

Man Meets Machine: Analysing The Scope of Artificial Intelligence In The Realms Of Arbitration And Mediation

Monusha Nambiar*

Introduction

By virtue of his innate behaviour, man has been prone to engage in dispute since time immemorial for reasons ranging from survival to show of dominance. The increasing complexities of society with the passage of time have rendered the dynamics of man and his disputes with greater perplexity, that were appropriately addressed by the tools for pacification that emerged with civilisation and modernisation. Shifting focus to modern day- the framework for dispute resolution branches into litigation and alternate methods, each bearing its own set of pros and cons. Simultaneously, the growth of technology has added the element of Artificial Intelligence (AI) to this intricate system of dispute resolution- particularly in recent years.

* Student of IX Semester B.A.,LL.B. (Hons), School of Legal Studies, CMR University

Literature Review

The academic discussion on AI in Alternate Dispute Resolution (ADR) has gained ground in recent times. This literature review assays the various viewpoints presented on the intersection of AI and ADR.

In the context of AI, it is relevant to take note of one of the chief works on the aims of AI is ‘*Computing Machinery and Intelligence*’¹ (Turing, 1950), which sought to question whether machines are capable of thought.

‘*The Role of Artificial Intelligence in Online Dispute Resolution*’² is a relatively early attempt at gauging the potential areas that AI could make effective in dispute resolution. The work primarily outlined the various forms of AI that largely pertained to the automation of tasks involved in dispute resolution such as argumentation. It further rendered a comparative analysis between two programmes namely SmartSettle and FamilyWinner. However, a less optimistic view was presented in ‘*Online dispute resolution: an artificial intelligence perspective*’³, wherein the

¹A. M. Turing, *Computing Machinery and Intelligence*, 59(236) MIND 433-460, (1950), Available at <https://doi.org/10.1093/mind/LIX.236.433>.

² Arno R Lodder & Ernest M Thiessen, *The role of Artificial Intelligence in Online Dispute Resolution* 18 UNECE (2003).

³ Davide Carneiro et al., *Online dispute resolution: an artificial intelligence*

existing media for creation of the link between Online Dispute Resolution (ODR) and AI was deemed as largely ‘underdeveloped’ and ‘man-operated’. In ‘*Algorithmic Dispute Resolution*’⁴, a nuanced effort was made to evaluate the potential that

AI holds in terms of the automation of dispute resolution with reference to corporate disputes, with the aid of algorithms, ODR and blockchain technologies. ‘*Using Artificial Intelligence to provide Intelligent Dispute Resolution Support*’⁵ (John Zeleznikow, 2021) sought to evaluate the intervention of AI particularly in the area of negotiation and in ODR. In the context of negotiation, the work analysed various AI tools including INSPIRE and Negoisst, that have been adopted in an attempt to facilitate negotiation and traced the development of the same. It further propounded the development of a layered hybrid system to develop a comprehensive and efficacious system of ODR.

perspective, 41 ARTIF INTELL REV 211–240 (2014), Available at <http://link.springer.com/10.1007/s10462-011-9305-z>.

⁴ Jeremy Barnett & Philip Treleaven, *Algorithmic Dispute Resolution—The Automation of Professional Dispute Resolution Using AI and Blockchain Technologies*, 61 COMP. JOUR. 399–408 (2018), Available at <https://academic.oup.com/comjnl/article/61/3/399/4608879>.

⁵ John Zeleznikow, *Using Artificial Intelligence to provide Intelligent Dispute Resolution Support*, 30 GROUP DECIS NEGOT 789–812 (2021), Available at <https://doi.org/10.1007/s10726-021-09734-1>.

The present work will evaluate the developments in this regard over time and undertake a holistic analysis of the threats and opportunities presented by the intersection of AI in two particular fields of dispute resolution i.e., arbitration and mediation. Accordingly, this work will contribute to existing literature and further provide a prospective outlook on the subject-matter by additionally taking into account supporting legal and technological infrastructure.

Analysing the scope of AI in Arbitration & Mediation

Conceptual Background

In order to gain insight into the nature and extent of intersection between AI and specific methods of ADR, it is pertinent to present a notional understanding of the concepts of AI as well as arbitration and mediation.

1.1.1. Artificial Intelligence (AI)

AI has been defined as- “Algorithms enabled by constraints, exposed by representations that support models targeted at loops that tie thinking, perception and action together.”⁶ It primarily refers to the machine-based

⁶Stefaan Verhulst, *How Does Artificial Intelligence Work?*, THE LIVING LIBRARY (2021), <https://thelivinglib.org/how-does-artificial-intelligence-work/> (last visited Dec 15, 2021).

technological structure that seeks to create actions as produced by the human intellect. AI therefore, may be identified as algorithms that bear the potential to produce certain outcomes without the need for continuous input.

Furthermore, there are 4 tests that assist in determining the extent of human behavioural mimicry, these tests may be briefly outlined as follows and may be taken into account to understand the extent of incorporating AI into different methods of ADR-

- (i) The Turing Test stipulates that in order to be regarded as AI, the entity must be able to replicate the ability of man-to-man conversation by exhibiting dexterity in language, memory, reasoning and acclimatization. It checks the ability of AI to ‘act like a human’.

- (ii) The Cognitive Modelling Test largely reflects the skill of ‘thinking like a human’⁷, and involves a juxtaposed study of the variations in behavioural output of a man and machine through experiments and multiple scenario testing of the same.

⁷See generally, Allen Newell & Herbert A. Simon, *Computer Simulation of Human Thinking*, 134 SCIENCE 2011–2017 (1961), <https://www.jstor.org/stable/1708146> (last visited Dec 16, 2021).

- (iii) The Laws of Thought Test is based on the premise that the prime controller of action and behaviour is symbolic logic⁸- and accordingly, the AI is intended to draw inferences and resolve problems based on certain notations of what is deemed logical. It reflects the ability to ‘think rationally’.
- (iv) The Rational Agent Test is a modification of the ‘Laws of Thought’ approach, this test reflects the ability to ‘act rationally’ and ascertain the most ideal outcome in the given circumstance, by taking into account logic as well as other influencing factors in a given situation.⁹

ADR Methods- Arbitration & Mediation

ADR essentially provides a number of substitute tools and methods, that facilitate the resolution of legal problems and settlement of

disputes beyond the boundaries of the traditional court system. It involves the intervention of neutral third-parties to resolve matters in an

⁸See generally, Ranjeet Singh, *Rise and Fall of Symbolic AI*, MEDIUM (2019), <https://towardsdatascience.com/rise-and-fall-of-symbolic-ai-6b7abd2420f2> (last visited Dec 16, 2021).

⁹See, Vikas Hazrati, *AI: Rational Agents and Operating Environments*, KNOLDUS BLOGS (2020), <https://blog.knoldus.com/ai-rational-agents-and-operating-environments/> (last visited Dec 16, 2021).

expeditious and cost-friendly manner. The various methods of ADR include- Arbitration, Mediation, Conciliation, Negotiation and Lok Adalats- of which the scope for AI interaction in the former two methods will be considered.

Arbitration refers to the process of dispute resolution, whereby the parties to a dispute submit the matter to a third-party (known as the ‘arbitrator’), for final and binding resolution of the dispute. It is a voluntary, mutually agreed upon method that enables the settlement of disputes between two or more persons. Following several developments¹⁰, the status of the law in this regard is now primarily governed by a framework based on uniform set of rules¹¹ in the jurisdictions of the signatory parties. In India, the law relating to arbitration is encapsulated in the Arbitration and Conciliation Act, 1996. Further, any dispute that involves the adjudication of private rights of parties (civil matters) can be referred to arbitration through agreement¹².

¹⁰DAVID D. CARON & LEE M. CAPLAN, THE UNCITRAL ARBITRATION RULES: A COMMENTARY 3-8 (Oxford University Press, 2013).

¹¹ UNCITRAL MODEL LAW ON INTERNATIONAL COMMERCIAL ARBITRATION (1985).

¹² Arbitration & Conciliation Act, 1996, § 7, No. 26, Acts of Parliament, 1996 (India).

On the other hand, Mediation refers to method of dispute settlement wherein an impartial and neutral third-party (known as the ‘mediator’) facilitates the parties to the dispute to reach an amicable settlement, which is thereafter reduced to writing in the form of a binding agreement. It is a confidential, party-oriented method of dispute resolution for all types of matters except cognizable and non-compoundable criminal offences. In India, the law on mediation is scattered and found across a number of statutory provisions including the Section 89 of the Code of Civil Procedure 1908, Mediation Rules 2005, Section 442 of the Companies Act 2013, etc.

Current developments & Recent Trends

The present section will outline the developments in law and in technology in order to facilitate a contemporary analysis of the subject-matter.

Legislative & Policy Framework in India

At present, there is no body of extensive law that deals with AI or its inculcation in the field of ADR. However, there are several ancillary laws

that invite attention in this regard such as the data privacy laws¹³, intellectual property rights¹⁴, etc.

In the context of AI in ADR, the autonomy offered to parties under the UNCITRAL Model Law¹⁵ may facilitate the use of some variations of AI. The role of AI has gained particular relevance following the rise of ODR or Online Dispute Resolution during the COVID-19 pandemic¹⁶- which involves the resolution of disputes on virtual platforms. In its most recent policy plan, the NITI Aayog published ‘Designing the Future of Dispute Resolution: The ODR Policy Plan for India’, wherein extensive reference was made to the potential that AI holds to resolve disputes of the Government, as well as for private parties evaluating the role of data and dispute resolution patterns, analysing the process of dispute resolution in court-annexed centres, etc. One of the most promising recommendations

¹³ See, The interplay of AI, data and privacy, <https://indiaai.gov.in/article/the-interplay-of-ai-data-and-privacy> (last visited Dec 18, 2021).

¹⁴ See, AI and Intellectual Property Rights, , WEBSITE , <https://indiaai.gov.in/ai-standards/ai-and-intellectual-property-rights> (last visited Dec 18, 2021).

¹⁵ UNCITRAL Model Law on International Commercial Arbitration, art. XIX, Jun. 21, 1985, UN Doc A/40/17.

¹⁶ Vishwam Kumar and Ritesh Verma, *Rise of Online Dispute Resolution amidst Covid-19* , 4(5) IJLMH 1562, 1565-66, <https://www.ijlmh.com/paper/rise-of-online-dispute-resolution-amidst-covid-19/> (last visited Dec 19, 2021).

made in this regard is the suggestion to establish legal tech hubs¹⁷, so as to assist in the interlink between ADR and AI. A recent development in the attitude of the judiciary towards the intervention of AI in Arbitration may be witnessed through the positive expression of the former Chief Justice of India S A Bobde vis-à-vis the adoption of AI in the areas of formulating arbitral awards, estimating costs, precedent-based prediction of expected time-frame and dispute resolution.¹⁸

It may thus be inferred that there is no umbrella legislation governing AI-enabled ADR specific legislations for mediation or arbitration. However, the policy inclinations present favourable future prospects, especially in the realm of arbitration.

¹⁷ Yogima Seth Sharma, *NITI Aayog suggests government set up legal tech hubs*, THE ECONOMIC TIMES, November 29, 2021, <https://economictimes.indiatimes.com/news/economy/policy/niti-aayog-suggests-government-set-up-legal-tech-hubs/articleshow/87981669.cms?from=mdr> (last visited Dec 18, 2021).

¹⁸ Artificial Intelligence could help in arbitration in globalised era, says CJI, The Times of India, Feb 9, 2020, FICCI.IN, <http://ficci.in/ficci-in-news-page.asp?nid=20370> (last visited Dec 18, 2021).

Technological Developments

It is pertinent to note the existing infrastructural and technological developments vis-à-vis the use of AI in the spheres of arbitration and mediation. Some prominent AI-enabled arbitration technology that presently exists include- Arbitrator Intelligence¹⁹ (which is presented in the form of a website interface that permits the collection and review of data pertaining to the past performances of arbitrators, to facilitate users in choosing an arbitrator for their matter), Premonition²⁰ (predicts the possible outcomes in a matter), Tree Age²¹ (which builds a prediction of the procedure in a specific matter), etc. In the realm of mediation, existing AI include- Smart Settle²² and Family Winner²³ that facilitate settlement between parties.

¹⁹Arbitrator Intelligence, *Arbitrator Intelligence: State-of-the-Art Analytics on International Arbitrators*, ARBITRATOR INTELLIGENCE, <https://arbitratorintelligence.com/> (last visited Dec 19, 2021).

²⁰ Legal Analytics, PREMONITION, https://premonition.ai/legal_analytics/ (last visited Dec 20, 2021).

²¹ Simple Admin, *Litigation Risk Analysis*, TREEAGE SOFTWARE, <https://www.treeage.com/legal/> (last visited Dec 20, 2021).

²² Collaborative Negotiation Systems | Smartsettle ONE & Infinity, SMARTSETTLE , <https://www.smartsettle.com> (last visited Dec 20, 2021).

²³ See John Zeleznikow & Emilia Bellucci, *Family-Winner: Integrating game theory and heuristics to provide negotiation support* (2003).

Evaluating Opportunities & Threats

Potential Modes of Application

Based on the current shift to ODR in the pandemic-era and the moderate amount of success achieved by the existing technology invites focus to the abundant possibilities that AI-enabled spheres of arbitration and mediation.

In Arbitration, AI holds the potential to extend application in the following ways-

- (i) Algorithm to determine validity of the arbitral agreement in accordance with law of the competent jurisdiction.
- (ii) Auto-generation of arbitral awards in non-consequential matters that may be based on dynamic algorithms.
- (iii) Assistance to the arbitrator in terms of automation of the administrative tasks involved such as updating Order Sheet, Acknowledgment status on notices, e-recovery of evidences, etc.
- (iv) AI based on the Turing Test also harbours great potential to replicate certain functions of an arbitrator, or it may also permit intermediate capacity for the fulfilment of an Arbitral Tribunal Bench.
- (v) The establishment of an AI-enabled Arbitration system by Hong-Kong during the pandemic is a significant advancement towards the

use of AI in arbitration.²⁴ The initiative reflects a cost-effective and efficient beam of hope in the technological growth of arbitration.

In Mediation, a few forms of AI that hold the potential to extend application are-

- (i) Psycho-analysis of the parties upon their consent may permit the mediator in gauging the background in which the dispute arose through a processing of their change in body language, body temperature, anxiety and stress levels, etc. This is particularly beneficial in present matters.
- (ii) AI for recording notes and noting updates in status- that permits effective flow of events.
- (iii) Negotiation algorithms to effectuate drafting of mutually acceptable terms- in order to apply game theory²⁵ for instance, to outline the best possible outcome for the parties.
- (iv) Based on past practices, party dynamics and hearing-to-hearing

²⁴ Hong Kong Arbitration Society Launches a Brand-New AI Online Arbitration System to Resolve Disputes During the Pandemic - PR NEWSWIRE APAC, <https://en.prnasia.com/story/352653-0.shtml> (last visited Mar 7, 2022).

²⁵Devin Soni, *Introduction to Game Theory (Part 1) Towards Data Science*, TWD SCIENCE <https://towardsdatascience.com/introduction-to-game-theory-part-1-1a812d898e84> (last visited Dec 21, 2021).

updates, AI may predict the likelihood of settlement- which can aid a mediator as well the Court (if court-annexed) in determining the estimated time-frame, etc.

Challenges to AI-enabled Arbitration & Mediation

The various challenges/threats posed by AI-enabled Arbitration and Mediation are-

- (i) The elements of confidentiality guaranteed in mediation may raise data concerns with relation to the deletion and sharing of the information.
- (ii) While several matters directed to mediation involve personal elements, complexities in arbitration are some challenges that highlight the need for human element in certain matters- no scope for total involvement.
- (iii) Unemployment due to machine replacement.
- (iv) Inadequate legislative framework further handicaps the regulation of AI in arbitration and mediation.
- (v) While the present developments are promising, there yet remains the gap between notion and implementation due to the paced progress of technology.
- (vi) Inaccessibility and limited adoption of AI in arbitration and

mediation further invite some hurdles in its implementation.

- (vii) The increasing scope for adoption of AI in the area of international arbitration has yet to receive conducive response from the international community due to the threats it poses.²⁶
- (viii) The use of AI has also proven to demonstrate some shortcomings in terms of bias based on configured prejudices, reflected in the AI system. For example, in the USA a system to predict the outcome of courtroom litigation that was considered for the purposes of arbitration, reflected predisposition against the Afro-American community in terms of recidivism.²⁷

The abovementioned shortcomings pose significant albeit not insolvable challenges in the attempt to incorporate AI into arbitration and mediation. The same invite the need to formulate creative solutions that facilitate transformative incorporation.

²⁶ See, NCIA, Artificial Intelligence ‘AI’ In International Arbitration: Machine Arbitration, Available at <https://ncia.or.ke/wp-content/uploads/2021/08/ARTIFICIAL-INTELLIGENCE-AI-IN-INTERNATIONAL-ARBITRATION.pdf>.

²⁷ The pitfalls of AI that could predict the outcome of court cases, VENTUREBEAT (2022), <https://venturebeat.com/2022/03/01/the-pitfalls-of-ai-that-could-predict-the-outcome-of-court-cases/> (last visited Mar 7, 2022).

Suggestive Reforms & Conclusion

Suggestive reforms

In addition to the aforementioned explored possibilities of AI-enabled arbitration and mediation, the following suggestions are made-

- (i) Drafting of model rules to regulate data sharing and other concerns in order to supplement the development of ODR and AI-enablement, at national and international level.
- (ii) Training to help existing arbitrators and mediators to utilise the AI in a facilitative manner.
- (iii) Grants for development & implementation may be assessed, in order to encourage the development of need-based AI for arbitration and mediation.
- (iv) Inter-governmental initiatives to aid the development and incorporation of AI into arbitration and mediation.
- (v) Technical Review Committees may be setup in order to ensure that AI remains updated and keeps changing with evolving times.
- (vi) Accountability and inputs of members of the Committee in circumstances involving questions regarding the neutrality of the AI or perceptively unjustified outcomes may further assist in refining the proposed developments in the system.

The development of a technological infrastructure and legislative background in order to support the same would enable the harvest of benefits from AI-enabled ADR.

Conclusion

The interaction of man with machine creates a world of possibilities in the sphere of automation and efficacy. The benefits of the same may extend to a number of domains of human life one of it being dispute resolution. The increasing complexities of modern society further on the role of catalyst in the creation of disputes- be it contractual, familial or otherwise. In the midst of such chaos there is undeniably a need for increased efficiency at a reasonable expense. The same creates the scope for problem-solving through the use of AI. The present work has effectively explored the scope of AI in terms of present and potential tools, in light of the contemporary scenario. However, the advent of modernised techniques does not appear without challenges- albeit a number of these challenges may be tackled through the development and regulation of AI-infrastructure in arbitration and mediation. Further, it may be noted that while the problems of pendency and backlog are only an emerging hurdle in the field of ADR/ ODR, AI holds the potential to tackle these issues at

the threshold. It is also vital for the AI to keep evolving with change in economic and technological changes. human behaviour, societal dynamics and other influential factors that shape disputes.