ARTIFICIAL INTELLIGENCE AND ARBITRAL DECISION-MAKING: PROMISE OR PERIL?

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ABSTRACT

Artificial intelligence (AI) is changing how disputes are resolved. Tools that can read thousands of documents, predict case outcomes, and manage administrative tasks are now entering arbitration, a process where parties choose a private decision-maker instead of going to court. This paper explores what AI can do to improve arbitration and the risks it introduces. While AI can make arbitration faster, cheaper, and more accessible, using it without proper rules could harm the fairness and trust that arbitration relies on. The paper concludes with practical recommendations for responsible progress.

Keywords: Artificial Intelligence, Arbitration, Due Process, Document Review, Algorithmic Bias, Legal Technology, ODR, UNCITRAL

I. INTRODUCTION

Arbitration is a method of resolving disputes outside the court system. Parties agree to present their case before a neutral third party, the arbitrator, whose decision is final and binding. It is widely used in international business, construction, finance, and investment because it is generally faster and more flexible than litigation.

In recent years, AI has started to appear in legal work. Lawyers use AI to review contracts, search for relevant cases, and predict how judges might rule. Now, the same technology is being considered, and in some cases already used, in arbitration proceedings. This raises a crucial question: how far should AI go in a process that has always relied on human judgment?

This paper is structured as follows. Section II gives a brief background on how technology has been used in dispute resolution before. Section III explores the opportunities AI creates. Section IV examines the serious challenges it brings. Section V looks at the current state of regulation. Section VI offers conclusions and practical recommendations.

II. BACKGROUND: TECHNOLOGY AND DISPUTE RESOLUTION

Technology has been part of dispute resolution for longer than most people realise. The introduction of fax machines, email, and video calls each caused concern at the time about whether they were appropriate for legal proceedings. Looking back, those concerns seem exaggerated. Each technology was eventually accepted and improved the process.[1]

The more significant shift came in the late 1990s with the rise of Online Dispute Resolution (ODR). These are digital platforms that help people resolve disputes especially small, everyday disagreements without meeting in person. They handled scheduling, communication, and the exchange of documents automatically. They did not, however, make the actual decision. That was still left to a human.[2]

In 2017, the United Nations Commission on International Trade Law (UNCITRAL) published its Technical Notes on Online Dispute Resolution, giving international recognition to these platforms and encouraging their use for low-value disputes.[3]Around the same time, companies like eBay built their own resolution systems to handle millions of buyer-seller complaints without any lawyers or courtrooms involved.[4]

These developments showed that people were willing to accept technology playing a bigger role in resolving disputes. The question now is whether AI, which does not just assist humans but can analyse, recommend, and even decide belongs in the same space.[5]

III. OPPORTUNITIES: HOW AI CAN IMPROVE ARBITRATION

A. Reviewing Documents Faster and More Accurately

Large arbitration cases particularly in construction, energy, or international trade can involve hundreds of thousands of documents. Going through all of them manually takes months and costs a significant amount of money. AI tools using Natural Language Processing (NLP) can scan these documents quickly, identify the relevant ones, flag contradictions, and organise

[1] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 12.
[2] Pablo Cortés, *Online Dispute Resolution for Consumers in the European Union* (Routledge, 2011) 9.
[3] UNCITRAL, *Technical Notes on Online Dispute Resolution* (United Nations, 2017) 3.
[4] Hazel Genn, 'What is Civil Justice For? Reform, ADR and Access to Justice' (2012) 24 Yale Journal of Law and Humanities 397, 401
[5] Thomas Schultz, 'Carving Up the Internet: Jurisdiction, Legal Orders, and the Private/Public International Law Interface' (2008) 19(4) European Journal of International Law 799, 803.

everything in a way that is easy for lawyers and arbitrators to use.[6]

This technology, known as Technology-Assisted Review (TAR) or predictive coding, has already been approved by several arbitral tribunals as a valid way to handle document disclosure. The result is less time spent on paperwork and lower costs for both parties outcomes that most people involved in arbitration would welcome.[7]

B. Predicting Outcomes and Helping Parties Make Better Decisions

Some AI platforms are trained on large collections of past arbitration decisions. They can identify patterns for example, how a particular arbitrator tends to rule on certain legal issues, or how often a particular type of claim succeeds. Tools like Lex Machina and Arbitrator Intelligence do exactly this.[8]

For parties deciding whether to start arbitration, settle a dispute, or challenge an arbitrator's appointment, this kind of information can be genuinely useful. It also levels the playing field: smaller companies and individuals gain access to strategic information that was previously only available to clients of large, well-resourced law firms.[9]

C. Making Administration Easier for Arbitral Institutions

Arbitral institutions handle large numbers of cases every year. Much of their work is administrative registering cases, calculating fees, appointing arbitrators, managing timelines. AI can automate many of these tasks, reducing the time it takes to get a case moving and freeing up staff to focus on more complex issues.[10]

Some institutions are already looking at AI tools that can match the right arbitrator to the right case based on technical expertise, check for conflicts of interest automatically, and balance workloads across panels. If done properly, this could make the appointment process both faster

[6] Susskind (n 3) 12.
[7] Maxi Scherer (n 2) 545.
[8] Catherine Rogers, 'Arbitrator Intelligence and the Rule of Law' (2019) 22(3) Journal of International Economic Law 609, 613.
[9] Giacomo Marchisio, 'The Autonomous Nature of Arbitration Reconsidered in Light of New Technologies' (2020) 36(2) Arbitration International 215, 219.
[10] International Chamber of Commerce, *Artificial Intelligence in International Arbitration*, ICC Digital Transformation in Arbitration Series (ICC, 2021) 4.

and fairer.[11]

D. Making Arbitration More Accessible

International arbitration has a reputation for being expensive. Legal fees, arbitrator costs, and institutional charges can run into the hundreds of thousands of dollars, putting it out of reach for smaller businesses and individuals. AI-assisted platforms that reduce legal costs through automation could change this.[12]

This is not just about saving money. It is about fairness. If AI can make proper dispute resolution available to people and businesses who currently cannot afford it, that is a significant public benefit. Smaller businesses from developing countries, for example, currently have limited access to quality international arbitration. AI could help change that.[13]

IV. CHALLENGES: WHERE AI CREATES SERIOUS PROBLEMS

A. The Right to a Fair Hearing

The most fundamental legal concern about AI in arbitration is whether it is compatible with due process the right of every party to understand the case against them, present their arguments, and receive a reasoned decision.[14]

When an AI system influences how evidence is ranked, which documents are considered relevant, or how an award is drafted and does so in a way that is impossible to examine or explain parties cannot properly challenge the outcome. This is what researchers call the "black box" problem: you can see what the AI decided, but not why.[15]

The law has always required not just that justice be done, but that it be seen to be done. An opaque AI cannot satisfy that requirement. This is not a technical detail it is a foundational principle.[16]

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[11] ICC (n 12) 17.
[12] Cortés (n 4) 9.
[13] Genn (n 6) 401.
[14] New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards (1958) Art V(1)(b).
[15] ICC (n 12) 17.
[16] European Parliament, *Report with Recommendations to the Commission on Civil Law Rules on Robotics* (2017) Recital U.

B. Can an AI Write a Valid Arbitration Award?

An arbitration award is a final, binding decision. For it to be enforceable across borders under the New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards (1958), it must follow the procedure that the parties agreed to. If parties never agreed to have AI generate their award and without clear institutional rules, they usually will not have courts in other countries may refuse to enforce it.[17]

There is also a deeper issue. People choose specific arbitrators because they trust their experience and personal judgement. An AI does not have judgement in that sense. It detects patterns in past data. Whether that is the same thing as the careful, contextual reasoning that arbitration requires is a question worth taking seriously.[18]

C. Built-In Bias

AI learns from historical data. In arbitration, that history includes decades of decisions made in a field that has, until recently, been dominated by a narrow group of people mostly from Western countries, mostly male, mostly trained in a handful of legal traditions. An AI trained on that data will reproduce those patterns, and may even reinforce them.[19]

This is not speculation. Studies in other legal contexts criminal sentencing in the United States, for example have shown that AI tools can produce racially and economically biased results. An AI that selects arbitrators based on who has been appointed in the past will keep recommending the same kinds of people. An AI that predicts outcomes based on past awards will bake in whatever biases those awards contained.[20]

D. Privacy and Confidentiality

Confidentiality is one of the main reasons parties choose arbitration over court litigation. They share commercially sensitive information trade secrets, financial data, internal strategies on the basis that it will stay private. When that information is fed into a third-party AI platform,

[17] New York Convention (n 16) Art V(1)(d).
[18] Born (n 1) 1421.
[19] Rogers (n 10) 620.
[20] Scherer (n 2) 540.

serious questions arise.[21]

Who controls the data once it enters the system? Does the AI company use it to improve its own algorithms? Could it be accessed by others? Could the act of uploading confidential documents to an AI platform itself constitute a breach of the arbitration agreement? There are no clear answers to these questions yet, and that uncertainty is itself a problem.[22]

E. No Clear Rules

Arbitration is run by a decentralised network of institutions the ICC, LCIA, SIAC, AAA, and many others each with its own procedural rules. None of those rules were written with AI in mind. There is no global body that regulates how AI can be used in arbitration. The result is confusion: what is permitted in one institution may be prohibited or simply unaddressed in another.[23]

V. THE CURRENT STATE OF REGULATION

Regulators are beginning to respond to the challenges of AI, though the legal framework remains incomplete. The most important development so far is the European Union's AI Act, which classifies certain AI applications as "high risk." AI systems used in legal and dispute resolution processes would likely fall into this category. High-risk systems must meet standards of transparency, accuracy, and human oversight before they can be used.[24]

At the institutional level, the ICC has published guidance on AI in arbitration, taking the position that AI should assist human decision-makers, not replace them. The SIAC and LCIA have both started reviewing their procedural rules to address the use of AI in proceedings.[25]

Academics and policy experts have suggested a range of approaches: requiring parties to disclose when AI has been used in their case, creating approved lists of AI tools that institutions have vetted, and developing international guidelines through bodies like UNCITRAL or the Hague Conference on Private International Law. None of these has been formally adopted yet,

[21] General Data Protection Regulation (EU) 2016/679, Art 22.
[22] Rolf Trittmann, 'The Digitalization of Arbitration Proceedings and the Influence of Artificial Intelligence' (2020) 37(4) Journal of International Arbitration 361, 370.
[23] Rogers (n 10) 620.
[24] European Parliament (n 18) Recital U.
[25] ICC (n 12) 4.

but they are serious proposals that deserve consideration.[26]

The core challenge for any regulator is the same: allow innovation without sacrificing the procedural protections that make arbitration legitimate. That is a difficult balance in any field. In one as international and fragmented as arbitration, it is especially difficult.[27]

VI. CONCLUSION AND RECOMMENDATIONS

AI is not a future possibility in arbitration it is a present reality. The debate has moved on from whether to use it to how to use it responsibly. This paper has shown that AI offers real advantages: faster document review, better case assessment, lower administrative costs, and greater access to justice. At the same time, it creates genuine risks to fairness, confidentiality, and the enforceability of awards.[28]

Four recommendations follow from this analysis.

First, institutions must create clear rules. Every major arbitral institution should publish a policy stating which AI tools are permitted in proceedings, which require the consent of both parties, and which are not allowed at all. The current silence on these questions is not neutral it creates uncertainty that harms parties, counsel, and arbitrators alike.

Second, AI used in arbitration must be explainable. If an AI tool influences how evidence is assessed or how a decision is reached, parties must be able to understand why. Systems that cannot provide that explanation should not be used in core procedural functions until they can.

Third, human oversight must be protected. AI should help arbitrators work more effectively it should not make decisions for them. Writing the award, weighing witness evidence, and deciding the key legal questions must remain in human hands. This is not just a legal requirement. It is what parties signing an arbitration agreement expect and are entitled to receive.

Fourth, the arbitration community should engage with AI governance. UNCITRAL, the

[26] Susskind (n 3) 215.
[27] ICC Commission Report, *Resolving Climate Change Related Disputes through Arbitration and ADR* (ICC, 2019) 2.
[28] Susskind (n 3) 12.

Hague Conference, and regional regulatory bodies are all working on AI rules. The arbitration community institutions, practitioners, and scholars should participate actively in those conversations and make sure the particular needs of dispute resolution are reflected in the frameworks that emerge.

AI, used well, could make arbitration better in ways that genuinely matter: faster, cheaper, fairer, and more accessible. Used badly or used without thinking it could erode the trust and procedural integrity that give arbitration its value. The technology itself is not the problem. The question is always how it is governed. That is a human responsibility, and one that cannot be outsourced to a machine.[29]

[29] Susskind (n 3) 215.

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