TECHNOLOGY DRIVEN ARBITRATION IN INDIA: PROSPECTS AND PROBLEMS

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ABSTRACT:

The integration of AI into Arbitration marks a significant development in India's dispute resolution framework. While technology-driven arbitration offers clear advantages such as procedural efficiency, cost reduction, improved accessibility and faster case management, it also raises serious legal and ethical concerns within the existing arbitral regime. This paper critically examines the prospects and challenges of AI assisted arbitration in India with particular focus on three key legal gaps: liability attribution for erroneous AI assisted decisions, the compatibility of AI based witness credibility assessment with the principle of *audi alteram partem* and the evidentiary risks posed by deepfakes and AI generated forged documents. By analysing the Arbitration and Conciliation Act, 1996, comparative international practices and emerging scholarly disclosure, the paper argues that the adoption of AI in arbitration must be accompanied by transparent safeguards, institutional accountability, and legislative reform. It concludes that AI should function as an assistive tool rather than a substitute for human adjudicatory reasoning, ensuring that efficiency does not compromise fairness, due process, and justice delivery.

Keywords: Arbitration. Audi Alteram Partum, Deepfake Evidence

INTRODUCTION:

Arbitration[1] plays an important role in Alternative Dispute Resolution (ADR), especially in addressing issues like case backlogs and judicial delays. With the introduction of the Arbitration and Conciliation Act, 1996 which is based on the UNCITRAL framework[2], Indian arbitration seeks to tackle challenges such as procedural delays, rising costs, and inadequate infrastructure. These shortcomings have driven stakeholders to adopt innovative approaches to improve efficiency and accessibility in ADR. In recent times, arbitration has experienced a major shift with the growing integration of advanced technologies, particularly Artificial Intelligence[3] (AI). From document review and legal analytics to procedural automation and decision-making, technology-driven arbitration offers greater efficiency, lower costs, and improved accessibility.

In legal research it helps to analyse contracts, predict legal gap, identify relevant cases and judgements, assist in case management, etc., the development of Indian Government's digital initiatives like Digital India, E - Courts, etc., have further created a conducive environment for embedding AI - driven tools into the Arbitration.

However, this technological evolution is not without its complexities. The usage of AI within arbitral proceedings raises critical legal, ethical and procedural concerns that challenge the foundational principles of arbitration, including party autonomy, procedural fairness and due process of justice delivery. While AI has the potential to improve decision-making, its opaque functioning and vulnerability to bias create uncertainties regarding transparency and accountability in arbitral outcomes.

More critically, the integration of AI exposes unresolved legal gaps. Questions arise as to the attribution of liability in cases of inaccurate AI-assisted decisions - whether responsibility lies with arbitrators, institutions or technology developers. The use of AI in assessing witness credibility further risks infringing the principle of *audi alteram partem*[4], while AI-assisted witness preparation raises ethical concerns. Additionally, the emergence of deepfake technology and AI-generated evidence poses serious challenges to authenticity and verifiability

[1] S.2(1)(a) of Arbitration and Conciliation Act, 1996
[2] UNCITRAL Arbitration Rules, 2021
[3] Article 3(1) EU Artificial intelligence Act, 2024
[4] Let the other party be heard

of evidence.

This paper focuses on the critical examination of technology driven arbitration in dual aspects of prospects and problems. It explores the prospects of AI integration as a means to overcome existing inefficiencies and simultaneously interrogating the legal gaps that such integration may provoke.

PROBLEMS: CRITICAL LEGAL GAPS IN TECHNOLOGY-DRIVEN ARBITRATION:

The integration of Artificial Intelligence (AI) into arbitration has introduced noteworthy efficiencies, but has simultaneously exposed unresolved legal and procedural uncertainties. These gaps challenge the foundational principles such as liability, accountability, fairness and evidentiary integrity, requiring closer doctrinal scrutiny.

Gap 1 - Attribution of Liability in AI-Assisted Decisions:

A vital unresolved issue in technology-driven arbitration is the attribution of liability when AI contributes to an erroneous arbitral decision. Traditionally, arbitrators are responsible for the outcome of the proceedings. They use their own judgment and discretion without relying on outside sources. However, using AI tools changes this setup. It brings more people into the decision-making process.

In such scenarios, multiple parties may potentially bear responsibility. The arbitrator may still be held liable for professional negligence if there is undue reliance placed on flawed AI outputs without independent verification. Arbitral institutions may also face scrutiny, particularly when they actively work or integrate AI technologies into their procedural framework. Additionally, technology developers could be held responsible under product liability principles if the AI system has defects or consistently generates biased results.

The absence of a clearly determined liability regime creates a regulatory vacuum, leading to uncertainty in the enforcement of arbitral awards[5] and undermining confidence in the arbitral process. This gap necessitates the development of a coherent legal framework that clearly delineates the extent of responsibility among all stakeholders involved in AI-assisted

[5] S.2(1)(c) of Arbitration and Conciliation Act, 1996

arbitration.

In this current state, the Indian arbitration regime does not adequately define and regulate hybrid decision making, where human decision making is significantly supplemented by AI. This leads to 3 legal uncertainties:

Firstly, the foundation of doctrine of accountability of arbitrators is put at risk as per the Arbitration and Conciliation Act, 1996 the award must result from the arbitrators independent reasoning process. However, in cases where AI plays a role in reducing forecasting or evidence evaluation, there is no threshold standard determining when the use of AI qualifies as a delegation of the adjudicator's task. Therefore, it is uncertain whether such use is: A permitted form of decisional assistance or invalidating the award due to violation of the mandate of independent reasoning under the Section 34[6] of the Arbitration and Conciliation Act, 1996.

Secondly, there is no framework for attributing responsibility in distributed decision making. Indian legal doctrines pertaining to liability are compartmentalised: arbitrations law grants immunity to arbitrators; contract law dictates their responsibilities of institutions; and product liability law under the Consumer Protection Act, 2019 does not account for AI tools used as decision-supporting mechanisms. None of these regimes coordinate to provide a legal solution to issues of liability in cases of harm caused by the convergence of human judgement and algorithmic outputs. Thus, the law fails to address one primary question: whether the liability should be exclusive (arbitrator-oriented), derivative (institutional) or proportional (distributed between the actors in the AI value chain).

Thirdly, the regime lacks procedural clarity, resulting in unenforceable remedies. Absent mandatory reporting of the use of AI, explainability standards and auditing requirements, parties have no means of uncovering the involvement of AI, preventing them from exercising their challenge rights under Section 34. Thus, while the remedy prescribed by the statute may exist it remains inaccessible in practice.

Gap 2 - AI Based Credibility Assessment, Audi Alteram Partem and AI Coached Witness Preparation:

The incorporation of AI systems in witness assessment and preparation highlights the inherent

[6] Application for setting aside arbitral award

weakness in procedural fairness in the Indian arbitral procedure in terms of *audi alterum partum*.

Firstly, the legal system does not acknowledge and regulate utilisation of AI tools in generating assessments of witness' credibility which, though not considered 'evidence[7]', may significantly impact decision-making. The Arbitration and Conciliation Act, 1996 does not lay down the criteria as to admissibility and reliability for such AI-based tools. Thus, there are no restrictions on that functioning in the arbitral proceeding.

Secondly, the use of AI systems generates procedure inequality undermining the hearing right guaranteed under Section 18[8]. Unilateral use of AI systems by arbitrators or unequal use by one of the parties makes it difficult for the opposing party to contest the method and raise objections against its results. This runs the counter to the Supreme Court direction in Ssanggyong Engineering & Construction Co. Ltd. v. NHAI[9], where the arbitral awards are required to adapt to the principles of Natural justice such as fairness and transparency.

Thirdly, there is no regulation regarding AI tools utilised in witness preparation. Traditional forms of witness coaching are recently limited due to restrictions on witness' freedom of speech[10]. However, AI tools can replicate the process of cross examination and tailor testimony. This, in turn, violates the principle of equality of treatment as articulated in Associate Builders vs DDA[11].

Lastly, such use is made possible in light of the lack of regulatory measures despite well documented inaccuracies and discriminatory tendencies of such AI tools.

Gap 3 - Deepfake Evidence and AI-generated Forgeries in Arbitral Proceedings:

The arrival of generative AI highlights the substantive limitation in the evidentiary regime of Arbitrary proceedings in India, with special consideration to the authenticity of electronic evidence.

Firstly, it appears the Indian law does not classify AI-generated forgeries and deepfakes as an

[7] S.3 of Indian Evidence Act, 1872 and S.47 of Arbitration and Conciliation Act, 1996
[8] Equal treatment of parties
[9] Ssanggyong Engineering & Construction Co. Ltd. v. NHAI, 2019 AIR 2019 SC 5041
[10] Article 19(1) of Indian Constitution
[11] Associate Builders vs DDA, 2014 AIR SCW 6861

evidentiary category on their own. The section 65B[12] of the Evidence Act (embedded into the framework of the BSA) prescribes a set of conditions for the admissibility of electronic records that involve certifying their provenance. However, it does not require the proof of authenticity of the document content itself, which opens the way for forged materials to be admitted as evidence.

Secondly, the issue of verifying evidence susceptible to manipulation via generative AI technologies remains unattended in the Indian arbitration procedures. Tribunals do not possess the necessary forensic capabilities, whereas the rules of proceedings provide no provisions accounting for the risk of the involved technology. This creates opportunities for submitting highly sophisticated fabricated evidence to the arbitral tribunal[13] without its proper examination.

Thirdly, there exists no regulatory regime for assigning burden and costs related to the authentication process. Although the opposing party may challenge the authenticity of the evidence, the difficulty and expenses of verifying the content created with AI makes this option inaccessible, especially for less-resourced parties.

Finally, it appears that the problem of forgery via AI is not addressed with sanctions in any legal regime. Existing legal regimes do not directly regulate this form of technological misconduct, leading tribunals with clear deterrent or remedial mechanisms.

Gap 4 - The Underlying Problem of Algorithmic Bias:

AI models have been built based on historical data sets that already carry the existing imbalances of society, economy and law. In applying these models in arbitration, which is essentially founded on principles of equality, fairness and impartiality, there is an inherent danger of reinforcing and magnifying such biases without being able to identify and address them because of their non-transparent and non-reviewable nature.

As illustrated in the discussions about AI and ADR Technology, an instance of such a biased system is demonstrated by the Amazon AI recruitment tool[14] that unintentionally discriminated against women because it had been trained on past data sets that disproportionately represented

[12] Admissibility of Electronics records
[13] S.2(1)(d) of Arbitration and Conciliation Act, 1996
[14] BBC, Amazon scrapped 'sexist AI' tool, 10 October 2018

men. Similarly, when used in an arbitration, it would be possible for such a system, especially one developed for commercial award data, to unconsciously discriminate against those who operate in different legal cultures, especially Indian parties. In addition to such instances of bias in arbitration there might also be cases where the same problem occurs in other types of arbitrations especially regulatory or socially significant funds as illustrated in the previous discussions when dealing with issues under the real estate regulation and development act there are an ai model trained using enforcement data that show us a history of higher violation rates among real estate developers, which may end up having a statistical inclination against certain types of parties.

Importantly, algorithmic bias in arbitral decision-making cannot be identified, audited or corrected by the current legal system. Because of this, bias becomes a structural legal blind spot that affects culpability, procedural justice and evidence integrity in addition to being a technical defect.

LEGISLATIVE AND REGULATORY FRAMEWORK:

The Arbitration and Conciliation Act, 1996 And Its Amendments:

The Arbitration and Conciliation Act, 1966 (herein after "the Act") constitutes the primary legislative instrument governing arbitral proceedings in India. Modelled on the UNCITRAL model law on international commercial arbitration The Act establishes the foundational architecture of arbitral procedure, including party autonomy, minimal judicial intervention, and unenforceability of awards. However, the act was drafted in the pre-digital era and conspicuously lacks provisions that address the integration of AI or automated decision support system into arbitral proceedings.

Subsequent amendments notably the Arbitration and Conciliation Amendment Act 2015 and 2019 amendment, and the 2021 amendment have progressively sought to address procedural inefficiencies, introduce institutional arbitration and establish the Arbitration Council of India ACI. The 2019 amendment, by inserting the 8th schedule[15], sought to bolster the professional qualifications of arbitrators. Despite these reforms no amendment has confronted the normative challenges posed by AI assisted arbitration.

[15] S.43(j) of Arbitration and Conciliation Act, 1996

Ancillary Legislation and Policy Frameworks:

Several ancillary instruments bear relevance to the regulation of technology in arbitrary proceedings. The Information Technology Act, 2000 and its subsequent amendment in 2008 provides the foundational framework for electronic evidence and digital signatures. Section 65B of the Indian Evidence Act, 1872 governs the admissibility of electronic records. The Personal Data Protection Bill (subsequently the Digital Personal Data Protection Act 2023) further introduces consideration of data privacy that are directly implicated when AI systems process sensitive arbitral information. The NITI Aayog's responsible AI for all 2021 and the National Strategy for Artificial Intelligence 2018 signalled the government's intent to govern AI but these remain policy documents without binding legal force in an arbitrary context.

Globally, international instruments such as UNCITRAL notes on Organizing Arbitral Proceedings (2016), the IBA Rules on the Taking of Evidence in International Arbitration (2020), and institutional rules from the Singapore International Arbitration Centre (SIAC) and the International Chamber of Commerce (ICC) have begun to accommodate technology facilitated proceedings. India to remain competitive as an arbitral seat, must engage with these developments at the legislative level.

PROSPECTS OF THE TECHNOLOGY DRIVEN ARBITRATION IN INDIA:

Efficiency and Speed: Automated Case Management

One of the most pressing concerns in Indian arbitration historically has been procedural delay. AI powered case management systems offer a meaningful remedy. Platforms equipped with natural language processing (NLP) can automate scheduling, deadline tracking, document indexing and correspondence management. This automation reduces the administrative burden on arbitrators and institutions thereby accelerating the progression of proceedings.

For instance, tools such as Relativity and Luminance have already demonstrated their capacity in international commercial arbitration to conduct document review at a scale and speed that far surpasses human review - processing thousands of documents within hours while flagging contractual inconsistencies and relevant legal provisions. The adoption of such tools in Indian Institutional arbitration could dramatically reduce pre hearing preparation time and cost.

Cost Reduction and Democratisation of Access:

The prohibitive cost of arbitration remains a structural impediment to its accessibility particularly for small and medium enterprises and individual claimants. AI enabled platforms can reduce attorney preparation time, streamline discovery and offer AI assisted legal drafting. Online dispute resolution (ODR) platforms such as SAMA, presolv360 and the Agami Price-recognized System operating in India have demonstrated that technology can make ADR economically viable for lower value disputes.

The Ministry of Law and Justice's Push toward ODR Committee Report (2021), envisions a tiered a dispute resolution ecosystem in which technology mediates low value, high volume disputes. AI driven arbitration, particularly in consumer disputes, E commerce conflicts, and insurance matters, holds enormous potential to alleviate the burden on formal legal institutions while ensuring substantive justice.

Legal Analytics and Predictive Decision Making:

AI's application in legal analytics offers arbitrators access to unprecedented volumes of precedent, doctrinal analysis and outcome prediction models. Tools like Westlaw Edge, LexiNexis Analytics and India specific platforms such as SpotDraft and NyaySetu utilize machine learning to identify patterns across thousands of arbitrary awards and judicial decisions. This can assist arbitrators in achieving greater consistency and predictability in their awards.

In contract analysis AI can deduct anomalies, flag boilerplate deviations and identify performance risk indicators, enabling arbitrators and counsel to better understand complex commercial arrangements. This is particularly valuable in infrastructure disputes, energy sector arbitrations and construction contract sectors that constitute a significant portion of Indian arbitral caseloads.

Government Digital Initiatives as Enabling Ecosystem:

The Government of India's border digital infrastructure has created a conducive ecosystem for technology driven arbitration. the E - Courts Mission mode project the digitization of court records, the Integrated Case Management Information System and the Supreme Court's use of video conferencing for hearing during the Covid 19 pandemic have collectively normalized the

digital legal proceedings. The Arbitration Council of India, once fully operationalised, can leverage this digital infrastructure to build a centralized case management system, an accreditation database for arbitrators and an ODR linked arbitral platform.

Further, the Government's Common Service Centre and Bharat Net Broadband Connectivity initiative can extend the reach of technology driven arbitration to Tier 2 and Tier three cities, addressing geographical barriers that have traditionally disadvantaged parties in rural and semi urban areas.

Scope of AI in Indian Arbitration: Commercial vs Other Disputes:

An important threshold question concerns the appropriate scope of AI deployment in arbitration. While commercial disputes particularly those involving large volumes of documentary evidence, complex financial instruments or international trade present the most natural use case for AI tools, the application of AI in sensitive categories such as family disputes, labour arbitration or RERA[16] proceedings (involving real estate conflicts between home buyers and builders) demand greater caution.

In RERA related arbitrations, for example where disputes frequently arise between individual home buyers and large construction companies, AI systems trained on historical data may develop systematic biases against builders or contractors reflecting existing enforcement pattern which could compromise the impartiality of the arbitral process and potentially deter one class of party from engaging with arbitration as a forum. This underscores the imperative for domain specific calibration of AI tools before deployment.

RECOMMENDATIONS:

Mandatory Disclosure of AI Usage:

A statutory obligation must be imposed requiring arbitrators and parties to disclose any use of AI in arbitrary proceedings. Such disclosure should extend to the nature, purpose and extent of reliance on AI tools and decision making, evidentiary assessment, and witness evaluation.

The absence of disclosure creates a structural opacity that undermines the principle of natural

[16] The Real Estate (Regulation and Development) Act, 2016

justice, particularly the right to be here. Where generator outputs influence arbitrary processes without the knowledge of parties, the affected parties, deprived of the opportunity to challenge the methodology, reliability and potential bias of such systems.

Accordingly, nondisclosure of AI usage should constitute a valid ground for challenge under section 34[17] of Arbitration and Conciliation Act 1996, as it directly impinges upon procedural fairness and equal treatment of parties.

Non - Delegation of Adjudicatory Responsibility:

The foundational principle that must be expressly recognized is that adjudicatory functions cannot be delegated to artificial intelligence systems, while AI may legitimately assist in administrative, analytical or research-oriented functions, the core functions of reasoning, evaluation of evidence, and formulation of the arbitral award must remain exclusively within the domain of the human arbitrator.

The legitimacy of arbitration rests upon the application of independent human judgment. Any award substantially derived from automated outputs without meaningful human oversight and reasoning; risks being characterized as a mechanical or non-speaking decision. Such an outcome would be inconsistent with the requirement of recent awards and may render the award vulnerable to challenge on the grounds of violation of natural justice and public policy.

This principle ensures that arbitration does not devolve into a system of automated adjudication, thereby preserving its human and deliberative character.

Development of a Liability Framework For AI Assisted Decisions:

The increasing integration of AI into an arbitrary process necessitates development of a clear and coherent liability framework. At present the legal system does not provide guidance on the Attribution of responsibility when AI assisted decisions result in erroneous or unjust outcomes.

A structured allocation of liability must therefore be introduced to delineate the respective responsibilities of arbitrators, arbitrary institutions, and technology developers. Arbitrators should remain accountable for the exercise of independent judgment particularly where they

[17] Application of setting aside arbitral awards

rely on AI outputs without adequate scrutiny. Arbitral institutions may bear responsibility where they mandate or endorse specific AI tools without ensuring appropriate safeguards. Technology developers in turn may be held liable under the principles analogous to product liability where defects in AI systems contribute to erroneous outcomes.

The absence of such a framework creates a vacuum of accountability, undermining both confidence and arbitral awards and the responsible adoption of AI technologies.

Regulation of AI - Based Credibility Assessment:

The use of AI systems to assess witness credibility raises profound concerns relating to procedural fairness and the right to be heard. Technologies purporting to detect deception through behavioural or biometric analysis remain scientifically contested and are susceptible to bias across cultural, linguistic and demographic contexts.

The deployment of such tools in arbitral proceedings should therefore be either expressly prohibited or subjected to strict regulatory safeguards. At the minimum, any use of AI based credibility assessment must be disclosed to the parties accompanied by an opportunity to challenge its methodology, reliability and evidentiary weight.

Undisclosed reliance on such tools would constitute a direct violation of the principle of *audi alteram partem* and may vitiate the arbitral process. Regulatory clarity in this regard is essential to prevent the introduction of opaque and potentially discriminatory decision-making mechanisms.

Evidentiary Reform for AI - Generated and Deepfake Evidence:

The emergence of generative AI technologies has fundamentally altered the evidentiary landscape by enabling the creation of highly realistic but fabricated digital content. Existing legal frameworks including provisions governing electronic evidence are ill - equipped to address the challenges posed by deep fakes and AI generated forgeries. It is therefore necessary to introduce explicit recognition of AI generated forgery as a distinct evidentiary category requiring enhanced scrutiny. Legal standards must be developed to mandate rigorous authentication procedures particularly in cases involving disputed digital evidence.

Without such reform, arbitral proceedings remain vulnerable to manipulation through

technologically sophisticated forms of fraud, thereby undermining the integrity of the evidentiary process.

Establishment of Digital Forensic Authentication Mechanisms:

In order to operationalize evidentiary safeguards, a specialized institutional mechanism for digital forensic analysis must be established. This may take the form of court appointed or institutionally created forensic experts capable of examining and authenticating digital evidence in arbitral proceedings.

Given the technical complexity of deducting AI generated forgeries, arbitrators and parties cannot reasonably be expected to undertake such assessments independently. The availability of neutral and accessible forensic expertise would enable tribunals to make informed determinations regarding the authenticity of contested evidence.

Such a mechanism would also ensure a more equitable allocation of evidentiary burdens, particularly in cases involving parties with unequal access to technological resources.

Collectively, these measures seek to ensure that the integration of artificial intelligence and arbitration enhances procedural efficiency without eroding the foundational guarantees of fairness, transparency and accountability.

CONCLUSION:

By increasing procedural efficiency, cutting expenses, enabling automated case management, bolstering legal analytics and increasing access to arbitration through digital platforms and online dispute resolution mechanisms, the incorporation of AI into arbitration offers a revolutionary opportunity for India's dispute resolution framework. A favourable atmosphere for technology-driven arbitration has also been established by government efforts like Digital India, E-Courts and more extensive digital infrastructure. However, this technological change also reveals significant procedural and legal flaws in the current arbitral system. This study examines how liability in AI-assisted arbitral decision-making is not sufficiently regulated by Indian law, which raises questions about accountability among arbitrators, arbitral institutions and technology providers. Similar issues with procedural justice, equality of treatment and *audi alteram partem* principle are brought up by the use of AI in witness credibility evaluation and preparation. Furthermore, significant evidential dangers are brought to light by the

development of generative AI and deepfake technologies, particularly with regard to the veracity, validity and admissibility of electronic evidence in arbitral proceedings. The structural issue of algorithmic bias, which undermines arbitral neutrality by incorporating systemic and historical biases into supposedly neutral technical processes, runs across all of these worries.

These issues demand for the creation of a fair regulatory structure that allows innovation while upholding the fundamental tenets of arbitration, not the rejection of AI in arbitration. Essential protections for the responsible AI integration include mandatory disclosure of AI usage, preservation of non-delegable human adjudicatory responsibility, regulation of AI-based credibility tools, reform of evidentiary standards of AI-generated material, establishment of digital forensic authentication mechanisms and a clear liability allocation framework. In the end, India's goal to become a globally competitive arbitral seat depends not only on embracing technological innovation but also on making sure that such innovation stays consistent with the procedural legitimacy, accountability, fairness and transparency that characterise arbitration itself.

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