arbitrating Smart Contract Disputes' (*Norton Rose Fulbright*, October 2017) <https://www.nortonrosefulbright.com/en-gb/knowledge/publications/ea958758/arbitrating-smart-contract-disputes> accessed 20 December 2024.

Technical Disputes

Technical disputes, unique to smart contracts, arise from issues embedded within the code itself—the very backbone of these agreements. For instance, coding errors or bugs can lead to malfunctions or incorrect execution, disrupting the intended outcomes. Similarly, ambiguities in code, where the written logic fails to align with the parties' true intentions, can cause significant misunderstandings. These challenges reveal a critical flaw: even though smart contracts are designed to operate flawlessly; they are only as reliable as the code they are built upon.

Non-Technical Disputes

Non-technical disputes, on the other hand, mirror traditional contractual conflicts and stem from factors external to the technology. Common causes include a party's failure to meet their obligations or unforeseen external factors like legal changes, trade restrictions, or force majeure events. These disputes highlight the fact that smart contracts, while innovative, cannot entirely escape the complexities of the real world.

These potential pitfalls challenge the perception of smart contracts as a panacea for contractual issues and reinforce the importance of having robust dispute resolution mechanisms. Blockchain arbitration, provides a promising solution, offering decentralized, transparent, and efficient ways to address conflicts while preserving the integrity of blockchain agreements. This approach ensures that even when disputes arise, they can be resolved effectively without undermining the trust and efficiency that smart contracts aim to deliver.

Blockchain Arbitration: A New Frontier in Dispute Resolution

The potential disputes arising from smart contracts reveal both the promise and the complexities of integrating advanced technology into legal processes. Traditional courts and conventional arbitration, while effective in many cases, often undermine the speed and efficiency inherent to smart contracts due to their procedural intricacies. In this context, blockchain arbitration emerges as a revolutionary approach, seamlessly aligning with the automated nature of smart contracts while introducing unique advantages and challenges.

Blockchain arbitration can be broadly classified into two distinct categories, depending on the extent of blockchain integration: **On-chain Arbitration** and **Off-chain Arbitration**. This bifurcation reflects the evolving landscape of dispute resolution, where technology-driven

solutions are tailored to balance automation with adaptability to real-world complexities.⁵

On-Chain Arbitration

On-chain arbitration fully integrates arbitration processes with blockchain technology, utilizing smart contracts to automate both the proceedings and the enforcement of awards. This approach eliminates the need for traditional court intervention, maintaining the decentralized and self-executing ethos of blockchain systems. However, its reliance on coded logic to govern disputes can raise concerns about fairness, adaptability to complex cases, and the interpretive limitations of technology when applied to nuanced disagreements⁶

Off-Chain Arbitration

In contrast, off-chain arbitration blends traditional methods with blockchain's technological advantages, automating specific elements of the process without entirely replacing human oversight or legal systems. While it does not automate the execution of arbitral awards, it provides a flexible framework where blockchain enhances elements like evidence storage, transparency, and cost efficiency. This approach retains the advantages of blockchain without fully surrendering to its limitations, making it a more practical solution in jurisdictions with strict legal frameworks⁷

As blockchain arbitration continues to evolve, its adoption will depend on addressing key challenges, such as ensuring enforceability within existing legal systems and bridging the gap between automated processes and human judgment. By harmonizing the innovative potential of blockchain with the safeguards of traditional dispute resolution, blockchain arbitration has the capacity to redefine the future of efficient, transparent, and accessible justice.

II- A REAL-WORLD EXAMPLE: THE KLEROS MODEL

The implementation of the Kleros model in Mexico, despite its distinct judicial system, serves as a compelling example of how blockchain-based arbitration can enhance transparency, efficiency, and fairness across diverse legal frameworks. By examining this case, we can explore the universal benefits of blockchain technology in arbitration and strengthen the

⁵ Apurva Pandey, 'Mapping Ai-Arbitration Landscape: Exploring Blockchain Based Arbitration Models Through A Legal Lens' (*LiveLaw*, 5 June 2024) Mapping Ai-Arbitration Landscape: Exploring Blockchain Based Arbitration Models Through A Legal Lens accessed 20 December 2024.

⁶ Katarzyna Szczudlik, "'On Chain" and "Off Chain" Arbitration: Using Smart Contracts to Amicably Resolve Disputes' (*NEWTECH.LAW*, 25 February 2024) <https://newtech.law/en/on-chain-and-off-chain-arbitration-using-smart-contracts-to-amicably-resolve-disputes/> accessed 20 December 2024.

⁷ *ibid.*

argument for its adaptation in India's legal system, addressing similar challenges in dispute resolution.

Kleros stands out as a pioneering platform in the realm of decentralized dispute resolution. By integrating cutting-edge blockchain technology with established legal principles, Kleros has demonstrated the potential to address complex disputes efficiently and transparently. Its notable achievements, such as the enforcement of an arbitral award by a Mexican court, highlight the platform's ability to bridge technological innovation with real-world legal recognition, showcasing a transformative approach to arbitration in the digital age⁸

Kleros's distinctive appeal lies in its decentralized jury system, cryptographically secured records, and automated workflows, which collectively redefine the landscape of dispute resolution. Through the integration of blockchain technology, Kleros guarantees the immutability of agreements, enhances the transparency of arbitration, and significantly reduces reliance on intermediaries. This combination of features underscores the platform's potential to set new standards for efficiency and trust in resolving disputes⁹

Understanding the Blockchain Arbitration Process

The blockchain arbitration process, as demonstrated by platforms like Kleros, provides a transformative framework for dispute resolution by leveraging blockchain's inherent transparency, automation, and decentralization. This process begins with the registration of transactions on the Kleros Escrow decentralized application (DApp)¹⁰, where parties to a smart contract select Kleros as their dispute resolution mechanism. During registration, a transaction fee, commonly referred to as a gas fee, is paid to facilitate execution, and funds associated with the contract are stored in a secure escrow account to ensure automated execution if the contract's terms are met¹¹

⁸ 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> accessed 20 December 2024.

⁹ Apurva Pandey, 'Mapping Ai-Arbitration Landscape: Exploring Blockchain Based Arbitration Models Through A Legal Lens' (*LiveLaw*, 5 June 2024) Mapping Ai-Arbitration Landscape: Exploring Blockchain Based Arbitration Models Through A Legal Lens accessed 20 December 2024.

¹⁰ Stuart James, 'Kleros Escrow Explainer - Secure Your Blockchain Transactions Today' (*Kleros Blog*, 30 April 2019) <https://blog.kleros.io/kleros-escrow-secure-your-blockchain-transactions-today/> accessed 15 December 2024.

¹¹ Manohar Samal, 'Addressing challenges in the enforcement of International Arbitral awards rendered in Smart cha Manohar Samal, 'Arbitrability of Smart Contract Disputes in India' (*Indic Pacific*, 16 July 2022) <https://www.indicpacific.com/post/arbitrability-of-smart-contract-disputes-in-india#:~:text=Indian%20law%20does%20not%20recognize%20blockchain%20arbitrations%20because,dispute>

When disputes arise, either due to default or disagreement between the parties, arbitration is initiated. This step involves paying arbitrator fees and additional gas fees, after which jurors are selected to deliberate on the matter. Jurors are chosen from a pool of participants who stake Kleros's native cryptocurrency token (PNK) as a commitment to participate in the process. This staking mechanism not only selects jurors but also incentivizes them to act impartially, as inconsistent or incoherent decisions result in penalties, including the forfeiture of staked tokens¹² Conversely, jurors whose rulings align with the majority consensus are rewarded with arbitration fees, creating a robust incentive structure that promotes fairness and accountability¹³ To further ensure the reliability of awards, Kleros integrates an appeal mechanism. Parties dissatisfied with an initial decision can request a re-evaluation, triggering a review by a larger jury pool. With each appeal, the number of jurors doubles, and arbitration fees increase proportionally, creating a system where appeals are subject to higher levels of scrutiny, discouraging frivolous objections while safeguarding the credibility of the process¹⁴ This holistic approach, combining blockchain technology, decentralized jury systems, and automated execution, ensures the integrity and transparency of the arbitration process. By addressing the inefficiencies of traditional methods and aligning incentives to maintain impartiality, Kleros sets a compelling precedent for the future of dispute resolution in the digital age.

III- ENFORCING THE AWARD: NAVIGATING INDIAN COURTS AND THE CHALLENGES

The enforcement of blockchain-based arbitral awards in India highlights significant challenges, rooted in the limitations of the current legal framework to accommodate such technology-driven processes. While blockchain arbitration offers efficiency and transparency, its integration into the judicial system remains complex. The hurdles associated with enforcement can be broadly categorized into two areas: issues concerning the arbitration agreement and those pertaining to the arbitral award itself.

¹² Yannick Gabuthy, 'Blockchain-Based Dispute Resolution: Insights and Challenges' (*Games*, 28 April 2023) <https://doi.org/10.3390/g14030034> accessed 15 December 2024.

¹³ Stuart James, 'Kleros Escrow Explainer - Secure Your Blockchain Transactions Today' (*Kleros*, 30 April 2019) <https://blog.kleros.io/kleros-escrow-secure-your-blockchain-transactions-today/> accessed 28 December 2024.

¹⁴ Tirado J and Cosio G, 'Lex Cryptographia: Guidelines for Ensuring Due Process in Transnational Blockchain-Based Arbitration' (*International Bar Association*, 4 March 2022) <https://www.ibanet.org/lex-cryptographia-due-process-blockchain-based-arbitration> accessed 15 December 2024.

Unlike jurisdictions like Mexico, which have shown progress in recognizing blockchain-based awards, Indian courts have yet to fully embrace this innovation. The absence of explicit legal provisions addressing blockchain arbitration creates uncertainties, requiring parties to rely on creative interpretations of existing laws. The enforcement process thus demands navigating the ambiguities of both domestic and international arbitration frameworks, making blockchain arbitration a promising but legally intricate option for dispute resolution in India.

I. Arbitration Agreement-Related Issues

Recognition of Arbitration Agreements on Blockchain or as Smart Contracts

The Arbitration and Conciliation Act, 1996 [*hereinafter* ACA], amended in 2015, acknowledges the validity of arbitration agreements communicated electronically. Additionally, the Information Technology Act, 2000 [*hereinafter* IT Act], grants legal status to electronic documents, records, and signatures. However, the ACA does not explicitly mention smart contracts as a form of electronic communication¹⁵

Challenges Under Article II of the New York Convention: The 'In Writing' Requirement

The enforcement of blockchain-based arbitral awards under Article II of the New York Convention faces significant challenges due to the provision's traditional requirement that arbitration agreements be "in writing" and either signed by the parties or concluded through an exchange of telegrams or telefaxes¹⁶ While blockchain agreements are immutable and secure, the reliance on cryptographic technology deviates from the conventional understanding of written agreements. Although the 2006 UNCITRAL Recommendations extended the "in writing" requirement to include electronic communications, they do not explicitly address blockchain¹⁷ This creates ambiguity about whether blockchain-based agreements meet the formalities required under Article II, particularly when courts or parties rely on more rigid interpretations of the provision.

¹⁵ Ishaan Deepak Joshi, 'Ethics in Blockchain Arbitration: Implications for ADR in India's Digital Age' (2024) 3(2) International Journal of Human Rights Law Review Art 2.

¹⁶ Sharath Mulia and Romi Kumari, 'Blockchain Arbitration: The Future of Dispute Resolution' (*Fox Mandal*, 23 November 2021) <https://www.foxmandal.in/blockchain-arbitration-the-future-of-dispute-resolution/#_ftn3> accessed 17 December 2024.

¹⁷ Dena Givari, 'How Does Arbitration Intersect with the Blockchain Technology that Underlies Cryptocurrencies?' (*Kluwer Arbitration Blog*, 6 November 2021) <http://arbitrationblog.kluwerarbitration.com/2018/05/05/scheduled-blockchain-arbitration-april-17-2018/> accessed 6 December 2024.

Blockchain Arbitration Agreement as Evidence for Enforcement

Presenting a blockchain-based arbitration agreement as evidence in Indian courts may pose challenges due to the lack of physical documentation. Courts may require certified copies or tangible evidence of the agreement, which is inherently digital and decentralized in the case of blockchain. This could complicate the enforcement process, as traditional evidentiary standards may not readily accommodate blockchain records¹⁸

Consent Verification and Anonymity

The concept of consent, a cornerstone of arbitration agreements, is further complicated by blockchain's decentralized and anonymous nature. Traditional tools for assessing consent are inadequate for blockchain-based arbitration, where parties may interact anonymously or pseudonymously¹⁹ This lack of identifiable markers makes it challenging for enforcement courts to ascertain whether genuine consent was given, potentially jeopardizing the enforceability of the agreement or award.

II. Arbitral Award-Related Issues

Form and Content Requirements under Section 31 of the ACA

Section 31 of ACA outlines specific requirements for the validity of an arbitral award. It mandates that the award must be documented in writing and bear the signatures of the arbitral tribunal members. Additionally, the award should provide reasons for the decision, unless the parties have mutually agreed to waive this requirement. Furthermore, the award must specify the seat of arbitration, establishing the jurisdictional and procedural framework for the arbitration process.

Blockchain-based awards may not meet these criteria as the arbitral award is not in the written form. Instead it is in electronic form which is stored in the blockchain and easily accessible. As the identity of the jurors is kept anonymous in the blockchain, the arbitral award rendered by the jurors on the blockchain may not contain their signatures as this would reveal their identity²⁰ Further there is no rule which lays down that the jurors have to give a reasoned arbitral award. Therefore, an arbitral award made on blockchain may or may not be a reasoned one.

¹⁸ Ritika Bansal 'Enforceability of Awards from Blockchain Arbitrations in India' (*Kluwer Arbitration Blog*, 21 August 2019) <https://arbitrationblog.kluwerarbitration.com/> accessed 21 August 2019.

¹⁹ Benson Lim and Adriana Uson, 'Relooking at Consent in Arbitration' (*Kluwer Arbitration Blog*, 12 February 2019) <https://arbitrationblog.kluwerarbitration.com/2019/02/12/relooking-at-consent-in-arbitration/> accessed 12 December 2024.

²⁰ Utkarsh Routh, 'The Crypto Dispute Resolution: Deciphering the Scope of Arbitration in the Blockchain Age' (*The Arbitration Workshop*, 10 August 2024) <https://www.thearbitrationworkshop.com/post/the-crypto-dispute-resolution-deciphering-the-scope-of-arbitration-in-the-blockchain-age> accessed 15 December 2024.

Challenges Relating to the Seat of Arbitration in Blockchain Awards

Determining the seat of arbitration in disputes arising from blockchain-based smart contracts presents a notable challenge due to their automated nature. In many cases, smart contracts do not include traditional clauses specifying the seat, as blockchain developers often assume that off-chain enforcement will not be necessary. While some contracts may be converted into natural language agreements that state the seat of arbitration, this is not a consistent practice. The absence of a clear seat creates difficulties, particularly in hybrid arbitration models where both on-chain and off-chain components are used. The seat is critical for the jurisdiction of national courts in overseeing interim relief, enforcement, and the challenge of awards²¹

This issue is further complicated in purely blockchain-based arbitrations, where the enforcement of awards might require partial off-chain actions. Without a designated seat, courts may be hesitant to enforce the award. The requirement for an established seat, as outlined in international frameworks like the UNCITRAL Model Law, and in national arbitration laws, remains a key obstacle. In the absence of an explicit seat, parties may face jurisdictional challenges, leading to delays and uncertainty in enforcement as multiple national courts might become involved²²

Requirement of Original or Certified Copy of the Award under Sections 47 and 56

When seeking enforcement of a foreign arbitral award in Indian courts, Sections 47 and 56 of the ACA require the submission of the original award or a certified copy. In the context of blockchain, producing a traditional original or certified copy is challenging, as the award exists digitally across a decentralized network without a singular, tangible form²³

New York Convention Considerations

Challenges Under Article IV: Submission of Originals or Certified Copies

Article IV of the New York Convention presents further challenges for blockchain-based arbitral awards by mandating the submission of the original arbitration agreement and award or certified copies thereof, along with authenticated signatures and sworn translations. Blockchain's immutability ensures that the original documents are secure and verifiable without requiring physical certification or authentication. However, Article IV does not

²¹ Arun S, 'Navigating Blockchain Disputes: Arbitration's Role in the Future of Decentralized Industries' (2021) 3(6) Indian Journal of Integrated Research in Law ISSN 2583-0538.

²² Ruchika Chaurasia, 'The Future of Technology in Arbitration: AI and Blockchain' (*Mondaq*, 28 October 2023) <https://www.mondaq.com/india/arbitration-dispute-resolution/1376104/the-future-of-technology-in-arbitration-ai-and-blockchain> accessed 28 December 2024.

²³ Bansal (n 21).

recognize blockchain-stored originals or cryptographic signatures as compliant with its requirements.²⁴ The lack of clarity regarding who may certify or authenticate blockchain-based records, as well as the absence of explicit provisions for using such technologies, poses obstacles to the enforcement of awards recorded on blockchain platforms.

Mandatory Stamping of Domestic Awards

The Indian Stamp Act requires that arbitral awards be stamped, with Section 3, read with Schedule I, Article 12, indicating that an award in writing should bear the appropriate stamp duty. Currently, the Act does not include electronic means within the definition of a written arbitral award. Therefore, blockchain-based awards, being digital, may not comply with this stamping requirement, potentially affecting their enforceability. This could present a barrier to their enforcement in India, despite the flexibility provided by the New York Convention, which does not insist on signatures or party identification for international arbitration awards²⁵

IV- ADDRESSING THE CHALLENGES: BUILDING THE BRIDGE FOR BLOCKCHAIN ARBITRATION IN INDIA

The enforcement of blockchain-based arbitration awards in India is fraught with numerous challenges, particularly due to the evolving legal framework and its limited accommodation of technology-driven dispute resolution processes. Addressing these challenges requires innovative and forward-thinking solutions to align with the goals of establishing India as a hub for Online Dispute Resolution. The potential solutions can be categorized into two primary areas: those concerning the form and content requirements of arbitration agreements and awards, and those addressing evidence-related issues. By tackling these obstacles, India can pave the way for a more efficient and technology-integrated dispute resolution system.

I. Form and Content of the Blockchain-Based Arbitration Agreement and Award

Recognition of Arbitration Agreements on Blockchain

The 246th Law Commission Report²⁶ recommended defining "electronic means" within the ACA but this has not been implemented. As a result, the IT Act becomes relevant. Section 10-A of the IT Act²⁷ defines electronic means as methods used to create electronic records, which

²⁴ Marike R. P. Paulsson, 'The Blockchain ADR: Bringing International Arbitration to the New Age' (*Kluwer Arbitration Blog*, 9 October 2018) <https://arbitrationblog.kluwerarbitration.com/> accessed 18 December 2024.

²⁵ Bansal (n 21).

²⁶ Law Commission of India, Amendments to the Arbitration and Conciliation Act 1996 (Law Com No 20, 2014).

²⁷ The Information Technology Act, 2000 (21 of 2000) s 10-A.

are further defined under Section 2(1)(t)²⁸ as data generated, stored, or transmitted electronically. Since smart contracts consist of electronic records exchanged and stored by the parties, they fall within this definition. Therefore, an arbitration agreement embedded within a smart contract can be considered an electronic communication recognized under the ACA and governed by the IT Act²⁹

Arbitral Award Must Be in Writing and Signed.

Section 31 of the ACA³⁰ makes it mandatory for the arbitral award to be in writing and signed by the arbitrator. Unlike Section 7³¹ of the ACA, which allows for an arbitration agreement to be communicated by electronic means, Section 31 does not have a provision for incorporating a digitally made arbitral award. However, in light of current technological advancements, it is essential to amend the ACA to include arbitral awards made on blockchain. Internationally, the UNCITRAL Electronic Model Law on Electronic Commerce (1996 Convention) and the UNCITRAL Convention on Electronic Communications in International Contracts (2007 Convention) provide legal recognition to blockchain contracts. Articles 6 and 18 of the 2007 Convention assert the validity of on-chain arbitration by allowing electronic data records and electronic transactions in the arbitration process³² The "more favorable rule" in Article VII (1) of the New York Convention also provides an opportunity to apply other legal frameworks such as the UNCITRAL Model Law to address form and consent issues³³ Indian courts, in enforcing blockchain arbitral awards, should adopt this provision, which will be a step forward in making India an arbitration-friendly country.

Seat of Arbitration

Under both the ACA and the New York Convention, it is mandatory to include the seat of arbitration in the arbitration agreement. While the seat plays a critical role for various reasons, it is particularly important for the enforcement of awards. Paragraph 3 of Article 1 of the New York Convention³⁴ lays down the reciprocity principle. India has made use of this principle,

²⁸ The Information Technology Act, 2000 (21 of 2000) s 2(1)(t).

²⁹ Joshi (n 18).

³⁰ The Arbitration and Conciliation Act, 1996 (26 of 1996) s 31.

³¹ The Arbitration and Conciliation Act, 1996 (26 of 1996) s 7.

³² Arijit Sanyal (Skywards Law), 'Arbitration Tech Toolbox: Can the New York Convention Stand the Test of Technology Posed by Metaverse Awards?' (*Kluwer Arbitration Blog*, 20 December 2022) <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 20 December 2024.

³³ *ibid.*

³⁴ Convention on the Recognition and Enforcement of Foreign Arbitral Awards (adopted 10 June 1958, entered into force 7 June 1959) 330 UNTS 38, art 1(3).

and the competent authority in India, where recognition and enforcement of an award are sought, checks whether the place where the award was made is also a party to the New York Convention. However, the digital space of blockchain cannot be treated as the seat of arbitration. To address this, parties can be encouraged to include the seat of arbitration in their agreements before executing the smart contract. This would reduce confusion and make it easier for courts to oversee the arbitration process, including granting interim relief or enforcing awards. In cases where the seat is not specified, default rules can be created, based on factors like the location of the main blockchain node or the primary location of the parties. This would provide clarity and consistency, making the enforcement of blockchain arbitration awards more straightforward.³⁵

Stamping Requirement of the Domestic Award

The provisions of the Indian Stamp Act, 1899, based on traditional paper contracts, are ill-suited for smart contracts and blockchain arbitral awards. This misalignment could lead to revenue loss for the government if not addressed properly. The primary goal of the Stamp Act is to collect Stamp Duty for the government. While the long-term solution is the development of a blockchain-based stamping system, the Indian Government is still years away from this. In the interim, the e-stamping facility could provide a solution, where either the buyer or seller (as agreed upon in the smart contract) pays the applicable duty. For this to be possible, the Indian Stamp Act and its state-specific laws must recognize smart contracts as instruments chargeable with duty and include them in the prescribed Schedule. This would allow the payment of duty via the e-stamping facility, ensuring that any failure to pay Stamp Duty during arbitration or enforcement can be treated as a curable defect, rectifiable by the concerned parties³⁶

II. Solutions related to Evidence related issues

Presenting original or certified copy of the blockchain award:

The challenge of presenting the original or certified copy of a blockchain-based arbitral award as evidence can be addressed through digital verification and blockchain-based certification mechanisms. Blockchain records can be verified using cryptographic methods such as public

³⁵ Manohar Samal, 'Arbitrability of Smart Contract Disputes in India' (*Indic Pacific*, 16 July 2022) <https://www.indicpacific.com/post/arbitrability-of-smart-contract-disputes-in-india#:~:text=Indian%20law%20does%20not%20recognize%20blockchain%20arbitrations%20because,dispute%20resolution%20of%20paper-%20based%20and%20written%20contracts> accessed 18 December 2024.

³⁶ *ibid.*

key infrastructure (PKI), which ensures that the document stored on the blockchain is authentic and has not been tampered with. Courts can be provided access to the blockchain ledger or the transaction hash, a unique identifier of the blockchain record, allowing them to verify the award's authenticity directly from the blockchain. Furthermore, certified digital copies of the blockchain award can be produced using the transaction hash, ensuring the record remains intact and verifiable through a secure digital certificate³⁷

In addition, a blockchain-based certification process can be implemented, where either the blockchain network itself or a third-party blockchain service provider issues a certificate of authenticity for the arbitral award. This certification acts as a form of "digital notarization," confirming the award is the original and has not been altered since its creation. Provided the blockchain network and the certification process are trustworthy and recognized by the judicial system, courts can accept this certified blockchain record as equivalent to a certified physical copy, enabling seamless enforcement of blockchain-based arbitral awards.

Bharatiya Sakshya Adhininyam [*hereinafter* **BSA**] has made the definition of electronic evidence even more comprehensive. It can be argued that information stored on a blockchain is admissible as evidence under Section 63³⁸ of the BSA, as it meets the conditions outlined in the section. Blockchain functions through regular use of decentralized nodes (computers/communication devices), which continuously create, store, and process information (transactions). The data entered into the blockchain is regularly fed into the system, and the network operates properly due to the consensus mechanism, ensuring data integrity. The blockchain's immutability ensures that the information stored accurately reflects the transactions inputted by users. Furthermore, the decentralized nature of blockchain, where multiple devices work together as a single system, aligns with the conditions under Section 63(3). Lastly, certificates can be provided to validate the authenticity and process of the blockchain data, ensuring its admissibility in legal proceedings.

V- CONCLUSION & SUGGESTIONS

In conclusion, the enforcement of blockchain-based arbitral awards in India necessitates a multifaceted approach. While the proposed solutions outlined in this paper are primarily law-specific, their implementation relies heavily on proactive measures from the legislature and

³⁷ Hong Wu and Guan Zheng, 'Electronic Evidence in the Blockchain Era: New Rules on Authenticity and Integrity' (2020) 36 Computer Law & Security Review 105401.

³⁸ The Bharatiya Sakshya Adhininyam, 2023 (47 of 2023) s 63.

judiciary. The NITI Aayog's ODR policy plan³⁹, chaired by Justice (Retd.) AK Sikri, marks a significant step forward, as it encompasses plans to amend the ACA, the IT Act and the Indian Evidence Act, 1872, to accommodate blockchain arbitration.

However, the journey to constructing this regulatory bridge is lengthy and complex. This raises the question: is blockchain arbitration in India a "bridge to the future" or a "bridge too far"? Blockchain arbitration is not merely a "bridge to the future" but a necessary evolution in a world that demands speed, transparency, and efficiency. However, without the proactive involvement of lawmakers, judiciary, and industry stakeholders, this bridge risks remaining incomplete. The path forward lies in collaborative efforts to align regulatory frameworks with technological capabilities, ensuring that blockchain arbitration becomes not just an innovative concept but a practical, enforceable reality.

Through this synergy, India can leverage blockchain's immense potential to redefine the dispute resolution landscape, transforming what now seems like a "bridge too far" into a robust bridge to the future.

Parties to international commercial contracts should consider drafting arbitration agreements that expressly empower arbitrators to use blockchain-based decision-support tools, such as Kleros, to assist in resolving disputes. By incorporating a clause allowing the use of such tools under the *ex aequo et bono* principle, parties can ensure that arbitrators maintain compliance with the terms of the contract, relevant trade usages, and mandatory rules of law, thereby preserving the legal validity of the award. The final award will be issued in writing, signed by the arbitrator, and an original copy of the award can be presented to ensure enforceability under existing arbitration laws. Since the arbitrator's decision will be grounded in established legal norms, with blockchain tools serving only as an aid, the resulting award will remain both enforceable and aligned with recognized principles of arbitration. This approach bridges the gap between cutting-edge technology and traditional arbitration, fostering transparency, efficiency, and fairness while promoting innovative yet legally sound dispute resolution mechanisms.

³⁹ NITI Aayog, 'Designing the Future of Dispute Resolution: The ODR Policy Plan for India' (November 2020) <https://www.niti.gov.in/sites/default/files/2020-11/odr-report-29-11-2020.pdf> accessed 11 January 2025.