

Algorithmic Justice or Automated Injustice? A Critical Examination of the Challenges of Artificial Intelligence in Arbitration

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Abstract

Artificial Intelligence (AI) is often regarded for its ability to increase accessibility, lower costs, and improve efficiency in arbitral procedures. Beneath these potentials, are a number of significant issues that raise doubts about whether AI promotes algorithmic justice or results in automated injustice. This study employed a doctrinal research design, which is largely qualitative, meaning it is non-numerical. A doctrinal research design is a theoretical approach rooted in libraries that is mostly employed in legal research. It entails identifying, organizing, and interpreting legal norms and principles through the critical analysis and synthesis of existing legal resources, including statutes, case laws, and regulations. Without gathering personal evidence, this research approach concentrates on "the letter of the law," looking at legal theory separately to address particular legal issues, formulate legal theories, and spot contradictions, ambiguities, or places in need of reform. The study revealed that the drawbacks of AI in arbitration are critical, and particular attention is required to resolve the challenges of algorithmic bias, decision-making opacity, data scarcity, hallucinated results, and the loss of party autonomy. In addition, the study discovered that, even while AI can be a useful tool to help arbitration, relying too much on opaque algorithms runs the risk of compromising due process, transparency, and the validity of arbitral decisions. The study concludes that whereas the merits of the use of AI in arbitration cannot be overestimated, care must be exercised to consider the shortcomings of AI. The study recommends the need for AI specific enactment in Nigeria.

Keywords: *Alternative dispute resolution, Arbitration, Artificial Intelligence, Algorithm, Technology.*

1. Introduction

With the promise of increased effectiveness and cost-effectiveness through technologies like document review, legal research, and predictive analytics, the use of artificial intelligence (AI) in arbitration has gained attention. Within five years, 91% of legal professionals anticipate using AI for research and data analytics, according to the 2025 International Arbitration Survey.¹ Despite this enthusiasm, there are serious worries, mainly over privacy, fairness, and AI's ability to match

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¹ Jens Petry and Tom Gassmann, 'Artificial Intelligence in Dispute Resolution: Development, Challenges and Perspectives for Legal Practice' <https://www.reuters.com/legal/legalindustry/artificial-intelligence-dispute-resolution-developments-challenges-perspectives-2025-07-11/?utm_source=chatgpt.com> accessed 12 August 2025.

human judgment, particularly when it comes to activities like drafting legal reasoning, where just 15% of counsel approve its usage.²

AI's infamous "black box" characteristic, which compromises accountability and transparency, is the main point of criticism. Arbitration's fundamental principles—party autonomy, confidentiality, and decision-justification—are at odds with opaque algorithmic procedures that are hard for consumers to comprehend or challenge.³ Furthermore, the integrity of arbitral procedures may be gravely jeopardized by AI systems' susceptibility to hallucinations and fake outputs, such as completely made-up case citations or manufactured evidence.⁴

Algorithmic prejudice and diminished human agency are yet another significant disadvantage. AI systems have the potential to perpetuate prejudice based on race, gender, economic status, or corporate bias by reinforcing systemic biases present in their training data. This could jeopardize the impartiality of deliberation in important arbitral rulings.⁵ Furthermore, an excessive dependence on AI tools may result in cognitive biases such as the "anchor effect," in which human arbitrators too easily yield to algorithmic recommendations, diminishing their capacity for independent judgment and jeopardizing due process.⁶

This study critically investigates whether AI in arbitration achieves algorithmic fairness or turns into automated injustice in light of these difficulties. We investigate whether AI actually promotes just arbitral results or if it instead runs the danger of undermining confidence in the fairness and human-centeredness of arbitration by examining concerns of transparency, prejudice, delusion, and human oversight. Based on current research and empirical evidence, this analysis seeks to shed light on the way toward responsible, controlled AI use that complements rather than replaces the human components of arbitral justice.⁷

² *ibid.*

³ Akash Gupta, Arushi Bajpai and Samanvi Narang, 'Setting the Boundaries for the Use of AI in Indian Arbitration' (2025) 107 EP 39; Mariana Souza Barros Rezende, 'Artificial Intelligence in Arbitration: Use, Challenges and Limitations' <https://cms.law/en/zaf/publication/cms-international-disputes-digest-2024-summer-edition/artificial-intelligence-in-arbitration-use-challenges-and-limitations?utm_source=chatgpt.com> accessed 23 August 2025.

⁴ Steve Kim, 'Technology and Arbitration: Illuminating your New Road Map' <https://globalarbitrationreview.com/review/the-asia-pacific-arbitration-review/2025/article/technology-and-arbitration-illuminating-your-new-road-map?utm_source=chatgpt.com> accessed 1 September 2025; Mehves Erdem Kamiloglu, 'Artificial Intelligence in Arbitration' <https://www.erdem-erdem.av.tr/en/insights/artificial-intelligence-in-arbitration?utm_source=chatgpt.com> accessed 14 September 2025.

⁵ Bjorn Laukemann, 'Alternative Dispute Resolution and Artificial Intelligence' <<https://www.cplj.org/publications/9-5-alternative-dispute-resolution-and-artificial-intelligence>> accessed 14 September 2025.

⁶ *ibid.*

⁷ Tochukwu Micheal Benedicth and Obioma Chike-Okenyi, 'Overview of the Laws and Practice of Arbitration in Nigeria: From Preliminaries to Award' (2020) 9 International Journal of Innovative Research & Development 265; Germán Darío Flórez Acero, 'The Use of Artificial Intelligence in Arbitration: Friends with Benefits' <[https://revistas.javeriana.edu.co/files-articulos/VJ/74\(2025\)/6722763004/index.html](https://revistas.javeriana.edu.co/files-articulos/VJ/74(2025)/6722763004/index.html)> accessed 13 August 2025; S Miller, '5 Reasons why AI won't replace Humans' <<https://synder.com/blog/5-reasons-why-ai-wont-replace-humans/>> accessed 12 June 2022; M Waqar, 'The Use of AI in Arbitral Proceedings' <<https://deliverypdf.ssrn.com/delivery.php?ID=1870861220711091271150240670940650780400420190510000350>>

2. Artificial Intelligence Arbitration

A wide range of studies, including technical, social, and humanitarian ones, are actively studying artificial intelligence as a phenomenon of human reality. The last step in determining its key characteristics has not yet been established, and given the dynamics of events surrounding artificial intelligence, this is unlikely to occur in the foreseeable future. The latter is not ignored by legal research, which investigates it in light of its potential and actual function in legal reality. Furthermore, the norms of positive law already incorporate the normative consolidation of the idea of artificial intelligence along with a number of other facets of the legal control of relationships involving it.⁸

Concerns over the openness of such systems' operations are raised by the growing use of AI in both the public and private domains, particularly when the computers themselves make judgments that affect both citizens and active attorneys.⁹ Humans find it increasingly difficult to comprehend the internal workings of artificial intelligence as it grows and becomes more complex. This leads to a fear of the unknown, which is common in human consciousness,¹⁰ as well as a fear that humans will lose their place in the world as a result of the shift to a self-learning and self-organizing system.¹¹

At the very least, we can distinguish between two categories of artificial intelligence: artificial intelligence that processes, refines, or reproduces information, and artificial intelligence that produces information and engages in communication. While the latter can be thought of as a subject, the former functions as an object of law. We are not discussing the idea of equating the terms 'human' and 'artificial intelligence', even if this presupposes that AI has some autonomy-based capacity.¹² The latter cannot, either biologically or socio-communicatively, be compared to humans at this point in their technological and social evolution.¹³

Arbitration is sometimes praised for its comparatively quick turnaround time to litigation; but, as more complicated cases are brought before it, this speed characteristic is becoming less and less real.¹⁴ The use of technology and technical aids is becoming more and more important in order to

7808606502500208200910308408501205701703511103500303010302812210802811212305308801608708607109602810209410311602604403100201203101009802202708808309900407106409403007908509300609912001602103102092&EXT=pdf&INDEX=TRUE> accessed 16 August 2025.

⁸ Andrey V Skorobogatov1 and Alexandr V Krasnov, 'Law Nature of Artificial Intelligence' (2023) 14 Problems of Information Society 3.

⁹ AG Samusevich, 'Digital Law Enforcement: Theory and Practice' (2023) 4 Siberian Legal Bulletin 22.

¹⁰ VV Bocharov, 'Power and Taboo: About the Cultural and Psychological Origins of Traditionalism' (2017) 13 Cultural-Historical Psychology 109.

¹¹ VC Müller, 'Ethics of Artificial Intelligence' in A Elliott (ed), *The Routledge Social Science Handbook of AI: Part I: Social Science Approaches to Artificial Intelligence* (Routledge 2021).

¹² T Mulgan, 'Corporate Agency and Possible Futures' (2019) 154 Journal of Business Ethics 901.

¹³ Andrey V Skorobogatov1 and Alexandr V Krasnov, 'Law Nature of Artificial Intelligence' (2023) 14 Problems of Information Society 3.

¹⁴ Thomas D Halket, 'The Use of Technology in Arbitration: Ensuring the Future is Available to Both Parties' (2007) 81 St. John's Law Review 1.

preserve all the effective aspects of the arbitral process that have won over the hearts of numerous parties who still turn to it for dispute resolution, particularly in these modern times.¹⁵

The use of technology in arbitration has been increasing in tandem with the use of technology in the legal profession overall,¹⁶ which has had a remarkably swift and extensive impact over time.¹⁷ But compared to other dispute resolution procedures, the adaptability of the arbitration framework has offered an even stronger incentive for technology use to flourish in arbitration.¹⁸ Therefore, the use of technology in arbitral proceedings has become unavoidable over time.¹⁹

The global drive to embrace internet use, particularly in the legal sphere, is where the application of technology in general and artificial intelligence in particular in the practice of arbitration first emerged.²⁰ Furthermore, it has been suggested that the use of technology has flourished more in arbitration than in litigation because arbitration is not constrained by the implementation and procurement calamities that plague big institutions like the court when it comes to obtaining and utilizing technology.²¹ Thus, these facts help to explain the beginnings of technology use in arbitration as well as the elements that have contributed to its success.

Notwithstanding all of these alluring aspects of using technology in arbitration, it's crucial to remember that the field of using IT to support arbitral procedures is still quite young.²² Nevertheless, clients are putting pressure on the international commercial arbitration arena because they feel that the same technology that has revolutionized international trade should also be able to help resolve their conflicts as quickly and effectively. However, there is a crucial warning against using technology to circumvent procedural protections and lower the standard of justice.²³

Taking all of these things into account, it is accurate to say that, as of right now, information technology use has gained significant traction and that significant arbitral institutions are using it more and more in their operations.²⁴ As a result, although the use of technology in arbitration is

¹⁵ *ibid.*

¹⁶ Thomas Schultz, *Information Technology and Arbitration: A Practitioner's Guide* (Kluwer Law International 2006).

¹⁷ Richard Susskind, *The Future of Law: Facing the challenges of Information Technology* (Oxford University Press 1998).

¹⁸ Thomas Schultz, *Information Technology and Arbitration: A Practitioner's Guide* (Kluwer Law International 2006).

¹⁹ Richard Susskind, *The Future of Law: Facing the challenges of Information Technology* (Oxford University Press 1998).

²⁰ Jasna Arsic, 'International Commercial Arbitration on the Internet: Has the Future Come Too Early?' (1997) 14 *Journal of International Arbitration* 1.

²¹ Tyrone L. Holt, 'Whither Arbitration – What Can be Done to Improve Arbitration and Keep out Litigation's Ill Effects' (2008) 7 *DPBCLJ* 455

²² Gabrielle Kaufmann-Kohler and Thomas Schultz, 'The Use of Information Technology in Arbitration' <<http://lk-k.com/wp-content/uploads/The-Use-of-Information-Technology-in-Arbitration.pdf>> accessed 17 August 2025.

²³ *ibid.*

²⁴ International Chamber of Commerce, 'Information Technology in International Arbitration- Report of the ICC Commission on Arbitration and ADR' <<https://iccwbo.org/publication/information-technology-international-arbitrationreport-icc-commission-arbitration-adr/>> accessed 10 September 2025.

still a relatively new and appealing phenomenon globally, industry participants are already adopting information technology in their arbitral procedures because they see opportunities in it.

Due to the generally complicated nature of the cases that are brought before international arbitration, AI has been characterized as being especially required in this type of arbitration.²⁵ AI is said to be able to analyze large amounts of data before international arbitration procedures and, more significantly, make a logical decision devoid of cognitive biases.²⁶ However, given that international arbitration proceedings are non-repetitive in nature, a significant question has been raised regarding the actual utility of AI's machine learning capabilities, which allow it to predict outcomes in cases that are similar in international arbitration.²⁷

The detection of corruption and unfavorable effects on the part of the arbitrator or arbitrators, the encouragement of diversity in the selection of arbitral panels, and the arbitration of smart contracts are further facets of arbitration that have been linked to the growing use of artificial intelligence.²⁸ AI can be applied through the use of particular algorithms to identify warning signs of corruption in arbitral procedures, to increase the openness of the arbitrator appointment process by using automated short lists of arbitrators, and to improve the arbitral process in smart contracts by utilizing robots.²⁹

Artificial intelligence (AI) has further applications in arbitration, such as reviewing lengthy and highly detailed contracts to propose suitable arbitral institutions and arbitration venues.³⁰ In light of midnight provisions, artificial intelligence (AI) is thought to be able to decrease the excessive number of duties that people must complete in arbitral procedures.³¹ It has also been suggested that AI can effectively review arbitral awards to increase their likelihood of acceptance and enforcement by determining whether the arbitral tribunal has followed the necessary procedural formats and whether it has addressed all of the parties' concerns, among other things, in a quicker and more effective manner than humans.³²

²⁵ Maxi Scherer, 'International Arbitration 3.0 – How Artificial Intelligence Will Change Dispute Resolution' <https://papers.ssrn.com/sol3/Data_Integrity_Notice.cfm?abid=3377234> accessed 11 September 2025.

²⁶ *ibid.*

²⁷ *ibid.*

²⁸ Lito Dokopoulou, *Arbitration X Technology: A Call for Awakening?* (Kluwer Arbitration 2019).

²⁹ *ibid.*

³⁰ Ibrahim Shehata, 'The Marriage of Artificial Intelligence & Blockchain in International Arbitration: A Peak into the Near Future!!!' <<http://arbitrationblog.kluwerarbitration.com/2018/11/12/the-marriage-of-artificial-intelligence-blockchain-ininternational-arbitration-a-peak-into-the-near-future/>> accessed 9 September 2025.

³¹ The term 'Midnight Clause' is used to refer to arbitration provision/clause in contracts that is often inserted at the end of the contract document when memorialising the final terms of the deal, making it appear like an afterthought long into the process. Hence the reference to midnight. Also see Nancy Holtz, 'Beware the midnight Clause: Hold the Champagne?' <<https://www.jamsadr.com/files/uploads/documents/articles/holtzinsiddecounsel.com-beware-the-midnight-clause.pdf>> accessed 2 September 2025.

³² Ibrahim Shehata, 'The Marriage of Artificial Intelligence & Blockchain in International Arbitration: A Peak into the Near Future!!!' <<http://arbitrationblog.kluwerarbitration.com/2018/11/12/the-marriage-of-artificial-intelligence-blockchain-ininternational-arbitration-a-peak-into-the-near-future/>> accessed 9 September 2025.

Thus, the following succinctly describes the use of AI to arbitration in general and international arbitration in particular: By enhancing human cognitive capacities and automating processes that would otherwise require a significant amount of time from human labor, artificial intelligence (AI) has the potential to give parties better representation.³³ By improving the impartial selection of arbitrators and examining awards to make sure they are sound, AI may also expedite the arbitration adjudication process.³⁴ AI may also make it easier for third parties, including third party funders, to make better decisions about which cases to finance by providing them with the information they need about arbitral disputes.³⁵ It is also noteworthy that all of these AI interventions will probably lower the parties' arbitration costs over time.³⁶

In 1956, John McCarthy first used the term "artificial intelligence," defining it as "the science and engineering of making intelligent machines, especially intelligent computer programs." It has to do with the linked task of comprehending human intelligence through computer use. Nevertheless, he argued, AI need not limit itself to "biologically observable" techniques.³⁷ Furthermore, Edna Sussman and Kathleen Paisley's formulation provides a helpful framework for explaining how AI functions. They describe it as a procedure that combines processing systems with vast amounts of data so that the software can "learn automatically from patterns or features in the data." 6.

Paisley and Sussman acknowledge that the term artificial intelligence (AI) is frequently used in a broad sense and covers a wide range of topics, such as natural language processing and machine learning.³⁸ In the end, they come to the conclusion that artificial intelligence (AI) is the software's capacity to automatically learn from patterns or features in the data, making it "intelligent."³⁹ Understanding the importance of AI and why it would be essential to the creation of more efficient arbitrations begins with its capacity to create its own "thinking patterns."

Jacob Turner demonstrates the differences between several AI model types by highlighting the distinction between automated and autonomous systems. "While automated systems must adhere to a preset set of instructions without any discretion as to how they are to be followed, autonomous

³³ Lucas Bento, 'International Arbitration and Artificial Intelligence: Time to Tango?' <<http://arbitrationblog.kluwerarbitration.com/2018/02/23/international-arbitration-artificial-intelligencetime-tango/>> accessed 9 September 2025.

³⁴ *ibid.*

³⁵ *ibid.*

³⁶ Ibrahim Godofa, 'Artificial Intelligence and its Future in Arbitration' (2020) 4 JCMSD 52; Paul Bennett Marrow, Mansi Karol and Steven Kuyan, 'Artificial Intelligence and Arbitration: The Computer as an Arbitrator—Are We There Yet?' (2020) 74 Dispute Resolution Journal 35; Paul Obo Idornigie, 'New Developments in Arbitration Law and Practice in Nigeria' <<https://paulidornigie.org/wp-content/uploads/2020/12/New-Developments-in-Arbitration-Law-and-Practice-in-Nigeria-Final.pdf>> accessed 4 August 2025.

³⁷ 'Interview with John McCarthy' <<http://jmc.stanford.edu/artificial-intelligence/what-is-ai/index.html>> accessed 13 August 2025.

³⁸ Kathleen Paisley and Edna Sussman, 'Artificial Intelligence Challenges and Opportunities for International Arbitration' (2018) 11 NYDRL 35.

³⁹ *ibid.*

systems are those that can make decisions on their own without being explicitly programmed."⁴⁰ Thus, the level of human involvement in the process is what distinguishes automated systems from autonomous ones. For example, according to the well-known saying, an autonomous automobile, which would not only be driverless but also be able to self-navigate and choose its own path and destination, would be more intelligent and independent than an automated car.

It is essential to set ethical and legal guidelines for regulating autonomous systems because of their capacity for decision-making.⁴¹ Furthermore, other types of technology are deterministic, meaning they carry out human-programmed instructions, making the distinction between autonomous and automated systems crucial.⁴² We will talk about autonomous systems in light of the significant potential for AI to be used in arbitration, specifically the potential for a machine, or 'robot,' arbiter in the future. AI is a novel phenomenon that is being addressed extensively these days, particularly in the legal industry. The 2017 triumph of AlphaGo, a machine learning system, against the Go masters serves as an illustration of the dynamic and innovative autonomous behavior that AI is capable of.⁴³ The way the computer defeated the Go champion was the most intriguing part of the loss. No human in history had ever used the new strategy that AlphaGo had developed to play the game. This was heralded as a breakthrough in the field of artificial intelligence.⁴⁴ The game, which has been around for at least 4,000 years, is regarded as the hardest strategic game available.⁴⁵

Particularly in China and South Korea, children are sent to private institutions with the express purpose of mastering the game.⁴⁶ The fact that it takes years of playing for several hours every day to become proficient at this game further demonstrates how difficult and demanding it is.⁴⁷ AI's capacity for autonomous action is not just found in games; it is present in all fields, most notably the legal one.⁴⁸

⁴⁰ Mahnoor Waqar, 'The Use of AI in Arbitral Proceedings' <<https://moritzlaw.osu.edu/sites/default/files/2022-08/11-20Waqar%20Publication%20Final%20343-366.pdf>> accessed 15 September 2025.

⁴¹ David Levinson, 'On the Differences Between Autonomous, Automated, Self driving, Driverless Cars, TRANSPORTIST' <<https://transportist.org/2017/06/29/on-the-differences-between-autonomous-automated-self-driving-and-driverless-cars/>> accessed 14 September 2025.

⁴² Jacob Turner, 'Robot Rules—Jacob Turner' <<https://audioboom.com/posts/7191406-ep-71-robot-rules-jacob-turner>> accessed 15 September 2025.

⁴³ *ibid.*

⁴⁴ Jason Roell, 'Why AlphaGo is a bigger game changer for AI than many realize' <<https://medium.com/@roelljr/why-alpha-go-is-a-bigger-game-changer-for-artificial-intelligence-than-many-realize-64b00f54a0>> accessed 1 September 2025.

⁴⁵ 'Go/ History & Rules' <<https://www.britannica.com/topic/go-game>> accessed 4 September 2025.

⁴⁶ Agence France-Presse, 'An Entire School Dedicated to Game of Go' <<https://www.scmp.com/yp/discover/lifestyle/features/article/3058853/entire-school-dedicated-game-go>> accessed 7 September 2025.

⁴⁷ *ibid.*

⁴⁸ Jacob Turner, 'Robot Rules—Jacob Turner' <<https://audioboom.com/posts/7191406-ep-71-robot-rules-jacob-turner>> accessed 15 September 2025.

Regarding arbitration, Nigel Blackaby and Constantine Sides contend that it is primarily a "simple method" of conflict resolution.⁴⁹ Each party in an arbitration presents their case to the decisionmaker or decisionmakers, referred to as the "arbitrator," whose judgment they are willing to trust.⁵⁰ After reviewing and applying the relevant legislation, hearing the arguments of the parties, and taking into account the facts, the arbitrator makes a final decision, referred to as the 'award.'⁵¹ Rather than being the result of any state's coercive power, the award is final and binding on the parties because they have agreed that it should be.⁵²

However, because of national laws and international treaties like the Convention on the Recognition and Enforcement of Foreign Arbitral Awards,⁵³ arbitral awards are enforceable by a court of law if the losing party does not voluntarily implement them. This means that arbitration is a good way to get a final and binding decision on a dispute, or series of disputes, without going to a court of law.⁵⁴

AI was previously thought to be outside the scope of conflict resolution, particularly in arbitration. This could be explained by the arbitral community's hesitancy to implement new processes out of concern that they might result in challenges in public courts during the enforcement phase.⁵⁵ Lucas Bento goes into additional detail on this, contending that the use of judgment in advocacy, something that machines (before) lacked, is the cause of this reluctance.⁵⁶ With the emergence of the New York Convention and its pro-enforcement slant, it is argued that these caveats appear out of date.

State courts are now required by the pro-enforcement bias to give the award the greatest possible effect, subject to the reservations outlined in Article V of the New York Convention. In addition, the world is rushing to adjust to new work schedules and habits as a result of the COVID-19 pandemic.⁵⁷ Given that the arbitral process is increasingly becoming digitized and virtualized, artificial intelligence (AI) in arbitration is a valuable addition. Adding AI-based technology to the arbitral process would be the next natural step.⁵⁸

⁴⁹ Nigel Blackaby and others, *Redfern and Hunter on International Arbitration 2* (OUP 2015).

⁵⁰ *ibid.*

⁵¹ *ibid.*

⁵² *ibid.*

⁵³ Convention on the Recognition and Enforcement of Foreign Arbitral Awards art. III, V, June 10, 1958, 21 U.S.T. 2517, 330 U.N.T.S. 3 [hereinafter New York Convention]

⁵⁴ Nigel Blackaby and others, *Redfern and Hunter on International Arbitration 2* (OUP 2015).

⁵⁵ Philippe Billiet and Filip Nordlund, 'A New Beginning—Artificial Intelligence and Arbitration' (2018) 26 KAR 26.

⁵⁶ Lucas Bento, 'International Arbitration and AI: Time to Tango?' <<http://arbitrationblog.kluwerarbitration.com/2018/02/23/international-arbitration-artificial-intelligence-time-tango/>> accessed 14 September 2025.

⁵⁷ Emma Jacobs, 'The Future of Work' <<https://www.ft.com/content/7202c5d4-fbc9-4ad7-93c2-cb05e6b582e9>> accessed 11 September 2025.

⁵⁸ Horacio Grigera Naón and Björn Arp, 'Virtual Arbitration in Viral Times: The Impact of Covid-19 on the Practice of International Commercial Arbitration' <<https://www.wcl.american.edu/impact/initiatives>>

Thus, David Gauke's remarks from his 2019 speech at the AI Summit in London, Technological revolution is no longer on the horizon, it is here, seem to have held up quite well.⁵⁹ Nearly every profession has seen a growth in the use of technology as a result of this technological revolution, and the legal industry is no different. There would be "synergistic opportunities" as a result of using AI in arbitral processes.⁶⁰

3. Artificial Intelligence in Arbitration: The Challenges

Certainly, there are certain drawbacks that come with the application of AI to arbitration. These are shortcomings, and are to be considered subsequently.⁶¹ Although the cost, speed, and efficiency of incorporating AI into ADR are advantageous, there are certain moral and legal issues that must be disregarded in the name of expediency. This article will evaluate AI-assimilated ADR to see if the present frameworks satisfy the requirements for a lawful dispute resolution mechanism, which include elements like impartiality, transparency, and adaptability. Similarly, it is impossible to undervalue the importance of emotional intelligence in ADR for achieving just and compassionate dispute settlement and promoting communication. These issues are thoroughly examined in this part, with an emphasis on arbitration to show how they impact the use of AI in ADR.⁶²

3.1. Lack of Emotional Intellect

Emotion and emotional intellect is an element exhibited only by humans. As a matter of fact, it is one thing humans can be proud of. Human beings possess the capacity to feel certain emotions such as happiness, sadness, hate, empathy, and even remorse. Whereas these emotions are exercisable by humans, same cannot be said of technology. Therefore, whereas human arbitrators

programs/international/news/virtual-arbitration-in-viral-times-the-impact-of-covid-19 on-the-practice-of-international-commercial-arbitration/> accessed 19 September 2025.

⁵⁹ David Gauke, Lord Chancellor and Sec'y of State for Just., House of Commons, Statement at The Artificial Intelligence in Legal Services Summit (June 4, 2019).

⁶⁰ Lucas Bento, 'International Arbitration and Artificial Intelligence: Time to Tango?' <<http://arbitrationblog.kluwarbitration.com/2018/02/23/international-arbitration-artificial-intelligencetime-tango/>> accessed 9 September 2025; Mahnoor Waqar, 'The Use of AI in Arbitral Proceedings' (2022) 37 Ohio State Journal on Dispute Resolution 344.

⁶¹ See also I Shnurenko, T Murovana and I Kushchu, *Artificial Intelligence: Media and Information Literacy, Human Rights and Freedom of Expression* (TheNextMinds Publications 2020); see also E Brynjolfsson and A McAfee, 'Artificial Intelligence for Real' <<https://store.hbr.org/product/artificial-intelligence-for-real/BG1704>> accessed 21 September 2025; K Jones, M Buchser and J Wallace, 'Challenges of AI' <<https://www.chathamhouse.org/2022/03/challenges-ai>> accessed 27 September 2025; S Sharma and V Chaturvedi, 'Ethical and Legal Issues of AI Technology and its Applications' (2022) 6 International Journal of Law and Legal Jurisprudence Studies 49; R McCarl, 'The Limits of Law and AI' (2022) 90 UCLR 923; see also GL Benton and SK Andersen, 'Technology Arbitration Revisited' (2020) 74 Dispute Resolution Journal 1; M Scherer, 'Artificial Intelligence and Legal Decision-Making: The Wide Open?' (2019) 36 Journal of International Arbitration 539; C Negi, 'Concept & Overview of Online Arbitration' <<https://deliverypdf.ssrn.com/delivery.php?ID=987090099095089086028066064097091010005037036006012036006088065066072117000008070087032117025055047016034005093065102001070069054019030026019007095005031007095079127070049034098123008067101004081107091064093007119065125085007067067031003091122013126031&EXT=pdf&INDEX=TRUE>> accessed 21 August 2025.

⁶² Anjanette H Raymond and Scott J Shackelford, 'Technology, Ethics, and Access to Justice: Should an Algorithm be Deciding Your Case?' (2014) 35 MJIL 485.

are capable of feeling or experiencing certain emotions, AI arbitrators are absolutely incapable of such.⁶³ People desire to communicate personally with AI, but it is unable to convey empathy or feelings to users, thereby constituting a weakness as a result of the lack of emotional capability and intelligence. Despite the fact that AI systems are quick, logical, and precise, they lack intuition, empathy, and cultural awareness. And it is precisely these skills that humans have, which makes humans powerful. Only a human being can read a face and understand what to say right away.⁶⁴ It should be noted however that the resultant consequence of this emotional lack could be in making decisions that are unfair but accurate.⁶⁵

Designers of AI systems are just starting to include 'emotions' in new AI applications as they realize how important it is to comprehend human emotion. These technologies are particularly adept in recognizing human voice, body language, and facial expressions.⁶⁶ For instance, Microsoft asserts that developments in AI enable its software to 'recognize eight key emotional states based on universal facial expressions that mirror those feelings'.⁶⁷ Although amazing, these outcomes are at best rudimentary. Recognizing basic emotions on others' faces, a seemingly simple human ability, is now mostly out of the reach of current technology. The inability of today's AI-infused technologies to recognize emotions must unquestionably have, and will continue to have, a significant impact on machine arbitrators' capacity to render fair and reasonable decisions.⁶⁸

It is relevant to note that emotional intelligence must not be taken lightly. Without having fully expressed themselves in an objectively explicit way, empathy enables people to 'understand, [be] sensitive to, and vicariously experience the feelings, thoughts, and experience of [others]'.⁶⁹ The 'ability to understand the intents of others... and experience the emotion they are feeling' is now absent from all machines.⁷⁰ Scholars have opined that empathy is essential in arbitration and

⁶³ S Miller, '5 Reasons why AI won't replace Humans' <<https://synder.com/blog/5-reasons-why-ai-wont-replace-humans/>> accessed 12 September 2025.

⁶⁴ *ibid.*

⁶⁵ A Isakulov, 'Artificial Intelligence in International Arbitration: Myth or Reality?' (2020) 1 Uzbek Law Review 101.

⁶⁶ K Darlington, 'AI Systems Dealing with Human Emotions' <<https://www.bbvaopenmind.com/en/technology/artificial-intelligence/ai-systems-dealing-with-human-emotions/>> accessed 21 September 2022; see also R Andrews, 'AI beats Humans at Emotional Recognition Test in Landmark Study' <<https://www.iflscience.com/ai-beats-humans-emotional-recognition-test-landmark-study-46701>> accessed 21 September 2025; DH Lindquist and Y Dautaj, 'AI in International Arbitration: Need for the Human Touch' [2021] *Journal of Dispute Resolution* 39.

⁶⁷ A Linn, 'Happy? Sad? Angry? This Microsoft Tool recognizes Emotions in Pictures' <<https://blogs.microsoft.com/ai/happy-sad-angry-this-microsoft-tool-recognizes-emotions-in-pictures/>> accessed 21 September 2025; DH Lindquist and Y Dautaj, 'AI in International Arbitration: Need for the Human Touch' [2021] *Journal of Dispute Resolution* 39.

⁶⁸ DH Lindquist and Y Dautaj, 'AI in International Arbitration: Need for the Human Touch' [2021] *Journal of Dispute Resolution* 39.

⁶⁹ Merriam-Webster Dictionary, 'Empathy' <<https://www.merriam-webster.com/dictionary/empathy>> accessed 21 September 2025; DH Lindquist and Y Dautaj, 'AI in International Arbitration: Need for the Human Touch' [2021] *Journal of Dispute Resolution* 39.

⁷⁰ JM Jara, D Palma and A Infantes, 'Machine Arbitrator: Are We Ready?' <<http://arbitrationblog.kluwarbitration.com/2017/05/04/machine-arbitrator-are-we-ready/>> accessed 21 August 2025; DH Lindquist and Y Dautaj, 'AI in International Arbitration: Need for the Human Touch' [2021] *Journal of Dispute Resolution* 39.

arbitrators must put themselves in the parties' situations in order to comprehend their aspirations, challenges, and expectations.⁷¹

As a 'response to an external stimulus, or a spontaneous manifestation of an interior cognitive process', emotions are often felt, experienced, and communicated.⁷² Basic emotions might be universal, despite the fact that they can take many complex forms. For instance, people around the world generally make the same faces when they are joyful, astonished, unhappy, angry, terrified, or disgusted. Additionally, it appears that all people are born with the ability to identify these same six emotions when they are seen on the faces of others.⁷³ Empathy is somewhat based on this skill, as was said earlier. A skill that is valued in many professions, including the legal profession, is emotional intelligence, which is the ability to detect and understand one's own emotions as well as the emotions of others.⁷⁴

To be clear, the ability of the arbitrator to identify and comprehend the emotions exhibited by the opposing parties matters more than the arbitrator's own feelings. The arbitrator's ability to comprehend the case may be hampered if the party's emotional responses are not given the correct consideration.⁷⁵ It has been asserted that without emotions, 'our decisions are not human', as they 'function as a source of information, cause of motivation, and impact information processing by coloring our perception, memory, and judgments'.⁷⁶ Because it promotes justice by opposing injustice, even fury is a human emotional virtue to value in decision-making.⁷⁷ The effective performance of one's obligations as an arbitrator 'appears to be a precondition for emotional sensitivity,' according to the study.⁷⁸ Thus, a crucial component of the human arbitrator, ensuring

⁷¹JM Jara, D Palma and A Infantes, Machine Arbitrator: Are We Ready? <<http://arbitrationblog.kluwerarbitration.com/2017/05/04/machine-arbitrator-are-we-ready/>> accessed 21 August 2025; DH Lindquist and Y Dautaj, 'AI in International Arbitration: Need for the Human Touch' [2021] Journal of Dispute Resolution 39.

⁷²K Darlington, 'AI Systems Dealing with Human Emotions' <<https://www.bbvaopenmind.com/en/technology/artificial-intelligence/ai-systems-dealing-with-humanemotions/>> accessed 21 September 2025; DH Lindquist and Y Dautaj, 'AI in International Arbitration: Need for the Human Touch' [2021] Journal of Dispute Resolution 39.

⁷³ 'Atlas of Emotions' <<http://atlasofemotions.org>> accessed 10 August 2025; DH Lindquist and Y Dautaj, 'AI in International Arbitration: Need for the Human Touch' [2021] Journal of Dispute Resolution 39.

⁷⁴ WS Blatt, 'Teaching Emotional Intelligence to Law Students: Three Keys to Mastery' (2015) 15 NLJ 464; DH Lindquist and Y Dautaj, 'AI in International Arbitration: Need for the Human Touch' [2021] Journal of Dispute Resolution 39.

⁷⁵ RD Bishop and EG Kehoe, *The Art of Advocacy in International Arbitration* (2nd edn, JurisNet LLC 2010); DH Lindquist and Y Dautaj, 'AI in International Arbitration: Need for the Human Touch' [2021] Journal of Dispute Resolution 39.

⁷⁶JM Jara, D Palma and A Infantes, Machine Arbitrator: Are We Ready? <<http://arbitrationblog.kluwerarbitration.com/2017/05/04/machine-arbitrator-are-we-ready/>> accessed 21 August 2025; DH Lindquist and Y Dautaj, 'AI in International Arbitration: Need for the Human Touch' [2021] Journal of Dispute Resolution 39.

⁷⁷ TA Maroney, 'Angry Judges' (2012) 65 VLR 1207; see also JM Jara, D Palma and A Infantes, Machine Arbitrator: Are We Ready? <<http://arbitrationblog.kluwerarbitration.com/2017/05/04/machine-arbitrator-are-we-ready/>> accessed 21 August 2025; DH Lindquist and Y Dautaj, 'AI in International Arbitration: Need for the Human Touch' [2021] Journal of Dispute Resolution 39.

⁷⁸ FU Soares, 'New Technologies and Arbitration' (2018) 7 IJAL 84; DH Lindquist and Y Dautaj, 'AI in International Arbitration: Need for the Human Touch' [2021] Journal of Dispute Resolution 39.

their rulings are fair and right, is perceiving and comprehending the emotional emotions of others.⁷⁹

In addition, study has revealed that AI denies parties and human arbitrators the opportunity to build solid relationship.⁸⁰ Whereas it must be understood that the nature of relationship in question is not such that perverts justice, rather it is one that ensures that the arbitrator(s) and the parties have a solid basis to conveniently scale through the proceedings. The researcher is of the considered opinion that this lack or absence of solid relationship is credited to the emotional inability of AI. One outstanding distinction between Human and AI arbitrators is the creation and existence of relationship, corporate or work relationship.

Relationships are the foundation of many things. In addressing reasons why AI cannot replace human arbitrators, Miller opined that AI has a setback in terms of the establishment of relationships.⁸¹ To Miller:

We have to communicate and work together with other people. The most crucial component of employee engagement is emotional commitment and ties with teammates, which demonstrate how much we care about our work and the organization. Because people want to collaborate with like-minded individuals, relationships also aid in locating partners and clients. But machines are unable to understand this emotional aspect of our conduct.⁸²

The primary problem with AI is the lack of human connection, which results in misunderstandings. With AI, it is possible for one party to not comprehend the context of the other party, which will ultimately make the situation worse.⁸³

3.2. Confidentiality Issues

Confidentiality is one of the outstanding features of arbitration. As a matter of fact, many have opted for arbitration due to the inherent private and confidential nature of the mechanism. Confidentiality issues arise while using modern technologies during arbitration and the need for external aid.⁸⁴ Court reporters, interpreters, and people in charge of running IT equipment like

⁷⁹ DH Lindquist and Y Dautaj, 'AI in International Arbitration: Need for the Human Touch' [2021] *Journal of Dispute Resolution* 39; see S Haripriya and LC Manikandan, 'A Study on Artificial Intelligence Technologies and its Applications' (2020) 6 *International Journal of Scientific Research in Computer Science, Engineering and Information Technology* 336.

⁸⁰ S Miller, '5 Reasons why AI won't replace Humans' <<https://synder.com/blog/5-reasons-why-ai-wont-replace-humans/>> accessed 12 September 2025.

⁸¹ *ibid.*

⁸² *ibid.*

⁸³ Y Dokania, 'Arbitration for Dispute Arising from E-Commerce Transaction' (2020) 21 *Supremo Amicus* 1.

⁸⁴ G Wisskirchen and others, 'Artificial Intelligence and Robotics and their Impact on the Workplace' <https://www.researchgate.net/profile/Mohamed_Mourad_Lafifi/post/What_are_the_social_and_economic_effects_of_computers_in_automation_and_robotics/attachment/5fd34ec9d6d02900019d1a1d/AS%3A967510073565185%401607683785826/download/Artificial+Intelligence+and+Robotics+and+Their+Impact+on+the+Workplace.pdf> accessed 19 September 2025.

computers and other video conferencing tools are all examples of external help who could infringe on this confidentiality.⁸⁵ Another issue of confidentiality may arise on the perspective of attack on such AI application or tool(s). With AI, arbitration may be conducted through online tools, and all of the data is kept on a server or in the cloud. Through a firewall, the technology service provider maintains effective software security by preventing unauthorized malware from entering the system. Although there is a potential of data loss owing to factors such as computer viruses, third-party attacks on software, and illegal access, we cannot simply state that it is 100% secure. Because AI lacks confidentiality, these entire aspects engenders risk.⁸⁶ The employment of AI in arbitration has been contested by certain scholars. This is merely a natural progression from the fact that AI appears to reject the confidentiality and right to private goals of arbitration.⁸⁷

Technology issues that AI faces can also affect how well it functions in the system.⁸⁸ Technical issues can be annoying because they might conceal crucial information that the business really needs. AI also runs into security issues that endanger online users. Security hiccups can take many different forms, including fraud, data loss, scamming, and hacking. Such illicit activities may result in theft of sensitive data and damage to the company's cloud data systems.⁸⁹ Data can be hacked using AI database information storage. Furthermore, confidential information from the corporation may not be safe because parties looking to benefit can obtain the secrecy of trade from the business of the parties. Other cybercrimes include transmitting viruses that can damage company data to software from other parties who want to make money, as well as phishing to obtain user IDs, passwords, and other personal information.⁹⁰ However, it is needful to note that the issue of confidentiality may be rectified by the employment of a confidentiality agreement. This agreement must be mandatory for those with the specialized technical knowledge required to operate tech-powered gadgets.⁹¹

⁸⁵ FU Soares, 'New Technologies and Arbitration' (2018) 7 IJAL 84.

⁸⁶ Y Dokania, 'Arbitration for Dispute Arising from E-Commerce Transaction' (2020) 21 Supremo Amicus 1.

⁸⁷ *ibid.*

⁸⁸ H Samandari, B Cheatham and K Javanmardian, 'Confronting the Risks of Artificial Intelligence' <<https://www.mckinsey.com/business-functions/mckinsey-analytics/our-insights/confronting-the-risks-of-artificial-intelligence>> accessed 21 September 2025.

⁸⁹ SM Mohammad, 'Artificial Intelligence in Information Technology' (2020) 7 International Journal of Innovations in Engineering Research and Technology 168.

⁹⁰ FP Kalalo and KC Pontoh, 'The Use of Artificial Intelligence (AI) in Legal Framework for International Arbitration Practices in Indonesia' (2019) 472 Advances in Social Science, Education and Humanities Research 6; R Barker and C Mackenzie, 'Technology: Coming for a Job near You?' <<https://www.mckinsey.com/ng/careers>> accessed 14 August 2025; see also I Godofa, 'Artificial Intelligence and its Future in Arbitration' (2020) 4 Journal of CMSD 52.

⁹¹ FU Soares, 'New Technologies and Arbitration' (2018) 7 IJAL 84.

3.3. The Bias of Artificial Intelligence

Questions have been raised regarding the objectivity of AI.⁹² It has become clear from research that the operation of AI can result in discriminatory outcomes.⁹³ Unfortunately, nothing is known about how exact decisions are made because these systems are complicated and based on proprietary software.⁹⁴ There are no legally necessary examinations or justifications of the precise information that AI use to make a decision. As a result, we are compelled to respond to a challenging query that propels us forward in the process: are we positive that the algorithms themselves are not biased?⁹⁵

A practical illustration of this is evident in the report of the investigative inquiry carried out on the bias within the COMPAS algorithm. ProPublica, in their research showed that coloured (black) defendants' high recidivism was more likely to be predicted inaccurately by COMPAS than white defendants' low recidivism, and vice versa.⁹⁶ They gave the algorithm's analysis of two defendants as examples: a young African-American girl who had never been arrested before and a 54-year-old European guy with a criminal history.⁹⁷ The system did not take into account pertinent information when making its predictions, despite the fact that both had stolen items of comparable value. Due to this, COMPAS classified the male as a low risk and the girl as a medium risk.⁹⁸

Research has shown that there are major hazards of bias and discrimination in facial recognition. Many of these algorithms were developed using culturally skewed image data sets with a

⁹² M Piers and C Aschauer, 'Administering AI in Arbitration' in R Nazzini, *Construction Arbitration and Alternative Dispute Resolution: Theory and Practice around the World* (Routledge 2022); S Sharma and V Chaturvedi, 'Ethical and Legal Issues of AI Technology and its Applications' (2022) 6 International Journal of Law and Legal Jurisprudence Studies 49; C Sim, 'Will Artificial Intelligence take over Arbitration?' (2018) 14 Asian Journal of International Arbitration 1.

⁹³ S Fabian, 'Artificial Intelligence and the Law: Will Judges Run on Punch Cards' (2020) 16 Common Law Review 4.

⁹⁴ L Kugler, 'AI Judges and Juries' <https://homepages.uc.edu/~thomam/Implications_IT/pdf/ch7/ai_judge_juries.pdf> accessed 23 August 2025; S Fabian, 'Artificial Intelligence and the Law: Will Judges Run on Punch Cards' (2020) 16 Common Law Review 4.

⁹⁵ J Tashea, 'Courts are Using AI to Sentence Criminals. That Must Stop Now.' <<https://www.wired.com/2017/04/courts-using-ai-sentence-criminals-muststop-now/>> accessed 23 September 2025; S Fabian, 'Artificial Intelligence and the Law: Will Judges Run on Punch Cards' (2020) 16 Common Law Review 4.

⁹⁶ AL Washington, 'How to Argue with an Algorithm: Lessons from the COMPAS ProPublica Debate' (2019) 17 The Colorado Technology Law Journal 22; L Kugler, 'AI Judges and Juries' <https://homepages.uc.edu/~thomam/Implications_IT/pdf/ch7/ai_judge_juries.pdf> accessed 23 August 2025; S Fabian, 'Artificial Intelligence and the Law: Will Judges Run on Punch Cards' (2020) 16 Common Law Review 4.

⁹⁷ AL Washington, 'How to Argue with an Algorithm: Lessons from the COMPAS ProPublica Debate' (2019) 17 The Colorado Technology Law Journal 22; L Kugler, 'AI Judges and Juries' <https://homepages.uc.edu/~thomam/Implications_IT/pdf/ch7/ai_judge_juries.pdf> accessed 23 September 2025; S Fabian, 'Artificial Intelligence and the Law: Will Judges Run on Punch Cards' (2020) 16 Common Law Review 4.

⁹⁸ AL Washington, 'How to Argue with an Algorithm: Lessons from the COMPAS ProPublica Debate' (2019) 17 The Colorado Technology Law Journal 22; L Kugler, 'AI Judges and Juries' <https://homepages.uc.edu/~thomam/Implications_IT/pdf/ch7/ai_judge_juries.pdf> accessed 23 September 2025; S Fabian, 'Artificial Intelligence and the Law: Will Judges Run on Punch Cards' (2020) 16 Common Law Review 4.

predominance of Caucasian male faces.⁹⁹ AI bias should be considered keenly. AI application such as machine learning, can be hampered by bias in training and or development stage. Majorly, where data contains bias, the algorithm will simply encode and reproduce the bias.¹⁰⁰ A frequently used example is Amazon, which is a major American technology company. Amazon had a recruitment algorithm which exhibited prejudice against women when it trained itself to favor male candidates and penalized female candidates because the majority of resumes sent to the business were written by men, reflecting the present male predominance in the tech sector.¹⁰¹

In relation to arbitration, AI arbitrators may be predisposed to bias.¹⁰² This is reflective in, for instance, investment arbitration, where an AI arbitrator may discover a biased trend and come to a decision that is more favorable to investors than host states.¹⁰³ Another reason for the biasness of some AI technology has been attributed to a potential developer of such AI technology. AI is developed by human programmers. Human error is possible when creating such sophisticated algorithms. Such programming flaws increases the likelihood of inaccurate results and other inaccuracies in AI applications. Due to these human errors, the AI-enabled system that was designed for error detection and removal would produce extra errors, adding to the workload and cost.¹⁰⁴

One of the fundamental tenets of ADR, including arbitration, is impartiality. In order to settle disputes fairly, arbitrators are supposed to be unbiased toward the parties and their disagreement.¹⁰⁵ This implies that the arbiter cannot show partiality or bias against any of the parties. Because

⁹⁹ K Jones, M Buchser and J Wallace, 'Challenges of AI' <<https://www.chathamhouse.org/2022/03/challenges-ai>> accessed 27 September 2025.

¹⁰⁰ JR Bent, 'Is Algorithmic Affirmative Action Legal?' (2020) 108 GLJ 803; B Lambrechts, 'May it Please the Algorithm' (2020) 89 JKBA 36; JA Kroll et al, 'Accountable Algorithms' (2017) 165 University of Pennsylvania Law Review 633; S Barocas and AD Selbst, 'Big Data's Disparate Impact' (2016) 104 CLR 671; GH Kasap, 'Can Artificial Intelligence ("AI") Replace Human Arbitrators? Technological Concerns and Legal Implications' [2021] Journal of Dispute Resolution 209.

¹⁰¹ J Dastin, 'Amazon Scraps Secret AL Recruiting Tool That Showed Bias Against Women' <<https://www.reuters.com/article/us-amazon-com-jobs-automation-insight-idUSKCN1MK08G>> accessed 21 August 2025; GH Kasap, 'Can Artificial Intelligence ("AI") Replace Human Arbitrators? Technological concerns and Legal Implications' [2021] Journal of Dispute Resolution 1.

¹⁰² JR Sternlight, 'Creeping Mandatory Arbitration: Is It Just?' (2005) 57 SLR 1631; GH Kasap, 'Can Artificial Intelligence ("AI") Replace Human Arbitrators? Technological Concerns and Legal Implications' [2021] Journal of Dispute Resolution 209.

¹⁰³ R Young-Yik and P KyungBae, 'The Applicability of Artificial Intelligence in International Law' (2019) 12 JEAIL 7; GH Kasap, 'Can Artificial Intelligence ("AI") Replace Human Arbitrators? Technological Concerns and Legal Implications' [2021] Journal of Dispute Resolution 209.

¹⁰⁴ AMLEGALS, 'India: AI & its effects on Arbitration' <<https://amlegals.com/ai-its-effects-on-arbitration/>> accessed 23 August 2025; Elliot Friedman and others, 'Generative AI: Opportunities and Risks in Arbitration' <<https://www.freshfields.com/en-gb/our-thinking/campaigns/international-arbitration-in2024/generative-ai-opportunities-and-risks-in-arbitration/>> accessed 14 September 2025; Layan AI Fatayri, 'AI in International Arbitration: What Is the Big Deal?' <https://www.law.berkeley.edu/wp-content/uploads/2025/04/aria.law_columbia.edu-AI-in-International-Arbitration-What-Is-the-Big-Deal.pdf> accessed 15 September 2025.

¹⁰⁵ U.N. COMM'N ON INT'L TRADE LAW, U.N. MODEL L. ON INT'L COM. ARB., No. U.N. Doc. A/40/17, U.N. Sales No. E.08.V.4 (2006) [hereinafter UNCITRAL, Model Law]; Gizem Halis Kasap, 'Can Artificial Intelligence ("AI") Replace Human Arbitrators? Technological Concerns and Legal Implications' [2021] JDR 210.

algorithms may be programmed to follow procedure neutrally, they can act as a fair and unbiased decision-maker in situations where people inadvertently harbor implicit biases.¹⁰⁶ Nevertheless, there are numerous reasons why AI could turn out to be biased and yield outcomes that favor one side over the other.

Prior to exploring the elements that influence AI's objectivity, it is crucial to briefly examine how AI handles data. AI is a desirable addition to the legal industry, particularly alternative dispute resolution (ADR), due to its rapid analysis of vast volumes of data and its capacity to spot patterns that can be used to forecast or recommend a course of action. The majority of widely used AIs are based on machine learning, which allows algorithms to "learn without being programmed."¹⁰⁷ Training an algorithm using large amounts of data and having it continuously adapt to the output parameters it is provided is known as "machine learning."¹⁰⁸ Since data is crucial to this process, erroneous data can have a significant impact on AI.¹⁰⁹ The majority of academics concur that AI systems are only as good as the data they use.¹¹⁰ An AI arbitrator will be more effective and accurate at formulating general rules that may be applied to conflicts that are brought to it if it is given a larger volume of accurate and impartial data.¹¹¹

The small dataset that AI can use is a significant barrier to its successful integration into ADR.⁸⁹ The inadequate data can be attributed to several factors. First off, because arbitration provides anonymity, awards are rarely made public.¹¹² Awards are heavily redacted when they are made public, which happens infrequently.¹¹³ Furthermore, there are so few instances actually filed that they do not provide a sufficient sample size for analysis.¹¹⁴ The specialized character of arbitration proceedings makes this challenge much more difficult, significantly limiting the total dataset.¹¹⁵ This limitation is illustrated by 2022 national and international arbitration case statistics. Less than 7,500 new cases were filed at the major international arbitral organizations in 2022.¹¹⁶

Beyond the data the algorithm uses, the human who developed it also has the potential to be biased. In actuality, people created and implemented the algorithm that powers AI, even if parties may think that an AI arbitrator is making the decision in their disagreement. In other words, a person is identifying an issue and choosing which variables the prediction algorithm should take into

¹⁰⁶ Ignacio N Cofone, 'Algorithmic Discrimination Is an Information Problem' (2019) 70 HLJ 1389.

¹⁰⁷ *ibid.*

¹⁰⁸ *ibid.*

¹⁰⁹ 'How Poor Data Is Killing Your Models and How to Fix It' <<https://encord.com/blog/improve-ai-models-data-quality/>> accessed 4 September 2025.

¹¹⁰ Gizem Halis Kasap, 'Can Artificial Intelligence ("AI") Replace Human Arbitrators? Technological Concerns and Legal Implications' [2021] JDR 210.

¹¹¹ *ibid.*

¹¹² *ibid.*

¹¹³ *ibid.*

¹¹⁴ *ibid.*

¹¹⁵ *ibid.*

¹¹⁶ Markus Altenkirch and others, 'Arbitration Statistics 2022: The Number of Arbitration Proceedings Continues to Drop' <<https://www.globalarbitrationnews.com/2023/10/02/arbitration-statistics-2022-the-number-of-arbitration-proceedings-continues-to-drop-but-the-amount-in-dispute-increases/>> accessed 4 September 2025.

account when analyzing the data.¹¹⁷ People choose the features AI should concentrate on when examining patterns for predictions; this process is known as feature selection.¹¹⁸ For instance, past purchases and browsing history are useful if AI is to predict a customer's likelihood of purchasing a product, but the font used on the website is not.

The quality of the algorithm can be significantly impacted by the variables people choose to be important to a prediction.¹¹⁹ Whether on purpose or not, research shows that human algorithms are influenced by personal biases and preconceptions.¹²⁰ Despite the best efforts to minimize bias in feature selection, it is impossible to identify every important aspect that could influence the result.¹²¹ An algorithm cannot be trained to handle novel circumstances and develop a new doctrine based on factors like equity; data analysts can only select well-known and relevant features to forecast a conclusion.¹²²

AI systems aimed at boosting productivity shape disagreements to fit into pre-existing patterns they have established from the analysis of prior arguments.¹²³ As previously mentioned, ADR innovation will stall since new rulings would combine a few previous awards.¹²⁴

4. Conclusion

A dual reality emerges from a rigorous analysis of artificial intelligence in arbitration: while AI offers useful breakthroughs that help expedite conflict settlement, it also poses serious hazards that go right to the core of justice and equity. Arbitration has long been praised for its adaptability, party autonomy, and ability to strike a balance between equity and efficiency.¹²⁵ Unchecked AI integration, however, poses a threat to arbitration's adherence to these core principles, putting due process preservation and technical advancement at odds. The main question of whether AI in arbitration promotes algorithmic justice or, on the other hand, encourages automated injustice is framed by this tension.¹²⁶

One important conclusion is that the fundamental components of arbitral legitimacy, transparency and impartiality, are compromised by AI's opacity and propensity for bias. Many algorithms are

¹¹⁷ Ignacio N Cofone, 'Algorithmic Discrimination Is an Information Problem' (2019) 70 HLJ 1389.

¹¹⁸ Gizem Halis Kasap, 'Can Artificial Intelligence ("AI") Replace Human Arbitrators? Technological Concerns and Legal Implications' [2021] JDR 210.

¹¹⁹ *ibid.*

¹²⁰ Ignacio N Cofone, 'Algorithmic Discrimination Is an Information Problem' (2019) 70 HLJ 1389.

¹²¹ Gizem Halis Kasap, 'Can Artificial Intelligence ("AI") Replace Human Arbitrators? Technological Concerns and Legal Implications' [2021] JDR 210.

¹²² *ibid.*

¹²³ Hiba Alessa, 'The Role of Artificial Intelligence in Online Dispute Resolution: A Brief and Critical Overview' (2022) 31 ICTL 319.

¹²⁴ Nadia Ahmad, 'Smart Resolutions: Exploring the Role of Artificial Intelligence in Alternative Dispute Resolution' (2025) 73 CSLR 273.

¹²⁵ Michael Broyde and Yiyang Mei, 'Don't Kill the Baby: The Case for AI in Arbitration' <<http://dx.doi.org/10.48550/arXiv.2408.11608>> accessed 2 September 2025.

¹²⁶ Mohammad Ali Solhchi and Faraz Baghbanno, 'Artificial Intelligence and its Role in the Development of the Future of Arbitration' (2023) 2 International Journal of Law in Changing World 56.

"black-box" in nature, which makes it difficult for stakeholders to examine how choices or suggestions are made, which reduces accountability. Furthermore, there is a significant chance that algorithmic prejudice, which is based on skewed or incomplete statistics, may replicate societal injustices in arbitral rulings. These issues represent structural risks that could skew results and undermine trust in the arbitral process, not just technical ones.¹²⁷

The human aspect of arbitration is at risk in addition to technical ones. Even if AI tools are helpful for efficiency, analytics, and research, when arbitrators depend too much on algorithmic recommendations, they run the risk of undervaluing human judgment. This reliance may result in what academics refer to as "automation bias" or the "anchor effect," in which human arbitrators blindly accept the results of machines. Such a change reduces arbitral processes to mechanical exercises susceptible to manipulation and error, undermining the unique human attributes of discretion, empathy, and contextual reasoning that arbitration relies upon.¹²⁸

When combined, these results imply that AI in arbitration ought to be used carefully and critically. Efficiency cannot eventually surpass fairness, nor can innovation be sought in a vacuum from justice. AI must be used responsibly, complementing but never taking the place of human adjudication, if arbitration is to continue to be a recognized venue for international conflict settlement. The future of arbitration hinges on a purposeful, ethical integration of AI that guarantees that technology advances justice rather than undermines it, rather than on its blind adoption.¹²⁹

5. Recommendations

The following recommendations are made from this study:

5.1. Re-orientation of Lawyers and Arbitrators

There is need for active re-orientation of lawyers and players in the legal sector and arbitrators. It is fundamental to underscore that the first and vital step in breaking the perceived apprehension of human arbitrators towards the acceptance and utilization of AI technology in arbitration is to cause a change in the mindset of those concerned.

5.2. Seek Specific Laws on AI

One finding which was brought to limelight in this study is the outright lack of AI concentrated legislations in many countries. This situation is worse in certain regions where there is absolutely no regulation on technology. Therefore, like developed countries of the world, there is a need for

¹²⁷ Muhammad Fahad, Asim Aziz and Sikandar Aslam, 'Revolutionizing Arbitration: An in-Depth Analysis of the Risks and Opportunities arising from the Intersection of Artificial Intelligence' (2025) 3 Policy Journal of Social Science Review 69.

¹²⁸ Tariq K Alhasan, 'Integrating AI Into Arbitration: Balancing Efficiency with Fairness and Legal Compliance' (2025) 42 Conflict Resolution Quarterly 523.

¹²⁹ Michael Broyde and Yiyang Mei, 'Don't Kill the Baby: The Case for AI in Arbitration' <<http://dx.doi.org/10.48550/arXiv.2408.11608>> accessed 2 September 2025.

the law making body to be proactive in enacting legislations that make provisions for AI and AI activities in such countries.

5.3. Need for Transparency

Transparency is fundamental in arbitral proceedings, especially in this case of the integration of technology (AI) to arbitration. The parties to arbitration and the tribunal must see that there is substantial transparency in the process. Most especially, the AI tools to be utilized in the proceedings must be transparent and explainable.

5.4. Human oversight and Mitigation of Bias

Bias is both an outstanding and prevalent shortcoming of AI in arbitration, which has always been talked about. By its nature, bias contravenes the principle of dispute resolution, being fair hearing. To checkmate such excess and abnormality that may be occasioned by technological bias, there is a need to introduce human oversight into AIA, which will help address the machine bias.