ARTIFICIAL INTELLIGENCE IN INTERNATIONAL COMMERCIAL ARBITRATION: OPPORTUNITIES AND CHALLENGES

Razakova Farangiz Karim kizi
The Pennsylvania State University's Penn State Law

Abstract: *The rapid development of Artificial Intelligence (AI) has significantly influenced international commercial arbitration and transformed modern legal practice. In the context of the Republic of Uzbekistan's legal reforms and digital transformation, the modernization of dispute resolution mechanisms has become increasingly important. AI technologies can improve arbitral proceedings by assisting with legal research, document review, case management, and data analysis, thereby increasing efficiency and reducing costs. However, the use of AI in arbitration also raises important legal and ethical concerns, including issues of confidentiality, transparency, accountability, algorithmic bias, and procedural fairness. This article examines the opportunities and challenges of Artificial Intelligence in international commercial arbitration, analyzes the legal implications of its implementation, and emphasizes that AI should serve as a supportive tool while preserving human judgment and the fundamental principles of justice and the rule of law.*

Keywords: *Artificial Intelligence; International Commercial Arbitration; Arbitration; Legal Technology; Due Process; Digital Transformation.*

The growing use of Artificial Intelligence in international commercial arbitration should also be considered in light of internationally recognized arbitration standards. The UNCITRAL Model Law on International Commercial Arbitration, one of the principal legal instruments governing modern arbitration, particularly Article 18[1], guarantees equal treatment of the parties and provides that each party shall be given a full opportunity to present its case. As AI technologies become increasingly integrated into arbitral proceedings, it is essential to ensure that their use remains consistent with the principles of procedural fairness, equality of the parties, and due process, and does not undermine the integrity and legitimacy of the arbitral process. Likewise, the growing use of Artificial Intelligence in international commercial arbitration should remain compatible with the fundamental principles of the 1958 New York Convention, particularly the protection of due process and the enforceability of arbitral awards.

Firstly, the term artificial intelligence was introduced in 1956, with Alan Turing's 1950 work exploring the mathematical potential of AI (Anyoha, 2017). Early efforts at complex tasks, like language acquisition, mostly failed (Malhoutra & Ahmad, 2022). However, the integration of AI into arbitration and legal practices has been recently investigated, which integration is frequently studied in phases (Al-Kemawee, 2024; Surden, 2018).

[1] https://digitallibrary.un.org/record/622718/files/UNCITRAL_Model_Law.pdf

"Information technology and business are becoming inextricably interwoven. I don't think anybody can talk meaningfully about one without talking about the other".[2] In fact, technology is not only limited to lawyers, who are also experts in the field of technology, but all legal professions need to master some technological skills. As a result of the ever-changing environment, technology has also influenced the practice of law in various ways.[3]

> The advancement of technology has reached a point where its adoption is no longer optional. Technology has evolved from being a simple supportive tool into an essential component of professional and everyday activities. Individuals and organizations with prior technological expertise have continued to expand their digital capabilities, while those with limited experience have been compelled to adapt rapidly. This widespread shift demonstrates that technology is no longer viewed merely as a means of convenience or increased efficiency, but as a fundamental element necessary for effectiveness, adaptation, and long-term success within the legal profession.[4]

The world is undergoing a technological revolution that will dwarf the industrial revolution and will disrupt virtually every aspect of our business and personal lives, including the manner in which disputes arise and are resolved. The centerpiece of the current stage of the technological revolution is artificial intelligence (AI), which will affect the manner in which:

• Business is conducted (including block chain, and other disruptive technologies);[5]

• Transactions are entered into (including smart contracts, bitcoin and other distributive mechanisms);[6]

• Disputes are raised and resolved.[7]

At a time when concerns regarding the cost and duration of dispute resolution continue to increase, Artificial Intelligence has the potential to make arbitration proceedings faster, more efficient, and less expensive. By improving predictability and reducing uncertainty, AI may also discourage unmeritorious claims and encourage parties to reach settlements at an

[2] K. Fach Gómez, The Technological Competence of Arbitrators, Special Issue, https://doi.org/10.1007 /978-3-031-11681-0_1, Springer 2023, p. 1; B. Gates, Business @ the speed of thought: using a digital nervous system, Penguin 1999, vol 10., pp. 11–18.

[3] K. Fach Gómez, The Technological Competence…, p. 1

[4] K. Fach Gómez, The Technological Competence…, p. 2; B. Ambrogi, The 2021 Wolters Kluwer future ready lawyer. Moving beyond the pandemic. Survey report 2021, https://www.wolterskluwer .com/en/know/future-ready-lawyer-2021, p. 31.

[5] See, e.g., Don and Alex Tapscott, Blockchain Revolution: How the Technology Behind Bitcoin Is Changing Money, Business, and the World (2016); Melanie Swan, Blockchain: Blueprint for a New Economy (2015).

[6] See, e.g, Andreas M Antonopoulos and Gavin Wood, Mastering Ethereum: Building Smart Contracts and Dapps (2018); Jeff Read, Smart Contracts: The Essential Guide to Using Blockchain Smart Contracts for Cryptocurrency Exchange (2016).

[7] See, e.g., Kevin D. Ashley, Artificial Intelligence and Legal Analytics: New Tools for Law Practice in the Digital Age (2017) (detailed technical discussion of the application of artificial intelligence to legal practice) (hereafter "Ashley"); Richard Susskind, Tomorrow's Lawyers: An Introduction to Your Future (2d ed. 2017).

earlier stage of the dispute[8]. Nevertheless, the growing use of AI in arbitration raises several important concerns, including its impact on decision-making, equal access to justice, transparency and control over arbitral data and algorithms, as well as potential risks related to confidentiality and personal data protection.

In recent years, the Republic of Uzbekistan has been actively implementing legal and economic reforms aimed at strengthening international cooperation, attracting foreign investment, and improving the investment climate. In this process, international commercial arbitration plays an important role as an effective mechanism for resolving cross-border commercial disputes. At the same time, the digital transformation of legal services and the growing use of AI technologies require a new approach to the organization and conduct of arbitration proceedings.

Moreover, the Republic of Uzbekistan has also recognized the importance of Artificial Intelligence through Presidential Resolution No. PQ-4996 of February 17, 2021,[9] which established the legal and institutional foundations for the development and implementation of AI technologies in various sectors of the economy and public administration.

"The Digital Uzbekistan – 2030 Strategy"[10] represents one of the country's major initiatives aimed at accelerating digital transformation and introducing modern technologies into public administration and the economy. The strategy encourages the development of digital infrastructure, electronic services, and innovative technologies, thereby creating favorable conditions for the integration of Artificial Intelligence into various legal processes, including international commercial arbitration.

In January 2026, Uzbekistan adopted new legislation aimed at regulating the use of Artificial Intelligence across different sectors. The law establishes fundamental principles for the responsible use of AI technologies, including requirements related to transparency, accountability, and data protection[11]. The adoption of this legislation demonstrates the country's commitment to developing a legal framework capable of addressing the opportunities and challenges associated with Artificial Intelligence.

The growing attention devoted to Artificial Intelligence and digital transformation in Uzbekistan indicates the necessity of examining how these technologies may influence dispute resolution mechanisms. As Uzbekistan seeks to improve its investment climate and strengthen international commercial relations, the incorporation of AI technologies into arbitration proceedings may contribute to greater efficiency and accessibility while simultaneously requiring adequate legal safeguards to preserve the fundamental principles of international arbitration.

---

[8] Kathleen Paisley & Edna Sussman, *Artificial Intelligence Challenges and Opportunities for International Arbitration*, 11 N.Y. Disp. Resol. Law. 35, 35–36 (2018).

[9] Resolution of the President of the Republic of Uzbekistan, 17.02.2021 г. № RP-4996 https://lex.uz/docs/-5297046

[10] Resolution of the President of the Republic of Uzbekistan, 14.10.2024 г. № RP-358 https://lex.uz/uz/docs/7159258

[11] https://babl.ai/uzbekistan-adopts-new-law-to-regulate-artificial-intelligence-use-across-sectors/?utm_source=chatgpt.com

Artificial Intelligence has the potential to improve the efficiency of international arbitration by assisting with legal research, document review, case management, analysis of large amounts of data, and preparation of legal drafts. However, the integration of AI into arbitration also raises a number of complex legal and ethical questions related to confidentiality, transparency, impartiality, data protection, and the preservation of fundamental principles of due process. Recent scholarship also emphasizes that AI is increasingly used as a supportive tool in arbitration, while maintaining human oversight and procedural fairness remains essential.

Therefore, this article aims to examine both the advantages and the challenges of using Artificial Intelligence in international commercial arbitration. It discusses how AI can be applied in arbitral proceedings, the legal issues that may arise from its use, and the importance of maintaining the fundamental principles of arbitration while benefiting from technological developments.

The Role of Artificial Intelligence in International Commercial Arbitration

The opportunities for the utilization of AI in international arbitration are promising and manifold. Three major opportunities are identified (from which others may follow), namely, data analytics and legal research; procedural efficiency and access to justice; and predictive analysis. These opportunities are examined under the premise that AI is employed—as it usually is—in conjunction with technologies such as big data, machine learning, and text mining[12].

The opportunities derived from AI-driven data analysis and legal research include efficiency, automation, and cost reduction. Thanks to AI, lawyers spend less time on repetitive, manual tasks and ideally more time on strategic, intellectual, and high-value work—which is at the core of legal thinking. Tasks that used to take days are now completed in hours. Only time will tell how much more sophisticated the legal profession will become with so much time saved on time consuming, mechanical tasks, and the consequent focus on technical and strategic work.

Through data analytics and legal research, AI can manage high-volume, substantive document review, and document production in disclosure phases[13]. To do so, AI identifies relevant documents, redacts sensitive information, sorts privileged documents, and labels relevant information.[14] Additionally, quick, highly-accurate translations can also be done (See Al Fatayri et al., supra note 15). Moreover, AI systems also have the capacity of conducting and analyzing witness interviews and preparing initial drafts of statements (see

[12] Lindquist et al., supra note 1, at 42. "Big data" is defined as "to the treatment of massive volumes of data that traditional databases are not able to process." "Machine Learning" is "a technology that allows an evidence-based program to automatically reintegrate new information in order to improve its own algorithm." And "Text Mining" is "the process of analyzing text-based documents in order to derive structured information."

[13] Haesler et al., supra note 9; Al Fatayri et al., supra note 15; Alexander Calthrop & Katrina Limond, Artificial intelligence in arbitration: evidentiary issues and prospects, A&O SHEARMAN (Jan. 12, 2024), https://www.aoshearman.com/en/insights/artificial-intelligence-in-arbitration-evidentiary-issues-and-prospects

[14] Haesler et al., supra note 9; Al Fatayri et al., supra note 15.

Calthrop et al., supra note 73). Potentially, they will be able to listen to hearings, review transcripts, and help lawyers build arguments while hearings take place.

Professional Responsibility and Legal Evolution

Two interesting arguments emerge against the irresponsible overreliance of AI in legal practice. The first one concerns the professional responsibility consequences of delegating legal tasks to AI; the second one addresses the evolution of international law as a whole.

In light of the challenges discussed, members of the legal profession certainly bear a significant responsibility. Those who seek to implement AI in their legal practice must ensure a competent, well-informed, use and apply diligence and prudence to facts and law.[15] The potential falsehood, inaccuracy, and bias of AI outputs (i.e. hallucinations) compel legal professionals not to over-rely on them. Lawyers, not AI systems, must bear responsibility for any irregularities that arise in their legal practice due to the use of AI[16]. AI-overreliance is deemed as "inconsistent with the active practice of law and application of trained judgment by the lawyer."[17] Lawyers shall definitely observe any applicable ethical rules or professional standards of representation when using AI models[18]. Regardless of whether an AI tool is used for any legal task, lawyers remain legally responsible for any resulting outcome.[19].

As for the second concern on overreliance on AI, some argue that it may "hinder critical attorney analysis fostered by traditional research and writing."[20] Both lawyers and judges might become less discerning over time due to the overreliance on AI in thought processes and decision-making.[21] From my perspective, the historical importance of *lex mercatoria* demonstrates that international arbitration is not merely a mechanism for dispute resolution but also an important source of legal development.[22] Arbitrators contribute to the continuous formation and refinement of *transnational* commercial principles through their reasoning and interpretation of legal norms.[23] Consequently, an excessive reliance on artificial intelligence may hinder this evolutionary process by reducing the diversity of legal arguments and limiting the human element that has traditionally driven the development of international commercial law. This article argues that artificial intelligence should enhance the efficiency of arbitration proceedings, but it should never replace the independent judgment and legal creativity of arbitrators.

A new debate has emerged in the legal field regarding the possibility of using artificial intelligence as arbitrators. This idea raises not only practical issues but also important ethical

[15] See THE STATE BAR OF CALIFORNIA STANDING COMMITTEE ON PROFESSIONAL RESPONSIBILITY AND CONDUCT, Practical Guidance for the Use of Generative Artificial Intelligence in the Practice of Law (Executive Summary) (2023), r. 1.3, https://www.calbar.ca.gov/Portals/0/documents/ethics/Generative-AI-Practical-Guidance.pdf.
[16] *Id.*
[17] *Id*
[18] CIARB AI Guideline, supra note 18, at 11, no. 4
[19] *See* generally Practical Guidance, supra note 123, r.1.3
[20] *Id.*
[21] Haesler et al., supra note 9
[22] See Moses supra note 113, at 63-72
[23] See Moses supra note 113, at 63-72

concerns. Some of the practical problems, such as reliability and transparency, become even more serious when AI is expected to make decisions instead of merely assisting arbitrators. In recent years, AI-based arbitration platforms have already appeared. For example, some systems claim that commercial disputes can be resolved much faster and at a significantly lower cost than traditional litigation or arbitration. Their procedures are conducted entirely online, from filing the claim to receiving the final decision, and they promise to reduce both time and expenses. However, an important question remains: should artificial intelligence replace human arbitrators? It may be argued that the answer is no, at least at the present stage of technological development. Although AI can process information quickly and improve efficiency, it still lacks essential human qualities such as empathy, emotional understanding, and life experience. These characteristics often play an important role in ensuring fairness and justice in dispute resolution. Therefore, I believe that artificial intelligence should be used as a supportive tool in international commercial arbitration rather than as a substitute for human arbitrators. Final decisions should remain in the hands of people, because legal disputes frequently require human judgment, ethical reasoning, and an understanding of circumstances that machines cannot fully comprehend.

Limitations on the Use of AI in Legal Decision Making: The Four 'V's of Big Data

The four Vs of Big Data — Volume, Variety, Velocity, and Veracity – are often referred to as the pillars of data-driven initiatives by data professionals.[24] The four Vs denote the difficulties associated with the utilization of Big Data. Additionally, they aid in the evaluation of data-driven AI algorithms such as those discussed in the preceding section, as well as their use in the legal field. This section covers the four Vs in turn and the inherent limits of data-driven models for legal decision-making using artificial intelligence.

One of the major limitations of Artificial Intelligence in international commercial arbitration is the lack of accessible and reliable data. Due to the confidential nature of arbitration proceedings, many arbitral awards are not publicly available, making it difficult to develop accurate AI models[25]. Furthermore, even when data is available, a sufficiently large volume of cases is necessary to ensure reliable and effective AI-generated outcomes.

Along with the required data amount, there is a concern concerning the diversity of the supplied data. Range of data, in data-research parlance, refers to the fact that data originates from a variety of sources and may be structured (e.g., a file including names, phone numbers,

[24] Initially, the focus was on only three Vs (volume, variety, and velocity). See e.g. Max N. Helveston, Consumer Protection in the Age of Big Data, 93 Wash. U. L. Rev. 859, 867 (2016). Veracity was added in the mid-2000s. See also Margaret Hu, Small Data Surveillance v. Big Data Cybersurveillance, 42 Pepp. L. Rev. 773, 795 (2015); Todd Vare & Michael Mattioli, Big Business, Big Government and Big Legal Questions, 243 Managing Intell. Prop. 46 (2014). More recently, some have suggested a fifth V in the form of 'value'. See e.g. Amy Affelt, Big Data, Big Opportunity, 21 Austl. L. Libr. 78 (2013). In the legal context, this last point is of less relevance and thus not discussed here.

[25] According to UNCTAD statistics, sixty-two new treaty-based investor–State dispute settlement cases were initiated in 2016, sixty-five in 2017 and at least seventy-one in 2018. See UNCTAD, Investor-State Dispute Settlement: Reviewof Developments in 2016 1 (May 2017); UNCTAD, Investor-State Dispute Settlement: Reviewof Developments in 2017 1 (June 2018); UNCTAD, NewISDS Numbers: Takeaways on Last Year's 71 Known Treaty-Based Cases (13 Mar. 2019), https://investmentpolicyhubold.unctad.org/News/Hub/Home/1609 (accessed 15 April 2022).

and addresses) or unstructured (photos, videos, social media feeds).[26] In a legal environment, the same question is almost always phrased differently. The variation will come not so much from alternative sources or formats – given that the incoming data will almost certainly be confined to prior judgments – but rather from the substance addressed in those decisions. Two distinct issues come to mind when considering AI-driven decision-making.

Another limitation of Artificial Intelligence in legal decision-making is that AI systems perform more effectively when disputes involve repetitive patterns and large amounts of similar data. However, international commercial arbitration often deals with complex and unique disputes that do not follow standard patterns, making accurate predictions more difficult. Moreover, although many legal questions may be reduced to simple yes or no answers, each dispute contains numerous interconnected issues that require case-specific analysis and human judgment. Therefore, AI can assist legal decision-making, but it cannot fully replace the reasoning and discretion of human arbitrators.

Conclusion.

Artificial Intelligence has emerged as one of the most significant technological developments affecting modern legal practice. Its influence extends beyond increasing efficiency and has transformed the way legal information is collected, analyzed, and applied in dispute resolution processes. International commercial arbitration, due to its flexibility and transnational nature, has become one of the leading areas for the implementation of AI technologies. AI-assisted tools can significantly improve document review, legal research, case management, and communication between parties while reducing both time and costs. At the same time, the use of AI raises important legal and ethical concerns, including issues of confidentiality, transparency, accountability, algorithmic bias, and the protection of due process and procedural fairness. For the Republic of Uzbekistan, these developments have particular significance. In recent years, Uzbekistan has adopted important legal and policy initiatives aimed at promoting digital transformation and the responsible use of Artificial Intelligence, including Presidential Resolution No. PQ-4996 of February 17, 2021, and the Strategy for the Development of Artificial Intelligence Technologies until 2030 approved by Resolution No. PQ-358 of October 14, 2024. These reforms create favorable conditions for the future integration of AI into legal services and dispute resolution mechanisms.

The experience of international commercial arbitration suggests that Artificial Intelligence should be viewed as a supportive instrument rather than a substitute for human decision-makers. Although AI can considerably enhance efficiency and accessibility, it cannot replace essential human qualities such as independent legal reasoning, ethical judgment, professional responsibility, and the ability to appreciate the specific circumstances of each dispute. Therefore, the principal challenge of the modern legal profession is not whether Artificial Intelligence should participate in legal processes, because its use is already

[26] Ankit Malhotra & Faizan Ahmad, Artificial Intelligence and International Arbitration, 27 Revista Novos Estudos Jurídicos 269 (2022). https://pdfs.semanticscholar.org/672e/8207712c91009ce95928a107289004ce3fd1.pdf

becoming an undeniable reality. The real challenge lies in establishing an appropriate balance between technological innovation and the fundamental principles of justice, fairness, and the rule of law.

In light of these developments, this article recommends that the Republic of Uzbekistan: (1) develop ethical guidelines governing the use of Artificial Intelligence in arbitration proceedings; (2) establish clear standards for data protection and confidentiality in AI-assisted dispute resolution; (3) introduce specialized training programs on Artificial Intelligence for arbitrators, lawyers, and legal professionals; and (4) develop a comprehensive regulatory framework governing the use of AI in international commercial arbitration. Such measures would enable Uzbekistan not only to benefit from technological innovation but also to become one of the leading jurisdictions in Central Asia in developing a modern legal framework for Artificial Intelligence and dispute resolution. Ultimately, the future of international commercial arbitration should be based on cooperation between human expertise and technological advancement, where Artificial Intelligence supports, but never replaces, human judgment.

References:

1. UNCITRAL Model Law on International Commercial Arbitration https://uncitral.un.org/en/texts/arbitration/modellaw/commercial_arbitration

2. Convention on the Recognition and Enforcement of Foreign Arbitral Awards (New York Convention), 1958. https://www.newyorkconvention.org/english

3. Anyoha, Rockwell. The History of Artificial Intelligence. Harvard University Science in the News, Aug. 28, 2017. https://huguesrey.wordpress.com/2017/12/28/the-history-of-artificial-intelligence-by-rockwell-anyoha-source-harvard/

4. K. Fach Gómez, The Technological Competence of Arbitrators, Special Issue, https://doi.org/10.1007/978-3-031-11681-0_1, Springer 2023, p. 1; B. Gates, Business @ the speed of thought: using a digital nervous system, Penguin 1999, vol 10., pp. 11–18.

5. Haesler et al., supra note 9; Al Fatayri et al., supra note 15; Alexander Calthrop & Katrina Limond, Artificial intelligence in arbitration: evidentiary issues and prospects, A&O SHEARMAN (Jan. 12, 2024), https://www.aoshearman.com/en/insights/artificial-intelligence-in-arbitration-evidentiary-issues-and-prospects

6. Kathleen Paisley & Edna Sussman, Artificial Intelligence Challenges and Opportunities for International Arbitration, 11 N.Y. Disp. Resol. Law. 35, 35–36, (2018). https://sussmanadr.com/wp-content/uploads/2018/12/artificial-intelligence-in-arbitration-NYSBA-spring-2018-Sussman.pdf

7. Don and Alex Tapscott, Blockchain Revolution: How the Technology Behind Bitcoin Is Changing Money, Business, and the World (2016); Melanie Swan, Blockchain: Blueprint for a New Economy (2015)

8. Andreas M Antonopoulos and Gavin Wood, Mastering Ethereum: Building Smart Contracts and Dapps (2018); Jeff Read, Smart Contracts: The Essential Guide to Using Blockchain Smart Contracts for Cryptocurrency Exchange (2016).

9. Kevin D. Ashley, Artificial Intelligence and Legal Analytics: New Tools for Law Practice in the Digital Age (2017) (detailed technical discussion of the application of artificial intelligence to legal practice) (hereafter “Ashley”); Richard Susskind, Tomorrow’s Lawyers: An Introduction to Your Future (2d ed. 2017).

10. Acero, G. D. F. (2025). The Use of Artificial Intelligence in Arbitration: Friends with Benefits. Vniversitas, 74

11. Ahmed, S. S., & Imam, J. (2024). The Role of Generative Artificial Intelligence in Judicial Decision-Making Process. SSRN 5267928. https://ssrn.com/abstract=5267928

12. Max N. Helveston, Consumer Protection in the Age of Big Data, 93 Wash. U. L. Rev. 859 (2016).

13. Gary B. Born, International Commercial Arbitration (3d ed., Kluwer Law International 2021).

14. Margaret Hu, Small Data Surveillance v. Big Data Cybersurveillance, 42 Pepp. L. Rev. 773 (2015).

15. Ankit Malhotra & Faizan Ahmad, Artificial Intelligence and International Arbitration, 27 Revista Novos Estudos Jurídicos 269 (2022). https://pdfs.semanticscholar.org/672e/8207712c91009ce95928a107289004ce3fd1.pdf

16. Resolution of the President of the Republic of Uzbekistan, 17.02.2021 г. № RP-4996 https://lex.uz/docs/-5297046

17. Resolution of the President of the Republic of Uzbekistan, 14.10.2024 г. № RP-358 https://lex.uz/uz/docs/7159258

18. Uzbekistan Adopts New Law to Regulate Artificial Intelligence Use Across Sectors, BABL AI (2026), https://babl.ai/uzbekistan-adopts-new-law-to-regulate-artificial-intelligence-use-across-sectors/?utm_source=chatgpt.com

19. THE STATE BAR OF CALIFORNIA STANDING COMMITTEE ON PROFESSIONAL RESPONSIBILITY AND CONDUCT, Practical Guidance for the Use of Generative Artificial Intelligence in the Practice of Law (Executive Summary) (2023), r. 1.3, https://www.calbar.ca.gov/Portals/0/documents/ethics/Generative-AI-Practical-Guidance.pdf.