

AI-MEDIATION IN CROSS-BORDER E-COMMERCE: BRIDGING LAW, TECHNOLOGY AND ETHICS IN EU REGULATORY FRAMEWORKS

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ABSTRACT

The rapid expansion of cross-border e-commerce has intensified the need for efficient and fair dispute resolution mechanisms, prompting the exploration of AI-mediated solutions within the European Union's regulatory frameworks. This paper examines the intersection of law, technology, and ethics in AI-driven mediation, analyzing its potential to enhance efficiency while addressing critical legal and ethical challenges. Through a structured conceptual framework, the study distinguishes between supportive and substitutive AI mediation models, highlighting the advantages of hybrid systems that leverage AI's analytical capabilities-such as legal argument summarization, predictive analytics, and negotiation support-while retaining human mediators' emotional intelligence and ethical judgment. The discussion underscores persistent limitations in AI's ability to interpret nuanced human communication and manage high-stakes disputes, emphasizing the necessity of human oversight. Ethical concerns, including algorithmic bias, transparency, data privacy, and accountability, are critically evaluated, with a focus on Schmitz's three-stage ethical implementation model to ensure responsible AI deployment. The paper argues that while AI can optimize procedural efficiency in cross-border e-commerce disputes, its integration must be guided by robust governance principles to preserve fairness and judicial legitimacy. Recommendations include adopting the ASPEN Protocol for structured AI integration, reinforcing interdisciplinary collaboration, and embedding ethical safeguards at all stages of AI system development. By bridging technological innovation with legal and ethical imperatives, this research contributes to a balanced framework for AI-mediated dispute resolution in the EU's evolving digital economy.

Keywords: AI-Mediation, ODR, Cross-Border E-Commerce, EU Regulatory Frameworks, Ethical AI, Dispute Resolution, Human-AI Hybrid Systems, UNCITRAL.



INTRODUCTION

"In the evolving landscape of Online Dispute Resolution (ODR), technology has emerged as the 'fourth party'¹, bridging gaps and transforming conflicts. But as Artificial Intelligence (AI) advances, it no longer merely assists—it decides. In AI-mediated resolution, the algorithm becomes the 'third party', Facilitating Negotiations with impartial precision. The future of dispute resolution isn't just digital; it's intelligent."

The evolution of society has progressed from the agricultural and industrial ages to the current information age, dominated by digital technology and globalization². Today, we stand at the precipice of a new era-the AI age-where artificial intelligence is transforming communication, commerce, and even conflict resolution. One of the most significant developments in this digital landscape is the rise of cross-border e-commerce, which has revolutionized global trade by offering unprecedented efficiency and economic growth. However, with this expansion comes an inevitable increase in disputes, ranging from traditional conflicts over product quality to emerging challenges involving digital assets and domain names. Traditional dispute resolution mechanisms often struggle to keep pace with the speed and complexity of these cross-border transactions, necessitating innovative solutions such as ODR more recently, AI-mediated and, dispute resolution.

AI Mediation represents a paradigm shift in conflict resolution, leveraging machine learning and algorithmic analysis to facilitate fair, impartial and efficient dispute settlements³. As e-commerce continues to flourish the demand for scalable and cost-effective dispute resolution mechanisms has never been greater. While ODR platforms like

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- ¹Katsh, E., & Rifkin, J. (2001). Online dispute resolution: Resolving Conflicts in Cyberspace. Jossey-Bass.
- ²Toffler A., & Alvin T. (1980). The Third Wave. Bantam books, New York.
- ³AI Mediation | Legal Dictionary | Clio. <<u>https://www.clio.com/resources/legal-</u> dictionary/ai-mediation/>
- ⁴China's top court releases white paper on internet judiciary. (n.d.). <https://english.court.gov.cn/2019-12/04/c_766665.htm>

those pioneered by eBay and China's Internet Courts⁴ have demonstrated the potential of digital mediation, challenges such as lack of public trust, technical barriers, and funding limitations persist. The integration of AI into ODR promises to address these gaps by enhancing accuracy, reducing human bias, and streamlining processes. However, this technological advancement also raises critical ethical concerns, including transparency, accountability, and data privacy.

AI Mediation is reshaping conflict resolution by enhancing efficiency, fairness, and accessibility. By analyzing case documents, identifying key issues, and categorizing data, AI empowers mediators to swiftly grasp dispute complexities, saving time and improving outcomes. Supportive insights from past cases and real-time sentiment analysis further aid mediators in maintaining impartiality and defusing tensions during virtual negotiations. Additionally, by automating administrative tasks, AI reduces costs and expands access to justice, making mediation a viable alternative to costly and protracted litigation⁵. This paper explores the intersection of AI mediation and ethical considerations in resolving cross-border ecommerce disputes. By examining the growth of ecommerce, the evolution of ODR, and the emerging role of AI in dispute resolution and mediation in particular, this study seeks to evaluate both the opportunities and risks associated with automated mediation. Drawing on international frameworks such as the European Union's (EU) regulatory framework, OECD (Organization for Economic Co-operation and Development) Guidelines⁶ and United Nations Commission on International Trade Law (UNCITRAL) procedural rules⁷, this research highlights the need for a

- ⁵Sears, L. W. (2024, November 6). AI in Mediation: Streamlining Processes and Enhancing Outcomes. Accessed Online 3 June, 2025. <<u>https://www.linkedin.com/pulse/aimediation-streamlining-processes-enhancingoutcomes-sears-xbexe/></u>
- ⁶OECD Guidelines for Consumer Protection in the Context of Electronic Commerce (2000).
- ⁷United Nations, UNCITRAL Model Law on Electronic Commerce with Guide to Enactment 1996. (UNCITRAL Model Law on e-commerce), Article 8.



balanced approach that harnesses AI's potential while safeguarding fundamental ethical principles. As society transitions further into the AI era, ensuring that technological advancements align with fairness and justice will be crucial in shaping the future of global e-commerce dispute resolution.

2. UNDERSTANDING E-COMMERCE: CONCEPT AND CROSS BORDER DISPUTES

Commerce is the backbone of business, ensuring goods and services reach consumers efficiently. Unlike production, commerce focuses on distribution channels, linking manufacturers to end-users. Some academics emphasized its role as an organized exchange system⁸. It encompasses trade (buying/selling) and aids to trade (logistics, banking), making it broader than mere transactions⁹. However, e-Commerce lacks a uniform definition due to ongoing developments in digital transaction technologies. The concept can be understood through both broad and narrow interpretations, depending on the technologies involved and the scope of business activities covered. From a technological standpoint, the broad definition encompasses all forms of digital transactions, including internet-based applications like as well traditional extranets as telecommunications such as telephone, fax, and conventional email. In contrast, the narrow definition limits e-commerce exclusively to transactions conducted over the internet¹⁰. Definitions also vary based on the nature of business activities. Some frameworks adopt a restrictive view, focusing solely on the online sale and purchase of goods and services where

- ⁸Miller, R. L., & Cross, F. B. (2002). The legal and e-commerce environment today: business in its ethical, regulatory, and international setting. Thomson Learning. 741. ISBN 0-324-06188-9.
- ⁹Mehta, E. M. (2017). Triangular of Commerce, E-Commerce and Trade. International Journal of Research in All Subjects in Multi Languages, 5(1).
- ¹⁰Sookman, B. B. (1999). Electronic commerce, internet and the law: a survey of the legal issues. UNBLJ, 48, 119.
- ¹¹OECD (2019), Unpacking E-commerce: Business Models, Trends and Policies, OECD Publishing, Paris, 72 https://doi.org/10.1787/23561431-en.

computer networks specifically facilitate order placement and processing¹¹. Other interpretations take a more expansive approach, considering any transaction executed through digital means as ecommerce, regardless of its commercial nature. Certain legal models extend this further by including all commercial relationships arising from digital interactions, whether contractual or not¹².

The global e-commerce market has experienced exponential growth, valued at \$17.1 trillion in 2022 and projected to expand at a CAGR of 26.5%, reaching \$80.5 trillion by 2030¹³. This surge is driven by digital infrastructure advancements, increased internet penetration, and the convenience of online transactions. Crossborder e-commerce, a subset of e-commerce, has also seen remarkable progress. Europe leads in CBE adoption due to robust digital infrastructure, while China has emerged as a dominant player¹⁴. E-commerce operates through various business models tailored to different transactional needs¹⁵. The primary types include B2B (Business-totransactions Business), involving between companies like manufacturers and wholesalers (e.g., Alibaba); B2C (Business-to-Consumer), where businesses sell directly to end-users (e.g., Amazon, Netflix); C2C (Consumer-to-Consumer), enabling peer-to-peer sales via platforms like eBay; C2B (Consumer-to-Business), where individuals offer services to companies (e.g., freelancers on Upwork); and B2A (Business-to-Administration) and C2A (Consumer-to-Administration), covering interactions with government agencies (e.g., tax filings)¹⁶.

¹²(UNCITRAL, 1996)

- ¹³Bagul, S. (2023). E-Commerce Market Size Worth US \$80.5 Trillion By 2030 | Cagr: 26.5%. INWASCON Technology Magazine (i-TECH MAG), 5, 67-68.
- ¹⁴Ding, F., Huo, J., & Campos, J. K. (2017, September). The development of cross border e-commerce. In International Conference on Transformations and Innovations in Management (ICTIM 2017) (pp. 487-500). Atlantis Press.
- ¹⁵Jain, V., Malviya, B.I., & Arya, S.A. (2021). An overview of electronic commerce (e-Commerce). Journal of Contemporary Issues in Business and Government, 27(3), 666.

¹⁶Ibid.

The traditional e-commerce model operated on a Bipolar Structure involving only two parties - the buyer (payer) and seller (payee) - where transactions occurred directly through seller-hosted websites allowing customers to browse products and make payments, a model well-regulated under existing national laws like contract and consumer protection laws due to its straightforward buyerseller dynamic. However, contemporary ecommerce has transitioned to a Triangular Transaction Model incorporating a third-party intermediary, typically an online platform that positions itself between buyers and sellers, functioning as a marketplace that aggregates multiple buyers and sellers while facilitating transactions through features like product listing aggregation, information asymmetry reduction via reviews and ratings, and secure payment systems, creating more efficient online shopping but simultaneously introducing novel legal and regulatory complexities as traditional frameworks weren't designed for multi-party transactions¹⁷. These online platforms serve as multi-sided marketplaces performing essential functions including information aggregation by compiling product listings and seller details for easy comparison, search facilitation through filters and recommendation algorithms, and trust-building by mitigating information asymmetry with review systems and seller histories when physical product inspection isn't possible. Beyond mere product listing, platforms act as transactional matchmakers connecting buyers with appropriate sellers while maintaining neutrality, and implement trust mechanisms like secure payment processing, escrow services, and dispute resolution to ensure transaction safety and reliability, with industry leaders like Amazon, eBay, and Alibaba exemplifying this model while processing millions of daily transactions in their intermediary roles¹⁸.

- ¹⁷Staff working document on Online Platforms Accompanying the Communication on Online Platforms and the Digital Single Market, COM (2016) 288.
- ¹⁸Chircu, A. M., & Kauffman, R. J. (2000). Limits to value in electronic commerce-related IT investments. Journal of Management Information Systems, 17(2), 59-80.
 ¹⁹(Ding 2017)

The significance of e-commerce lies in its ability to expand market access globally, allowing businesses to reach international customers while enabling consumers to compare products and prices worldwide. It provides a competitive edge by reducing overhead costs associated with physical and empowers consumers through stores transparent pricing and reviews. These advantages underscore e-commerce's pivotal role in modern commerce, reshaping trade patterns and consumer behavior¹⁹. Despite its growth, cross-border ecommerce faces significant hurdles. Jurisdictional uncertainty complicates legal enforcement, as transactions often span multiple countries with conflicting laws²⁰. Transaction security remains a concern, with risks like payment fraud and data breaches undermining trust. Intellectual property protection is another challenge, as digital products are vulnerable to unauthorized distribution across compounded by varying borders, national regulations²¹. Traditional litigation proves inefficient for resolving e-commerce disputes, especially for low-value transactions, due to high costs and enforcement difficulties. These issues highlight the need for updated legal frameworks, including specialized dispute resolution mechanisms, international digital transaction standards, and stronger cybersecurity measures. Without such reforms, legal ambiguities may continue to hinder the full potential of global ecommerce. In today's globalized e-commerce landscape, traditional legal systems prove inadequate for resolving cross-border disputes efficiently. The complexities of differing national laws, jurisdictional conflicts, and the high costs of conventional litigation create significant barriers, particularly for low-value transactions that dominate online commerce²². ODR systems, enhanced by artificial intelligence, present a transformative solution to these challenges. AIpowered mediation can analyze vast amounts of

²⁰Kohl, U. (2010). Jurisdiction and the Internet: Regulatory competence over online activity. Cambridge University Press.

²¹(Ding, 2017)

²²Afroze, R. (2025). AI Dominion vs. Human Dominion: Charting the Future of Artificial Intelligence: A Crossroad of Progress and Concerns. Human Dominion: Charting the Future of Artificial Intelligence: A Crossroad of Progress and Concerns (May 01, 2025).



transaction data, identify patterns in disputes, and even propose fair settlements in real-time, overcoming language barriers and time zone differences. These automated systems offer 24/7 accessibility, reduce resolution times from months to days, and maintain lower costs than traditional legal processes. As cross-border e-commerce continues to expand, implementing robust ODR frameworks with AI capabilities becomes essential to building trust in digital marketplaces, ensuring consumer protection, and facilitating seamless international trade. Such technological solutions not only address current legal gaps but also futureproof the global e-commerce ecosystem against the growing volume and complexity of transnational digital transactions²³.

2.1. Cross-Border E-Commerce Disputes: Nature and Challenges

The rise of digitalization has significantly accelerated the expansion of global e-commerce, creating new opportunities for businesses and consumers alike. However, this growth has also introduced complex challenges, particularly in the realm of cross-border transactions. When disputes arise, the involvement of multiple jurisdictionseach with its own legal frameworks, business regulations, and consumer protection laws-creates significant uncertainty. Determining which laws apply and how judgments should be enforced becomes particularly difficult in areas such as contract enforcement, intellectual property rights, and consumer protections, where national standards often conflict²⁴. Disputes in cross-border e-commerce take various forms, reflecting the complexities of international online transactions. Consumer grievances frequently involve defective products, delivery failures, or refusal of refunds²⁵, while payment-related conflicts may include

unauthorized charges or discrepancies in currency conversion. Contractual disputes arise when sellers fail to meet obligations, such as delivering incorrect orders or ignoring warranties, often compounded by disagreements over which jurisdiction's laws should apply. Customs and regulatory issues further complicate matters, with shipments sometimes seized due to import restrictions or incomplete documentation. Intellectual property violations, such as counterfeit goods or unauthorized use of trademarks, are also prevalent, alongside platform-related disputes like account suspensions or unfair marketplace policies. Fraud remains a persistent threat, with scams ranging from non-delivery of goods to phishing schemes targeting payment information.

One of the most pressing challenges in cross-border e-commerce is the difficulty in establishing jurisdiction and enforcing legal judgments. The anonymous and virtual nature of online transactions makes it hard to determine which legal system should govern a dispute. Even when a ruling is obtained, enforcing it across borders is fraught with obstacles, including conflicting national laws and practical barriers like locating and seizing assets²⁶. Differences in data protection and privacy regulations further complicate evidence collection, while technical issues-such as the validity of electronic signatures-highlight the lack of international legal harmonization. These challenges underscore the inefficiency of traditional dispute resolution methods in addressing the unique demands of e-commerce. Ecommerce disputes differ fundamentally from traditional offline conflicts due to their virtual,

- ²⁵Hongmei, Z. (2021). A Cross-Border E-Commerce Approach Based on Blockchain Technology. Mobile Information Systems, 2021(1), 2006082.
- ²⁶Liemanto, I. F., Hamidah, S., & Dewantara, R. (2021). The Urgency of Regulating Online Arbitration in Dispute Settlement of E -Commerce Transactions in Indonesia. International Journal of Multicultural and Multireligious Understanding, 8(7), 278. doi: 10.18415/ijmmu.v8i7.2847

²³Zuo, X., Dahlan, N. K., & Ahamat, H. (2024). Online dispute resolution mechanism for cross-border e-commerce: Empirical evidence from China. Journal of Infrastructure Policy and Development, 8(9), 6096. https://doi.org/10.24294/jipd.v8i9.6096>

²⁴Tiwary, P., & Pati, J. (2024). Harnessing Online Dispute Resolution (ODR) for Effective Conflict Resolution in E -Commerce Platforms: Opportunities and Challenges. Naturalista Campano, 28(1), 1933-1937.



nature²⁷. cross-border, and high-volume Transactions occur entirely in digital spaces, eliminating geographic barriers but also making legal enforcement more difficult. The borderless internet means that disputes often span multiple jurisdictions, creating uncertainty over applicable laws and enforcement mechanisms. Additionally, e-commerce transactions typically involve low individual monetary values but occur in vast quantities, making conventional litigation impractical due to disproportionate costs. The speed of online transactions also contributes to rapid dispute escalation, as consumers often make purchases without fully reviewing terms or inspecting products. These characteristics necessitate specialized approaches to dispute resolution that prioritize efficiency, accessibility, and adaptability.

2.2. International E-Commerce Laws with Special Reference to the Regulatory Framework in the EU

The exponential growth of the Internet has transformed e-commerce into a fundamental pillar of global economic development. The World Trade Organization (WTO) defines e-commerce as "the production, distribution, marketing, sale, or delivery of goods and services by electronic means," highlighting its role in enhancing productivity, facilitating international trade, and driving economic expansion²⁸. Recognizing its

- ²⁷Zheng, J. (2020). Online Resolution of E-Commerce Disputes. New York, NY, USA: Springer International Publishing. Chapter 2
- ²⁸WTO, Q. (1998). Work programme on electronic commerce. World Trade Organization Geneva.
- ²⁹Hibner, J. (2012). The development of an information society and electronic commerce in the European Union in the context of selected documents of the EU and international organisations. Comparative Economic Research. Central and Eastern Europe, 15(1), 103-118.

³¹Tsatsou, P., Elaluf-Calderwood, S., & Liebenau, J. (2010). Towards a taxonomy for regulatory issues in a digital business ecosystem in the EU. Journal of Information Technology, 25(3), 288-307. significance, international bodies such as the EU, the UNCITRAL, the WTO, and the OECD have collaborated to harmonize regulations and promote secure cross-border transactions²⁹. Within the EU, e-commerce has emerged as a key economic driver, enabling seamless cross-border trade and digital integration among member states³⁰. The EU's regulatory approach has evolved considerably since the 1990s, beginning with foundational initiatives like the 1994 Bangemann Report, which underscored the need for accelerated regulatory measures to capitalize on the potential of digital technologies³¹.

At the international level, UNCITRAL has played a pivotal role in standardizing e-commerce laws through key instruments such as the Model Law on Electronic Commerce (1996)³², which grants legal validity to electronic documents, signatures, and contracts³³. The Model Law on Electronic Signatures (2001) further strengthens trust in digital transactions by establishing security criteria for electronic signatures³⁴. Complementing these, Convention the UN on Electronic (2005)Communications addresses legal uncertainties in cross-border electronic contracts³⁵. Meanwhile, the WTO's Work Programme on Electronic Commerce (1998) examines digital trade under existing agreements, focusing on market access, intellectual property rights, and customs duties for digital products³⁶. The OECD contributes to this framework through its Guidelines for Consumer Protection (1999)³⁷,

- ³²Chapter, I., & III, Provisions, G. UNCITRAL Model Law on Electronic Commerce, 1996.
- ³³Moreno, C. (2001, April). Brief Overview of Selective Legal and Regulatory Issues in Electronic Commerce. In at International Symposium on Government and Electronic Commerce Development, Ningbo (China) (pp. 23-24).
- ³⁴United Nations Commission on International Trade Law. (2002). UNCITRAL Model Law on Electronic Signatures with Guide to Enactment, 2001. United Nations Publications. Article 3 & 12
- ³⁵United Nations Convention on the Use of Electronic Communications in International Contracts, Chapter III, art. 8-14.

³⁰(Hibner, 2012).

³⁶(WTO, 1998)



ensuring transparency in B2C transactions, and the Seoul Declaration (2008), which advocates for policies supporting a secure and open digital economy³⁸.

Within the EU, a comprehensive regulatory framework has been established to govern ecommerce. The E-Commerce Directive $(2000/31/EC)^{39}$ serves as a cornerstone, setting out principles for online services, including transparency, electronic contracts, and intermediary liability. The eIDAS Regulation (No. 910/2014)⁴⁰ enhances trust in digital transactions by standardizing electronic signatures and digital identities⁴¹. More recently, the Digital Services Act (DSA) has modernized the regulatory landscape by imposing stricter obligations on online platforms regarding transparency and due diligence⁴². Additionally, the Brussels I bis Regulation (No. 1215/2012) clarifies jurisdictional rules for crossborder disputes, while the Rome I Regulation ensures consumer protection by applying the law of the consumer's residence in transactions⁴³. Taxation in e-commerce has also been streamlined

- ³⁷Recommendation of the Council Concerning Guidelines for Consumer Protection in the Context of Electronic Commerce, OECD, 1999, C(99)184/FINAL
- ³⁸Organisation for Economic Co-operation and Development. (2008). The Seoul Declaration for the future of the internet economy. OECD Publishing.
- ³⁹Directive 2000/31 EN e-commerce directive -EUR-Lex. (n.d.). <http://data.europa.eu/eli/dir/2000/31/oj >
- ⁴⁰EUR-LEX-52021DC0290 EUR-Lex. (n.d.)
- <https://eur-lex.europa.eu/legalcontent/AUTO/?uri=CELEX:52021DC029 0&qid=1749385712616&rid=2>
- ⁴¹Hučková, R., Sokol, P., & Rózenfeldová, L. (2018). 4th industrial revolution and challenges for european law (with special attention to the concept of digital single market). EU and comparative law issues and challenges series (ECLIC), 2, 201-215.
- ⁴²Richart, J. L. (2024). A New Legal Framework for Online Platforms in the European Union (and Beyond). Rev. Eur. & Comp. L., 59, 149.

through the E-Commerce VAT Package (2017), simplifying tax compliance for online businesses⁴⁴. Despite these regulatory advancements, the EU continues to face challenges in achieving a fully integrated digital single market. Cross-border B2C e-commerce disputes frequently arise due to inefficiencies, logistical language barriers, divergent national laws, and unjustified geoblocking practices⁴⁵. High delivery costs, prolonged shipping times, and complex VAT regulations further exacerbate these issues, leading to consumer dissatisfaction⁴⁶. Although the EU has introduced measures such as simplified VAT rules and anti-geo-blocking regulations, disparities in consumer protection enforcement across member states persist, complicating dispute resolution⁴⁷. Consumer trust remains a critical concern, as hesitation to engage in cross-border transactions stems from perceived risks in data security and legal uncertainties⁴⁸.

To address these challenges, the EU must prioritize further regulatory harmonization, enhanced digital infrastructure, and increased consumer awareness.

- ⁴³De Sousa Gonçalves, A. S. (2017). Choice-ofcourt agreements in the e-commerce international contracts. Masaryk University Journal of Law and Technology, 11(1), 63–76. <<u>https://doi.org/10.5817/mujlt2017-14></u>
- ⁴⁴Papis-Almansa, M. (2019, October). VAT and electronic commerce: the new rules as a means for simplification, combating fraud and creating a more level playing field?. In Era Forum (Vol. 20, No. 2, pp. 201-223). Berlin/Heidelberg: Springer Berlin Heidelberg.
- ⁴⁵(Goncalves, 2017)
- ⁴⁶(Papis-Almansa, 2019).
- ⁴⁷Kalinić, Z., Ranković, V., & Kalinić, L. (2018). Challenges in Cross-border E-commerce in the European Union. Kraków Review of Economics and Management/Zeszyty Naukowe Uniwersytetu Ekonomicznego w Krakowie, (5 (977)), 159-170.
- ⁴⁸Papastergiou, S., & Polemi, D. (2009). A secure and trustful E-Ordering Architecture (TOES) for small and medium size Enterprises (SMEs). International Journal of Enterprise Information Systems, 5(2), 1–17. <<u>https://doi.org/10.4018/jeis.2009040101></u>



Initiatives such as the Digital Content & Sales Directives (2019) represent steps toward greater legal coherence, while global alignment with international e-commerce standards will be essential for fostering seamless digital trade⁴⁹. Strengthening cybersecurity measures and improving cross-border dispute resolution mechanisms will also be crucial in building consumer confidence and ensuring the sustainable growth of the digital economy. International ecommerce laws, particularly within the EU, play a vital role in shaping the future of global trade. While significant progress has been made through frameworks established by UNCITRAL, the WTO, the OECD, and the EU, ongoing collaboration and adaptation are necessary to address emerging challenges. By fostering regulatory harmonization, enhancing consumer trust, and leveraging technological advancements, the EU can solidify its position as a leader in the digital economy while ensuring a fair and secure environment for crossborder e-commerce⁵⁰.

3. AI-MEDIATION: A CONCEPTUAL FRAMEWORK

International organizations, such as UNCITRAL and the EU, have recognized the importance of ODR, developing frameworks to standardize and streamline cross-border dispute resolution. By incorporating technologies like AI and automated decision-making, ODR systems can enhance consistency and fairness while reducing delays⁵¹. As e-commerce continues to evolve, the adoption of ODR will be essential in maintaining trust and ensuring the smooth functioning of global digital

- ⁴⁹Kathuria, S., Grover, A., Perego, V. M. E., Mattoo, A., & Banerjee, P. (2019). Unleashing e-commerce for South Asian integration. World Bank Publications.
- ⁵⁰Shoukat, D. (2025a). Resolving Civil-Commercial Disputes through Mediation in Pakistan: Legal Framework, Sector-Specific Application, and Digital Trends. Journal for Social Science Archives, 3(2), 278–309. <<u>https://doi.org/10.59075/jssa.v3i2.237></u>
- ⁵¹Shoukat, D., Abuzar, M. U., & Shah, Q. Z. U. (2025b). Al-Enhanced Online Dispute Resolution for Family Disputes: Examining Global Trends, Models, Mechanisms, and Ethical Challenges in Pakistan. The Critical

markets. The rapid growth of cross-border ecommerce has brought both opportunities and challenges, with dispute resolution representing a particularly complex issue. Traditional legal mechanisms are often ill-equipped to handle the virtual, cross-border, and high-volume nature of ecommerce conflicts, leading to inefficiencies and inconsistencies. Given the limitations of traditional legal systems in handling e-commerce disputes, AI enhanced ODR systems have emerged as a critical solution. ODR leverages digital tools to provide efficient, cost-effective, and accessible dispute resolution without requiring physical presence. Its alignment with the virtual and instantaneous nature of e-commerce makes it particularly suited to address high-volume, lowvalue disputes. ODR offers a promising alternative, providing a flexible and scalable approach that aligns with the digital economy's demands⁵². By embracing ODR and fostering international cooperation, stakeholders can create a more equitable and efficient system for resolving ecommerce disputes, ensuring the continued growth and stability of global online trade

AI Mediation is an emerging field that bridges AI and traditional mediation processes. Despite increasing interest, there remains a notable gap in empirical research and practical examples that could advance discussions on how AI-based tools can meaningfully enhance mediators' understanding of conflicts⁵³. This nascent field presents an opportunity to explore AI's potential through established theoretical frameworks, such as mediation theory and media pluralism⁵⁴. A key conceptual foundation is the recognition that AI

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<https://doi.org/10.59075/chm5qd21>

- ⁵²Akhtar, N., Khan, A., Habib, R. I., & Saleem, H. A. R. (2022). Online dispute resolution as a solution to E-Commerce disputes: a comparative study of Pakistan and UK. Journal of Contemporary Issues in Business and Government, 28.
- ⁵³Arana-Catania, M., Van Lier, F. A., & Procter, R. (2021). Machine Learning for Mediation in Armed Conflicts. arXiv preprint arXiv:2108.11942.
- ⁵⁴Verhulst, S.G. (2023). Steering Responsible AI: A Case for Algorithmic Pluralism. ArXiv, abs/2311.12010.

does not operate in isolation from human intelligence. Instead of viewing AI and human cognition as opposing forces, they should be understood as complementary, symbiotic, and inseparable. This collaborative dynamic is already evident in international peacemaking, where organizations like the UN deploy AI alongside human analysts to monitor social media for misinformation or predict electoral violence⁵⁵.

To situate AI Mediation within broader theoretical discourse, typology of mediation offers a useful framework: mediation by human agents, systems of symbolic representation, and mediation via technological tools. AI systems intersect with all three elements, either integrating them into the mediation process or mediating between specific components⁵⁶. This framework helps clarify how AI contributes to meaning-making in mediated environments. AI can enhance mediation in several ways, making the process faster, more efficient, and data-driven. It can rapidly process large volumes of legal documents, emails, and evidence to extract key arguments, past interactions, and areas of disagreement, allowing mediators to focus on core disputes. Predictive analysis enables AI to assess communication patterns and suggest compromise solutions based on historical data. Additionally, AI can simplify complex technical, financial, or legal jargon, ensuring all parties understand the issues. By reducing the time spent on manual document review, AI lowers costs for clients and makes dispute resolution more accessible. Furthermore, if programmed, AI can properly minimize unconscious human biases, ensuring fairer and more consistent outcomes⁵⁷. The transformative potential of Generative AI (GenAI) in mediation is already being realized in practical applications.

- ⁵⁵Hirblinger, A.T. (2022). When Mediators Need Machines (and Vice Versa): Towards a Research Agenda on Hybrid Peacemaking Intelligence. International Negotiation.
- ⁵⁶Fanni, R., Steinkogler, V.E., Zampedri, G., & Pierson, J. (2022). Enhancing human agency through redress in Artificial Intelligence Systems. Ai & Society, 38, 537 - 547.
- ⁵⁷McLeish, D. (2025, February 26). Is AI the future of mediation? BTO Solicitors LLP Glasgow https://bto.co.uk/blog/is-ai- Edinburgh. the-future-of-mediation/>

GenAI assists in document summarization and analysis, case research, drafting mediation briefs settlement agreements, identifying generating creative and gaps,

information settlement options based on historical data⁵⁸. These advancements highlight how AI is not just a futuristic concept but an active tool reshaping mediation and dispute resolution.

and

3.1. Models of AI Mediation: Support vs. Substitutive

Mediation relies heavily on key competencies such as linguistic proficiency, active listening, and emotional intelligence. Effective mediators must articulate complex concepts clearly while interpreting subtle verbal and nonverbal cues to understand disputing parties' underlying concerns. These human capabilities prove particularly valuable in emotionally charged conflicts where interpersonal dynamics significantly influence outcomes⁵⁹. AI, particularly advanced language models like ChatGPT, demonstrates complementary strengths in mediation contexts. Such systems can produce coherent, persuasive discourse, process extensive datasets to detect recurring conflict patterns, and create simulated scenarios for training purposes. However, while AI excels in information processing and structured response generation, it cannot genuinely replicate human capacities for emotional connection and behavioral adaptation in unpredictable situations⁶⁰.

Current applications of AI in mediation follow distinct operational frameworks. The Support Model positions AI as a supplementary tool that assists human practitioners by automating administrative functions such as scheduling and documentation while providing analytical insights.

- ⁵⁸Llc, F. L., & Flake, A. (2024, October 7). Generative AI in mediation: Ethical considerations. Flake Law, LLC. <https://flakelaw.com/generative-ai-inmediation-ethical-considerations/>
- ⁵⁹Alsamhan, E. (2023). AI and online dispute resolution: mediation. Journal of Scientific Development for Studies and Research (JSD), 4(13), 283-300.
- ⁶⁰Lardy M, (Mediate.com, 6 December 2024), 'Mediation and Ai: The Silent Revolution' <a>https://mediate.com/mediation-and-ai-the- silent-revolution/> accessed 9 June 2025



In this capacity, AI systems can efficiently summarize legal arguments, identify historical settlement trends, draft preliminary mediation statements, and analyze party positions to help refine contentious issues⁶¹. This division of labor enables human mediators to concentrate on relationship-building and nuanced negotiation aspects while delegating data-intensive tasks to AI. A hybrid approach appears most promising, combining AI's computational strengths with human mediators' emotional intelligence and adaptive reasoning. Such integration preserves the human-centric nature of conflict resolution while leveraging technological efficiency⁶². By contrast, the Substitutive Model advocates for fully automated mediation systems capable of conducting inquiries, facilitating discussions, and even rendering decisions. Although AI can propose settlement terms and identify negotiation deadlocks, substantial limitations persist regarding emotional intelligence⁶³. Current technology struggles to manage highly charged disputes requiring genuine empathy or respond effectively to aggressive or irrational behavior. The nonverbal interpretation of subtle communication-a critical component of successful mediation-remains particularly challenging for AI systems⁶⁴.

Psychological research has investigated **AI's** capacity for emotional understanding through standardized human assessments. In controlled testing using the Levels of Emotional Awareness Scale (LEAS), ChatGPT demonstrated superior performance to human participants in emotion recognition and description, with further improvement in subsequent evaluations. Similar results emerged from emotional intelligence assessments (EIS and WLEIS), where AI systems scored above human averages in emotional

- ⁶¹Chandler, K., & Caskie, M. (2024, August 15). AI in focus: Would you engage in an AI mediation? Taylor Wessing. <<u>https://www.taylorwessing.com/en/insight</u> s-and-events/insights/2024/08/ai-in-focuswould-you-engage-in-an-ai-mediation>
- ⁶²McLeish, D. (2025, February 26). Is AI the future of mediation? BTO Solicitors LLP Glasgow Edinburgh. https://bto.co.uk/blog/is-aithe-future-of-mediation/>
- ⁶³Alessa, H. (2022). The role of Artificial Intelligence in Online Dispute Resolution: A

perception. These findings indicate that AI can effectively simulate empathic responses-a capacity traditionally regarded as fundamental to mediation. For instance, AI systems can differentiate between expressed positions ("I demand higher compensation") and underlying interests ("I seek financial stability"). Nevertheless, while AI may approximate certain dimensions of emotional intelligence, authentic human connection and intuitive understanding remain uniquely human attributes⁶⁵. The optimal mediation framework will likely continue to combine human judgment with AI's analytical capabilities, rather than relying exclusively on either approach.

3.2. Roles and Functions of AI in Mediation

The integration of AI into mediation processes has transformed traditional dispute resolution by augmenting human mediators, providing analytical insights, and even enabling autonomous mediation systems. While AI enhances efficiency and decision-making, its implementation also raises ethical and operational challenges that necessitate further scrutiny. This section examines AI's multifaceted roles in mediation, highlighting its benefits, limitations, and future potential.

3.2.1. Augmenting Human Mediators

AI serves as a valuable tool in supporting human mediators by automating routine tasks, offering real-time assistance, and enhancing training methodologies. AI streamlines logistical aspects of mediation, such as scheduling sessions, managing documentation, and transcribing communications⁶⁶. Tools like *CalendarHero* for scheduling and *Sonix* for automated transcriptions reduce administrative burdens, allowing mediators to focus on substantive dispute resolution⁶⁷.

brief and critical overview. Information & Communications Technology Law, 31(3), 319-342.

⁶⁴Ibid.

⁶⁵(Lardy, 2024)

- ⁶⁶Abbott, R., & Elliott, B. S. (2022). Putting the artificial intelligence in alternative dispute resolution: how AI rules will become ADR rules. Amicus curiae, 4, 685.
- ⁶⁷Achar, A. (n.d.). Practical Applications of AI in Mediation: CPR Committee Meeting



During negotiations, AI systems can identify key terms, suggest potential settlement options, and flag optimal moments for mediator intervention. For instance, eBay's ODR system employs AI to facilitate efficient conflict resolution by analyzing negotiation patterns in real time⁶⁸. AI-powered simulations enable mediators to practice conflict resolution in controlled environments with adjustable difficulty levels. Systems such as NVC Mediation AI provide feedback on communication techniques, helping mediators refine their skills in nonviolent communication⁶⁹.

3.2.2. Analytical and Predictive Functions

AI enhances mediation strategies by leveraging data-driven insights and predictive analytics. By analyzing legal precedents, social media trends, and disputant histories, AI identifies underlying patterns that inform mediation approaches⁷⁰. Such analyses enable mediators to tailor their strategies based on empirical evidence rather than intuition alone. AI models forecast litigation outcomes with increasing accuracy. For example, A study by researchers from the University of Cambridge, University of Zurich, and the London School of Economics demonstrated that machine learning could predict court decisions based on case text analysis. Additionally, AI assesses disputants' risk tolerance by evaluating personality traits, achieving a 72% accuracy rate in some studies⁷¹. Advanced

Highlights - International Institute for Conflict Prevention & Resolution, Inc.

- https://www.cpradr.org/news/practical-applications-of-ai-in-mediation-cpr-committee-meeting-highlights
- ⁶⁸Dan, W., Xiangbin, Z., & Huanhuan, D. (2024). Research on the Application of Mediation Model Based on Deep Learning in Dispute Resolution. IEEE Access.
- ⁶⁹Kato, T. (2023). Generative AI trial for nonviolent communication mediation. ArXiv, abs/2308.03326.
- ⁷⁰Hirblinger, A.T. (2022). When Mediators Need Machines (and Vice Versa): Towards a Research Agenda on Hybrid Peacemaking Intelligence. International Negotiation.
- ⁷¹de Nobrega, VM (2025). Mediation and Artificial Intelligence: Ethical, Legal and Societal Challenges and Questions. French-language electronic journal/N 5 January 2025, 17.

AI models simulate dispute scenarios—such as humanitarian crises—to predict potential outcomes and guide preemptive interventions⁷². These simulations assist mediators in developing proactive resolution strategies.

3.2.3. Autonomous and Semi-Autonomous Mediation

AI's role extends beyond support functions to direct involvement in dispute resolution. AI modifies or generates messages to optimize fairness and efficiency in negotiations. Some researches highlights how AI can restructure communication to reduce hostility and promote constructive dialogue⁷³. Large language models (LLMs) such as LLMediator draft mediator-style messages, while Mediator-Bots encourage critical reflection in online debates⁷⁴. These tools demonstrate AI's potential to partially replace human mediators in structured environments⁷⁵. While fully autonomous AI mediation promises low-cost, scalable dispute resolution, concerns about algorithmic bias and distrust among parties remain significant barriers⁷⁶.

Despite its advantages, AI mediation faces notable limitations. AI cannot fully replicate human empathy, which is crucial in emotionally charged disputes. Additionally, parties may distrust

- ⁷²Idejiora-Kalu, N. (2024). Epistemology in AI (Transdisciplinary AI). Transdisciplinary Journal of Engineering & Science, 15.
- ⁷³Guerrero-Solé, F. (2022). IMAGINE: An Integrated Model of Artificial Intelligence-Mediated Communication Effects. ArXiv, abs/2212.08658.
- ⁷⁴Govers, J., Velloso, E., Kostakos, V., & Goncalves, J. (2024). AI-Driven Mediation Strategies for Audience Depolarisation in Online Debates. Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems.
- ⁷⁵Westermann, H., Šavelka, J., & Benyekhlef, K. (2023). LLMediator: GPT-4 Assisted Online Dispute Resolution.
- ⁷⁶Yoon, S., Yang, S., Choi, J., Park, W., & Hwang, I. (2025). Chatperone: An LLM-Based Negotiable Scaffolding System for Mediating Adolescent Mobile Interactions. ArXiv, abs/2504.17997.



algorithmic fairness, preferring human judgment⁷⁷. AI systems may inherit biases from training data, leading to unfair outcomes. Regulatory challenges, such as compliance with the General Data Protection Regulation (GDPR), further complicate AI's deployment in mediation⁷⁸. To address these challenges, researchers advocate for hybrid human-AI mediation frameworks. Combining human mediators' emotional intelligence with AI's analytical capabilities may optimize outcomes. For example, humans could manage interpersonal dynamics while AI processes data-driven insights⁷⁹. AI can assist in preliminary stages by identifying key stakeholders and non-financial resolution options, streamlining the mediation process. Given rising litigation costs, there is an urgent need to institutionalize AI tools in mediation while addressing ethical and operational concerns⁸⁰.

3.3. AI Dispute Resolution Systems: A Spectrum of Human Involvement

The integration of AI into dispute resolution has led to the development of AI Dispute Resolution (AIDR) systems, which operate along a spectrum of human involvement. These systems can be broadly categorized into two models: assistive AI and automated AI, each serving distinct functions in the resolution process⁸¹. Assistive AI systems are designed to augment human mediators by managing logistical tasks and providing data-driven insights. For instance, such systems may analyze case histories, identify patterns, or generate predictive analytics to inform mediator decisions⁸². By streamlining administrative processes and enhancing decision-making with empirical evidence, assistive AI allows mediators to focus on complex, nuanced aspects of dispute resolution. In

- ⁷⁹Cardona, N. J. (2022b). La Mediación Mercantil Ante los Nuevos Retos de la Inteligencia Artificial: Una Visión Comparada Entre los Ordenamientos Jurídicos Español e Italiano. REVISTA INTERNACIONAL CONSINTER DE DIREITO, 493–505. <https://doi.org/10.19135/revista.consinter .00015.24>
- ⁸⁰Terekhov, V. (2025, April 1). AI Dispute Resolution: How Mediation and Arbitration with Artificial Intelligence is Possible? Attract Group.

contrast, automated AI systems operate with minimal human intervention, often making binding decisions in structured disputes. A prominent example is British Columbia's Civil Resolution Tribunal, which employs automated negotiation for certain cases, reverting to human mediators only when the AI fails to facilitate a resolution⁸³. While this model increases efficiency and scalability, its effectiveness depends on the complexity of the dispute and the system's ability to interpret contextual factors.

These models align with the theoretical framework, which posits that AI serves as an intermediary between human agents, symbolic systems, and technological infrastructure⁸⁴. The assistive and automated approaches illustrate varying degrees of AI mediation, reflecting a trade-off between human oversight and operational autonomy. However, gaps remain in understanding the long-term implications of automated decision-making, particularly in cases requiring empathy or subjective judgment. Further research is needed to assess the ethical and practical boundaries of AI's role in dispute resolution. This section highlights the evolving landscape of AIDR systems while underscoring the need for balanced integration of human and machine capabilities.

3.4. Current AI-Powered Tools in Mediation and Dispute Resolution

Recent advancements in AI have led to the development of innovative tools that enhance mediation and dispute resolution processes. These technologies assist human mediators by improving efficiency, reducing biases, and facilitating more informed decision-making. This section examines key AI applications in the field, categorizing them

<https://attractgroup.com/blog/ai-disputeresolution-how-mediation-and-arbitrationwith-artificial-intelligence-is-possible/>

⁸¹Rajendra, J.B., & Thuraisingam, A.S. (2021). The deployment of artificial intelligence in alternative dispute resolution: the AI augmented arbitrator. Information & Communications Technology Law, 31, 176 -193.

⁸²(Fanni, 2022)

⁷⁷(Govers, 2024)

⁷⁸(McLeish, 2025)

⁸³Ibid.

⁸⁴Ibid.



based on their primary functions and contributions to conflict resolution.

suggestions and outcome predictions based on linguistic patterns⁸⁹.

3.4.1. AI for Communication and Negotiation Support

One prominent application of AI in dispute resolution is the optimization of communication between conflicting parties. LLMediator, an experimental platform leveraging LLMs such as GPT-4, exemplifies this approach by reformulating emotionally charged messages into more conciliatory language, thereby fostering productive negotiations⁸⁵. Additionally, the platform autonomously intervenes in negotiations when necessary and generates draft suggestions for mediators, making it particularly useful for lowvalue disputes where human mediation may be cost-prohibitive⁸⁶. Similarly, ODR Platforms integrate AI to expedite the settlement of transnational claims, utilizing digital collaboration tools (e.g., video, audio, and text-based interfaces) mediation to streamline and arbitration processes⁸⁷.

3.4.2. AI for Conflict Monitoring and Early Warning

AI also plays a critical role in identifying and mitigating emerging conflicts. The UN Innovation Cell Tools employ data mining and AI techniques to monitor social media, detect misinformation, and analyze radio broadcasts in conflict zones such as Somalia⁸⁸. By identifying trending topics and potential indicators of violence, these tools enable preemptive interventions. Complementing this, Deep Learning NLP Tools analyze vast amounts of textual data from disputes, offering mediation

⁸⁵Tan, J., Westermann, H., Pottanigari, N.R., Šavelka, J., Meeùs, S., Godet, M., & Benyekhlef, K. (2024). Robots in the Middle: Evaluating LLMs in Dispute Resolution.

⁸⁸Arana-Catania, M., Lier, F.A., & Procter, R. (2021). Machine Learning for Mediation in Armed Conflicts.

3.4.3. AI for Data Visualization and Decision Support

To aid mediators in interpreting complex conflict data, AI-powered visualization tools have been developed. Data Dashboards present analytical insights in accessible formats, ensuring mediators retain decision-making authority while benefiting from enhanced data processing capabilities⁹⁰. Another notable tool, *OpMAP*, transforms multidimensional opinion spaces into geographic-style maps, using Bayesian coherence measures to illustrate the relationships between different viewpoints⁹¹. Such tools help mediators navigate intricate disputes by clarifying the alignment and divergence of stakeholder positions.

3.4.4. AI for Legal and Document Analysis

In legal dispute resolution, AI systems are increasingly used to process and analyze documentation. Al-powered Document Analysis Systems employ explainable AI (XAI) to extract relevant statements from legal texts, providing judges mediators with and reliable recommendations suitability on case for mediation⁹². Similarly, Legal Assistant AI Platforms-akin to tools like Harvey in the legal sector-could be adapted for ADR to assist in contract analysis, due diligence, and multilingual communications, thereby reducing procedural burdens⁹³.

learning classification for cognitive radios. China Communications, 17, 138-148.

- ⁹¹Betz, G., Hamann, M., Mchedlidze, T., & Schmettow, S.V. (2018). Applying argumentation to structure and visualize multi-dimensional opinion spaces. Argument & Computation, 10, 23 - 40.
- ⁹²Collini, E., Nesi, P., Raffaelli, C., & Scandiffio, F. (2024). Explainable Artificial Intelligence for Agile Mediation Propensity Assessment. IEEE Access, 12, 37782-37798.

⁸⁶(Westermann, 2023)

⁸⁷(Abbott, 2022)

⁸⁹Zheng, S., Chen, S., Qi, P., Zhou, H., & Yang, X. (2019). Spectrum sensing based on deep

⁹⁰(Arana-Catania, 2021)

⁹³(Abbott, 2022)



3.4.5. Hybrid Human-Machine Mediation Systems

A growing trend in AI-assisted dispute resolution is the development of Hybrid Human-Machine Systems, where AI supports rather than replaces human mediators. These platforms enhance mediators' capabilities by automating information gathering and analysis, particularly in complex peace processes, while ensuring human oversight central⁹⁴. remains Likewise, AI-Enhanced Arbitration Systems assist arbitrators by collecting evidence⁹⁵, and analyzing generating recommendations, and predicting case outcomes⁹⁶. Despite these advancements, challenges remain, algorithmic bias, including concerns over transparency in AI decision-making, and the ethical implications of automating dispute resolution. Future research should explore how these tools can be refined to ensure fairness, accountability, and accessibility across diverse legal and cultural contexts.

3.5. The ASPEN Protocol: A Framework for AI Integration

The ASPEN Protocol provides a structured fivestep framework for legal professionals to responsibly integrate AI and technology into dispute resolution processes⁹⁷. The first step, Awareness & Education, emphasizes staying informed about legal technology trends through blogs, webinars, and professional networks, while encouraging experimentation with AI tools in low-risk scenarios to build familiarity. The second step, Strategies & Protocols, involves establishing clear policies on AI application, including defined roles, workflows, and communication channels to ensure systematic implementation mediation in processes. **Preparation & Practice**, the third step, highlights the importance of training and simulations, such as mock AI-assisted mediations, as well as piloting

⁹⁶Agus, A., Sudirman, S., Umar, W., & Rustan, A. (2023). The Use of Artificial Intelligence in AI tools in real cases under expert supervision to refine their practical use.

The fourth step, **Education** (Continued Learning), underscores the need for ongoing monitoring of emerging AI developments—such as advancements in LLMs like ChatGPT-4 and Claude 3—and active participation in ethical discussions surrounding AI's role in dispute resolution.

Finally, the fifth step, Notice & Transparency, stresses the necessity of obtaining informed client consent regarding AI usage and addressing privacy concerns, particularly in relation to data security when employing AI-powered transcription or analysis tools. This protocol not only offers a practical roadmap for AI adoption but also addresses critical ethical and procedural considerations, ensuring that technological integration aligns with professional standards and client expectations. However, further research is needed to assess the protocol's effectiveness across diverse legal contexts and its adaptability to rapidly evolving AI capabilities.

4. ETHICAL CONCERNS IN AI-MEDIATED DISPUTE RESOLUTION

AI-mediated dispute resolution represents an emerging paradigm at the intersection of AI and traditional conflict resolution, leveraging technologies to enhance efficiency and accessibility in justice systems. These systems are increasingly deployed across diverse contexts-including online marketplaces, judicial frameworks, and ADR forums-with capabilities ranging from basic case management tools to advanced platforms capable of analyzing legal arguments and proposing or enforcing resolutions. The rapid adoption of AI Mediation has been driven by the escalating volume of digital disputes, the inefficiencies and high costs of conventional legal processes, and advancements in AI, which collectively underscore its potential to reduce expenses, expedite

Dispute Resolution Through Arbitration: The Potential and Challenges. SASI.

⁹⁷Thórisson, K. R., List, T., DiPirro, J., & Pennock, C. (2005). A Framework for AI Integration. Reykjavik University Department of Computer Science Technical Report, RUTR-CS05001.

⁹⁴(Hirblinger, 2022)

⁹⁵Azab, R.S., & Ismail, H.H. (2024). AI as a tool to enhance digital arbitration effectiveness (Analytical study under silicon valley arbitration center guidelines). Edelweiss Applied Science and Technology.



resolutions, and address disputes that might otherwise remain unresolved due to financial or logistical barriers. However, while AI Mediation offers measurable benefits, its integration raises critical ethical concerns regarding procedural fairness, transparency, and the preservation of justice as a fundamentally human endeavor. These tensions highlight the need to balance technological efficiency with the safeguarding of equitable processes, emphasizing the importance of ethical scrutiny in the development and implementation of AI within this sensitive domain.

4.1. Transparency and Explainability Concern

A major ethical concern in AI-assisted dispute resolution is the lack of transparency in how these systems operate. Many AI models function as "black boxes", meaning their decision-making processes are either hidden or too complex for users to understand⁹⁸. This opacity directly conflicts with fundamental legal principles, such as the right to a clear explanation for a decision and the ability to appeal it, leading to serious concerns about fairness and due process⁹⁹. To foster trust in AI-based legal systems, mechanisms must be put in place to make AI decision-making more transparent. Studies indicate that transparency is crucial for ethical AI implementation, requiring that individuals affected by automated decisions understand how those decisions were reached¹⁰⁰. Without such clarity, the credibility of AI-driven dispute resolution could be significantly weakened. The issue of explainability is especially problematic in deep learning models, which are notoriously difficult to interpret due to their complex

- ⁹⁸Rathod, V.P. (2023). Justice Augmented: Navigating the Ethical and Legal Terrains of AI Integration in International Criminal Proceedings. DME Journal of Law.
- ⁹⁹John, A.M., U., A.M., & Panachakel, J.T. (2023). Ethical Challenges of Using Artificial Intelligence in Judiciary. 2023 IEEE International Conference on Metrology for eXtended Reality, Artificial Intelligence and Neural Engineering (MetroXRAINE), 723-728.

architectures. In legal settings—where decisions must be justifiable—this lack of clarity creates serious ethical concerns¹⁰¹. Some experts advocate for a *"right to explanation"* which would legally require AI systems to provide understandable justifications for their decisions¹⁰². Critics argue that AI's transparency issues are so severe that fully automated decision-making should never replace human judgment in legal disputes¹⁰³. Others take a more balanced view, suggesting that AI could be used in specific, low-risk cases, such as routine, high-volume claims¹⁰⁴. Regardless of the approach, ensuring transparency and explainability is essential to maintaining public trust in AI-assisted legal processes.

4.2. Biasness Concerns

The potential for bias in AI-mediated dispute resolution poses a significant ethical challenge, threatening fundamental principles of justice and fairness. AI systems risk perpetuating and amplifying societal biases embedded in their training data, leading to discriminatory outcomes that compromise equitable legal treatment¹⁰⁵. These concerns are not merely hypothetical; rather, they represent tangible risks with profound implications, particularly in legal contexts where impartiality is essential. A critical factor exacerbating bias in AI systems is the lack of diversity among their developers. AI design teams remain predominantly homogeneous, often dominated by a narrow demographic that does not reflect the global population affected by these technologies. This homogeneity can result in systemic blind spots, where AI models fail to

¹⁰⁰Mohan, B., & Dutta (2023). The Ethics of Artificial Intelligence in Legal Decision Making: An Empirical Study. psychologyandeducation.

¹⁰¹(Rathod, 2023)

¹⁰²Gaubienė, N. (2024). Can Artificial Intelligence Engage in the Practice of Law as the Art of Good and Justice? Filosofija. Sociologija.

¹⁰³(John et al., 2023)

¹⁰⁴(Rathod, 2023)

¹⁰⁵Vargas-Murillo, A.R., Pari-Bedoya, I.N., Turriate-Guzmán, A.M., Delgado-Chávez, C.A., & Sanchez-Paucar, F. (2024). Transforming Justice: Implications of Artificial Intelligence in Legal Systems. Academic Journal of Interdisciplinary Studies.



account for the varied experiences and needs of diverse user groups¹⁰⁶. Consequently, the perspectives and values encoded into these systems may inadvertently reinforce existing inequalities.

Further complicating the issue is the reliance on historical data, which frequently contains entrenched biases. When such data trains dispute resolution algorithms, the resulting systems may produce unfair or inaccurate outcomes, directly contradicting the legal system's commitment to decision-making¹⁰⁷. impartial Even minor algorithmic biases can have severe repercussions, disproportionately affecting individuals' legal rights and access to justice¹⁰⁸. This presents a pressing ethical dilemma: while AI promises efficiency and scalability in dispute resolution, its potential to replicate and exacerbate bias undermines its reliability in legally consequential contexts. Addressing these challenges necessitates a comprehensive, multi-stage approach to bias mitigation. Schmitz¹⁰⁹ propose a framework that integrates bias management across three phases: pre-design, design and development, and deployment. Such an approach underscores the importance of proactive measures throughout an AI system's life cycle, rather than relying on post hoc corrections.

Given these risks, many scholars advocate for a restrained implementation of AI in dispute resolution. Some suggest that AI should function in an advisory capacity, providing recommendations to human adjudicators rather than rendering final judgments autonomously. Human oversight remains crucial as a safeguard to ensure fairness and accountability¹¹⁰. AI may be better suited for specific dispute categories-such as high-volume, low-stakes cases with well-defined legal parameters-where the risks of bias are comparatively lower. Ultimately, mitigating bias in

AI-mediated dispute resolution demands deliberate and sustained efforts. This includes rigorous auditing to identify and rectify errors in AI models, as well as the establishment of ethical guidelines to prevent the reinforcement of discriminatory patterns from historical data¹¹¹. These measures are vital not only for preserving public trust in AI-enhanced legal systems but also for ensuring that technological advancements promote, rather than hinder, equitable access to justice¹¹².

4.3. Privacy Concern and Data Protection

The incorporation of AI into dispute resolution mechanisms presents significant privacy and data protection concerns that must be carefully managed to uphold the fairness and legitimacy of legal processes. AI systems depend on vast datasets to operate effectively, often processing highly sensitive personal information, including medical histories, financial records, and criminal backgrounds¹¹³. The aggregation and analysis of such data create inherent tensions with individual privacy rights, necessitating stringent measures to ensure secure and ethical data handling. Regulatory frameworks, such as the European Union's GDPR, underscore the critical need for responsible data management in automated decision-making systems. Article 14 of the GDPR, for instance, outlines principles for transparency and accountability in the processing of personal data, emphasizing that trust in AI-assisted dispute resolution hinges on compliance with these standards¹¹⁴. Beyond legal requirements, AI systems pose additional risks due to their capacity to infer intimate psychological traits from digital behavior, potentially exceeding the scope of informed consent¹¹⁵. Such capabilities raise ethical dilemmas regarding the extent to which parties in

<https://doi.org/10.2139/ssrn.4936638>

¹⁰⁶(John et al., 2023)

¹⁰⁷(Gaubienė, 2024)

¹⁰⁸Wu, Y., Zhou, S., Liu, Y., Lu, W., Liu, X., Zhang, Y., Sun, C., Wu, F., & Kuang, K. (2023). Precedent-Enhanced Legal Judgment Prediction with LLM and Domain-Model Collaboration. ArXiv, abs/2310.09241.

 ¹⁰⁹Schmitz, A.J., & Zeleznikow, J. (2021). Intelligent Legal Tech to Empower Self-Represented Litigants. Remedies eJournal.
 ¹¹⁰(Wu et al., 2023)

¹¹¹(Gaubienė, 2024)

¹¹²(Shoukat et al., 2025b)

¹¹³(Mohan et al., 2023)

¹¹⁴Peters, S. (2021). The evolution of alternative dispute resolution and online dispute resolution in the European Un. CES Derecho.

¹¹⁵Broyde, M. J., & Mei, Y. (2024). Don't Kill the Baby: The case for AI in arbitration. NEW YORK UNIVERSITY JOURNAL OF LAW & BUSINESS, 21(1).



a dispute are aware of—and have agreed to—the depth of profiling conducted by AI tools¹¹⁶.

Confidentiality, a cornerstone of many dispute resolution processes-particularly in Arbitration and Mediation-may also be jeopardized if AI systems lack robust privacy safeguards¹¹⁷. This conflict between AI's data-intensive nature and the expectation of discretion in legal proceedings highlights the need for balanced solutions that reconcile technological efficiency with fundamental privacy rights. Ensuring responsible data storage, usage, and access controls is thus essential to fostering public confidence in AIenhanced judicial systems¹¹⁸. Without adequate protections, resistance to AI adoption in dispute resolution may intensify, as individuals and institutions remain wary of potential privacy violations. To address these challenges, a comprehensive approach should integrate transparency in data processing, explicit consent mechanisms, and advanced security protocols to prevent unauthorized data breaches or misuse. These measures are not only vital for regulatory adherence but also for safeguarding the right to privacy, ensuring that AI's role in dispute resolution aligns with ethical and legal standards. By prioritizing data protection, stakeholders can mitigate risks while harnessing AI's potential to improve the efficiency and accessibility of justice systems.

4.4. Accountability and Human Oversight

The increasing integration of AI into dispute resolution mechanisms has prompted critical discussions regarding accountability and the optimal balance between automation and human oversight. Scholars argue that AI should serve as an assistive tool rather than a replacement for human

- ¹¹⁶ Matz, S.C., Kosinski, M., Nave, G., & Stillwell, D. (2017). Psychological targeting as an effective approach to digital mass persuasion. Proceedings of the National Academy of Sciences of the United States of America, 114, 12714 - 12719.
- ¹¹⁷solhchi, m., & baghbanno, f. (2023). artificial intelligence and its role in the development of the future of arbitration. international journal of law in changing world.
 ¹¹⁸(John et al., 2023)

adjudicators, particularly in legal settings where decisions significantly affect individual rights and access to justice. Some scholars emphasize, human judges must remain the ultimate arbiters to ensure fairness, even when AI systems provide analytical support or recommendations¹¹⁹.

4.4.1. Limitations of AI in Legal Reasoning and Emotional Intelligence

A key justification for retaining human oversight lies in the inherent limitations of AI in legal reasoning. Current machine learning systems lack the capacity for genuine legal interpretation; instead, they identify patterns within legal datasets, which fails to replicate the nuanced reasoning employed by human jurists. Additionally, AI systems are incapable of assessing psychological and intentional aspects of human behavior—such as fault or intent—which are often central to legal determinations¹²⁰. This deficiency underscores the necessity of human involvement in dispute resolution, particularly in cases requiring emotional intelligence and moral judgment.

4.4.2. Accountability Challenges in Judicial Settings

The ethical implications of AI adoption in courts further complicate accountability, given the judiciary's foundational principles of transparency, impartiality, and procedural fairness. As courts expand their functions through AI integration, new accountability gaps may emerge unless robust governance frameworks are implemented¹²¹. The European Commission has addressed these concerns by advocating for human-centered AI development, emphasizing transparency and responsibility as critical components in fostering public trust. Such principles suggest that the most

¹¹⁹(Wu et al., 2023)

- ¹²⁰Mantelero, A. (2022). Electronic Democracy and Digital Justice: Driving Principles for AI Regulation in the Prism of Human Rights. Direito Público.
- ¹²¹Anderson, D. Q. (2018). Ethical concerns in Court-Connected online dispute resolution. International Journal of Online Dispute Resolution, 5(1–2), 20–38. https://doi.org/10.5553/ijodr/235250022 018005102004>



effective dispute resolution systems will combine computational efficiency with human expertise¹²².

4.4.3. Ethical Concerns and the Role of Human Judgment

Critics caution against over-reliance on AI decision-making, noting that algorithmic processes operate without moral or emotional considerations, potentially leading to outcomes misaligned with societal values¹²³. This aligns with broader ethical debates highlighting AI's inability to incorporate empathy and lived experiencequalities many scholars deem essential for equitable justice¹²⁴. Furthermore, AI-mediated negotiations may hinder effective communication between disputing parties, particularly in cases where preserving long-term relationships is crucial¹²⁵. The impersonal nature of automated systems could undermine the relational dynamics central to traditional dispute resolution.

4.4.4. Toward a Framework for Responsible AI Implementation

To mitigate these challenges, scholars propose establishing clear accountability mechanisms, including transparent AI decision-making processes and delineating responsibility between developers and end-users. Such measures are vital to ensuring AI applications adhere to ethical standards and uphold principles of justice¹²⁶. While some argue against fully automated dispute resolution, others advocate for a hybrid approach, limiting AI to high-volume, low-complexity cases with well-defined legal parameters¹²⁷. This targeted use of automation may optimize efficiency while preserving human oversight where it is most critical. In summary, while AI offers significant potential to enhance dispute resolution, its implementation must be carefully regulated to maintain accountability, ethical integrity, and the indispensable role of human judgment. Future research should explore governance models that balance automation with oversight, ensuring AI complements rather than displaces the human elements essential to justice.

4.5. The Impact of AI on Human Elements in Dispute Resolution

The integration of AI into dispute resolution processes has fundamentally altered the humancentric dynamics traditionally central to conflict resolution. One of the most significant consequences is the diminished role of direct interpersonal communication between disputing parties. Empirical research suggests that the effectiveness of ADR has historically relied on faceto-face interactions, which facilitate open dialogue and mutual understanding. However, the shift toward AI-mediated processes introduces a degree of impersonality that may compromise relationship-building-an outcome often deemed critical in disputes where ongoing professional or personal relationships are at stake¹²⁸. A key limitation of AI in this domain is its inability to emulate human emotional intelligence and moral reasoning. Unlike human mediators, who assess contextual nuances and psychological factors such as intent or fault, AI systems operate by identifying statistical patterns within legal datasets. Consequently, they lack the capacity for the nuanced judgment required in cases where human experiences and ethical subjective considerations are pivotal¹²⁹. This shortfall raises concerns about the suitability of AI in disputes demanding empathy and normative evaluation. Ethical challenges further complicate the use of AI

in dispute resolution. Since AI processes information devoid of emotional or moral frameworks, its decisions may deviate from socially accepted principles of fairness and justice¹³⁰. Legal scholars argue that qualities such as empathy and lived experience-integral to equitable outcomesare irreplaceable by algorithmic systems¹³¹. Additionally, the translation of human concerns into machine-readable data presents obstacles, particularly in emotionally charged disputes where implicit norms and values influence negotiations. Privacy concerns further exacerbate these challenges. AI's capacity to infer psychological traits from digital footprints introduces risks not present in traditional dispute resolution,

¹²⁷(Abbott, 2022) ¹²⁸(Alessa, 2022) ¹²⁹(Mantelero, 2022) ¹³⁰(Agus et al., 2023)

¹³¹(Broyde et al., 2024)

¹²²(Peters, 2021)

¹²³(Agus et al., 2023) ¹²⁴(Broyde et al., 2024)

 $^{^{125}}$ (Alessa, 2022)

¹²⁶ (John et al., 2023)



potentially infringing on individual autonomy¹³². Such capabilities prompt ethical debates regarding the extent to which AI should analyze sensitive personal data in conflict resolution. Given these limitations, scholars and practitioners increasingly advocate for a hybrid model that balances AI's efficiency with human oversight. While some argue against the wholesale replacement of human adjudicators, others propose restricting AI to high-volume, low-complexity cases with well-established legal precedents¹³³. This middle-ground approach acknowledges AI's potential to streamline processes while preserving the indispensable human elements that ensure fairness and relational repair in dispute resolution.

4.6. Ethical Governance and Principles in Al-Mediated Dispute Resolution

The increasing adoption of AI in dispute resolution underscores the need for robust ethical frameworks to govern its development and implementation. The National Center for Technology and Dispute Resolution has outlined ethical principles for technology-assisted dispute resolution, stressing that ethics must be "integral to the design" of online mediation systems. Importantly, these principles are conceived as a "living document" capable of evolving alongside technological advancements¹³⁴. This adaptive approach is essential given AI's pervasive influence on global populations, often in ways that are not immediately discernible. Similarly, the European Commission has established foundational principles for AI development, prioritizing "human-centeredness and wellbeing" alongside "transparency and responsibility for building trust". These principles align with existing regulatory structures such as the GDPR, reinforcing the necessity for AI systems to be both "excellent and trustworthy"135. Such standards are particularly critical in dispute resolution, where public trust is fundamental to the legitimacy of judicial processes. A comprehensive ethical framework for AI in legal settings must address multiple dimensions of concern. Scholars highlight key issues, including

"transparency, accountability, and bias," as well as data privacy and security. To mitigate these risks, researchers advocate for "transparent mechanisms that elucidate the decision-making processes of AI systems" and emphasize the need to hold developers and users accountable for AI-driven outcomes¹³⁶. These measures ensure that AI applications adhere to responsible practices while upholding principles of justice and fairness.

4.6.1. Bias Management and Ethical Implementation

Effective bias mitigation in AI-mediated dispute resolution demands a structured approach across the system's lifecycle. Schmitz proposes three-stage ethical implementation model: (1) pre-design, where the technology's purpose and parameters are defined; (2) design and development, involving system construction; and (3) deployment, where the technology is applied to end-users. This framework underscores the importance of integrating ethical considerations from the earliest conceptual stages through continuous post-deployment monitoring¹³⁷. The ethical stakes are particularly high in sensitive legal domains such as child custody disputes, criminal justice, and divorce settlements. In these contexts, AI systems must demonstrate a "profound commitment to ethical integrity" to avoid compromising the fairness and transparency essential to judicial legitimacy¹³⁸. Without sustained ethical vigilance, AI risks exacerbating existing inequities rather than advancing justice.

4.6.2. Ethical Challenges in AI-Powered Dispute Resolution

The expansion of AI-driven ODR in court systems has introduced new ethical dilemmas, particularly self-represented concerning litigants. Some scholars raise critical questions about the ethical implications of providing AI tools to unrepresented parties, noting potential power imbalances that could undermine equitable access to justice. These concerns necessitate careful governance to ensure AI enhances, rather than

¹³⁸Zafar, A. (2024). Balancing the scale: navigating ethical and practical challenges of artificial intelligence (AI) integration in legal practices. Discov. Artif. Intell., 4, 27.

¹³²(Alessa, 2022)

¹³³(Agus et al., 2023)

¹³⁴(John et al., 2023)

¹³⁵(Peters, 2021)

¹³⁶(John et al., 2023)

¹³⁷(Schmitz et al., 2021)



obstructs, fair legal processes¹³⁹. A fundamental ethical question revolves around whether AI systems should function as advisory tools or autonomous decision-makers¹⁴⁰. This distinction carries significant implications for governance frameworks, as fully automated decision-making introduces distinct ethical challenges compared to systems that support human adjudicators.

4.6.3. Interdisciplinary Approaches and Unresolved Concerns

The convergence of "AI ethics" and "legal ethics" presents complex, domain-specific challenges that existing frameworks may not fully address¹⁴¹. An approach-drawing interdisciplinary from technological, legal, and ethical traditions-is essential to develop comprehensive guidelines for AI in dispute resolution. Despite AI's potential to improve judicial efficiency, critics caution that its use "raises more questions than resolves our concerns with the administration of justice"¹⁴². Ethical governance must therefore prioritize public scrutiny, foster social trust, and account for historical and cultural biases to ensure AI aligns with the broader goals of justice¹⁴³.

4.7. Contextual Applications and Limitations of AI in Dispute Resolution

The integration of AI into dispute resolution has revealed significant variations in its effectiveness, depending on the legal context in which it is applied. Initially deployed to streamline ecommerce litigation, AI has since expanded into judicial systems, particularly for high-volume, lowstakes cases involving well-defined legal

¹³⁹Rosa, F.E., & Zeleznikow, J. (2021). Making intelligent online dispute resolution tools available to self-represented litigants in the public justice system: towards and ethical use of the ai technology in the administration of justice. Proceedings of the Eighteenth International Conference on Artificial Intelligence and Law.

¹⁴⁰(Schmitz et al., 2021)

¹⁴¹Unver, M.B. (2023). Rebuilding 'ethics' to govern AI: How to re-set the boundaries for the legal sector? Proceedings of the Nineteenth International Conference on Artificial Intelligence and Law. frameworks and minimal factual disputes¹⁴⁴. This shift has been propelled by two key developments: the increasing prevalence of self-represented litigants and the broadening role of courts, which now utilize AI to assist parties in filing claims, constructing legal arguments, accessing relevant legal information, and even predicting case outcomes¹⁴⁵. Despite these advancements, the efficacy of AI in dispute resolution remains contingent on the complexity of the cases in question. Empirical studies suggest that AI systems perform optimally in scenarios requiring routine, fact-based assessments, whereas cases demanding equitable judgment-particularly those involving nuanced legal reasoning-pose considerable challenges. A fundamental constraint lies in AI's inability to engage in genuine legal reasoning; while machine learning models can identify patterns within legal datasets, they cannot replicate the interpretative and value-based decision-making processes intrinsic to human legal professionals¹⁴⁶. Another critical limitation arises in disputes where emotional and psychological factors play a decisive role. AI systems currently lack the emotional intelligence necessary to evaluate subjective elements such as intent, fault, or credibility, which are often pivotal in sensitive legal contexts. This shortcoming is particularly evident in ADR mechanisms like mediation, where successful outcomes frequently depend on human empathy and interpersonal negotiation-qualities beyond the scope of existing AI capabilities¹⁴⁷. The ethical governance of AI in legal settings further complicates its adoption, as its implications vary across jurisdictions. Some legal systems have

- ¹⁴²Abiodun, O.S., & Lekan, A.J. (2020). EXPLORING THE POTENTIALS OF ARTIFICIAL INTELLGIENCE IN THE JUDICIARY. International Journal of Engineering Applied Sciences and Technology.
- ¹⁴³Vargas-Murillo, A.R., Pari-Bedoya, I.N., Turriate-Guzmán, A.M., Delgado-Chávez, C.A., & Sanchez-Paucar, F. (2024). Transforming Justice: Implications of Artificial Intelligence in Legal Systems. Academic Journal of Interdisciplinary Studies.

¹⁴⁴(Abbott, 2022)

¹⁴⁵(Rosa et al., 2021)

¹⁴⁶(Mantelero, 2022)

¹⁴⁷Ibid.



introduced intelligent, user-centric ODR platforms equipped with AI-driven diagnostic tools, raising concerns about their accessibility to unrepresented litigants and potential power imbalances¹⁴⁸. These developments necessitate context-specific ethical evaluations, particularly regarding user vulnerability, fairness, and equitable access to justice. The debate over AI's role in dispute resolution remains polarized. Critics contend that "machine-made justice" should never supplant human adjudication, given AI's inability to exercise common sense or moral judgment. Conversely, proponents advocate for a measured approach, restricting automation to well-defined, lowcomplexity cases while retaining human oversight for matters requiring interpretive flexibility¹⁴⁹. This balanced perspective acknowledges AI's potential benefits in specific contexts while recognizing its limitations in others.

Beyond dispute resolution, similar ethical concerns emerge in other AI applications, such as scholarly peer review, where large language models present both efficiency gains and risks to procedural integrity¹⁵⁰. These parallels underscore the broader challenge of integrating AI into decision-making processes without compromising core ethical and professional standards. Ultimately, the increasing reliance on AI in judicial systems raises unresolved questions about its long-term impact on justice administration¹⁵¹. As legal institutions worldwide continue to adopt AI technologies, policymakers must carefully delineate their appropriate use to ensure that these tools reinforce, rather than erode, the foundational principles of fairness and justice that underpin legal systems.

5. CONCLUSION AND RECOMMENDATION

The integration of AI in mediating cross-border ecommerce disputes offers transformative potential by enhancing efficiency, accessibility, and costeffectiveness in dispute resolution. AI-driven tools, such as predictive analytics, automated negotiation support, and hybrid human-machine mediation systems, can address the growing complexity of disputes arising from differing legal systems, cultural norms, and business practices. These technologies facilitate faster resolutions while reducing the burden on traditional legal frameworks. However, despite these advantages, the deployment of AI in mediation raises significant ethical and operational challenges that must be carefully managed to ensure fairness, transparency, and accountability. A critical concern in AI-mediated dispute resolution is the lack of transparency in algorithmic decisionmaking, which may obscure the reasoning behind outcomes and undermine trust in the process. Additionally, algorithmic bias-stemming from unrepresentative training data or flawed designcan perpetuate discrimination, particularly in cross-border disputes where cultural and legal disparities exist. Data privacy and security also present major challenges, as AI systems often require access to sensitive commercial and personal information, necessitating strict compliance with regulations such as the EU's GDPR. Furthermore, the limitations of AI in legal reasoning, contextual interpretation, and emotional intelligence highlight the need for continued human oversight to ensure that resolutions align with principles of justice and equity. Existing frameworks provide structured approaches to integrating AI in dispute resolution while emphasizing governance and ethical considerations. The European Union's regulatory landscape offers a model for balancing innovation with consumer protection, yet global consensus on AI ethics remains fragmented. Without harmonized standards, the risks of inconsistent enforcement, bias, and erosion of due process may hinder the widespread adoption of AI mediation. Therefore, the successful implementation of AI in cross-border e-commerce dispute resolution depends on robust ethical safeguards, regulatory clarity, and a balanced collaboration between human mediators and automated systems.

To address these challenges, policymakers, legal practitioners, and technologists should prioritize the development of international ethical and legal frameworks for AI mediation, drawing from established models such as the EU AI Act and UNCITRAL's guidelines.

¹⁴⁸(Rosa et al., 2021)

¹⁴⁹(Abbott, 2022)

¹⁵⁰Schintler, L.A., McNeely, C.L., & Witte, J. (2023). A Critical Examination of the Ethics of AI-Mediated Peer Review.
¹⁵¹(Abiodun et al., 2020)



Transparency and explainability must be mandated to ensure disputing parties understand AI-generated outcomes, while bias detection mechanisms should be routinely implemented to mitigate discriminatory patterns. Hybrid mediation models, where AI supports rather than replaces human judgment, should be promoted to preserve essential legal and ethical oversight. Strengthening data protection measures, fostering interdisciplinary collaboration, and establishing independent oversight bodies will further enhance the credibility and fairness of AI-mediated dispute resolution. Ultimately, the future of AI in crossborder e-commerce dispute resolution hinges not only on technological advancements but also on responsible governance that prioritizes justice, accountability, and human dignity. By adopting these measures, stakeholders can harness AI's potential to create a more efficient and equitable dispute resolution ecosystem while mitigating the risks of unchecked automation. The path forward requires a concerted effort to align innovation with ethical principles, ensuring that AI serves as a tool for enhancing—rather than undermining—trust in global e-commerce.

