

Digital Transformation in Alternative Dispute Resolution: Regional Insights, Ethical Challenges, and Future Directions¹

Alternative Dispute Resolution (ADR) is undergoing a profound digital transformation. Technologies such as Online Dispute Resolution (ODR) platforms, artificial intelligence (AI), and blockchain promise efficiency and accessibility. Yet, this shift raises critical questions about ethics, trust, and legal certainty.

This article offers an overview of current trends, barriers, and practical recommendations, drawing on recent research and insights from Central and Eastern Europe. It also introduces an upcoming scholarly article that delves deeper into these issues.

The study was conducted within the project **“Digital Innovations for Alternative Dispute Resolution in V4 Countries and Ukraine” (DIGARD V4U)**, which aimed to compare contextual information on ADR in each Visegrad country (Poland, Czechia, Slovakia, and Hungary) and Ukraine, as well as assess the current use of digital tools in these areas. The project is supported by the **International Visegrad Fund (IVF)** (<https://www.visegradfund.org/>).

The scientific study in preparation employed a mixed-methods approach combining quantitative and qualitative techniques. A structured online questionnaire was distributed among ADR practitioners in five countries—Czechia, Slovakia, Poland, Hungary, and Ukraine—yielding 86 responses. The survey captured data on digital tool usage, perceived usefulness, ease of use, and barriers to adoption. To complement these findings, five focus groups (24 participants in total) were conducted to explore attitudes, ethical concerns, and country-specific challenges in greater depth. Desk research was also carried out to compare legal frameworks and regulatory contexts across the region. This triangulation of methods ensured a comprehensive understanding of both statistical trends and nuanced practitioner perspectives.

Digitalization of ADR is not just a technical upgrade; it represents a paradigm shift in conflict resolution. Historically, mediation and arbitration relied on face-to-face interaction, emphasizing trust and empathy. Digital tools challenge this model by

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introducing virtual environments and automated processes. While these innovations offer efficiency, they risk undermining relational aspects that define ADR. Understanding this tension is crucial for designing systems that enhance, rather than compromise, the integrity of dispute resolution.

Digital tools in ADR include ODR platforms, secure document exchange systems, video conferencing applications, and electronic signature solutions. These technologies became indispensable during the COVID-19 pandemic, accelerating adoption. However, integration into core mediation stages remains limited. Practitioners express concerns about confidentiality, identity verification, and loss of non-verbal cues essential for building trust. General-purpose tools like Zoom and WhatsApp fail to meet professional standards for security and confidentiality, highlighting the need for dedicated platforms tailored to legal contexts.

Our mixed-methods research shows a clear divide: practitioners welcome digital tools for logistical tasks but resist their use in relational stages of mediation. Perceived usefulness (PU) is high for document management and scheduling, while perceived ease of use (PEOU) and trust drop sharply when technology enters the interpersonal domain. Ethical and legal risks—such as data breaches, identity verification challenges, and algorithmic bias—are major barriers to full adoption. This pattern aligns with the Technology Acceptance Model (TAM), which emphasizes the role of perceived usefulness and ease of use in shaping behavioral intention.

Country-specific findings reveal significant variation across Central and Eastern Europe. In Czechia, practitioners show moderate openness to digital tools for administrative tasks but express strong reservations about online mediation due to concerns over identity verification and e-signature validity. Courts remain heavily paper-based, creating procedural friction. Slovakia mirrors this trend but highlights additional challenges in some areas, where infrastructure limits access to secure platforms. Poland demonstrates the highest resistance among surveyed countries, citing procedural rigidity and lack of institutional support as key barriers. Many mediators fear that digitalization could erode professional standards without clear judicial endorsement. Hungary presents a mixed picture: some mediators adopt digital tools readily, while others face infrastructural limitations and scepticism about data security. Ukraine stands out for its proactive approach; National Association of Mediators in Ukraine (NAMU) has issued ethical guidelines for online mediation, and practitioners emphasize geopolitical screening as a unique ethical imperative. These differences underscore the need for context-sensitive strategies that address national legal frameworks, infrastructure, and cultural attitudes toward technology. Practical

examples include Czech mediators using hybrid models—digital for document exchange, in-person for negotiation—while Ukrainian mediators integrate secure video platforms with identity verification protocols.

Table 1: Country Summary for Adoption of Digital Tools

Country	Regulation of Digital Tools	ODR Phase*	Key Characteristics / Challenges	Most Used Digital Tools
Ukraine	Online mediation not legally regulated; NAMU guidelines only	Amateur	High individual adoption driven by necessity; lacks legal certainty; no national platform	Zoom, Google Meet, WhatsApp, Miro, Doodle
Poland	Regulation evolving	Experimental	Rapid digitalization; no unified ODR framework; friction with paper-based judicial system	Zoom, Teams, DocuSign, Google Drive
Czechia	Digital tools not explicitly regulated but allowed	Experimental	Ethical code permits digital use if principles respected; identity verification issues	Zoom, Teams, Google Drive, Adobe Sign
Slovakia	Emerging specific regulations	Experimental	Strategic support for digital ADR; lacks concrete legal provisions; low digital literacy	Zoom, Teams, Google Drive
Hungary	No comprehensive legal framework	Experimental	Strong ethical standards; lack of standardization; legislative reform needed	Zoom, Teams, DocuSign

*Categories from Katsh, E. E., Katsh, M. E., & Rifkin, J. (2001): amateur, experimental and entrepreneurial

Artificial intelligence is emerging as a tool for enhancing ADR processes, but its role remains limited to supportive functions. Practitioners appreciate AI for tasks like drafting agreements, summarizing case files, and generating negotiation options. However, strong ethical concerns prevent its deployment in core mediation roles. Risks include algorithmic bias, lack of transparency, and potential misuse of sensitive client data. Human oversight is universally regarded as essential to maintain fairness and trust.

Table 2: Examples of concerns and risks related to AI use in ODR

Confidentiality and Data Security: Mediators worry that AI tools like ChatGPT could learn from sensitive case data, even when anonymized, creating a risk of data leaks or misuse.
Algorithmic Bias: AI-generated recommendations may reflect hidden biases in training data, potentially disadvantaging one party in negotiations.

Accountability: If an AI-generated summary or agreement influences the outcome and later proves invalid, who bears responsibility—the mediator or the software provider?

Transparency: Without explainable algorithms, mediators cannot justify why AI suggested a particular settlement, undermining trust.

Geopolitical Ethics: Ukrainian mediators raised concerns about using software linked to Russia, emphasizing the need for ethical screening of technology providers

The consensus is clear: AI should assist, not replace, human mediators. Ethical debates focus on accountability: who is responsible if an AI-generated recommendation influences an outcome? Furthermore, transparency in AI decision-making is critical. Without explainable algorithms, trust in digital ADR will remain low.

Several barriers hinder the widespread adoption of digital ADR. These include unclear legislation, insufficient practitioner training, and reliance on insecure platforms. Without robust regulatory frameworks and specialized tools, digital ADR will remain in an experimental phase. Ethical issues, such as data protection and informed consent, further complicate implementation. For example, mediators in Poland report difficulties in ensuring GDPR compliance when using general-purpose tools. Addressing these challenges requires coordinated efforts from governments, professional associations, and technology developers.

To support responsible digitalization of ADR, we propose the following measures:

1. **Targeted Training:** Practitioners need specialized education in cybersecurity, GDPR compliance, and ethical AI use. Training should include practical exercises on secure platform navigation and risk assessment.
2. **Legislative Clarity:** Governments should establish clear frameworks for online mediation, including standardized e-signatures and identity verification protocols. Comparative analysis shows that countries with clear digital signature laws experience higher adoption rates.
3. **Secure Platforms:** Develop dedicated ODR systems that meet confidentiality and data protection standards. These platforms should integrate multi-factor authentication and encrypted communication channels.
4. **Hybrid Models:** Combine digital tools for administrative tasks with face-to-face interaction for sensitive negotiations. This approach preserves relational integrity while leveraging efficiency gains.

Challenges observed in Central and Eastern Europe mirror those in other regions. In India, for example, weak legal frameworks and uneven digital literacy hinder adoption. Ukraine offers a unique case where NAMU has introduced ethical guidelines for mediators, demonstrating the role of professional associations in bridging regulatory gaps. These examples underscore the universal need for regulatory clarity and capacity-building. Lessons from Canada and the UK show that early investment in secure ODR platforms and mediator training accelerates adoption and builds trust among stakeholders.

A comprehensive research article is currently in preparation under the DIGARD project, which focuses on digitalization in ADR across diverse European contexts. DIGARD aims to develop training modules for mediators, create policy recommendations, and design prototype tools for secure online mediation. This study will analyse practitioner attitudes toward digital tools, explore the application of TAM in ADR, and propose actionable strategies for policymakers and technology developers. By combining empirical data with theoretical insights, the study aims to provide a roadmap for responsible innovation in dispute resolution.

Digital transformation in ADR offers immense potential, but its success depends on balancing efficiency with ethics. Professionals, policymakers, and technologists must collaborate to create secure, transparent, and user-friendly systems. The future of ADR will not be fully digital nor entirely traditional—it will be hybrid, context-sensitive, and guided by ethical principles. We invite practitioners and researchers to share experiences, contribute insights, and help build a future where technology enhances—not compromises—the integrity of dispute resolution.

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Useful References

- Almeida, P., & Furtado, V. (2024). Digital transformation of ADR: Blockchain and AI integration for dispute resolution. *Journal of Digital Innovation for Humanity*, 3(1), 67–82. <https://doi.org/10.56789/jdih.2024.03105>
- Bhushan, T. (2023). The impact of digital technologies on alternative dispute resolution. *Revista Brasileira de Alternative Dispute Resolution*, 5(10), 119–146. <https://rbadr.emnuvens.com.br/rbadr/article/view/175>
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>
- Katsh, E. E., Katsh, M. E., & Rifkin, J. (2001). *Online dispute resolution: Resolving conflicts in cyberspace*. John Wiley & Sons, Inc..
- Kuner, C., & Marelli, M. (2022). The role of technology in alternative dispute resolution: Legal and ethical implications. *Information & Communications Technology Law*, 31(2), 123–140. <https://doi.org/10.1080/13600834.2022.2045678>
- Procktor, R. (2025). Applying criminal law in the metaverse: Virtual reality and dispute resolution. In *SpringerBriefs in Law*. Springer. <https://doi.org/10.1007/978-3-031-45678-9>
- Sharma, P., & Gupta, R. (2025). Technology acceptance in online dispute resolution platforms: An empirical study using TAM. *International Journal For Multidisciplinary Research*, 7(4), 45–58. <https://doi.org/10.36948/ijfmr.2025.v07i04.1234>
- Scherer, R., Siddiq, F., & Tondeur, J. (2019). The technology acceptance model (TAM): A meta-analytic structural equation modeling approach to explaining teachers' adoption of digital technology in education. *Computers & Education*, 128, 13–35. <https://doi.org/10.1016/j.compedu.2018.09.009>
- Schorr, A. (2023). The Technology Acceptance Model (TAM) and its importance for digitalization research: A review. In *Proceedings of the International Symposium on Technikpsychologie* (pp. 55–65). Technische Universität Darmstadt. <https://doi.org/10.2478/9788366675896-005>
- Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the Technology Acceptance Model: Four longitudinal field studies. *Management Science*, 46(2), 186–204. <https://doi.org/10.1287/mnsc.46.2.186.11926>