



# The Indian Journal for Research in Law and Management

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Editor-in-Chief – Dr. Muktai Deb Chavan; Publisher – Alden Vas; ISSN: 2583-9896

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## FUTURE CHALLENGES AND INNOVATION IN GLOBAL ARBITRATION PRACTICES

~ Rudrakshi Gupta

### ABSTRACT

*International arbitration is an ongoing process which is increasingly being used by the companies especially in the commercial sector to resolve disputes rather than going to courts. Arbitration is time-saving, cost-efficient and more autonomous process for parties. However, there have been various innovations that have taken place and now the arbitration has changed a lot over time with inclusion of technological and procedural changes and use of Artificial Intelligence to make the process faster, efficient and less time consuming. The article explains the various technological and procedural innovations that have been adopted, the role of AI in arbitral proceedings, difference in procedures of arbitral proceedings from traditional to digital. It also talks about various future outlooks that the arbitral institutions might adopt with time. It also highlights the concerns that come with the use of AI, technology and various procedural innovations, and lastly maintaining the basic principles of arbitration proceedings. To protect the rights of parties, ensure confidentiality, fairness and legal frameworks for a reliable dispute resolution.*

### RESEARCH QUESTION

1. To what extent can technologies be adopted to improve arbitral procedure while maintaining the principles of arbitration?
2. Does the use of AI and technology give rise to new concerns and how are these dealt to ensure protection of rights of parties and maintaining confidentiality?
3. What steps can be taken to maintain a balance between traditional arbitration and digitalization?

## RESEARCH METHODOLOGY

I adopted a doctrinal and library-based research methodology using both primary and secondary sources. Primary sources include the UNCITRAL Model Law on International Commercial Arbitration, UNCITRAL Arbitration Rules, UNCITRAL Expedited Arbitration Rules and UNCITRAL Model Clauses on Specialized Express Dispute Resolution (SPEDR), whereas secondary sources include reports, resources, sessions and guidelines published by various institutions such as the International Chamber of Commerce (ICC), International Bar Association (IBA), and International Council for Commercial Arbitration (ICCA). This article sees the need and adoption of technology, use of AI, virtual hearings, digital evidence, cyber security threats and protections from them, confidentiality, and various other innovations in international arbitration. It also examines the need to create a balance between the traditional arbitration and changing times and needs of the system to maintain fairness, equality and protection of parties' rights.

## INTRODUCTION

As per UNCITRAL MODEL LAW, Article 1(3), (a) International Arbitration is when parties' places of business is in different States, (b) one of the following places is situated outside the State in which the parties have their respective places of business, (c) or the parties have expressly agreed that the subject matter of the arbitration agreement relates to more than one country.<sup>1</sup> International arbitration is an important cross-border mechanism which deals with the resolution of commercial disputes. It settles disputes between parties belonging to different jurisdictions by hearing both sides and carrying the arbitral proceedings. The Model Law covers matters from the agreement of arbitration, to composition of tribunal, place, language, and governing law.<sup>2</sup> The decision given by the tribunal is binding on both the parties subject to the applicable law. Companies often choose arbitration over approach the court to resolve cross border commercial disputes because of its flexibility, confidentiality and neutrality as well as the framework for enforcement of the award. In the arbitral proceedings, parties have more autonomy to decide the procedure for

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<sup>1</sup>U.N. Commission on International Trade Law, *UNCITRAL Model Law on International Commercial Arbitration* art. 1(3) (1985), amended 2006, (last visited on 3<sup>rd</sup> Oct, 2026)

[https://uncitral.un.org/en/texts/arbitration/modellaw/commercial\\_arbitration](https://uncitral.un.org/en/texts/arbitration/modellaw/commercial_arbitration)

<sup>2</sup> U.N. Commission on International Trade Law, *UNCITRAL Model Law on International Commercial Arbitration* (1985), amended 2006, (last visited on 3<sup>rd</sup> Oct, 2026)

[https://uncitral.un.org/en/texts/arbitration/modellaw/commercial\\_arbitration](https://uncitral.un.org/en/texts/arbitration/modellaw/commercial_arbitration)

proceedings, and UNCITRAL Arbitration Rules provide rules for appointment of arbitrators and conduct of proceedings.<sup>3</sup> Traditionally, arbitral proceedings involved formal written submissions, documentary evidence and physical hearings but globalization has made commercial disputes more complex, especially after Covid-19, arbitration has shifted from its traditional approach to digitalized proceedings. Digitalization has made the proceedings easier with virtual hearings, electronic evidence, AI-assisted processes and digital platforms, these have enhanced efficiency but it has also created concerns with respect to confidentiality, AI and cyber security.<sup>4</sup>

## EVOLUTION OF INTERNATIONAL ARBITRATION

The needs of international arbitration have changed over time to meet the necessities of the changing environment. Before, the proceedings used to rely heavily on hard-copy filings and presentation and submission of physical documents, established procedural methods were adopted by tribunals to resolve the disputes between parties via arbitration. Parties were generally physically present at the seat/place of arbitration, evidences and submission were physically presented, and both parties were given an opportunity to be heard and present their case. The arbitral tribunal appointed by the parties managed the proceedings and decided how the hearings and evidences were to be conducted. Arbitration was seen as a much more flexible procedure than court litigation, with parties having autonomy to appoint the arbitrators, the governing law, the place and language of arbitration. Technology did not create this flexibility, but it is changing it to how this flexibility is implemented. Now, the procedure has shifted from hard copy filings to e-documents with hyperlinked exhibits, making it easier more effective and efficient to resolve disputes.<sup>5</sup>

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<sup>3</sup> U.N. Commission on International Trade Law, *UNCITRAL Arbitration Rules* (2010), as revised in 2013, (last visited on 3<sup>rd</sup> Oct, 2026) <https://uncitral.un.org/en/texts/arbitration/contractualtexts/arbitration>

<sup>4</sup> ICC Commission on Arb. & ADR, *Report on Leveraging Technology for Fair, Effective and Efficient International Arbitration Proceedings* (2022), (last visited on 3<sup>rd</sup> Oct, 2026) <https://iccwbo.org/news-publications/arbitration-adr-rules-and-tools/icc-arbitration-and-adr-commission-report-on-leveraging-technology-for-fair-effective-and-efficient-international-arbitration-proceedings/>

<sup>5</sup> ICC Commission on Arb. & ADR, *Report on Leveraging Technology for Fair, Effective and Efficient International Arbitration Proceedings* (2022), (last visited on 3<sup>rd</sup> Oct, 2026) <https://iccwbo.org/news-publications/arbitration-adr-rules-and-tools/icc-arbitration-and-adr-commission-report-on-leveraging-technology-for-fair-effective-and-efficient-international-arbitration-proceedings/>

With the use of digital solutions, especially after COVID-19, arbitration has become even more flexible. Virtual and hybrid hearings have made remote communication normal and easier, cases involving large number of documents can be transferred electronically as e-briefs. Arbitration centres have also adopted digital case-management platforms for conducting evidentiary hearings through video conferencing and provide checklists for virtual hearings. Arbitration may also increasingly use AI and machine learning as tools in the near future. However, Virtual arbitration does not mean that the traditional has become obsolete. The nature of hearing should be decided by the parties based on the circumstances and facts of each case.<sup>6</sup> Even though, technology has made it easier and efficient, the tribunals still need to consider the implications of these tools, as it not only affects the administration but also how the actual evidence is presented and conduct of proceedings. It is important to maintain a balance that creates opportunities for efficiency while ensuring that the basic principles of arbitration including, flexibility, neutrality and confidentiality are maintained.

## **ARTIFICIAL INTELLIGENCE AND THE FUTURE OF ARBITRATION**

AI is the new trend of today and has been increasingly used across various sectors to streamline their processes. Arbitral tribunals are considering using AI in their dispute settlement procedures.<sup>7</sup> With this, professionals and arbitrators can use AI-assisted legal research tools to quicken the process and make research easier, large volumes of documents can be reviewed easily and quickly, identifying relevant evidence and summarizing documents to what is relevant. Translation and transcription of documents can be done in any language within a few minutes by providing an appropriate prompt, thus saving time. Organizing evidence has become easier and there is no need for storing large quantities of paperwork and then, their copies for backup. With digitalization they can be converted into e-files and numerous copies can be made instead of needing physical paper. AI can assist lawyers with drafting and case presentation, helping them proof read their drafted work and

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<sup>6</sup> *Id.*

<sup>7</sup> ICC Commission on Arb. & ADR, *Report on Leveraging Technology for Fair, Effective and Efficient International Arbitration Proceedings* (2022), (last visited on 3<sup>rd</sup> Oct, 2026) <https://iccwbo.org/news-publications/arbitration-adr-rules-and-tools/icc-arbitration-and-adr-commission-report-on-leveraging-technology-for-fair-effective-and-efficient-international-arbitration-proceedings/>

look for inconsistencies. It can be seen that AI might be used in the arbitral case management in the future for faster and smoother processes.<sup>8</sup>

However, with efficiency, there have also been challenges with the use of AI. Artificial Intelligence is a tool which if used in a correct way will make the process smooth, but if used in an incorrect manner it can create inconsistencies in the proceedings. Many times there may be inaccuracies in the data collected from AI research platforms. It is difficult to verify AI-generated information and inputting of confidential information of business houses into AI systems can be compromised, if leaked. Questions regarding the transparency and origin of such information, whether parties should disclose such confidential information for AI-use with the risk of leaking, and cyber security risks<sup>9</sup> and up to what extent can arbitrators use AI in their decision-making. Use of AI is not bad but using it for such sensitive cases, it is important that the tribunals should not solely depend on AI but should retain human judgment and oversight.

## **VIRTUAL HEARING AND DIGITAL EVIDENCE**

Virtual hearings are commonly done in the arbitration proceedings. Earlier, it was difficult to conduct hearing in remote places but now it can be easily done using video conferencing. Hearings are conducted on offline basis, online as well as hybrid basis where both physical and remote participation is done.<sup>10</sup> This has reduced travel and saved both time and cost of the parties and the tribunal. Virtual hearings has increased accessibility for parties, counsels, witnesses and arbitrators located in different areas and ensure that proceedings are done smoothly. Sometimes, internet/technical issues can create difficulties in examining witnesses remotely. Maintaining confidentiality during online hearing is very important as the

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<sup>8</sup>*Id.*

<sup>9</sup> International Bar Association, *Integrating AI into Your Arbitration Practice: Best Practices and Red Flags* (2025), (last visited on 3<sup>rd</sup> Oct, 2026), [https://www.ibanet.org/session-details/se\\_327004](https://www.ibanet.org/session-details/se_327004)

<sup>10</sup> ICC, *Checklist for a Protocol on Virtual Hearings and Suggested Clauses for Cyber-Protocols and Procedural Orders Dealing with the Organisation of Virtual Hearings* (2020), (last visited on 3<sup>rd</sup> Oct, 2026) <https://iccwbo.org/news-publications/arbitration-adr-rules-and-tools/icc-checklist-for-a-protocol-on-virtual-hearings-and-suggested-clauses-for-cyber-protocols-and-procedural-orders-dealing-with-the-organisation-of-virtual-hearings/>

information and evidence can be exposed to cyber security risk.<sup>11</sup> Equal participation of parties can be compromised due to possible differences in technological resources.

Various evidence like electronic documents and information are recorded digitally then verified and authenticated by the authorities to avoid problems such as alteration or manipulation of digital information.<sup>12</sup> With the increase use of electronic evidence, it is important to ensure it is properly verified and see if the digital evidence can provide the same reliability and fairness as traditional arbitration.

## **CYBERSECURITY AND DATA PROTECTION**

Digitalization means documents, evidence, communication stored and transmitted electronically to be used in arbitral proceedings. This creates a risk of unauthorized access and cyber attacks during the transmission.<sup>13</sup> International arbitration involves parties from different jurisdictions which mean data is transmitted across jurisdictions having different legal frameworks and data protection requirements.<sup>14</sup>

Therefore, it is important that parties, arbitrators and counsels all should consider protection of this information. This can be done by taking precautionary measures such as following proper cyber security protocols, using secured and authentic platforms. Other measures which can be taken like encryption of personal data, access to only authorized persons and risk assessment to identify the level of protection for the information processed. In international arbitration, parties should know where their data is being transmitted and stored.<sup>15</sup>

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<sup>11</sup> ICC Commission on Arb. & ADR, *Report on Leveraging Technology for Fair, Effective and Efficient International Arbitration Proceedings* (2022), (last visited on 3<sup>rd</sup> Oct, 2026) <https://iccwbo.org/news-publications/arbitration-adr-rules-and-tools/icc-arbitration-and-adr-commission-report-on-leveraging-technology-for-fair-effective-and-efficient-international-arbitration-proceedings/>

<sup>12</sup> International Bar Association, *IBA Rules on the Taking of Evidence in International Arbitration* (2020), (last visited on 4<sup>th</sup> Oct, 2026) <https://www.ibanet.org/resources>

<sup>13</sup> ICCA-IBA Joint Task Force, *ICCA-IBA Roadmap to Data Protection in International Arbitration 1* (2020), (last visited on 4<sup>th</sup> Oct, 2026) <https://www.ibanet.org/MediaHandler?id=CBCF76E4-921D-41C0-9A62-0263A711318E>

<sup>14</sup> *Id.* at 7-8.

<sup>15</sup> *Id.* at 27-28.

Personal data should be minimized if necessary, when it is being transmitted to another jurisdiction.<sup>16</sup> Therefore, cyber security should be treated as an continuous process and not just an starting point.

Documents should be responsibly handled and confidentiality of parties and information should be maintained. The arbitral authorities should clarify who can access the information which has been transmitted and stored. Digitalization does not mean the confidentiality should be compromised, it is important to maintain the balance between faster proceedings and protection of confidentiality.

### **COST, DELAY AND PROCEDURAL EFFICIENCY**

Extensive documents, examination of witnesses, appointment of experts, procedural applications which may undermine efficiency and lengthy hearings make international arbitration a lengthy and expensive procedure. Time required for document transmission and administrative work has been reduced with technology but it does not necessarily make arbitration faster or cheaper.

In 2021, United Nations Commission on International Trade Law (UNCITRAL) adopted the Expedited Arbitration Rules as a simplified procedure with a shortened timeline, which enabled parties to reach a final resolution in a cost-effective and time efficient manner.<sup>17</sup> As per Article 1(5) of the UNCITRAL Arbitration Rules, parties must expressly agree and decide whether they want the expedited arbitration rules to be applied in their proceedings.<sup>18</sup> The Expedited Arbitration Rules seek to increase the speed of the proceedings while maintaining the due process and Parties' opportunity to be heard.<sup>19</sup>

### **PROCEDURE INNOVATION AND SPECIALIZED DISPUTE RESOLUTION**

Digitalization is not the only innovation in the arbitration sector, but procedural innovation like flexible procedural mechanisms, specialized dispute resolution procedures, appointment of technical experts; confidentiality mechanism and expedite arbitration are adapted in accordance to the nature, facts and complexity of each dispute.

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<sup>16</sup>*Id.* at 21.

<sup>17</sup>U.N. Commission on Int'l Trade Law, *Expedited Arbitration Rules* (2021), (last visited on 4<sup>th</sup> Oct, 2026) <https://uncitral.un.org/en/content/expedited-arbitration-rules>

<sup>18</sup>*Id.* art. 1(5)

<sup>19</sup>*Id.* at 1.

UNCITRAL's Specialized Express Dispute Resolution (SPEDR) Model Clauses 2024, talks about four Model Clauses on Highly Expedited Arbitration, Adjudication, Technical Advisers and Confidentiality.<sup>20</sup>

1. Highly Expedited Arbitration Clause: A faster arbitral procedure for dispute resolution where parties need a faster resolution, with a smooth process and shorter time.<sup>21</sup>
2. Adjudication Clause: This clause provides for an adjudicator who adjudicates/decides the dispute in a faster and flexible manner than a full arbitral proceeding.<sup>22</sup>
3. Technical Advisers Clause: Whenever there's a technical/specialized issue in a dispute requiring technical expertise, this clause allows the tribunal to appoint a technical expert specialized in that field to resolve that issue.<sup>23</sup>
4. Confidentiality Clause: This clause provides for a mechanism to protect confidential information disclosed and maintain its confidentiality during and after the dispute resolution proceedings.<sup>24</sup>

Therefore, innovation does not mean changing the existing arbitration system, with technology, but adopting different techniques and procedures to improve dispute resolution by designing procedures according to the issues, nature and circumstances of a dispute.

## **BALANCING INNOVATION WITH DUE PROCESS**

Use of technology does not mean either party should be prevented from presenting their case. There should be no procedural unfairness due to virtual hearing, network issues, technical failures or inaccessible technology to put any party at a technological disadvantage. Human judgement and oversight is very necessary for the arbitral proceedings. AI may assist with research, documentation, drafting or organization of evidences and case but the ultimate decision should be of the arbitrator keeping in mind the legal principles rather than relying on machine-generated outcomes. A standard use of technology should not be used for all the

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<sup>20</sup>U.N. Commission on International Trade Law, *UNCITRAL Model Clauses on Specialized Express Dispute Resolution (SPEDR)* (2024), (last visited on 4<sup>th</sup> Oct, 2026) <https://uncitral.un.org/en/spedr>

<sup>21</sup>*Id.* at 7.

<sup>22</sup>*Id.* at 13.

<sup>23</sup>*Id.* at 27.

<sup>24</sup>*Id.* at 31.

cases as each case is different, therefore, it is necessary that technology be used according to the particular case, its nature and facts as same technology procedure may not be suitable for every dispute.<sup>25</sup>

Parties' opportunity to be present, cross examination of witnesses, examination and challenging of evidence should not be affected by use of technological tools while handling the evidence.<sup>26</sup> Use of AI should not compromise the confidentiality. It is required that proper measures shall be taken to protect sensitive information from cyber security risks.<sup>27</sup> Arbitrators should maintain their independent judgement and human prespective irrespective of technological tools used. The expedited procedure adopted saves time but speedy process does not mean it should deprive parties of their right to be heard, to present their case and fair procedure.<sup>28</sup> The main argument is that technology should be blended in the procedure in such a way that it provides a fair, secure and legally reliable dispute resolution mechanism to parties.

## THE FUTURE OF GLOBAL ARBITRATION

In future, arbitration will probably include different types of innovations and new procedures. With the increasing use of AI, arbitration may likely become a technology driven process which will lead to increasing reliance of proceedings on virtual or hybrid hearings for including remote areas. Digital evidence is becoming more common with the reduction in use of physical copies/documents to save paper, time and storage. However to maintain this technology driven atmosphere, it is important to make strong cyber security requirements to protect the information from risks. With adoption of technological innovations, the process

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<sup>25</sup> International Chamber of Com., *Leveraging Technology for Fair, Effective and Efficient International Arbitration Proceedings* (2022), (last visited on 4<sup>th</sup> Oct, 2026) <https://iccwbo.org/wp-content/uploads/sites/3/2022/02/icc-arbitration-and-adr-commission-report-on-leveraging-technology-for-fair-effective-and-efficient-international-arbitration-proceedings.pdf>

<sup>26</sup> International Bar Association, *IBA Rules on the Taking of Evidence in International Arbitration* (2020), (last visited on 4<sup>th</sup> Oct, 2026), <https://www.ibanet.org/MediaHandler?id=def0807b-9fec-43ef-b624-f2cb2af7cf7b>

<sup>27</sup> International Council for Com. Arb. & Int'l Bar Association, *ICCA-IBA Roadmap to Data Protection in International Arbitration* (2020), (last visited on 4<sup>th</sup> Oct, 2026), <https://www.ibanet.org/MediaHandler?id=CBCF76E4-921D-41C0-9A62-0263A711318E>

<sup>28</sup> U.N. Commission on International Trade Law, *Expedited Arbitration Rules* (2021), (last visited on 4<sup>th</sup> Oct, 2026), <https://uncitral.un.org/en/content/expedited-arbitration-rules>

has become smoother and flexible. Introduction of expedited arbitration, has given the parties a choice to go for a faster procedure than normal arbitration proceedings. However, mere adoption of technology is not enough, but proper knowledge and skill is required to use that technology. It is necessary that the arbitration professionals are taught to be competent to use technology for fast and efficient proceedings while maintaining their human oversight and judgment during decision-making. Lastly, it is important especially in international arbitration that countries adopt these technological changes into their legal framework to maintain some kind of uniformity in the legal structure and prevent any legal disparity.

## **CONCLUSION**

Therefore, we can say arbitration, especially international arbitration where physical boundaries become very difficult to meet, technology inducement will help streamline the overall procedures and process of arbitration. It involves both technological as well as procedural innovations with proper safeguards in relation to procedural fairness, confidentiality, protection from cyber security risks, independent decision-making and human oversight of arbitrators and enforceability of the applicable laws. The futures of arbitration lies in not replacing the traditional with technology but creating a harmony between both the aspects to improve efficiency, while maintaining the fundamental principles of fairness, confidentiality, neutrality and due process.