Advanced and Sustainable Technologies
ASET
E-ISSN 2976-2294
Volume 4, No 2, December 2025 [40-53]

Algorithmic Fairness and Ethical Challenges in AI-Powered Dispute Resolution: A Framework for ADR in Construction Disputes

Amila N.K.K.Gamage[1]
[1]LIGS University, United States of America.

Received 30 April 2025, Revised 2 August 2025, Accepted 28 August 2025

ABSTRACT

Artificial Intelligence (AI) is increasingly explored for its role in Alternative Dispute Resolution (ADR), particularly in construction disputes, where complex contractual issues demand both automation and human expertise. While AI currently supports tasks like data analysis, scheduling, and document review, its role in core dispute resolution remains limited. This study investigates algorithmic fairness and ethical challenges in AI-driven ADR, addressing concerns such as bias, data privacy, transparency, and the diminishing role of human judgment. Although AI enhances efficiency and cost-effectiveness, excessive automation may undermine fairness, accountability, and procedural integrity. To address these risks, this research proposes an ethical safeguard framework for responsible AI adoption in construction ADR. The framework focuses on bias mitigation, data security, explainability, and human oversight, ensuring AI complements rather than replaces human decision-making. A qualitative review of literature (2021–2025) informs its development, offering practical guidance for ADR practitioners, policymakers, and AI developers. The study advocates for regulatory transparency and ethical AI standards to build trust in AI-assisted ADR. Future research should assess the impact of explainable AI and stakeholder perspectives to refine ethical safeguards further.

Keywords: AI in ADR, Bias in algorithms, Construction disputes, Data privacy, Ethical AI.

1. INTRODUCTION

The construction industry is known for its contractual complexity, high financial stakes, and time-sensitive projects. The complex nature of the construction project makes it more open to disputes. Therefore, Alternative Dispute Resolution (ADR) methods such as mediation, arbitration, and adjudication play a critical role in resolving disputes in the construction industry [1]. While ADR aims to provide efficient and cost-effective resolutions, traditional approaches often face challenges such as human bias, inconsistencies in decision-making, and delays caused by extensive documentation and expert evaluations.

The integration of Artificial Intelligence (AI) into ADR presents a transformative opportunity to address these inefficiencies. Technologies such as natural language processing (NLP), machine learning (ML), and predictive analytics have the potential to enhance decision-making, improve efficiency, and facilitate data-driven dispute resolution processes [2]. AI-driven systems can analyze vast amounts of contractual data, identify patterns in past rulings, and even assist in generating fair settlement recommendations. However, despite these advancements, the application of AI in ADR for construction disputes raises significant ethical concerns.

Key ethical questions arise from concerns about AI-driven dispute resolution, ensuring fairness and impartiality, especially in construction disputes where contractual interpretations are highly nuanced. How can AI prevent biases, maintain transparency, and balance automation

*Corresponding author: amilankkg@gmail.com

with human expertise in resolving complex disputes? What safeguards are needed to prevent biases in AI algorithms from influencing outcomes? Who is responsible when AI-driven decisions lead to unintended consequences? Can AI balance automation with human expertise in disputes requiring negotiation, empathy, and contextual understanding? Given the construction sector's reliance on ADR, addressing these ethical concerns is crucial to ensuring AI enhances dispute resolution rather than undermining justice and transparency.

Most studies on AI in dispute resolution are general. They do not focus on the construction industry. But construction disputes are complex and often urgent. This paper adds value by looking at the ethical risks of AI in construction ADR specifically. It also offers a new framework to guide fair and responsible AI use. The framework is practical and made for real-life use by ADR professionals and policymakers. This fills a gap in current research and supports better industry standards.

1.1 Problem Statement, Objectives, and Scope

The integration of Artificial Intelligence (AI) into Alternative Dispute Resolution (ADR) in the construction industry promises to enhance efficiency and improve decision-making. However, this adoption raises ethical concerns, including algorithmic bias, transparency, accountability, and the adequacy of human oversight. These issues risk eroding trust in AI-driven ADR processes and may compromise the fairness and effectiveness of dispute resolution in construction.

This research aims to:

• Examine the ethical implications of integrating AI into ADR for construction disputes, focusing on challenges like bias, transparency, and accountability.
• Evaluate the balance between automation and human judgment, assessing how AI can support but not replace critical human elements in ADR.
• Develop ethical safeguards and frameworks to ensure responsible AI use in ADR, promoting fairness and trust.

By addressing these objectives, this paper seeks to provide valuable insights into leveraging AI in ADR for construction disputes while upholding ethical standards and maintaining stakeholder confidence.

2. LITERATURE REVIEW

2.1 Alternative Dispute Resolution in Construction Disputes

Alternative Dispute Resolution (ADR) is widely used in construction disputes to provide efficient and cost-effective solutions compared to traditional litigation. Common ADR methods include negotiation, mediation, arbitration, and adjudication, each offering distinct advantages depending on the nature of the dispute.

Negotiation allows parties to resolve disputes directly without third-party intervention, fostering cooperation and preserving business relationships [3]. Mediation involves a neutral third party facilitating discussions to help parties reach a voluntary settlement, making it a flexible and collaborative approach [4]. Arbitration, often preferred in construction projects due to their time-sensitive nature, provides a binding decision based on presented evidence, ensuring a structured yet efficient resolution process [5];[6]. Adjudication, particularly used in construction contracts, delivers quick, interim decisions, making it a preferred method for resolving payment-related disputes [7]. While ADR enhances efficiency and reduces costs, it also

presents challenges such as ensuring impartiality, enforcing decisions, and managing technical complexities in construction disputes.

The Stair-Step Model of Dispute Resolution categorizes ADR methods based on cost and hostility [8]. According to this model, negotiation remains the most cost-effective and amicable method, while adjudication and arbitration involve higher costs and increased hostility as disputes escalate. This framework highlights the importance of selecting an ADR strategy that balances efficiency, cost-effectiveness, and conflict intensity [9]. Figure 1 illustrates the Stair-Step model of dispute resolution.

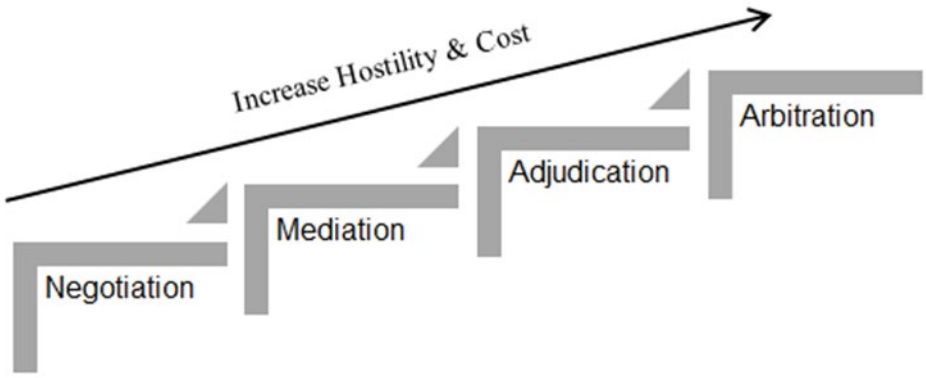

Figure 1: Stair-Step Model of Dispute Resolution.

2.2 The Role of AI in Modern ADR Mechanisms

Artificial Intelligence (AI) enhances efficiency, consistency, and accessibility in Alternative Dispute Resolution (ADR) by processing large datasets, recognizing conflict patterns, and identifying effective interventions. AI-driven systems analyze vast amounts of data at a speed beyond human capability, offering predictive analytics to support well-informed decision-making [10]. These capabilities improve cost-efficiency while addressing the limitations of human adjudicators.

The integration of AI with technologies such as Building Information Modeling (BIM), blockchain, and smart contracts further strengthens transparency and efficiency in construction dispute resolution [11]. For example, real-time language translation and automation of routine tasks streamline international ADR processes, making them more accessible to diverse stakeholders [12].

Despite these advantages, AI introduces ethical concerns that must be addressed. Algorithmic bias, often stemming from flawed training data, can lead to unfair dispute resolution outcomes [10]. Additionally, the lack of transparency in AI decision-making reduces stakeholder trust, as parties may struggle to understand how conclusions are reached [12]. Data privacy and security risks are particularly relevant in ADR, where sensitive contractual information must be protected [13].

To mitigate these challenges, researchers advocate for ethical frameworks emphasizing transparency, accountability, and human oversight. Ensuring AI systems are interpretable and explainable is essential for maintaining stakeholder confidence [14]. According to [15], integrating technical experts into ADR processes can further support ethical AI adoption. These experts, acting as neutrals, advisors, or consultants, provide insights into complex AI-driven

analyses and help prevent misinterpretations. Establishing clear guidelines for their roles ensures that AI-assisted ADR remains both technically sound and ethically responsible.

2.3 Integrating AI Techniques for Enhanced Construction Dispute Resolution

AI offers multiple techniques to improve dispute resolution in the construction industry, including Natural Language Processing (NLP), Machine Learning (ML), AI-driven automation platforms, and Blockchain. These technologies enhance efficiency, accuracy, and transparency in Alternative Dispute Resolution (ADR).

Natural Language Processing (NLP) aids in contract analysis, enabling AI to review and interpret complex contractual clauses. This proactive approach helps identify potential disputes before they escalate, reducing misunderstandings and promoting fairer resolutions [16].

Machine Learning (ML) enhances predictive dispute resolution by analyzing past cases to forecast potential outcomes. This allows parties to assess their chances of success before entering formal ADR mechanisms, providing a data-driven foundation for informed decision-making [17].

AI-driven mediation and negotiation platforms act as digital mediators, using historical data and legal precedents to suggest optimal settlement terms. These automated systems reduce the need for prolonged human intervention, streamlining negotiations and improving efficiency [18].

AI-assisted arbitration supports arbitrators through decision-support systems that summarize case facts, identify relevant legal principles, and detect inconsistencies in evidence. This enhances arbitration efficiency while ensuring human oversight remains intact [19].

Blockchain technology, when integrated with AI, enhances transparency and security in ADR by creating tamper-proof records of agreements. This ensures data integrity and accountability; however, challenges such as trust and reputation concerns must be addressed [20]. These AI-driven techniques have the potential to significantly streamline construction dispute resolution. However, careful management of ethical concerns, such as algorithmic bias, transparency, and the necessity of human oversight, is essential to ensuring fair and just outcomes.

2.4 Regulatory and Legal Landscape of AI in ADR

The increasing integration of Artificial Intelligence (AI) in Alternative Dispute Resolution (ADR) raises significant legal and regulatory considerations. While AI has the potential to improve efficiency and accessibility in dispute resolution, the lack of clear legal frameworks governing its use in ADR introduces both ethical and procedural risks. This section examines global AI ethics guidelines, ADR regulations, and the legal challenges associated with AI-driven dispute resolution.

Several international organizations have established guiding principles for ethical AI development, which can be applied to AI-powered ADR systems. The Organization for Economic Co-operation and Development (OECD) introduced AI Principles advocating for human-centered AI, transparency, and accountability in AI decision-making [21]. Additionally, the EU Artificial Intelligence Act (2021) categorizes AI systems based on their risk levels, with high-risk AI applications requiring strict oversight. ADR systems, which influence legal and financial outcomes, may fall under these high-risk categories [22]. A recent study highlights that the final agreement retains the risk-based framework suggested by the European Commission [23]. Under this framework, AI systems are classified into various risk categories, each with its own

level of regulatory requirements. The EU AI Act's risk-based approach, as outlined by this research, is illustrated in Figure 2 [23].

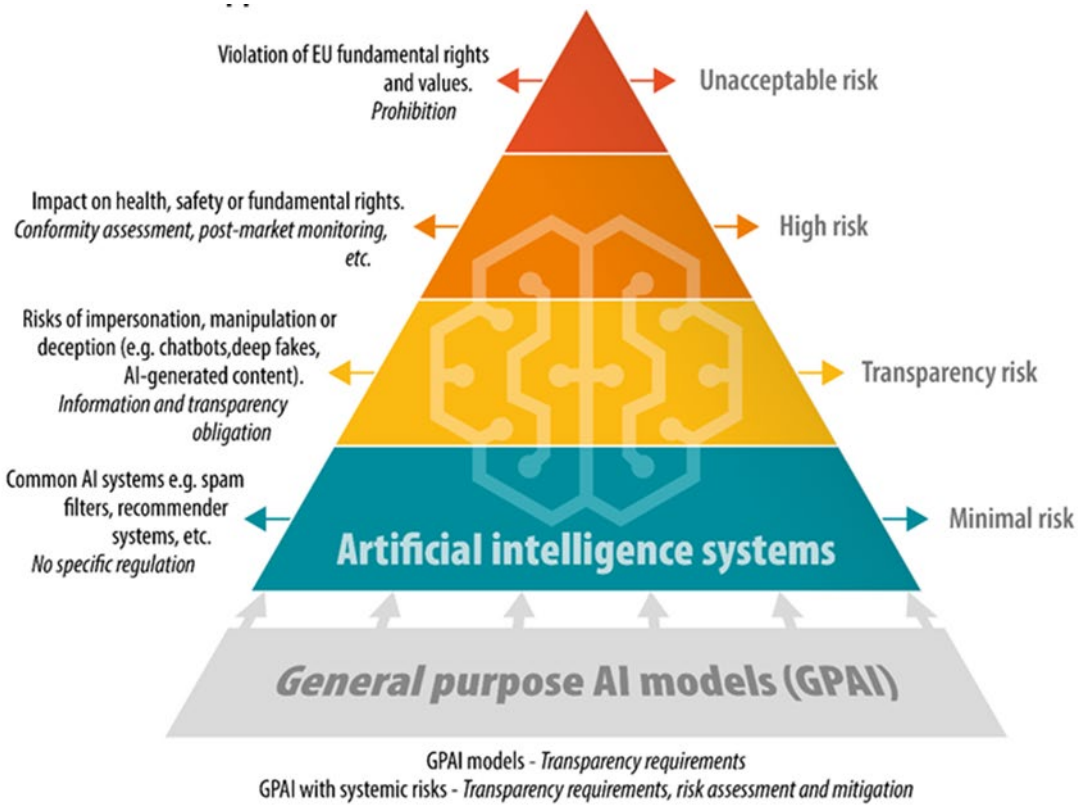

Figure 2: The EU AI Act's risk-based approach. Republished from "Artificial Intelligence Act," by T. Madiega, 2021, European Parliamentary Research Service. Copyright 2021 by the European Parliament.

UNESCO highlights the rapid advancement of AI, which has unlocked numerous global opportunities but also presents significant ethical challenges [24]. AI systems have the potential to reinforce biases, negatively impact the environment, and pose risks to fundamental human rights. These concerns are particularly pressing as AI-driven technologies can exacerbate existing social inequalities, disproportionately affecting already disadvantaged communities. Addressing these risks requires a proactive approach to ensure AI development aligns with ethical principles, fairness, and inclusivity. The UNESCO AI Ethics Framework (2021) calls for fair, inclusive, and explainable AI systems to prevent discrimination and bias in decision-making [24].

These global guidelines emphasize the importance of bias mitigation, explainability, and human oversight, aligning with ethical ADR principles. However, while these frameworks outline best practices, they lack enforceability, leaving AI governance in ADR largely unregulated.

Most existing ADR regulations were developed before AI became integrated into dispute resolution processes, creating legal uncertainties regarding AI's role in ADR. For example, the UNCITRAL Model Law on International Commercial Arbitration establishes principles of procedural fairness but does not address AI's role in arbitration or automated decision-making [25]. Although ADR laws emphasize fairness, neutrality, and due process, they do not explicitly account for AI-driven dispute resolution. This legal gap raises concerns about the validity and enforceability of AI-assisted ADR decisions.

A comparison of global AI ethics frameworks and their relevance to dispute resolution is provided in Table 1. This table also highlights how the proposed framework in this study addresses construction-specific needs that are not fully covered by existing models.

Table 1: A comparison of global AI ethics frameworks and their relevance to dispute resolution.

Framework	Origin / Body	Key Focus	Application to ADR	Construction/Industry Relevance
OECD AI Principles	[21]	Human-centered AI, transparency, accountability	Provides general guidance, not sector-specific	Can guide ADR systems, but lacks legal enforceability
EU AI Act	[22]	Risk-based classification, strict rules for high-risk AI	Classifies ADR systems as high-risk; requires documentation, transparency[Recital 61]	High relevance for construction ADR platforms used in the EU
UNESCO AI Ethics	[24]	Fairness, inclusivity, human rights	Advocates explainability and bias prevention	Supports human-AI collaboration in ethical ADR

2.5 Legal Challenges of AI Decisions in ADR in Construction Disputes

The integration of AI into ADR presents several legal challenges that must be addressed. One of the primary concerns is whether AI-mediated decisions can be legally binding. AI-generated decisions may be advisory in nature but are not enforceable unless they are reviewed and approved by a human neutral [26]. Another significant challenge revolves around liability and accountability in AI-driven ADR. If an AI system makes a biased or incorrect decision, the question of legal responsibility arises. Current legal frameworks do not establish clear liability for AI-generated errors in dispute resolution. [27]. Additionally, there is the issue of due process and AI transparency. ADR laws require parties to understand and challenge decisions, but "black-box AI" creates a lack of transparency, making it difficult for disputing parties to appeal AI-driven outcomes [13].

Given these legal uncertainties, there is an urgent need for AI-specific regulatory frameworks in ADR [26]. Defining the role of AI in ADR is crucial, particularly in clarifying whether AI-generated decisions can be binding or advisory. Additionally, establishing liability frameworks to determine responsibility for AI-driven errors and biased decisions is essential. Mandating transparency and explainability in AI systems is necessary to ensure that AI-driven ADR platforms provide clear, justifiable reasoning for their decisions. Moreover, developing global ADR-AI standards is needed to align AI regulations with existing ADR principles of fairness and due process.

While global AI ethics frameworks emphasize fairness, accountability, and human oversight, they remain non-binding, leaving AI integration in ADR largely unregulated. Existing ADR regulations, including those like the UNCITRAL Model Law, do not explicitly address AI's role, which leads to challenges in decision enforceability, liability, and transparency. These gaps highlight the urgent need for clear legal guidelines to govern AI in ADR, ensuring that dispute resolution processes, particularly in the construction industry, remain ethical, fair, and legally sound.

3. MATERIALS & METHODS

This study employs a qualitative research methodology, systematically reviewing literature on AI's application in ADR with a specific focus on ethical considerations. Research articles published between 2021 and 2025 were selected using keywords such as "Ethical AI in ADR" and "AI in Construction Disputes". Only peer-reviewed, open-access articles published in English were included. This step ensured the reliability and relevance of the findings. This systematic approach also aids in identifying research gaps [28]. On the other hand, this selection criterion also provides deeper insights into existing knowledge [29]. The data selection and screening process, as mentioned above, shortlisted nine relevant publications published in peer-reviewed journals. This process is illustrated in Figure 3. Google Scholar is used to find related research publications.

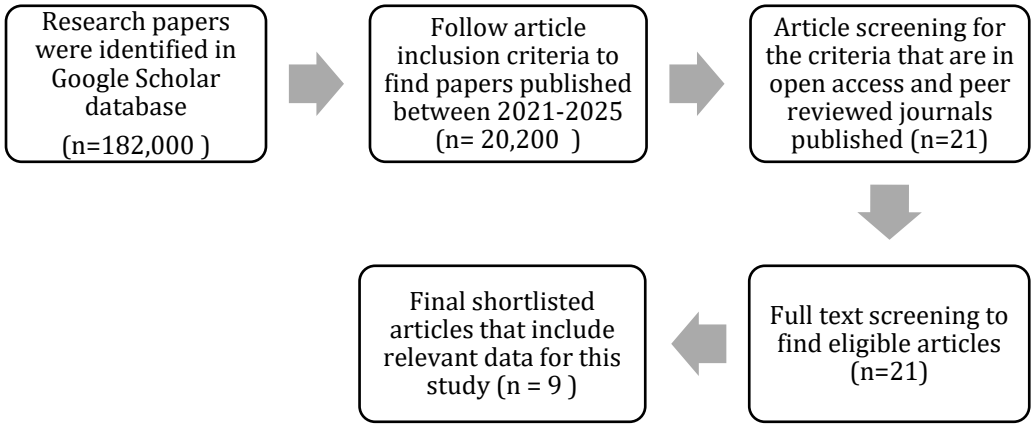

Figure 3: The Article Selection and Data Screening Process.

Although only nine articles were included in the final review, they were selected for their high relevance to the ethical and practical integration of AI in ADR. The small sample reflects the emerging nature of this interdisciplinary research area. While this limits generalizability, the focused review allows for in-depth thematic analysis. Future studies may expand on this by including grey literature, practitioner reports, or empirical case studies.

4. RESULTS AND DISCUSSION

The integration of AI in construction dispute resolution enhances efficiency, cost-effectiveness, and decision-making, but it also introduces significant ethical challenges. Ensuring fairness, transparency, and procedural integrity in AI-driven ADR systems is critical, as issues such as unequal access to information, data manipulation, and confidentiality breaches can undermine trust [30]. Implementing strong security measures and ethical safeguards is essential to mitigating these risks. The following sections outline the key ethical risks associated with AI integration into ADR in construction disputes, acknowledging that other challenges may also exist.

4.1 Algorithmic Bias

AI systems trained on biased data can reinforce or amplify pre-existing prejudices, leading to unfair dispute resolution outcomes. In construction disputes, where stakeholders vary in power and influence, such biases may disproportionately benefit certain parties [10]. AI models have exhibited biases related to language, race, gender, and political leanings, which can impact

decision-making in ADR [31]. Additionally, AI can exacerbate groupthink, amplifying biases on a larger scale rather than offering neutral dispute resolutions [32].

4.2 Data Privacy and Security

AI-driven ADR systems rely on sensitive contractual and business data, raising concerns about confidentiality and cybersecurity. A breach of privacy can erode trust in AI systems, discouraging stakeholders from engaging in AI-assisted ADR [10]. Without robust data protection mechanisms, AI integration may compromise the efficiency it seeks to enhance.

4.3 Lack of Transparency ("Black-Box" AI)

The opaque nature of AI decision-making, often termed the "black-box" problem, creates challenges in ADR. If disputing parties cannot understand or challenge AI-generated outcomes, trust and accountability diminish [13]. Transparent AI models, with explainable decision-making processes, are essential to ensuring fairness and stakeholder confidence.
Erosion of Human Judgment

While AI enhances efficiency, it lacks emotional intelligence, intuition, and contextual awareness, which are critical in dispute resolution. AI cannot interpret non-verbal cues or understand relational dynamics, limiting its ability to facilitate fair negotiations [33]. Over-reliance on AI risks dehumanizing ADR, reducing it to a mechanical process devoid of empathetic judgment [12; 13]. Human oversight remains essential in maintaining ethical and just resolutions.

4.4 Risk of Fraud and Misinformation

AI-generated content, including legal research and case analysis, poses risks of misinformation, confidentiality breaches, and copyright violations. If AI tools manipulate legal documents or generate misleading recommendations, they could create serious legal and ethical implications [34]. Strict regulatory oversight and human validation are necessary to prevent fraudulent or erroneous AI-driven outcomes.

The ethical challenges of AI-driven ADR revolve around fairness, bias, data privacy, transparency, human oversight, and fraud risks. Table 2 provides a summary of these key concerns, highlighting their implications and sources.

Table 2: Key Ethical Challenges in AI-Driven ADR of Construction Disputes.

Ethical Concern	Description	Source
Fairness & Transparency	Risk of procedural failures, data tampering, and confidentiality breaches.	[30]
Algorithmic Bias	AI may reinforce discrimination, affecting dispute outcomes.	[10];[31] ;[32]
Data Privacy	Risk of security breaches eroding stakeholder trust.	[10]
Lack of Transparency	Opaque decision-making ("black-box" AI) reduces accountability.	[13]
Erosion of Human Judgment	AI lacks emotional intelligence and contextual awareness.	[12];[13];[33];
Fraud Risk	AI-generated misinformation may lead to legal and ethical violations.	[34]

4.5 Ensuring Ethical AI Integration in ADR

For AI to be ethically integrated into Alternative Dispute Resolution (ADR), it is crucial to address challenges such as algorithmic bias, data privacy risks, lack of transparency, and the erosion of human judgment. Without proper safeguards, these issues can undermine fairness, trust, and procedural integrity in AI-driven dispute resolution.

To mitigate these risks and ensure responsible AI use, the following ethical safeguard framework is proposed, outlining key measures to uphold transparency, accountability, and human oversight in ADR.

4.6 Proposed Ethical Safeguard Framework for Integrating AI in ADR of Construction Disputes

Figure 4 provides a summary of the proposed ethical safeguard framework for integrating AI in ADR of Construction Disputes. The proposed ethical safeguard framework addresses key risks in AI-driven ADR, including bias, transparency, data privacy, and human oversight. It is tailored for construction ADR, where disputes require careful, context-based judgment. While many studies highlight AI automation, this research promotes a human-AI collaborative approach. By identifying fairness risks unique to construction ADR, it offers practical guidance for ADR professionals and policymakers developing ethical AI standards.

The framework offers practical value for dispute resolution professionals, mediators, and AI developers in the construction industry. For instance, it can be used to assess whether AI tools comply with transparency standards or ensure human review in high-stakes decisions. Policymakers may use it to develop sector-specific AI guidelines for construction ADR. It also helps developers design AI systems that align with ADR fairness principles and ethical requirements.

4.7 Framework Novelty and Distinction

This framework stands apart from general ethical AI models. It is designed specifically for the construction industry, where complex contracts and urgent timelines demand practical, explainable, and accountable AI use. It focuses on risks common in construction disputes and emphasizes human oversight over full automation. Many existing frameworks are broad. They don’t fully address the specific needs of the construction sector. Therefore, this study fills that gap by providing a clear and tailored ethical guide for using AI in construction ADR.

4.8 Implementation and Pilot Pathway

To implement the proposed framework in industry settings, it can be piloted in collaboration with construction ADR bodies, arbitration centers, or legal technology developers. A practical first step is integrating the framework as an audit checklist during the design or procurement of AI-powered ADR tools. This checklist can assess whether the system meets ethical standards such as transparency, bias mitigation, and human oversight. ADR platforms or pilot case studies in construction disputes could apply the framework to review AI-generated recommendations and compare them against human arbitrator decisions. Feedback from practitioners can refine the framework for broader industry use. Additionally, workshops and training sessions can introduce the framework to mediators, adjudicators, and legal tech providers. This step ensure alignment with current practices.

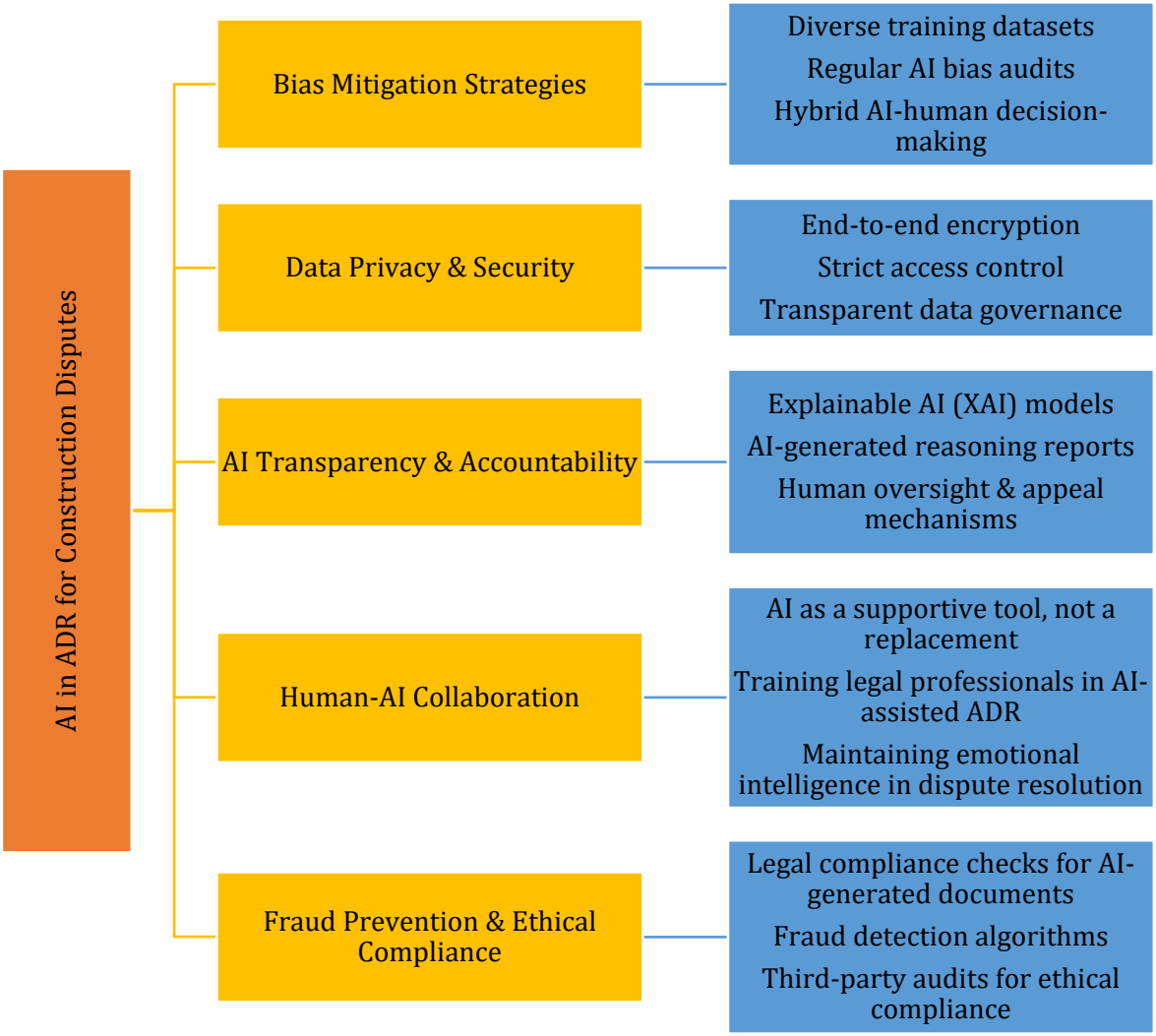

Figure 4: Proposed Ethical Safeguard Framework for Integrating AI in ADR of Construction Disputes.

5. CONCLUSION

The integration of Artificial Intelligence (AI) in Alternative Dispute Resolution (ADR) for construction disputes presents significant opportunities to enhance efficiency, reduce costs, and improve decision-making. However, these advancements also introduce critical ethical challenges, including algorithmic bias, data privacy risks, lack of transparency, and the erosion of human judgment. Without proper safeguards, AI-driven ADR systems risk undermining fairness, trust, and procedural integrity, particularly in construction disputes where contractual interpretation and negotiation require both technical and ethical considerations.

This study set out to examine the ethical implications of integrating AI in ADR, assess the balance between automation and human judgment, and propose a tailored framework to guide ethical integration. These objectives have been met through a comprehensive literature review and the development of an ethical safeguard framework specifically designed for construction ADR.

By addressing algorithmic bias, transparency, and the necessity of human oversight, the introduced framework offers a practical path toward fair and accountable AI use in construction

disputes. It serves not only as a conceptual contribution to ethical AI governance but also as a practical tool for ADR practitioners and policymakers. Future research should build upon this work by empirically validating the framework and exploring how various stakeholders perceive fairness and trust in AI-assisted ADR systems.

Looking ahead, future research should focus on empirical testing of the framework in real-world ADR settings, such as pilot applications in construction arbitration centers or with legal-tech tools. Gathering feedback from ADR professionals and disputing parties can validate the framework's effectiveness and adaptability. Additionally, this research contributes to shaping industry-specific ethical guidelines and supports the development of policy frameworks aligned with principles of fairness, transparency, and human oversight. Collaboration between researchers, industry professionals, and regulators will be essential to translate this ethical framework into practice and ensure responsible AI use in construction dispute resolution.

ACKNOWLEDGEMENTS

The author would like to thank all those who contributed to the development of this research. No funding was received for conducting this study.

REFERENCES

[1] Gamage, A. N. K. K., & Kumar, S. Review of Alternative Dispute Resolution Methods in Construction Projects. Saudi Journal of Engineering and Technology, vol 9, issue 2 (2024) pp. 75-87.
[2] Uddin, M. K. S. A Review of Utilizing Natural Language Processing and AI For Advanced Data Visualization in Real-Time Analytics. Global Mainstream Journal, vol 1, issue 4 (2024) pp. 10-62304.
[3] Sarı, M., Sayin, B., & Akcay, C. Classification and resolution procedure for disputes in public construction projects. Revista de la construcción, vol 20, issue 2 (2021) pp. 259-276.
[4] Waisapi, J. Y. Analysis of Construction Dispute Resolution Reform Perspective of Law Number 2 of 2017. Journal of Law, Politic and Humanities, vol 4, issue 6 (2024) pp. 2524-2537.
[5] Luvara, V. G. M., & Benjamin, M. Unveiling factors influencing the duration of arbitration practice in the Tanzania construction industry. International Journal of Building Pathology and Adaptation (2024).
[6] Hetiyasari, H., Wahyuningsih, P., Alfarid, A., & Deyau, B. N. A. Comparison of The Effectiveness of Business Dispute Resolution Through Mediation, Arbitration, and Litigation. Research Horizon, vol 4, issue 5 (2024) pp. 55-64.
[7] Amir, N. A. F., Danuri, M. S. M., Mahdzir, M., Rashid, Z. Z. A., & Hanafi, M. H. Developing preliminary frameworks for challenging adjudication decisions: A case study of Construction Industry Payment and Adjudication Act 2012. Planning Malaysia, vol 22 (2024).
[8] O'reilly, M. P., & Mawdesley, M. J. The evaluation of construction disputes: a risk approach. Blackwell Publishing (1994).
[9] Gamage, A. N. Factors that Affect in Selecting the Most Appropriate Alternative Dispute Resolution Strategy for Construction Disputes. Saudi Journal of Civil Engineering, vol 7, issue 4 (2023) pp. 102-114.
[10] Putera, N. S. F. M. S., Saripan, H., Abu, R., & Hassan, S. M. A. Artificial Intelligence for Construction Dispute Resolution: Justice of the Future (2021).
[11] Kalogeraki, M., & Antoniou, F. Claim Management and Dispute Resolution in the Construction Industry: Current Research Trends Using Novel Technologies. Buildings, vol 14, issue 4 (2024) p. 967.

[12] Kahungi, N. Dawn of Artificial Intelligence in Alternative Dispute Resolution; Expanding Access to Justice through Technology. University of Nairobi Law Journal, vol 2, issue 2 (2023).
[13] Prabhavathi, N. The Need of Artificial Intelligence In The Field Of Alternate Dispute Mechanism. Russian Law Journal, vol 11, issue 3 (2023) pp. 2753-2757.
[14] Ermakova, E. P., & Frolova, E. E. Using artificial intelligence in dispute resolution. In: Smart technologies for the digitisation of industry: Entrepreneurial environment (2021) pp. 131-142.
[15] Singh, B. Unleashing Alternative Dispute Resolution (ADR) in Resolving Complex Legal-Technical Issues Arising in Cyberspace Lensing E-Commerce and Intellectual Property: Proliferation of E-Commerce Digital Economy. Revista Brasileira de Alternative Dispute Resolution-Brazilian Journal of Alternative Dispute Resolution-RBADR, vol 5, issue 10 (2023) pp. 81-105.
[16] Shamshiri, A., Ryu, K. R., & Park, J. Y. Text mining and natural language processing in construction. Automation in Construction, vol 158 (2024) p. 105200.
[17] Ayhan, M., Dikmen, I., & Talat Birgonul, M. Predicting the occurrence of construction disputes using machine learning techniques. Journal of construction engineering and management, vol 147, issue 4 (2021) p. 04021022.
[18] Fasihullah, A., Awan, B., & Hulio, A. K. Negotiating in the Digital Age: Exploring the Role of Technology in Modern Negotiations. Law and Policy Review, vol 2, issue 1 (2023) pp. 61-86.
[19] Florescu, C. I. The Interaction between AI (Artificial Intelligence) and IA (International Arbitration): Technology as the New Partner of Arbitration. Romanian Arbitration Journal, vol 18 (2024) p. 42.
[20] Salger, C. Decentralized Dispute Resolution: Using Blockchain Technology and Smart Contracts in Arbitration. Pepperdine Dispute Resolution Law Journal, vol 24, issue 1 (2024) pp. 65-90.
[21] OECD. Advancing accountability in AI: Governing and managing risks throughout the lifecycle for trustworthy AI (OECD Digital Economy Papers, No. 341). OECD Publishing (2023).
[22] European Union. Artificial Intelligence Act (2021).
[23] Madiega, T. Artificial intelligence act. European Parliament: European Parliamentary Research Service (2021).
[24] UNESCO. Recommendation on the ethics of artificial intelligence. UNESCO (2021).
[25] UNCITRAL. UNCITRAL model law on international commercial arbitration 1985: With amendments as adopted in 2006. United Nations (2006).
[26] Quiroga, M. G. The Use of Emerging Technologies in Out of Court Dispute Management Procedures: International Legal Approach and Regulatory Challenges. Review of International and European Economic Law, vol 3, issue 6 (2024) pp. a3-1.
[27] Gamage, A. N. K. K. The Integration of AI in Alternative Dispute Resolution (ADR) for Resolving Construction Disputes: Opportunities and Challenges Ahead. International Online AI Conference 2025: Future Skills – AI in the Modern Workplace (2025) pp. 27–35.
[28] Brendel, A. B., Trang, S., Marrone, M., Lichtenberg, S., & Kolbe, L. M. What to do for a Literature Review?–A Synthesis of Literature Review Practices (2020).
[29] Graulich, N., Lewis, S. E., Kahveci, A., Nyachwaya, J. M., & Lawrie, G. A. Writing a review article: what to do with my literature review. Chemistry Education Research and Practice, vol 22, issue 3 (2021) pp. 561-564.
[30] Bhushan, T. The Impact of digital technologies on alternative dispute resolution. Revista Brasileira de Alternative Dispute Resolution-Brazilian Journal of Alternative Dispute Resolution-RBADR, vol 5, issue 10 (2023) pp. 329-352.
[31] Gromova, E. A., Ferreira, D. B., & Begishev, I. R. ChatGPT and Other Intelligent Chatbots: Legal, Ethical and Dispute Resolution Concerns. Revista Brasileira de Alternative Dispute Resolution-Brazilian Journal of Alternative Dispute Resolution-RBADR, vol 5, issue 10 (2023) pp. 153-175.

[32] Arroyo, P., Schöttle, A., & Christensen, R. The ethical and social dilemma of AI uses in the construction industry. Proceedings of the 29th Annual Conference of the International Group for Lean Construction (IGLC) (2021) pp. 12-18.
[33] Cihanová, J. The role of artificial intelligence in alternative dispute resolution. Acta Facultatis Iuridicae Universitatis Comenianae, vol 42, issue 2 (2023) p. 11.
[34] Davies, B. Ethics in Artificial Intelligence and Alternative Dispute Resolution: Generating AI/Human Reviewed Ethical Guidelines for ADR Practitioners and the Legal Profession (2024).

Conflict of interest statement: The author declares no conflict of interest.

Author contributions statement:

Amila N.K.K.Gamage conceptualized the research, developed the methodology, conducted the investigation, and wrote the original draft of the manuscript. Data collection and analysis were also performed by Amila N.K.K.Gamage.