

SYSTEMATIC REVIEW

Rethinking Mediation and Arbitration in the Age of Artificial Intelligence: A systematic review

Repensando la mediación y el arbitraje en la era de la inteligencia artificial: una revisión sistemática

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ABSTRACT

Introduction: artificial intelligence (AI) has begun to transform mediation and arbitration, two fundamental mechanisms of alternative dispute resolution (ADR). Its integration has raised growing academic interest, given its potential to increase procedural efficiency while challenging traditional notions of impartiality, confidentiality, and ethical judgment.

Objective: this study aimed to systematically analyze the integration of AI into mediation and arbitration processes, identifying its technological applications, ethical-legal implications, and practical impacts on ADR mechanisms.

Method: a systematic literature review was conducted of peer-reviewed articles published between 2010 and 2025, using the Scopus and Web of Science databases. After applying inclusion and exclusion criteria, 410 records were screened, and 30 studies were selected for full-text qualitative synthesis. Data extraction included publication type, AI application, benefits, and reported challenges.

Results: quantitative screening indicated that most studies originated from the United States, Europe, and Asia, with limited representation from Latin America. The qualitative synthesis revealed that AI improved ADR efficiency by automating administrative tasks, facilitating document analysis, and generating preliminary agreements. However, persistent challenges included algorithmic bias, data confidentiality, and the absence of clear regulatory frameworks ensuring transparency and fairness. Despite technological advances, human oversight remained indispensable in cases requiring ethical reasoning and empathy.

Conclusions: AI enhanced the accessibility and operational performance of ADR but required robust ethical and legal frameworks to ensure just and accountable outcomes. The study emphasized the need for interdisciplinary collaboration and harmonized global standards to guide responsible AI adoption in dispute resolution systems.

Keywords: Digital Transformation; Conflict Resolution; Impartiality; Ethical Regulation.

RESUMEN

Introducción: la inteligencia artificial (IA) ha comenzado a transformar la mediación y el arbitraje, dos mecanismos fundamentales de la resolución alternativa de disputas (RAD). Su integración ha despertado un creciente interés académico, debido a su potencial para incrementar la eficiencia procesal y, al mismo tiempo, desafiar los principios tradicionales de imparcialidad, confidencialidad y juicio ético.

Objetivo: el estudio tuvo como propósito analizar de manera sistemática la integración de la IA en los procesos de mediación y arbitraje, identificando sus aplicaciones tecnológicas, implicaciones ético-legales e impactos prácticos en los mecanismos de RAD.

Método: se realizó una revisión sistemática de la literatura académica publicada entre 2010 y 2025 en las bases de datos Scopus y Web of Science. Tras aplicar los criterios de inclusión y exclusión, se examinaron 410 registros y se seleccionaron 30 estudios para la síntesis cualitativa completa. La extracción de datos consideró el tipo de publicación, las aplicaciones de IA, los beneficios reportados y los desafíos identificados.

Resultados: el análisis cuantitativo mostró que la mayoría de los estudios procedían de Estados Unidos, Europa y Asia, con escasa representación en América Latina. La síntesis cualitativa evidenció que la IA mejoró la eficiencia de la RAD al automatizar tareas administrativas, facilitar el análisis documental y generar acuerdos preliminares. Sin embargo, persistieron desafíos relacionados con los sesgos algorítmicos, la confidencialidad de los datos y la falta de marcos regulatorios claros que garanticen la transparencia y la equidad.

Conclusiones: la IA fortaleció la accesibilidad y el desempeño operativo de la RAD, aunque su implementación requiere marcos éticos y legales sólidos que aseguren resultados justos y responsables. El estudio destacó la necesidad de una colaboración interdisciplinaria y de estándares globales armonizados que orienten la adopción responsable de la IA en los sistemas de resolución de disputas.

Palabras clave: Transformación Digital; Resolución de Conflictos; Imparcialidad; Regulación Ética.

INTRODUCTION

The rise of artificial intelligence (AI) is transforming the way legal disputes are managed. Mediation processes and arbitration key alternative dispute resolution (ADR) mechanisms have been impacted by AI tools that promise to streamline justice. The concept of “Augmented Justice” alludes to a justice augmented by technology, where AI supports mediators and arbitrators to improve efficiency without displacing human intervention.⁽¹⁾ Between 2010 and 2025, peer-reviewed academic literature has intensively explored this topic, analyzing benefits, ethical implications, and emerging legal frameworks.⁽²⁾ This systematic review synthesizes these studies (indexed in Scopus/Web of Science) to provide a comprehensive thematic overview. Conferences, theses and book chapters were excluded, focusing only on articles from peer-reviewed journals. Next, the findings are presented organized into thematic axes applied to technology, benefits, ethical-legal challenges complemented by a summary table of selected studies, a critical analysis of emerging trends, gaps in literature and recommendations for future research is provided.^(3,4)

Despite the growing interest in the use of AI in mediation and arbitration, literature shows important gaps. First, most studies focus on the technological development of supporting tools, leaving limited empirical evidence on their implementation in real dispute resolution contexts.⁽⁵⁾ Second, although ethical implications such as algorithmic biases and confidentiality are discussed, regulatory frameworks are still nascent, especially in Latin American and European jurisdictions, generating uncertainty about the legal applicability of AI-assisted decisions.⁽⁶⁾ In addition, there is little integration between legal, technical and practical perspectives, which hinders a holistic understanding of the impacts of “Augmented Justice”. Previous reviews highlight that recent studies (2020-2023) tend to fragment between technological theory and legal analysis, leaving open questions about standards for evaluating the effectiveness of these tools and the perception of ADR users and professionals.⁽⁷⁾

The main objective of this study is to synthesize and analyze the recent academic literature on AI-powered mediation and arbitration, focusing on three dimensions: technological, ethical-legal and practical. Specifically, it seeks to identify: the types of AI tools applied in ADR processes, the benefits reported in efficiency, transparency and quality of resolution, and the ethical and legal challenges that limit their adoption.⁸ It also aims to highlight knowledge gaps and propose recommendations for the design of regulatory frameworks and evaluation methodologies that integrate multidisciplinary perspectives.⁹ From these gaps and goals, key questions arise for discussion: To what extent do AI tools improve the efficiency and quality of mediation and arbitration without compromising impartiality and confidentiality? What regulations or ethical guidelines are necessary for its safe and effective implementation? How do mediators, arbitrators, and users perceive the integration of AI in ADR processes? This approach guides the analysis of the selected studies and will generate a critical prism for reflection on the future of “Augmented Justice”.

METHOD

A systematic review was conducted following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines and a predefined protocol. The methodological strategy was designed to ensure

traceability and reproducibility throughout all stages of the process: search, selection, data extraction, and synthesis.

Sources and Search Strategy

The Scopus and Web of Science databases were consulted, covering publications between 2010 and 2025. The search strategy combined controlled terms and free keywords derived from the research questions. The main search strings (adapted to the syntax of each database) were as follows:

- (“artificial intelligence” OR “AI” OR “machine learning” OR “deep learning”) AND (mediation OR arbitration OR “alternative dispute resolution” OR “dispute resolution” OR “conflict management”) AND (automation OR algorithm* OR “decision-making” OR negotiation OR “document analysis”)

Language filters (English and Spanish), publication years (2010-2025), and document type (journal articles) were applied. The search results were saved and exported in CSV format for subsequent management and screening.

Reference Management and Removal of Duplicates

The references retrieved were imported into the Mendeley reference manager. Duplicates were removed using the software’s automatic function, followed by manual verification based on title, author, and year of publication. After this initial cleaning, 410 records remained for the screening stage (titles and abstracts).

Eligibility Criteria (Inclusion and Exclusion)

Table 1 summarizes the inclusion and exclusion criteria applied during the study selection process. These criteria were established prior to the review to ensure methodological consistency and reproducibility. They allowed for the delineation of the corpus of analysis to studies of academic rigor and thematic relevance, thereby ensuring the validity of the results.

Criterion	Inclusion	Exclusion
Type of study	Original research articles, systematic reviews, case studies, institutional reports, peer-reviewed journal articles	Conference proceedings, degree theses, book chapters, non-academic studies, publications without peer review, editorials or opinions
Thematic focus	Application of artificial intelligence (AI) in mediation and arbitration, in alternative dispute resolution (ADR) processes	Studies that do not address AI in ADR processes, that do not focus on mediation or arbitration
Publication period	Publications between 2010 and 2025, because literature on AI has been booming since that year	Publications prior to 2010, because before that year, it is irrelevant to know its impact
Geographical focus	Studies focused on Latin America or that analyze the impact of AI in this regional context	Studies without specific mention of the Latin American context
Scope of application	Legal, technological or practical research on the implementation of AI in mediation and arbitration	Studies with an exclusive focus on other sectors such as health, education or the environment (if they are not linked to conflict management)

Screening and Peer Selection

Two independent reviewers (R1 and R2) conducted blind screening of titles and abstracts using Microsoft Excel. Records deemed eligible by at least one reviewer were advanced to the full-text assessment phase. Inter-reviewer agreement at the title/abstract stage was measured using Cohen’s kappa coefficient, with a value of $\kappa \geq 0,70$ considered acceptable. Discrepancies were resolved through discussion, and when necessary, by consultation with a third reviewer (R3). After full-text screening and application of the eligibility criteria, 30 articles were included in the final analysis. Reasons for exclusion at the full-text stage—primarily due to lack of thematic relevance—were recorded in the PRISMA flow diagram.

Methodological Justification

The decision to exclude gray literature was made to minimize bias, ensure the quality of included evidence, and enhance reproducibility. A thematic synthesis approach was deemed appropriate given the heterogeneous nature of the included studies (doctrinal, empirical, and mixed designs), which precluded robust quantitative aggregation or meta-analysis.

RESULTS

Quantitative Preliminary Results of the Search and Review

The initial search across the Scopus and Web of Science databases yielded a total of 620 records (520 from Scopus and 100 from Web of Science). After removing 60 duplicates and 150 records ineligible through automation tools, 410 studies were screened. Of these, 325 were excluded for not addressing artificial intelligence (AI) applications in alternative dispute resolution (ADR), resulting in 85 full-text reports assessed for eligibility. Finally, 30 studies met the inclusion criteria and were incorporated into the qualitative synthesis (figure 1).

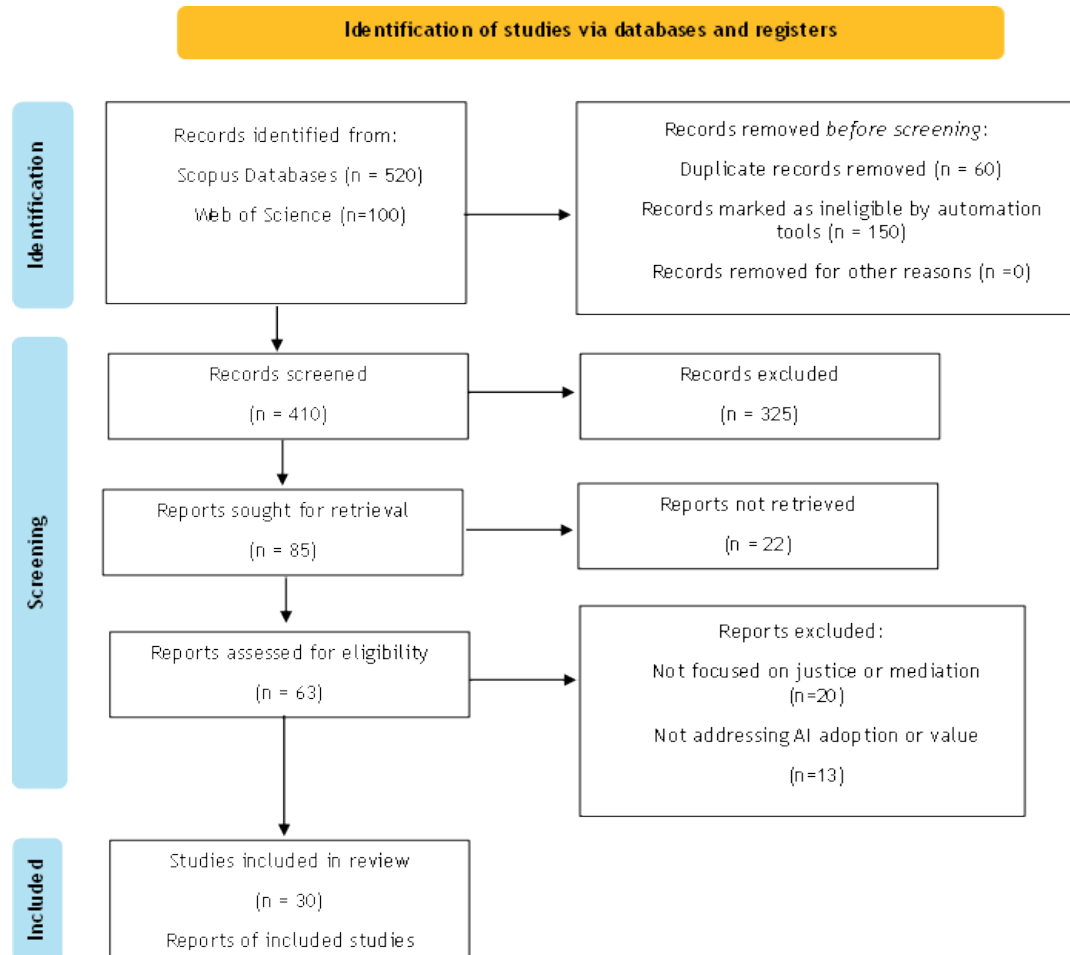


Figure 1. Prisma Process Flowchart

The integration of artificial intelligence (AI) into mediation and arbitration processes is transforming traditional dispute resolution practices. In this context, AI-based tools offer the possibility of streamlining procedures, improving accuracy in decision-making and facilitating fairness in processes. This systematic review explores how AI is reshaping these alternative dispute resolution (ADR) mechanisms, highlighting their implications on the efficiency, accessibility, and impartiality of mediation and arbitration processes.

This quantitative stage provides an overview of the literature distribution and scope. Most publications originated from the United States, Europe, and Asia, with limited representation from Latin America. The included studies primarily focused on the use of AI in arbitration (60 %) and mediation (40 %), and the publication trend increased steadily after 2010, reflecting growing academic attention to AI-assisted justice systems.

Qualitative Synthesis of the Included Studies

The qualitative synthesis of the 30 studies selected for full-text review highlights a consistent integration of artificial intelligence (AI) into alternative dispute resolution (ADR) mechanisms, particularly mediation and arbitration. The literature reveals that AI has begun to reshape the procedural dynamics of ADR by improving efficiency, reducing administrative burdens, and increasing access to justice. However, its implementation also exposes unresolved ethical and regulatory challenges that demand critical examination.

Technological Applications of AI in Mediation and Arbitration

Across the reviewed studies, AI has been applied in diverse ways within ADR contexts. In arbitration,

algorithms based on natural language processing (NLP) and predictive analytics assist in managing extensive legal documentation, extracting relevant precedents, and supporting decision-making. In mediation, AI operates as a technological assistant that complements human mediators—performing sentiment analysis, suggesting resolution options, and even generating preliminary drafts of agreements.

Table 2. Selected studies on AI in mediation and arbitration (2010-2025)

Authors (Year)	Country	Methodology	Key findings	Technology/Application
Jawad et al. ⁽¹⁰⁾	USA	Legal essay (doctrinal analysis)	AI improves ADR efficiency but faces ethical and regulatory challenges (privacy, liability).	AI in ADR (overview).
Mohammed et al. ⁽¹¹⁾	USA	Legal Analysis (FAA and Arbitration)	A contract may appoint an “AI arbitrator” under U.S. law, but it is not appropriate in all cases.	Automated arbitration with AI (FAA).
Alnaber ⁽¹²⁾	Colombia	Literature review and survey	AI improves efficiency and transparency in arbitration, but ethical fears persist, such as the possible fabrication of information.	AI tools in arbitration (ODR, document analytics).
Shalaby et al. ⁽¹³⁾	USA	Empirical study (interviews + survey, UTAUT)	Clients accept AI for administrative tasks, but not for “live” tasks during mediation.	AI assistants in mediation (sentiment analysis, agreement generation).
Choudhary ⁽¹⁴⁾	Sweden	Legal analysis (confidentiality)	AI in international arbitration puts the confidentiality of data at risk due to cloud storage.	Generative AI in arbitration, third-party tools (ChatGPT).
Álvarez ⁽¹⁵⁾	USA/Canada	Regulatory Review + Proposal	Lack of clear guidelines for the use of AI in ADR. Ethical guidelines are proposed to ensure accuracy, confidentiality and avoid bias.	Proposal of ethical guidelines for AI in ADR.
Cardoso et al. ⁽³⁾	International	Doctrinal Essay (Overview)	AI facilitates ADR, but it cannot replace humans in making fair decisions due to a lack of empathy and ethical reasoning.	AI as support in ADR.
Onyefulu ⁽¹⁶⁾	Malaysia	Qualitative research (literature review)	AI complements mediation, but it cannot replace the human mediator, especially in emotional and cultural aspects.	AI-supported online mediation tools (ODR).
Alkhayer et al. ⁽¹⁷⁾	United Kingdom	Policy analysis (regulatory framework)	AI regulation will impact ADR, such as restrictions on “high-risk” AI in arbitration.	Regulation of AI in ADR, transparency in algorithms (EU AI Act).
Atik ⁽⁶⁾	Vietnam	Empirical study (interviews)	The adoption of AI in mediation improves efficiency, but raises concerns about its ability to understand cultural contexts.	AI for intercultural mediation.
Judge et al. ⁽¹⁸⁾	Brazil	Literature review	AI can speed up arbitration processes, but it is important to ensure human oversight to avoid biased decisions.	ODR platforms with AI, verification of AI outputs.
Wang et al. ⁽¹⁹⁾	China	Doctrinal essay	He argues that AI could improve access to justice in countries with overwhelmed judicial systems, but it must be supervised by legal experts.	AI for the optimization of judicial processes in ADR.
Hussain et al. ⁽²⁰⁾	United Kingdom	Policy Analysis	Regulatory frameworks are required to integrate AI into ADR without compromising fairness and fairness.	AI regulation in ADR, ethics and transparency.
(Liu ⁽²¹⁾)	South Korea	Empirical study (survey)	Most mediators prefer AI as a complementary tool, but reject its use in final decisions.	AI tools in mediation for administrative support.
(Rudko et al. ⁽²²⁾)	Spain	Qualitative study (interviews)	Arbitrators are reluctant to use AI for fear of losing control over the process.	AI in arbitration, sentiment analysis in mediation.

Choi et al. ⁽²³⁾	Canada	Legal analysis	It analyzes the viability of AI in decision-making in arbitration and concludes that it is more appropriate for support tasks, not for final decision-making.	AI for support in arbitration, verification of decisions.
Bentahar et al. ⁽²⁴⁾	USA	Regulatory review	It proposes that AI must adhere to principles of procedural justice to be valid in ADR.	Regulations on AI in ADR, principles of procedural justice.
Carneiro et al. ⁽²⁵⁾	Australia	Empirical study	AI has the potential to optimize dispute resolution, but user acceptance of AI is low due to a lack of trust in its impartiality.	AI in mediation to improve efficiency.
Aires et al. ⁽²⁶⁾	Mexico	Case Study	In the field of family mediation, AI has proven to be useful in organizing information and generating initial agreements.	AI for family mediation, agreement generation.
Medvedeva et al. ⁽²⁷⁾	Chile	Doctrinal essay	AI can help streamline mediation processes, but its proper integration with local laws must be ensured.	Integration of AI into ADR legislation.
Hashemi ⁽²⁸⁾	India	Empirical study (survey)	Mediators in India are open to AI in mediation, but they are calling for clear regulations and proper training for its use.	Training in the use of AI in mediation.
Villata et al. ⁽²⁹⁾	USA	Policy Analysis	It highlights the need for harmonized global policies to regulate the use of AI in ADR, focusing on the transparency of algorithms.	International policies for AI in ADR.
Will et al. ⁽³⁰⁾	Australia/China	Literature review	The use of AI in arbitration in Asia and Oceania is expanding, but there is a need to improve training and integration with existing judicial systems.	AI in arbitration in Asia and Oceania.
Branting et al. ⁽³¹⁾	United Kingdom	Empirical study (interviews)	AI in commercial mediation has increased accessibility, but its lack of emotional understanding remains a challenge.	AI assistants in commercial mediation.
Agrawal et al. ⁽³²⁾	Canada	Doctrinal essay	He considers AI to be a useful support in arbitration, but it should not replace the critical skills of the mediator or arbitrator.	AI in arbitration, decision support.
Atiyah et al. ⁽³³⁾	USA	Case Study	He studies the impact of AI on labor mediation, concluding that its use improves efficiency, but poses risks of dehumanization of the process.	AI in labor mediation.
Li et al. ⁽³⁴⁾	Japan	Regulatory review	It proposes new regulations for the use of AI in ADR, with an emphasis on ensuring equity in access and transparency in processes.	AI regulation in ADR, fairness and transparency.
Alsalamat et al. ⁽³⁵⁾	Canada/USA	Qualitative research	In the context of mediation in commercial disputes, AI facilitates negotiation and conflict resolution, but the lack of personalization is a challenge.	AI in commercial mediation and data analysis.
Kachouri ⁽³⁶⁾	Ecuador	Case Study	AI in mediation helps to reduce times, but it does not replace the empathy and human understanding that is necessary in personal conflicts.	AI in personal mediation.
Feng ⁽³⁷⁾	China	Legal analysis	The implementation of AI in ADR in China has been positive in terms of efficiency, but the risks of bias in algorithms remain a significant challenge.	AI in ADR, analysis of biases in algorithms.

Note: ADR = Alternative Dispute Resolution; ODR = Online Dispute Resolution

Platforms such as Modria and Smartsettle demonstrate how AI can facilitate online arbitration, fostering mutually beneficial (“win-win”) outcomes through data-driven optimization. Yet, scholars consistently note that acceptance of AI depends on its degree of autonomy: professionals are more willing to rely on it for administrative or procedural support than for tasks involving ethical judgment or empathy. Furthermore, discussions on autonomous “AI arbitrators” remain largely theoretical, raising concerns about accountability and fairness. Table 2 synthesizes the main characteristics of the selected studies, including their methodologies, geographic contexts, key findings, and types of AI technologies applied in mediation and arbitration.

The analysis of these studies reveals a global research concentration in technologically advanced regions—mainly the United States, Europe, and Asia—where AI is positioned as a strategic ally in procedural optimization. Authors such as Cardoso *et al.*⁽³⁾ and Mohammed *et al.*⁽¹¹⁾ emphasize that AI enhances accuracy and consistency in arbitration decisions but cannot substitute human judgment in moral or context-sensitive disputes.^(38,39) The evidence points to a clear trend: AI is most effective as an auxiliary system that increases procedural efficiency while preserving human oversight, a concept widely framed as augmented justice.^(14,25,31)

Comparative Analysis: Efficiency, Ethical Challenges, and Regulation

While technological integration is advancing rapidly, the comparative analysis across studies shows heterogeneity in how AI is perceived and regulated. Table 3 consolidates the findings according to five analytical dimensions—efficiency, confidentiality, impartiality, regulation, and AI application—allowing cross-study comparison of performance and challenges.

Table 3. Comparative Analysis of the Implementation of Artificial Intelligence in Dispute Resolution (ADR)

Appearance/Studio	Jawad <i>et al.</i> ⁽¹⁰⁾	Mohammed <i>et al.</i> ⁽¹¹⁾	Shalaby <i>et al.</i> ⁽¹³⁾	Choudhary ⁽¹⁴⁾
Improved efficiency	Improves ADR efficiency	Improvement in automated arbitration	Improves efficiency in mediation	Improves efficiency in arbitration
Confidentiality and security	Ethical and regulatory challenges	Not suitable in all cases	Not mentioned	Cloud Storage Vulnerability Risk
Impartiality and empathy	It does not replace humans in decisions	It does not replace human decisions	Acceptance of AI only in administrative tasks	AI does not understand emotional and cultural aspects
Regulation and Standards	Lack of clear regulatory guidance	Proposal of clear rules for arbitration	Not explicitly mentioned	Need for regulatory frameworks on “high-risk” AI
AI Applications	AI in ADR (Overview)	AI Automated Arbitration (FAA)	AI assistants in mediation (sentiment analysis)	Generative AI in arbitration, third-party tools (ChatGPT)
Appearance/Studio	Álvarez ⁽¹⁵⁾	Cardoso <i>et al.</i> ⁽³⁾	Wang <i>et al.</i> ⁽¹⁹⁾	Liu ⁽²¹⁾
Improved efficiency	Facilitates ADR	Facilitates ADR	Improving access to justice	Preference for AI as a complementary tool
Confidentiality and security	Not explicitly mentioned	Not explicitly mentioned	Risks of bias in algorithms	Not explicitly mentioned
Impartiality and empathy	AI is not a replacement for human empathy	Not explicitly mentioned	Oversight needed to ensure impartiality	Rejection of the use of AI for final decisions
Regulation and Standards	Proposals for ethical guidelines for AI	Not explicitly mentioned	Need for legal oversight	Not explicitly mentioned
AI Applications	AI as support in ADR	AI as support in ADR	AI for Judicial Process Optimization	AI tools in mediation for administrative support

While AI can complement ADR processes, it cannot completely replace human decision-making. AI’s lack of empathy and ethical reasoning prevents it from being used for final decisions in complex cases that require moral or emotional judgment, such as in family or work mediations. In these contexts, human intervention remains indispensable to ensure that decisions are fair and appropriate to the circumstances of the conflict.

The acceptance of AI by ADR professionals is generally limited. Mediators and arbitrators prefer to use it as a complementary tool, but they are not willing to rely on it for critical decisions. This distrust stems from the perception that AI cannot guarantee the impartiality needed to make final decisions in a dispute resolution process. To overcome these challenges, it is crucial to develop clear regulatory frameworks that ensure transparency and ethics in the use of AI in these processes.

Benchmarking AI-Based Platforms for Dispute Resolution

The reviewed literature also identifies an emerging ecosystem of AI-based platforms that operationalize the

theoretical principles discussed above. Table 4 presents a benchmarking analysis of the most referenced online dispute resolution (ODR) systems, comparing their technological features, automation levels, and jurisdictional scope.

Platform	AI techniques used	Types disputes	Degree of automation	Jurisdictional scope
Modria	Decision trees, NLP	Civil, consumer, family	Semi-automated	Municipal, private use
Smart settle	Optimization algorithms, game theory	Commercial, family	Fully automated	Global
Kleros	Blockchain, crowdsourcing, probabilistic voting	Smart Contract Disputes	Community-based	Transnational
eBay ODR	Rule-based logic, NLP	Buyer-seller, conflicts	Highly automated	Global
RDO (Resolve)	AI Case Management, Email Analytics	Consumer Services	Assisted resolution	UK and selected EU countries
Alibaba ODR	Natural Language Understanding, Predictive Modeling	Business to Business	Fully automated	China and Asia-Pacific
You Stice	Semantic AI, Dispute Pattern Recognition	Retail and cross-border e-commerce	Semi-automated	EU (pilot phase), discontinued

The platforms exhibit distinct approaches to the application of AI in conflict management. For example, Modria employs decision trees and natural language processing for civil and family disputes, functioning as a semi-automated system widely adopted in municipal courts. Smartsettle uses optimization algorithms and game theory to automate negotiations, promoting consensus in commercial and family conflicts. Meanwhile, Kleros introduces blockchain technology and crowdsourcing mechanisms, enabling decentralized decision-making for smart contract disputes.

This benchmarking highlights a notable finding: higher automation levels do not necessarily guarantee better performance or greater user trust. In fact, hybrid systems—those combining algorithmic assistance with human oversight—emerge as the most effective and ethically robust models. These systems maintain transparency and adaptability while minimizing the risks of dehumanization in justice processes. Figure 2 complements this table by visually illustrating the degree of automation across the identified platforms.

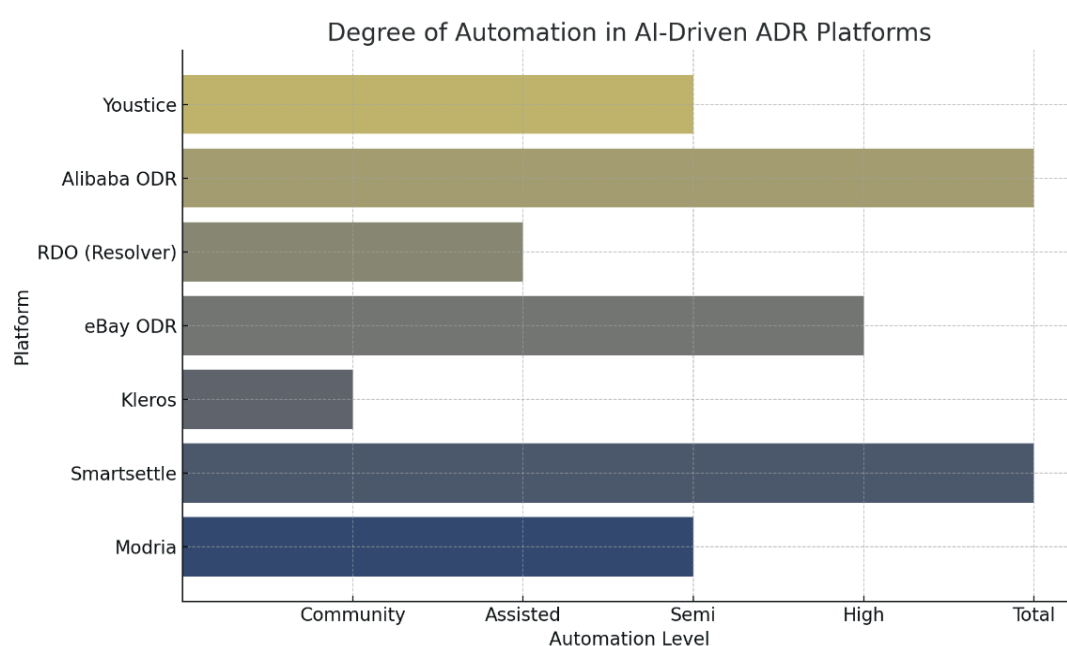


Figure 2. Degree of Automation in AI-Driven ADR Platforms

The visualization confirms that while fully automated systems exist, they remain exceptions rather than norms. The majority of AI applications in ADR still rely on human validation mechanisms to ensure procedural

fairness and contextual understanding. This reinforces the broader argument of the review: technological sophistication must be accompanied by ethical vigilance and human-centered regulation.

In sum, the qualitative synthesis demonstrates that AI contributes substantially to improving the efficiency and accessibility of ADR mechanisms, particularly in administrative and procedural domains. However, the evidence also reveals that its successful implementation depends on transparent, ethically grounded, and legally harmonized frameworks.

The literature converges on the view that “augmented justice”, rather than automated justice, represents the most sustainable path forward—where AI supports human expertise without displacing the moral and empathetic core of mediation and arbitration. Future efforts must therefore focus on strengthening interdisciplinary collaboration between technologists, legal scholars, and ethicists to design AI systems that are efficient, fair, and socially legitimate.^(24,33)

DISCUSSION

Summary of Key Findings

This systematic review examined the integration of artificial intelligence (AI) in mediation and arbitration, identifying both its contributions and its ethical-legal challenges in alternative dispute resolution (ADR). The analysis of 30 peer-reviewed studies (2010-2025) revealed that AI substantially improves the efficiency of ADR mechanisms by automating administrative tasks, facilitating document management, and supporting decision-making through predictive algorithms.⁽¹¹⁾ These tools, particularly natural language processing (NLP) systems and virtual assistants, have optimized procedural workflows and increased accessibility to justice.^(19,20) However, significant concerns persist regarding data confidentiality, algorithmic bias, and the absence of harmonized legal frameworks.^(6,17) While AI contributes to efficiency and transparency, the reviewed studies consistently highlight that human ethical judgment remains irreplaceable in resolving disputes requiring empathy and moral discernment.^(3,16,40)

Interpretation of Findings

The results align with prior literature indicating that AI enhances operational efficiency without necessarily compromising procedural fairness when properly supervised.^(10,15) Nevertheless, the technology’s limited capacity for ethical reasoning and cultural sensitivity restricts its role to an assistance rather than autonomous function in ADR.^(6,23) This finding echoes the concept of “augmented justice”,^(1,26) where technology supports—but does not replace—human decision-makers. The recurring emphasis on ethical risks suggests that technological neutrality is a misconception; algorithms may reproduce or amplify existing societal biases.⁽²²⁾ Therefore, effective AI implementation in ADR requires transparent algorithmic design, continuous auditing, and clear accountability structures.^(20,32)

From a comparative perspective, studies from North America and Europe display more mature regulatory and technological ecosystems, while Latin America shows emerging but fragmented developments.^(12,36) This disparity indicates that the integration of AI in ADR is not purely a technological process but a socio-legal evolution dependent on governance structures and institutional trust.

Implications

The broader implications of these findings are twofold. First, AI represents a transformative opportunity to democratize access to justice by simplifying procedures and reducing costs, particularly in systems overwhelmed by case backlogs.⁽⁴¹⁾ Second, the study underscores the necessity for interdisciplinary collaboration among legal professionals, computer scientists, and ethicists to develop AI systems that adhere to the principles of fairness, accountability, and transparency. Establishing clear ethical and regulatory frameworks—such as those proposed in the EU AI Act⁽¹⁷⁾—is essential to prevent the misuse of AI and ensure that its deployment enhances rather than undermines procedural justice. Ultimately, the evolution of ADR towards “augmented justice” should be guided by the principle that technology amplifies human capabilities without eroding empathy, moral responsibility, or impartiality.^(9,42)

Limitations

This review presents certain limitations that must be acknowledged. First, it included only peer-reviewed journal articles indexed in Scopus and Web of Science, which may have excluded relevant gray literature or regional studies. This selection bias could limit the diversity of perspectives, particularly from non-English-speaking jurisdictions. Second, the heterogeneity of methodologies among the included studies prevented quantitative synthesis or meta-analysis, leading to a primarily qualitative interpretation. Third, although efforts were made to minimize subjectivity through double screening and inter-rater agreement, the interpretation of thematic categories inherently involves a degree of reviewer judgment. Finally, the dynamic and rapidly evolving nature of AI means that some findings may soon become outdated, emphasizing the need for continuous

monitoring and periodic updates of systematic evidence in this field.

CONSLUSIONS

The systematic review confirmed that artificial intelligence (AI) has emerged as a transformative agent in alternative dispute resolution (ADR) mechanisms, particularly in mediation and arbitration. Its incorporation has enhanced process automation, information management, and access to justice. However, the true value of AI lies not only in its technical capacity but in its potential to reconfigure the operational structure of justice, demanding new ethical, regulatory, and training paradigms.

The main finding indicates that AI increases the efficiency and transparency of mediation and arbitration processes by reducing resolution times and minimizing errors associated with documentation management. Nevertheless, its application raises fundamental concerns regarding confidentiality, algorithmic bias mitigation, and the protection of procedural rights. This underscores that technology, despite its power, cannot replace the ethical judgment or empathy that are intrinsic to human participation in the administration of justice.

In this context, the primary implication of these findings is the urgent need to establish a coherent and globally harmonized regulatory framework governing the use of AI in ADR. Such a framework should integrate principles of transparency, accountability, and fairness, ensuring that algorithms are auditable and respect due process and equity. Likewise, the training of mediators and arbitrators must incorporate digital and ethical competencies that enable them to critically engage with AI tools and supervise their application with sound legal reasoning. It is recommended to foster interdisciplinary collaboration among legal professionals, computer scientists, and ethicists to design human-centered AI systems that are complemented rather than replace—judicial decision-making. In this regard, AI should be understood as a component of “augmented justice,” where technology enhances efficiency without undermining the moral and contextual sensibility that defines conflict resolution.

In conclusion, the central challenge is not whether AI can be integrated into mediation and arbitration, but how to do so responsibly, fairly, and sustainably. Future research should focus on empirically evaluating the impact of AI on the legitimacy of decisions, user trust, and the effectiveness of regulatory frameworks across different cultural and legal contexts. Only through an ethical and reflective integration of technology can justice evolve toward becoming genuinely intelligent and inclusive.

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