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TECHNOLOGICAL ADVANCEMENTS IN ARBITRATION TO ENHANCE PROCEDURAL EFFICIENCY: WALKING CAREFULLY IN THE AGE OF ARTIFICIAL INTELLIGENCE

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ABSTRACT

The integration of technology in the arbitration infrastructure is not a recent development. It has been in the picture since the early 2000s. Online Dispute Resolution platforms (ODR), electronic filing of documents, etc. are now the “new normal” in arbitration processes. However, in recent years, there has been a remarkable and unprecedented rise in the adoption of technology in arbitral proceedings. Innovations such as artificial intelligence (AI), Generative AI, blockchains, and online case management systems, have transformed arbitration from what had once been considered a lengthy, cumbersome, paper-based procedure to a highly sophisticated, quick and efficient, technology-based process. With such high technical advancements, the future arbitration process is expected to be significantly redefined and at par with what it had been a decade ago.

This paper aims not at listing the already available technologies in the field, but at how these technologies have shaped the entire arbitration process, thereby increasing the accessibility and efficiency of the whole. The said investigation focuses on the jump from “early 2000, clerical arbitration” to “arbitration in the world of modern intelligence”. At the same time, it acknowledges the challenges accompanying the use of such sensitive technologies, such as concerns related to data security, cyber security, digital privacy, etc.

Furthermore, the paper emphasizes the need for a cautious and balanced approach to the integration of technology, for maintaining an effectual interplay between human judgment and machines. It also undertakes a comparative analysis between the tools available with different institutions and their effectiveness. Thus, an effort has been made to put forward an elaborate study of technological shifts, behavioral adjustments, and future receptiveness in the modern world of dispute resolution.

INTRODUCTION

The history of Arbitration (in India) dates to the 1700s. Various Legislations such as Regulation Acts of 1772, 1780, 1787, 1793, 1813, 1822, 1833, 1840 and so on, shaped the Arbitration Law that we have today. The present law of 1996 is based on the UN Model Law, to make the Law accord with the UNCITRAL. The literature, however, is confined to Courts, arbitral institutions, parties, awards, anomalies etc. and does not deal with the newest meddler of the field- Artificial intelligence. Indian Arbitration Act nowhere yet explicitly lays down any specific provision or regulatory framework that governs how Artificial Intelligence (hereinafter AI) can be used in arbitration or other dispute resolution processes. The proposed Draft Arbitration and Conciliation (Amendment) Bill, 2024 by the Government of India does provide for the conduct of arbitral proceedings using audio visual electronic means; it however, still doesn't provide for the use of AI in arbitration. It is thus evident that the regulation of the use of AI technology in ADR has been completely left to the broader technology regulations and data privacy laws, including the Information Technology (IT) Act, 2000 and the Digital Personal Data Protection Act, 2023.¹ The Government has incorporated AI- specific provisions in the proposed Digital India Act, including the regulation of high-risk AI for its safe and ethical use and addressing other issues like deepfakes, etc.² Until the Act is enabled, amendments to the IT Rules, 2021, are the only regulations vaguely dealing with AI- related concerns.³

CHALLENGES

One of the major criticisms of incorporating Artificial Intelligence in Arbitration processes is with respect to Smart Contracts- Smart Contracts in Blockchain technology have countless negative ramifications. Smart contracts are self-executing digital agreements where the terms of a contract are written directly into computer code and automatically carried out when predefined conditions are met. They are etched into the blockchain permanently and cannot be changed by parties unilaterally. Like every code, however, they are susceptible to bugs and loopholes. Should a weakness or error in said contract be detected following deployment of the contract, the latter would simply have to continue to run its course with potentially devastating consequences.⁴ Smart contracts execute “as coded, not as Intended”. This may end up causing irreversible loss of finances and assets. Parties might end up suffering economically as they

¹ Akash Gupta, Arushi Bajpai, and Samanvi Narang, *Setting the Boundaries for the Use of AI in Indian Arbitration*, p. 2.

² *Id.*

³ *Id.*

⁴ Immutability in a Smart Contract: a blessing or a curse? GMX Lawyers, <https://www.gmxlaw.com/>

must bear the burden of technical risks, with absolutely no intervention from the Courts in some situations. A slight mistake in the information fed may cost millions. Parties may resort to Court- but even Courts cannot stop the blockchain execution or delete a smart contract. Further, the aspect of these contracts not being governed by fairness or equity and plainly on logic, rules and pre-determined contingencies might not always seem like the most desired way of execution. These contracts still execute, even if they go against the intention of the parties and violate the real agreement.

Another challenge is with respect to confidentiality in the arbitral process. Where AI systems operate through Third-party vendors or remote servers, the information supposed to be confidential between the parties and the arbitrators, now gets exposed to hackers and stands the risk of being tampered and open to manipulation. This discloses trade secrets, merger strategies, negotiations between the parties, and arbitral awards among others. The confidentiality of large-value commercial agreements—including those worth millions or even billions—can be compromised. Such data exfiltration raises concerns on breach of privacy. It undermines the fundamental expectation of privacy in arbitration and may expose individuals and corporations to identity theft, reputational harm, regulatory violations, and significant financial risks. Moreover, once exfiltrated, the data cannot be fully retrieved or contained, leading to long-term privacy vulnerabilities. Once the data is exposed to AI ecosystem, parties lose control over who can access the logs, and how the information now will be handled.

Additional complexities arise due to- cross-border data transfers. AI tools operate on servers located in different countries, and therefore sensitive details may travel to different jurisdictions and stored on their servers without the knowledge of the parties. Foreign governments may now have access rights, and AI vendors and third-party cloud operators may legally or illegally access and use the data. Such information is often used by the developers to “train” their models, based on which the AI tools predict and analyze the future problems.

The “Blackbox” issue again, is a critical challenge. Blackbox problem-refers to the situation where the internal workings of an AI tool are not transparent for the users to understand. How a particular tool reaches a particular solution/suggestion is unknown. This creates procedural problems and raises doubts on the fairness of the whole procedure, since arbitration (generally) requires reasoned awards. Lack of explainability and transparency gives the impression of the award being biased. It is also noteworthy that Generative A.I. tools like ChatGPT “hallucinate”

implying that they present information which is false, invented or fictitious as real and authoritative. It might present imaginary case laws and cite incorrect citations or legal doctrines as precedents. AI models are trained from web scraping, academic repositories etc.; still if the training dataset is incorrect or factually not updated, the output may be compromised because of the gaps. Due to uncertainty in its knowledge base, AI generates fabricated information.

Additionally, AI chatbots and virtual assistants, though capable of mimicking human interactions, lack genuine empathy and human connection.⁵ This can lead to emotional dissonance, where users feel temporarily understood without receiving the deeper emotional support that real human relationships provide.⁶

These are among the many challenges faced by the arbitration industry as a result of technical integration. If the field is to benefit from technological assistance, these challenges cannot be overlooked. Accordingly, a critical question arises- Whether the Arbitration Industry is even prepared to address the substantial risks associated with the Integration of Artificial Intelligence, given the high stakes involved in the arbitral decision making?

BENEFITS

Technological developments have progressively enhanced efficiency and functionality across diverse sectors. The field of arbitration alike has relied on the developments in AI to aid in the arbitral proceedings.

AI boosts efficiency and quality by enabling parties and tribunals to handle large data sets, streamline legal research, enhance drafting, and accelerate procedural tasks.⁷ Natural language processing (NLP) tools can produce customized research results and quickly and accurately summarize complex legal issues, surpassing traditional search engines.⁸ Additionally, the conscient use of AI reduces costs, automates repetitive administrative tasks, helps prioritize cases, and retrieves data within seconds.⁹ AI driven tools can enhance online searches, analyze

⁵Michael J. Brody & Yiyang Mei, *Don't Kill the Baby! The Case for AI in Arbitration*, 21 N.Y.U. J. L. & Bus. 119, 122 (2024).

⁶ *Id.*

⁷Heider Cristian Moura Quintão & Murillo de Oliveira Dias, *Artificial Intelligence in Arbitration: Opportunities and Regulatory Challenges*, 13 Archives of Bus. Rsch. 55, 58 (2025).

⁸ *Id.*

⁹ *Id.*

legal databases, extract relevant data, and present it in a clear and accessible manner.¹⁰ A.I. is helping to improve the way arbitrators are chosen by providing more transparency.¹¹ For example the “Arbitrator Intelligence Questionnaire” (hereinafter AIQ) gathers detailed information about arbitrators, including data on past cases, to create reports that can guide legal teams.¹² It helps promote diversity by allowing newer arbitrators to be compared fairly to more experienced ones.¹³ Another tool, Global Arbitration Review’s “Arbitrator’s Research Tool”, provides data and insights on arbitrators, allowing users to filter by criteria like gender.¹⁴ A.I. can also be useful tribunals assistants.¹⁵ For example, the world’s first A.I. arbitration assistant proved to be extremely useful in assisting arbitrators at the Guangzhou Arbitration Commission, China.¹⁶ Previous literature has also suggested using A.I. to handle tribunal secretarial duties, freeing up arbitrators and counsels to concentrate on the aspects of the arbitration procedure that most heavily demand human judgement.¹⁷

There are innumerable benefits and innumerable challenges to this technology. The need for the hour is the right proportion of laws and proper guidelines for all stakeholders, including developers, vendors, arbitrators, and the parties involved. CI Arb (Chartered Institute of Arbitrators) and SVAMC, the two prominent organizations for dispute avoidance and management, have enumerated certain soft laws for the use of AI.

Part IV of the CI Arb guidelines provides rules for the “Use of A.I. by Arbitrators”

Rule 8.1. Arbitrators may consider using AI Tools in the context of their mandate to enhance the arbitral process, including its efficiency and the quality of the arbitrators’ decision-making.¹⁸

8.2. Arbitrators should not relinquish their decision-making powers to AI but may use AI to support more accurate and efficient processing of submitted information, always ensuring independent judgement. Arbitrators are advised to refrain from using AI in ways that could compromise the integrity of the proceedings or the validity or enforcement of the award.¹⁹

¹⁰ *Id.*

¹¹ Sanjana Reddy & Vinita Singh, *Soft Law, Hard Justice: Regulating Artificial Intelligence in Arbitration*, 17 CONTEMP. ASIA ARB. J. 191, 199 (2024).

¹² *Id.*

¹³ *Id.*

¹⁴ *Id.*

¹⁵ *Id.* at 200

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ CHARTERED INST. OF ARB., GUIDELINE ON THE USE OF AI IN ARBITRATION pt. IV, rule 8.1 (2025).

¹⁹ *Id.* rule 8.2.

8.3. Arbitrators should also independently verify the accuracy and correctness of information obtained through AI, ensuring their judgement is free from confirmation bias and other distortions.²⁰

8.4. An arbitrator shall assume responsibility for all aspects of an award, regardless of any use of AI to assist with the decision-making process.²¹

On a similar note, SVAMC (Silicon Valley Arbitration and Mediation Center) has laid down guidelines for the use of A.I. in Arbitration.

Part 2 lays down Guidelines for Parties and Party Representatives

GUIDELINE 4 enumerates the duty of competence or diligence in the use of AI. “Party representatives shall observe any applicable ethical rules or professional standards of competent or diligent representation when using AI tools in the context of an arbitration. Parties shall review the output of any AI tool used to prepare submissions to verify it is accurate from a factual and legal standpoint. Parties and party representatives on record shall be deemed responsible for any uncorrected errors or inaccuracies in any output produced by an AI tool they use in an arbitration.”²²

GUIDELINE 5 stipulates Respect for the integrity of the proceedings and the evidence “Parties, party representatives, and experts shall not use any forms of AI in ways that affect the Integrity of the arbitration or otherwise disrupt the conduct of the proceedings. Parties, party representatives and experts shall not use any form of AI to falsify evidence, compromise the authenticity of evidence, or otherwise mislead the arbitral tribunal and/or opposing party(ies).”²³

As per a recent judgement, *United States vs. Heppner*, (dated February 17, 2026) one can legally be forced to present her/his chats with any A.I. chatbot in the Court. Court noted that the terms of the tool permitted the provider to disclose user data to regulators and to use users’ prompts and outputs for model training. The court said users should not have any reasonable expectations that their inputs and outputs are confidential.

Another landmark judgement is *LaPaglia vs. Valve Corporation*, (dated December 9, 2025) famously recognized as one of the first cases challenging the use of AI in arbitration. In LaPaglia, a petition was filed, to vacate an AAA (American Arbitration Association) award on

²⁰ *Id.* rule 8.3.

²¹ *Id.* rule 8.4.

²²SILICON VALLEY ARB. & MEDIATION CTR., SVAMC GUIDELINES ON THE USE OF AI IN ARBITRATION guideline 4 (2023).

²³ *Id.* guideline 5.

grounds that the Arbitrator used AI (ChatGPT) to draft the award. According to the Claimant, just as courts have vacated awards when the decision-making is outsourced to a person other than the appointed arbitrator, so too must a court vacate an Award when the decision-making is outsourced to AI.²⁴ The petition though was dismissed on jurisdictional issues; the case presented emerging complexities and issues arising due to the vacuum of a formal statute.

CONCLUSION

Upon careful consideration of inherent benefits and risks, what should be understood is that Artificial Intelligence is not a substitute for the human mind. It can and must only be treated as an assistant and not as a replacement. Efficiency and procedural benefits should not overshadow the countless shortcomings this technology proposes. Given the high-value matters involved, the current laws and the per-se nature of Arbitration, there is an urgency for clear and stringent regulatory frameworks on the subject to eliminate any and every possibility of damage. Enactments such as Information Technology (IT) Act, 2000, and Digital Personal Data Protection (DPDP) Act, 2023 though do offer remedies in situations when personal/sensitive information is leaked or when documents are altered or when personal data is processed without the consent of the parties etc. by imposing harsh penalties; still reliance on distant enactments might not be the most prudent way to go. One might argue that these are mere band-aid solutions, providing only for interim arrangements, yet as of now, India lacks any explicit Legislation governing the use of AI in arbitration. AI tools are not inherently prohibited. They become problematic when replacing the arbitrator's exercise of judgment; in AI governance, this is known as maintaining a 'human-in-the-loop'.²⁵ It is crucial to acknowledge that AI chatbots are robots and not Judges. Their limitation of computing on very limited data set (especially in arbitration) is extremely alarming, and thus dependence on their answers/suggestions needs an overly cautious approach. Needless to say, the human approach is the best approach.

²⁴ ACERIS LAW, *When Arbitrators Use AI: LaPaglia v. Valve and the Boundaries of Adjudication* 4 (Apr. 19, 2025), <https://www.acerislaw.com/when-arbitrators-use-ai-lapaglia-v-valve-and-the-boundaries-of-adjudication/>.

²⁵ Nariat Pashaeva, *AI and Exceeding Power: Lessons from LaPaglia v. Valve Corporation*, Daily Jus (Oct. 24, 2025), <https://dailyjus.com/legal-tech/2025/10/ai-and-exceeding-power-lessons-from-lapaglia-v-valve-corporation/>.