ONLINE DISPUTE RESOLUTION: A CRITICAL ANALYSIS OF LEGAL AND TECHNOLOGICAL CHALLENGES

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ABSTRACT

The rapid advancement of information and communication technologies has significantly transformed traditional approaches to dispute resolution, contributing to the emergence and expansion of Online Dispute Resolution (ODR). ODR integrates digital technologies with Alternative Dispute Resolution mechanisms such as negotiation, mediation and arbitration, enabling disputes to be managed and resolved through online platforms without requiring the physical presence of the parties. Its development has been particularly significant in e-commerce and consumer disputes, where geographical distance, low-value claims and the cost and delay associated with conventional litigation may discourage parties from seeking remedies. The evolution of ODR from early experimental Internet-based initiatives to commercially scalable platforms and institutional mechanisms demonstrates its growing importance within contemporary dispute resolution systems.

Despite these advantages, the effective implementation of ODR presents several legal, technological and procedural challenges. The digital divide and differences in technological literacy may limit access, particularly for disadvantaged and rural communities. The absence of physical interaction may affect communication, trust and the ability to establish rapport between parties and neutrals. ODR also raises concerns relating to procedural fairness, transparency, authentication, privacy, confidentiality, cybersecurity and the enforceability of outcomes, particularly in cross-border disputes. The increasing incorporation of artificial intelligence further introduces concerns regarding algorithmic bias, explainability, accountability and the need for meaningful human oversight. In addition, the absence of uniform international regulatory standards may create uncertainty regarding the governance and reliability of ODR platforms. This article examines the origin and development of ODR and critically analyses these challenges. It argues that technological innovation alone cannot ensure effective digital access to justice and that ODR must be supported by an appropriate legal and institutional framework that balances efficiency and accessibility with fairness, security, transparency, accountability and due process.

Keywords: Online Dispute Resolution; Alternative Dispute Resolution; Digital Justice; Artificial Intelligence; Access to Justice; Procedural Fairness; Cybersecurity.

The rapid advancement of information and communication technologies has transformed traditional methods of dispute resolution. While Alternative Dispute Resolution (ADR) mechanisms such as negotiation, mediation and arbitration provide flexible alternatives to litigation, their integration with digital technologies has led to the emergence of Online Dispute Resolution (ODR). ODR enables disputes to be prevented, managed and resolved through online platforms, electronic communication, videoconferencing and, increasingly, automated and artificial intelligence-assisted tools. It is particularly significant in e-commerce and consumer disputes, offering potential advantages of accessibility, cost-effectiveness, speed and geographical neutrality. However, its effective implementation raises concerns relating to the digital divide, technological literacy, privacy, cybersecurity, confidentiality, authentication, procedural fairness, enforceability, cross-border jurisdiction and the transparency of automated decision-making. Therefore, the effectiveness of ODR depends upon an appropriate legal and technological framework that balances efficiency and accessibility with fairness, security and due process. This article examines the development of ODR and critically analyses the major challenges affecting its effective implementation.

Origin and Development of Online Dispute Resolution

Online Dispute Resolution (ODR) represents the technological evolution of Alternative Dispute Resolution (ADR), incorporating digital communication and information technology into processes traditionally conducted through physical interaction. The American Bar Association Task Force on E-Commerce and Alternative Dispute Resolution describes ODR as a broad concept encompassing various forms of ADR that employ the Internet, websites, electronic mail, streaming media and other information technologies as part of the dispute resolution process. ODR may therefore enable parties to communicate, negotiate, mediate or otherwise resolve their disputes without necessarily meeting physically.[1] The emergence of ODR cannot, however, be viewed in isolation from the development of ADR. The growing recognition during the latter part of the twentieth century that disputes could be resolved through mechanisms other than conventional adjudication provided the conceptual and institutional foundation upon which ODR subsequently developed.

The initial foundation for ODR was laid during the 1970s and 1980s through the increasing

[1] American Bar Association Task Force on E-Commerce and Alternative Dispute Resolution, *Addressing Disputes in Electronic Commerce: Final Report and Recommendations* (2002).

acceptance of ADR mechanisms such as negotiation, mediation and arbitration. The expansion of litigation and growing concerns regarding the cost, delay and complexity of conventional court proceedings encouraged legal scholars and practitioners to explore more flexible methods of dispute resolution. A significant development in this regard was the 1976 Pound Conference, formally known as the National Conference on the Causes of Popular Dissatisfaction with the Administration of Justice. The conference is particularly associated with Professor Frank E. A. Sander's concept of the "multi-door courthouse", which envisaged directing disputes towards the most appropriate method of resolution rather than treating litigation as the universal means of dispute settlement.[2] The subsequent expansion of community mediation centres, court-annexed arbitration programmes and commercial arbitration during the 1980s strengthened the institutional acceptance of ADR. This development was significant for the later emergence of ODR because it established the underlying principle that dispute resolution need not always depend upon a physical courtroom, thereby creating a model that could subsequently be adapted to the emerging digital environment.[3]

The first experimental phase of ODR emerged during the mid-1990s, when the Internet began to be explored as a medium for resolving disputes. During this period, ODR remained largely experimental and academic, with researchers examining whether communication technologies could reproduce or adapt important aspects of conventional mediation and arbitration. The University of Massachusetts was particularly important in this development through the work associated with Professor Ethan Katsh and the Center for Information Technology and Dispute Resolution. The Online Ombuds Office, established as a pioneering experiment, explored the possibility of adapting dispute resolution processes to cyberspace and demonstrated the potential of online communication for resolving disputes without physical meetings.[4] This period also witnessed the development of the Virtual Magistrate Project in 1996, an experimental system designed to provide rapid online dispute resolution for disputes arising from activities on the Internet. The project demonstrated that an arbitrator could consider an online dispute and communicate a decision electronically, thereby illustrating the feasibility of

[2] Frank E. A. Sander, Varieties of Dispute Processing, in *The Pound Conference: Perspectives on Justice in the Future* (A. Leo Levin & Russell R. Wheeler eds., West Publ'g Co. 1979).
[3] See generally Ethan Katsh & Janet Rifkin, *Online Dispute Resolution: Resolving Conflicts in Cyberspace* (Jossey-Bass 2001).
[4] Ethan Katsh, *The Online Ombuds Office: Adapting Dispute Resolution to Cyberspace* (Center for Information Technology and Dispute Resolution, Univ. of Mass. 1996).

resolving Internet-related disputes without conventional hearings.[5]

The theoretical significance of these early experiments extended beyond the mere substitution of electronic communication for physical meetings. Scholars such as Ethan Katsh developed the idea that technology could function as a "fourth party" in the dispute resolution process, alongside the disputants and the human third party. Technology could structure communication, organise information, facilitate negotiation and influence the manner in which parties approached settlement.[6] This conception became an important theoretical foundation of ODR because it recognised that technology was not merely a neutral communication channel but could actively shape the dispute resolution process. Nevertheless, early ODR initiatives remained relatively limited in scale, were generally voluntary and were not extensively integrated with formal legal institutions. Their principal contribution was therefore to establish the technological feasibility of resolving disputes through electronic means and to generate the conceptual foundations for later developments.

The character of ODR changed substantially during the late 1990s and the 2000s with the rapid expansion of electronic commerce. The growth of online marketplaces created a large volume of low-value disputes involving buyers and sellers who were often located in different jurisdictions. Conventional litigation was generally impractical for such disputes because the monetary value involved was often insufficient to justify the cost and inconvenience of formal proceedings. ODR provided an alternative capable of handling large numbers of disputes at relatively low cost. The development of online platforms such as SquareTrade illustrated this transition from experimental ODR to commercially significant dispute resolution. SquareTrade developed an online process through which parties could first attempt direct negotiation and, where necessary, seek the assistance of a mediator. The significance of such systems lay not merely in their ability to resolve individual disputes but also in their capacity to process disputes on a scale that traditional dispute resolution mechanisms could not economically accommodate.

The integration of dispute resolution mechanisms into major online marketplaces further demonstrated the potential of technology to manage high-volume disputes. Platforms associated with eBay and PayPal incorporated dispute resolution mechanisms directly into their

[5] The Virtual Magistrate, 9 *Network Security* 18 (1996).
[6] Ethan Katsh, Janet Rifkin & Alan Gaitenby, E-Commerce, E-Dispute, and E-Dispute Resolution: In the Shadow of "eBay Law," 15 *Ohio St. J. on Disp. Resol.* 705 (2000).

online environments, thereby making dispute resolution part of the transactional process itself. This development encouraged the use of automated complaint categorisation, standardised communications and technological systems for identifying and managing disputes, while more complex matters could be referred for human intervention. The e-commerce experience therefore demonstrated that ODR could combine technological efficiency with conventional forms of negotiation and mediation and could operate at a scale substantially greater than the small experimental projects of the mid-1990s.[7]

Another important development during this period was the establishment of the Internet Corporation for Assigned Names and Numbers (ICANN) Uniform Domain-Name Dispute-Resolution Policy (UDRP) in 1999. The UDRP created a standardised administrative mechanism for addressing certain disputes concerning abusive domain-name registrations. The policy was adopted by ICANN in August 1999 and the implementation documents were approved in October 1999.[8] The UDRP is significant in the history of ODR because it demonstrated how disputes involving parties located across different jurisdictions could be subjected to a common online administrative procedure. In cases falling within its scope, the policy provides for mandatory administrative proceedings before an approved dispute-resolution service provider, particularly where a complainant establishes that the domain name is identical or confusingly similar to a trademark, that the registrant lacks rights or legitimate interests in the domain name, and that the domain name was registered and is being used in bad faith.[9] The UDRP thus illustrated the potential of technology-supported dispute resolution to address cross-border disputes through a standardised framework without requiring the parties to commence conventional litigation in multiple jurisdictions.

The next significant stage in the development of ODR was its institutionalisation during the 2000s and 2010s. Having demonstrated its utility in private commercial environments, ODR began to be incorporated into governmental and quasi-judicial dispute resolution systems. One important development was the emergence of dedicated ODR technologies capable of being adopted by courts, governmental bodies and other institutions. This represented a shift from ODR as a private commercial service towards ODR as part of formal dispute resolution

[7] See generally Pablo Cortés, *Online Dispute Resolution for Consumers in the European Union* (Routledge 2010).
[8] Internet Corporation for Assigned Names and Numbers (ICANN), *Uniform Domain Name Dispute Resolution Policy* (Aug. 26, 1999; approved for implementation Oct. 24, 1999).
[9] *Uniform Domain Name Dispute Resolution Policy* ¶ 4(a) (Internet Corp. for Assigned Names & Numbers 1999).

infrastructure. The movement was particularly significant because institutional adoption raised questions not only of technological efficiency but also of procedural fairness, accessibility, transparency, confidentiality and the legal status of outcomes.

The establishment of British Columbia's Civil Resolution Tribunal (CRT) provides a prominent example of this institutional development. Created under the Civil Resolution Tribunal Act, the CRT became Canada's first online tribunal in 2016. Its statutory mandate expressly emphasises accessibility, speed, economy, informality and flexibility, while requiring the use of electronic communication tools to facilitate dispute resolution.[10] The tribunal follows a structured process in which parties may first obtain information and attempt to resolve their disputes through online mechanisms, followed where necessary by negotiation, facilitation and adjudication. The development of the CRT demonstrated that ODR could extend beyond private contractual dispute resolution and become part of a publicly administered system capable of exercising adjudicatory functions. It consequently represented an important transition from purely voluntary and private ODR towards technologically enabled access to formal justice.

At the international level, the development of ODR also attracted the attention of the United Nations Commission on International Trade Law (UNCITRAL). In response to the growth of cross-border electronic commerce and the resulting need for efficient mechanisms for resolving disputes arising from online transactions, UNCITRAL adopted the Technical Notes on Online Dispute Resolution in 2016. The Technical Notes are descriptive and non-binding and were intended to assist States, ODR administrators, platforms, neutrals and parties in developing and operating ODR systems, particularly for cross-border low-value disputes arising from online sales and services.[11] Importantly, the Technical Notes emphasise principles including fairness, transparency, due process and accountability. The UNCITRAL initiative therefore marked an important stage in the international recognition of ODR and contributed to the development of a common framework for considering the procedural and institutional requirements of online dispute resolution.

The development of ODR entered a further stage during the 2020s, particularly as a consequence of the COVID-19 pandemic and the rapid advancement of artificial intelligence.

[10] *Civil Resolution Tribunal Act*, S.B.C. 2012, c. 25, § 2 (Can.).
[11] U.N. Comm'n on Int'l Trade Law, *Technical Notes on Online Dispute Resolution* (2016).

The pandemic significantly accelerated the digital transformation of judicial and dispute resolution processes. Restrictions on physical gatherings compelled courts, arbitral institutions, mediators and other dispute resolution bodies to adopt videoconferencing, electronic filing and other digital mechanisms. Processes that had previously been regarded as experimental or appropriate only for limited categories of disputes increasingly became part of mainstream dispute resolution practice. The experience of the pandemic consequently contributed to the normalisation of technology-mediated hearings and negotiations and demonstrated the practical necessity of maintaining mechanisms capable of functioning when physical access to institutions is restricted.

At the same time, developments in artificial intelligence have introduced new possibilities as well as new challenges for ODR. Contemporary systems may employ technological tools for dispute intake, classification and triage, while AI-assisted systems may also assist parties in identifying issues, organising information, predicting possible outcomes or preparing settlement proposals and documents. The increasing role of technology has consequently strengthened the conception of technology as an active participant, or "fourth party", in dispute resolution rather than merely a medium through which parties communicate.[12] However, the integration of AI also raises fundamental questions concerning transparency, accountability, explainability, human oversight and procedural fairness. Where an automated system influences or determines the outcome of a dispute, questions arise as to whether the parties can understand the basis of the decision, whether errors can be challenged, and who should bear responsibility for an erroneous technological determination.

The historical development of ODR therefore reflects a gradual transition from experimental Internet-based dispute resolution to commercially scalable systems, followed by institutional and governmental adoption and, more recently, the integration of artificial intelligence. Each stage has expanded the potential scope of ODR while simultaneously generating new legal and ethical concerns. The central challenge is no longer merely whether disputes can be resolved online, but whether online dispute resolution can provide a process that is accessible, secure, transparent, fair and legally enforceable. The contemporary development of ODR must therefore be understood not simply as the digitisation of ADR but as the emergence of a distinct technological environment in which the design of the platform, the role of algorithms and the

[12] See Ethan Katsh & Orna Rabinovich-Einy, *Digital Justice: Technology and the Internet of Disputes* (Oxford Univ. Press 2017).

legal framework governing the process may significantly influence the nature and outcome of dispute resolution. These developments provide the foundation for examining the principal legal, technological, procedural and socio-economic challenges associated with the effective implementation of ODR.

Major Challenges in ODR

Despite its potential to reduce the cost, delay and geographical barriers associated with conventional dispute resolution, Online Dispute Resolution (ODR) presents several legal, technological, procedural and social challenges. One of the most significant concerns is the digital divide. Effective participation in ODR requires access to reliable internet connectivity, appropriate digital devices and a minimum level of technological literacy. These requirements may disadvantage persons from rural areas, economically weaker sections, elderly persons and those with limited digital skills. Language and literacy barriers may further restrict meaningful participation where ODR platforms depend predominantly on written submissions, standardised forms and digital interfaces. Thus, ODR may create an "access paradox", whereby a mechanism intended to improve access to justice may, in practice, exclude persons who lack the resources or skills necessary to participate effectively.[13]

The online nature of ODR may also affect communication and the development of trust between disputing parties and the neutral. Conventional mediation often relies upon face-to-face interaction, including facial expressions, tone, body language and other non-verbal cues. These elements may be absent or distorted in text-based or technologically mediated proceedings, making it more difficult to understand emotions, assess credibility and establish rapport. This limitation may be particularly relevant in disputes involving continuing personal or professional relationships, where resolution depends not only upon legal rights but also upon addressing underlying interests and maintaining relationships.[14] Therefore, technological convenience cannot always substitute for the interpersonal dimensions of dispute resolution.

Procedural fairness and due process constitute another important concern. ODR platforms must ensure that parties receive a meaningful opportunity to present their case, submit evidence, respond to the opposing party and understand the procedure being followed. Excessively rigid or automated procedures may limit the ability of parties to explain complex factual

[13] U.N. Comm'n on Int'l Trade Law, *Technical Notes on Online Dispute Resolution* (2016).
[14] Colin Rule, Online Dispute Resolution and the Future of Justice, 16 *Ann. Rev. L. & Soc. Sci.* 277 (2020).

circumstances. The increasing use of artificial intelligence (AI) further raises questions concerning neutrality, transparency and accountability. Algorithms may reproduce biases contained in their training data, while the "black box" nature of certain AI systems may prevent parties from understanding how a recommendation or outcome was generated.[15] Consequently, human oversight and adequate safeguards are essential where automated or AI-assisted tools are incorporated into dispute resolution.

Cross-border disputes create additional difficulties relating to jurisdiction, applicable law and enforcement. ODR enables parties situated in different jurisdictions to participate in the same proceedings, but this geographical flexibility may create uncertainty regarding which country's law applies and which authority has jurisdiction over the dispute. Although international instruments provide important mechanisms for enforcement, their application depends upon the nature of the outcome. The New York Convention provides a framework for the recognition and enforcement of foreign arbitral awards, while the Singapore Convention on Mediation establishes a framework for the enforcement of qualifying international mediated settlement agreements. Nevertheless, negotiated settlements that do not fall within an applicable enforcement framework may continue to depend substantially upon voluntary compliance.

Privacy, confidentiality and cybersecurity are also significant concerns. ODR platforms may process sensitive personal, financial and commercial information, making them potential targets for unauthorised access, cyberattacks and data breaches. The use of third-party platforms, cloud storage and servers located in different jurisdictions may further complicate the protection of confidential information.[16] This is particularly important in mediation, where confidentiality is a fundamental feature of the process. ODR providers must therefore adopt adequate measures relating to encryption, authentication, secure data storage and controlled access.

Finally, the absence of comprehensive and uniform regulatory standards may affect the consistency and credibility of ODR. Different platforms may adopt varying standards concerning the appointment of neutrals, procedural safeguards, data protection, authentication and enforcement. UNCITRAL's *Technical Notes on Online Dispute Resolution* provide valuable international guidance based on principles such as independence, impartiality, due

[15]U.N. Comm'n on Int'l Trade Law, *Technical Notes on Online Dispute Resolution* (2016).
[16] H. Schmitz, Developing Regulatory Standards for the Concept of Security in Online Dispute Resolution Systems, 35 *Comput. L. & Sec. Rev.* 105328 (2019).

process, fairness, accountability and transparency; however, the Notes are non-binding and do not establish a uniform global regulatory framework.[17] Differences in national laws may consequently create uncertainty, particularly in cross-border disputes. Resistance within legal culture may also hinder wider adoption where lawyers, judges and disputants continue to associate effective justice with formal and physical proceedings. Therefore, the sustainable development of ODR requires a balanced legal and technological framework that preserves its advantages of accessibility, efficiency and geographical neutrality while ensuring procedural fairness, data security, transparency, human oversight and effective enforcement.

[17] U.N. Comm'n on Int'l Trade Law, *Technical Notes on Online Dispute Resolution* (2016).