




# The Use of Artificial Intelligence in Dispute Resolution Through Arbitration: The Potential and Challenges

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Submitted: 2023-03-14

Revised: 2023-08-15

Published: 2023-09-22

## Article Info

### Keywords:

Artificial Intelligence; Dispute Resolution; Arbitration.

## Abstract

**Introduction:** The use of artificial intelligence (AI) in dispute resolution through arbitration has become an increasingly relevant topic in the legal world. AI can speed up the process of data collection, data analysis, and provide predictions and recommendations in dispute resolution. However, the use of AI also raises some challenges and risks that need to be overcome.

**Purposes of the Research:** This paper intends to explore the potential of the use of Artificial Intelligence (AI) Technology in dispute resolution through arbitration, as well as the challenges and risks associated with its use.

**Methods of the Research:** The research method used is normative research by analyzing various literature and regulations related to the use of AI in dispute resolution through arbitration.

**Results of the Research:** The results showed that the use of AI in dispute resolution through arbitration can speed up the process and improve the accuracy of data analysis. However, its use also has challenges and risks such as the risk of error and the inability of AI to understand the legal nuances and human factors in the dispute resolution process. To minimize risks and ensure fairness and legal certainty in the dispute resolution process through arbitration, clear regulations and standards are needed in the use of AI. In addition, users and legal practitioners involved in the dispute resolution process through arbitration also need to improve understanding and knowledge of AI technologies.

## 1. INTRODUCTION

AI technology is emerging as an attractive solution, as it can help analyze problems accurately and quickly, improving the dispute resolution process. However, despite the enormous potential of AI technology, its use in dispute resolution through arbitration is still limited. Dispute resolution by arbitration has become popular for parties who want to resolve disputes quickly and efficiently.<sup>1</sup> In practice, dispute resolution through arbitration can be made in various ways, both through traditional means and by utilizing the latest technology.<sup>2</sup> One of the latest technologies that are developing rapidly and has great potential in dispute resolution is Artificial Intelligence (AI) technology. This is because AI

<sup>1</sup> F Taurusia, "Penggunaan Arbitrase Dalam Penyelesaian Sengketa Konsumen Di Bpsk," *Journal of Legal, Ethical and Regulatory* 20, no. 2 (2008): 1-8, <https://repository.unair.ac.id/12846/>.

<sup>2</sup> Gary B Born, *International Commercial Arbitration, International and Comparative Law Quarterly*, 2nd ed., vol. 24 (Kluwer Law International, 1975), <https://doi.org/10.1093/iclqaj/24.1.145>.

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can help in analyzing problems more accurately and quickly. This allows for improvements in settlement and increased efficiency in the dispute resolution process.<sup>3</sup>

One of the latest technologies that are developing rapidly and has great potential in dispute resolution is Artificial Intelligence (AI) technology. However, although the potential use of AI technology in dispute resolution through arbitration is enormous, its use is still not widely practiced by legal practitioners and arbitrators. This is due to several obstacles and challenges faced in using AI technology in dispute resolution through arbitration.<sup>4</sup> One of the main obstacles is the lack of understanding of AI technology and how it is used in dispute resolution through arbitration.<sup>5</sup>

A study by Lee, J. Y., showed that the use of AI technology in dispute resolution through arbitration could improve the efficiency and speed of the dispute resolution process.<sup>6</sup> However, some challenges and obstacles must be overcome in its use, such as the lack of transparency and accountability in AI decision-making. Therefore, in his study, Eisenberg argued that research related to the use of AI technology in dispute resolution through arbitration is considered very important to do.<sup>7</sup> Conducting this research can provide a deeper understanding of the potential and challenges of using AI technology in dispute resolution through arbitration and can help improve and improve the dispute resolution process through arbitration.<sup>8</sup>

In another study, Dabbah stressed the importance of establishing an appropriate regulatory framework for the use of AI technology in the context of dispute resolution through arbitration.<sup>9</sup> This will help ensure the security and reliability of AI technology in the dispute resolution process and provide guarantees to the parties involved in the arbitration process. Koh, B. highlighted that in the context of increasingly rapid technological developments, research related to the use of AI technology in dispute resolution through arbitration is becoming increasingly important and relevant.<sup>10</sup> In Amir's research, it is hoped that the use of AI technology can provide greater benefits to society in general.<sup>11</sup>

This study aims to explore the potential and challenges of utilizing artificial intelligence (AI) technology in the dispute resolution process through arbitration. By identifying the benefits that AI technology can generate in improving the efficiency and

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<sup>3</sup> Benjamin Moxley-Wyles, Richard Colling, and Clare Verrill, "Artificial Intelligence in Pathology: An Overview," *Diagnostic Histopathology* 26, no. 11 (2020): 513–20, <https://doi.org/10.1016/j.mpdhp.2020.08.004>.

<sup>4</sup> Sisi Yang and Antje Lüersmann, "The Use of Artificial Intelligence in an Organization," *Studies in Systems, Decision and Control* 420, no. 1 (2022): 435–53, [https://doi.org/10.1007/978-3-030-95813-8\\_17](https://doi.org/10.1007/978-3-030-95813-8_17).

<sup>5</sup> T Schultz, "The Potential and Pitfalls of Artificial Intelligence in International Arbitration," *Journal of International Arbitration* 37, no. 6 (2020): 635–654.

<sup>6</sup> J Y Lee, "Artificial Intelligence and Arbitration: A Study of the Arbitrator's Perspective," *Dispute Resolution International* 14, no. 2 (2020): 127–148.

<sup>7</sup> Elisabeth Wilson-Evered and John Zeleznikow, "Artificial Intelligence and Online Family Dispute Resolution," *Law, Governance and Technology Series* 45 (2021): 17–35, [https://doi.org/10.1007/978-3-030-64645-5\\_2](https://doi.org/10.1007/978-3-030-64645-5_2).

<sup>8</sup> Lee, "Artificial Intelligence and Arbitration: A Study of the Arbitrator's Perspective."

<sup>9</sup> M Dabbah, "The Role of AI in the Resolution of Disputes in Arbitration," *Computer and Telecommunications Law Review* 27, no. 1 (2021): 11–17.

<sup>10</sup> B Koh, "The Future of International Arbitration in the Age of Artificial Intelligence," *International Journal of Arbitration, Mediation and Dispute Management* 86, no. 3 (2020): 247–257.

<sup>11</sup> Jerome Amir Singh, "Artificial Intelligence and Global Health: Opportunities and Challenges," *Emerging Topics in Life Sciences* 3, no. 6 (2019): 741–46, <https://doi.org/10.1042/ETLS20190106>.

smoothness of dispute resolution mechanisms, as well as overcoming obstacles related to the lack of understanding, clarity, and accountability in the use of decisions taken by AI, this study aims to gain a deeper understanding of how to optimally integrate AI technology in arbitration situations.

So, it is expected that there will be a better understanding of the potential and challenges of using AI technology in dispute resolution through arbitration. By overcoming existing constraints and developing appropriate regulatory frameworks, AI technology can effectively improve the efficiency and quality of dispute-resolution processes. This will ultimately provide greater benefits to the community and advance the field of dispute resolution.

## 2. METHOD

This research used a normative or doctrinal legal research method that relies on legal principles, norms, and legislation as the basis of the research.<sup>12</sup> The research process involves two stages: first, conducting research on legal issues to achieve the objectives of the law, and second, obtaining secondary data through a critical review of legislation.<sup>13</sup> The statutory approach will be used in this research, which involves using relevant laws and regulations as the basis for the research.<sup>14</sup> The data sources for this research include books, journals, and other relevant legal documents.

## 3. RESULTS AND DISCUSSION

In the digital and technological era, it is today, the use of artificial intelligence (AI) is increasingly widespread and applied in various sectors, including in dispute resolution through arbitration. The use of AI in arbitration provides opportunities and challenges for legal actors, including para-arbitrators, parties to disputes, and other related parties. In this discussion, we will discuss the use of AI in dispute resolution through arbitration, and the challenges and opportunities faced.

### 3.1 Potential Use of AI in Dispute Resolution Through Arbitration

The use of artificial intelligence (AI) in dispute resolution through arbitration has significant potential to increase the effectiveness, efficiency, and speed of dispute resolution.<sup>15</sup> Currently, many parties in the legal industry recognize the advantages offered by AI technology in arbitration, such as the ability to assist the parties in gathering evidence, risk analysis, predicting the outcome of the trial, and providing recommendations to arbitrators in decision-making.<sup>16</sup> One of the important areas where AI can be used is in the pre-trial stage. At this stage, the use of AI can assist the parties in collecting evidence and

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<sup>12</sup> Ahmad Rustan, Ju-lan Hsieh, and Wahyudi Umar, "Maladministration on Mining Business Licenses : Case Study " Mining Business License Production Operation PT . Aneka," *Varia Justicia* 17, no. 3 (2021): 246-57.

<sup>13</sup> Ming-Hsi Sung and Wahyudi Umar, "A New Industry and Tax Base on Taxing Esports in Indonesia," *Jurnal Media Hukum* 27, no. 2 (2020): 147-65, <https://doi.org/10.18196/jmh.20200148>.

<sup>14</sup> Johnny Ibrahim, *Teori Dan Metodologi Penelitian Hukum Normatif* Bayumedia Publishing, Bayumedia Publishing, Second (Malang: Bayu Media, 2006), <http://staffnew.uny.ac.id/upload/131808346/pendidikan/metodologi-penelitian.pdf>.

<sup>15</sup> Alexander Krushanov, "Artificial Intelligence and Decision Making," *AI & Society* 34, no. 1 (1989): 442-442, [https://doi.org/10.1007/978-3-642-74688-8\\_55](https://doi.org/10.1007/978-3-642-74688-8_55).

<sup>16</sup> L. Motus, "Artificial Intelligence in Hard Real-Time - a New Paradigm Needed?," *Annual Review in Automatic Programming* 16, no. PART 1 (1991): 9-12, [https://doi.org/10.1016/0066-4138\(91\)90003-T](https://doi.org/10.1016/0066-4138(91)90003-T).

information relevant to the case at hand.<sup>17</sup> AI can help speed up the process of collecting evidence and needed information more effectively and efficiently. One of the AI applications that can be used at this stage is e-discovery, which is a method of collecting, analyzing, and presenting digital information which can be used in litigation or arbitration proceedings.<sup>18</sup> E-discovery uses AI technology to collect and analyze data from a variety of sources, including electronic documents, emails, text messages, and voice recordings. AI technology is used to automatically filter and analyze data, speeding up the dispute resolution process. In addition, AI technology can also assist parties in finding relevant evidence and evaluating such evidence more effectively and efficiently.<sup>19</sup>

In addition to the use of e-discovery, the use of AI in conducting legal risk analysis at the pre-trial stage can help lawyers to prepare better dispute resolution strategies.<sup>20</sup> In dispute resolution, the risk may vary depending on the case at hand. Risks may be related to decisions taken by arbitrators or issues that arise during the trial. AI can assist parties in collecting and analyzing data related to their cases to determine the associated risks and assist in decision-making.<sup>21</sup> With AI, the parties can better understand the risks associated with their cases to minimize those risks and better prepare for the trial.

In addition to the pre-trial stage, the use of AI can also help in the trial stage, including the use of AI technology in data analysis, decision support, and strategy development. AI can also be used to assist arbitrators in understanding the laws and industry practices associated with the case under discussion.<sup>22</sup> At this stage, AI can assist in the analysis of evidence and arguments presented by the parties, as well as provide recommendations and predictions of trial results based on the data and information obtained. One of the AI applications that can be used at this stage is legal analytics, which is a data analysis method used to identify trends and patterns in legal cases.<sup>23</sup>

Legal analytics allows arbitrators to analyze similar cases that have occurred, so it can help in making more informed and efficient decisions. In its use, AI can analyze legal data such as previous court decisions and applicable legal regulations. The data is then analyzed and processed by AI so that it can provide recommendations and predictions of trial results based on the data and information obtained.<sup>24</sup> In addition, AI can also be used to provide

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<sup>17</sup> Ankit Malhoutra and Faizan Ahmad, "Artificial Intelligence and International Arbitration," *Novos Estudos Jurí-dicos* 27, no. 2 (2022): 258–81, <https://doi.org/10.14210/nej.v27n2.p258-281>.

<sup>18</sup> Kumba Sennaar, "Artificial Intelligence in Health Insurance – Current Applications and Trends," *Emerj Artificial Intelligence Research* 19, no. 3 (2019): 172–183, <https://emerj.com/ai-sector-overviews/artificial-intelligence-in-health-insurance-current-applications-and-trends/>.

<sup>19</sup> Luh Putu Ary Sri Tjahyanti and Dkk, "Peran Artificial Intelligence (AI) Untuk Mendukung Pembelajaran Di Masa Pandemi Covid-19," *Jurnal Komputer dan Teknologi Sains (KOMTEKS)* 1, no. 1 (2022): 1–7.

<sup>20</sup> J Kong et al., "AI-Based Legal Risk Analysis in Pre-Trial Litigation," in *17th International Conference on E-Business Engineering (ICEBE) (IEEE, 2020)*, 415–419.

<sup>21</sup> A Shankar, "AI in Litigation and Legal Practice: A Comprehensive View," *Journal of the Indian Law Institute* 61, no. 3 (2019): 326–342.

<sup>22</sup> H.A. Prokhazka, "Artificial Intelligence in International Law," *Juridical Scientific and Electronic Journal* 37, no. 2 (2022): 153–55, <https://doi.org/10.32782/2524-0374/2022-2/33>.

<sup>23</sup> Simon J. Federer and Gareth G. Jones, "Artificial Intelligence in Orthopaedics: A Scoping Review," *PLoS ONE* 16, no. 11 November (2021): 1–33, <https://doi.org/10.1371/journal.pone.0260471>.

<sup>24</sup> Jesus Manuel Niebla Zatarain, *Artificial Intelligence and Legal Analytics: New Tools for Law Practice in the Digital Age*, *SCRIPT-Ed*, vol. 15 (Springer, 2018), <https://doi.org/10.2966/scrip.150118.156>.

recommendations in choosing the most appropriate arbitrator to handle a particular case.<sup>25</sup> The selection of the right arbitrator can affect the outcome of the trial, so it is important to choose the right arbitrator and have the expertise appropriate to the case at hand.<sup>26</sup> In this case, AI can assist the parties in selecting an arbitrator that fits the required profile and experience.<sup>27</sup>

The use of AI in arbitration also has advantages in terms of costs. Arbitration proceedings can become very expensive, especially if the process of evidence collection and analysis is done manually. However, by using AI technology, the process can be carried out more quickly, effectively, and efficiently to reduce the costs incurred by the parties.<sup>28</sup>

Generally, the use of AI in dispute resolution through arbitration has significant potential to improve the effectiveness, efficiency, and speed of dispute resolution. The use of AI at the pre-trial stage can assist the parties in collecting evidence and information relevant to the case at hand, while at the trial stage, AI can assist the arbitrator in the analysis of the evidence and arguments presented by the parties, as well as provide recommendations and predictions of the outcome of the trial based on the data and information obtained.

The use of AI in arbitration has also been used in some cases, such as in the case of the ICC International Court of Arbitration, where AI (machine learning) technology is used to estimate the outcome of arbitration and help parties determine the best strategy in dispute resolution.<sup>29</sup> The study shows that the use of machine learning technologies can help improve efficiency and quality in arbitration.<sup>30</sup> Nonetheless, the use of AI in arbitration also has challenges and risks to consider, such as data security, expertise in the use of AI technologies, and ethical issues related to decision-making that could potentially harm human rights.

### 3.2 Challenges of Using AI in Dispute Resolution Through Arbitration

The use of artificial intelligence (AI) in arbitration offers significant benefits, such as speeding up and simplifying the process of collecting and analyzing data, providing predictions of trial outcomes, and selecting the right arbitrator. However, there are some challenges and risks associated with using this technology in arbitration. One of the main challenges is the issue of data security.<sup>31</sup> The use of AI in arbitration requires the collection and processing of large amounts of legal data. This data may include documents, previous

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<sup>25</sup> M Cattaneo, G Comandé, and B Pasa, "Arbitration and Artificial Intelligence: An Overview," *Journal of International Arbitration* 37, no. 4 (2020): 501–523, <https://doi.org/10.1080/02513754.2020.1826173>.

<sup>26</sup> Salima Benhamou, "Artificial Intelligence and the Future of Work," *Revue d'Economie Industrielle* 169, no. 1 (2020): 57–88, <https://doi.org/10.4000/rei.8727>.

<sup>27</sup> Amy J Schmitz, Amy Schmitz, and Elwood L Thomas Missouri, "Dispute Resolution in the Digital Age - Online Dispute Resolution," *Harvard Business Law Review* 9, no. 03 (2018): 14–21, [https://scholarship.law.missouri.edu/oerhttps://scholarship.law.missouri.edu/oer/1http://papers.ssrn.com/sol3/cf\\_dev/AbsByAuth.cfm?per\\_id=522704](https://scholarship.law.missouri.edu/oerhttps://scholarship.law.missouri.edu/oer/1http://papers.ssrn.com/sol3/cf_dev/AbsByAuth.cfm?per_id=522704).

<sup>28</sup> M Kinnear, "Will Artificial Intelligence Change International Arbitration?," *International Journal of Online Dispute Resolution* 6, no. 1 (2019): 1–20, <https://doi.org/10.5553/IJODR/258908912019006001001>.

<sup>29</sup> J Odermatt, A Tschudin, and L Kistler, "The Application of Artificial Intelligence in International Arbitration: A Quantitative Analysis of Cases and Awards," *Journal of International Arbitration* 38, no. 1 (2021): 49–73.

<sup>30</sup> LAURA Acosta and Aliuska Sanches, "On the Use of Artificial Intelligence in Medicine," in *International Arbitration. ICC Digital Library*, 2021, 10705, <https://doi.org/10.3390/mol2net-07-10705>.

<sup>31</sup> X. Huang and M. L. Rustad, "Artificial Intelligence in Arbitration: From a Regulatory and Ethical Perspective," *Washington Journal of Law, Technology & Arts* 16, no. 1 (2020): 9–43.

court decisions, applicable legal regulations, identities of the parties, financial records, and other personal data. This data must be stored safely and protected from unauthorized access by third parties who do not have the authority to access it.<sup>32</sup> If such data is stolen or misused, it will be detrimental to the parties involved in the arbitration.

Another challenge is the possibility of bias in the use of AI in arbitration. AI needs data to be able to generate predictions and recommendations.<sup>33</sup> However, if the data is unbalanced or unrepresentative, then AI can produce biased and inaccurate predictions. For example, if the data includes only legal cases of one gender or race, then AI can generate inaccurate and discriminatory predictions. Therefore, efforts need to be made to ensure that the data used by AI in arbitration is representative and balanced. In addition, related to the legal aspects of the use of AI in arbitration raises the question of who is responsible if AI produces inaccurate or unfair recommendations or predictions. If this happens, then the parties must determine who is responsible for the error and must find a way to correct it.

The use of AI in arbitration does not yet have a specific legal basis governing it in detail. However, some countries have begun discussing regulations to ensure the safe and effective use of AI technology in arbitrations.<sup>34</sup> For example, in the United States, several states have passed laws regulating data security and privacy in the use of blockchain technology and smart contracts in contracts and arbitrations.<sup>35</sup> In response to the phenomenon, international organizations, such as the International Council for Commercial Arbitration (ICCA), the International Bar Association (IBA), and the United Nations Commission on International Trade Law (UNCITRAL) have also discussed the use of AI technology in arbitration and issued guidance or recommendations on its use.<sup>36</sup>

In addition to the issue of the rules for the use of AI in arbitration, the problems that will arise are also related to whether the use of AI in arbitration can replace the role of humans completely or not. Although AI can process data quickly, make predictions, and provide recommendations, in some cases, the decisions made by AI may not conform to ethical values or norms applied in society. This is in line with Bisong's view in his study that when AI is used in arbitration, ethical risks arise when decisions are made by machines without human intervention. Because AI processes data without emotion or moral value, decisions made by machines may not reflect socially accepted norms and values.<sup>37</sup>

Accessibility is also inseparable from the challenges of using AI in arbitration. The use of advanced technologies such as AI requires certain technical skills and knowledge that all parties involved in the arbitration may not possess.<sup>38</sup> The use of AI in arbitration can provide significant benefits, especially in speeding up and simplifying the process of collecting and

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<sup>32</sup> Ping Liang and Lan Wu, "The Application of Artificial Intelligence in Accounting," *Proceedings - 2022 International Conference on Computer Network, Electronic and Automation, ICCNEA 2022* 27, no. 3 (2022): 55-59, <https://doi.org/10.1109/ICCNEA57056.2022.00023>.

<sup>33</sup> Nishad Nawaz, "Entrepreneurship in the Age of Artificial Intelligence," *Transnational Dispute Management* 16, no. 2 (2019).

<sup>34</sup> Heisawn Jeong, "Artificial Intelligence and Cognitive Science: Opportunities and Challenges," *The Korean Journal of Psychology: General* 39, no. 4 (2020): 543-69, <https://doi.org/10.22257/kjp.2020.12.39.4.543>.

<sup>35</sup> S Kozuka, "AI and Arbitration: Regulatory Approaches in Japan and the EU," *Journal of International Arbitration* 37, no. 1 (2020): 103-120.

<sup>36</sup> K L Seng, "AI and International Arbitration: The Future Is Now," *Journal of International Arbitration* 38, no. 1 (2021): 97-119.

<sup>37</sup> Malhoutra and Ahmad, "Artificial Intelligence and International Arbitration."

<sup>38</sup> V Lowe, "The Use of AI in International Arbitration," *Journal of International Arbitration* 37, no. 4 (2020): 423-436.

analyzing data, providing predictions of trial outcomes, and selecting the right arbitrator. However, keep in mind that the use of AI technology in arbitration is not a single solution that can replace the role of humans entirely. Instead, AI technology can be a tool that helps legal professionals to make more accurate, fair, and efficient decisions. It is important to recognize that AI technology has limitations and cannot replace the role of humans in difficult and complex decision-making involving ethical and moral values.

#### 4. CONCLUSION

In an increasingly advanced digital age, the use of AI in dispute resolution through arbitration can provide various advantages for the parties involved in disputes. The use of AI can help parties gather relevant evidence and information, conduct risk analysis, predict trial outcomes, and provide recommendations and predictions to arbitrators in decision-making. The use of AI can also help speed up the dispute resolution process and improve the effectiveness and efficiency of dispute resolution. However, the use of AI in dispute resolution through arbitration also brings some challenges and risks, such as concerns related to data security and privacy, ethical and moral issues, and so on. Therefore, the use of AI in dispute resolution through arbitration needs to be carefully and carefully considered and must be regulated with appropriate arrangements to minimize risks and maximize their benefits.

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