The Integration of Technological Advancements and Artificial Intelligence in Commercial Arbitration: Shifting the Landscape of Alternative Dispute Resolution

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Abstract

This article explores the evolution of Alternative Dispute Resolution (ADR) with a focus on Online Dispute Resolution (ODR) and the integration of Artificial Intelligence (AI) in arbitration. ADR methods, positioned as alternatives to traditional litigation, provide quicker and cost-effective dispute resolutions outside the conventional legal system. Online Dispute Resolution Platforms (ODRPs) have emerged, leveraging technology to address conflicts arising in diverse digital interactions.

The genesis of ODR is traced back to the evolution of digital interactions and the need for redress native to the internet. Platforms like eBay pioneered internal systems, handling over 60 million disputes annually, showcasing ODR's potential in handling a significant caseload. Courts and legal bodies are increasingly advocating for ODR, with some states implementing ODR programs.

The implementation of ODR necessitates advanced information technology, trained professionals, user-friendly interfaces, and the preservation of disputants' privacy. The essential requisites also include affordability, accessibility, infrastructure, flexibility, and transparency. ODR mechanisms encompass various approaches, including negotiation, conciliation, mediation, and arbitration.

The integration of AI into arbitration processes raises questions about its potential to replace human arbitrators. While AI has enhanced efficiency in legal processes, complete substitution remains unlikely due to the inherent rebellious nature of AI and the complexity of building trust in its decision-making.

This paper discusses the utilization of IT in arbitration, covering aspects such as transmitting messages, virtual meetings, document handling, and case management. It also highlights the growing role of AI in the constitution of arbitral tribunals, assisting in arbitrator selection and providing predictive analysis of potential outcomes.

Legal issues surrounding the use of IT and AI in online arbitration are examined, including confidentiality, data privacy, bias, and decision-making concerns. The article emphasizes the need for compliance with data protection laws and the importance of maintaining human judgment in the face of AI advancements.

Therefore, the article underscores the transformative impact of technology on ADR, particularly in the realm of ODR, and the potential but limited role of AI in reshaping arbitration processes. The evolving landscape calls for a careful balance between technological integration and preserving the ethical and legal foundations of dispute resolution.

Keywords: *Arbitration, Technology, Online, Confidentiality, Effectiveness, Commercial, Contracts.*

Introduction

Alternative Dispute Resolution (ADR) encompasses a variety of approaches to resolving conflicts that act as substitutes for traditional litigation. Typically facilitated by an impartial third party, these procedures aim to address disputes outside the conventional legal system, with litigation serving as the baseline throughout the ADR process. Positioned as alternatives to state-established courts, ADR methods provide quicker and more cost-effective resolutions for disputes referred for extrajudicial settlements.[1]

In ADR processes, an impartial and independent ADR neutral, not affiliated with the dispute, assists the involved parties in resolving their conflicts using established dispute resolution methods. ADR procedures can be broadly categorized into two types: non-adjudicatory and adjudicatory processes.[2] Non-adjudicatory ADR involves the exploration of mutually acceptable solutions without the ADR neutral making a final and binding determination of factual or legal issues. This aligns with the underlying philosophy of ADR, emphasizing collaborative problem-solving rather than viewing disputes as battles to be won.[3]

Cooperative problem-solving is a fundamental principle of ADR, with the ultimate goal of reaching a compromise through the active participation and collaborative efforts of the parties, facilitated by the ADR neutral. ADR methods seek to diminish adversarial attitudes, promote openness, and enhance communication between parties, fostering a mutually agreeable resolution. Unlike adversarial litigation, ADR methodologies are

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[1] Ashwanie Kumar Bansal, *Arbitration and ADR* (Universal Law Publishing Co. Pvt. Ltd, Delhi, 2005).

[2] Jitendra N. Bhatt, ""Round Table Justice Through Lok Adalat (People's Court) – a Vibrant ADR in India" 11 SCC Journal (2002).

[3] Rahul Kumar and Priyanshu Kumar, "Future of Adr in India: "alternative" to "appropriate" Dispute Resolution" 2 Indian Journal of Integrated Research in Law (2022).

more cooperative and less competitive, focusing on removing adversarial elements from the dispute resolution process. ADR encourages parties to recognize their shared interests, discouraging rigid positions and urging them towards negotiated settlements.[4]

In recent times, technology has permeated the domain of Alternative Dispute Resolution (ADR), giving rise to the emergence of Online Dispute Resolution Platforms. ODR represents a technique for resolving disputes through the utilization of technology, specifically leveraging the Internet and other digital communication tools. This approach is employed to address conflicts arising in diverse scenarios, including e-commerce transactions, online services, and various forms of digital interactions. The advantage lies in technology playing a crucial role in expediting communication and aiding in the prevention and management of disputes.[5]

Genesis of Online Dispute Resolution

The inception of Online Dispute Resolution (ODR) is closely intertwined with the evolution of digital interactions, particularly within the realm of commercial transactions. As online interactions increased, so did the frequency of disputes, necessitating a form of redress native to the internet itself. While the internet's origins trace back to the late 1960s, its initial adoption for the first twenty-five years was predominantly within academic and military domains. Consequently, grievances could often be resolved offline, as parties were likely to be connected within the same real-world circles.[6]

In the early stages, courts primarily grappled with resolving online disputes through traditional litigation rather than embracing technological solutions. For example, during the mid-1990s, a significant challenge faced by courts revolved around determining jurisdiction for disputes arising from online interactions. The initial adoption of internet use on college campuses also led to litigation concerning campus activities, addressing issues such as freedom of speech and harassment. Despite the online nature of the issues, the dispute resolution process remained largely analog.[7]

A pivotal development in ODR occurred through the platform eBay. Since 1999, this online marketplace giant has offered an internal system for parties involved in transactions to settle disputes online.[8] Presently, this system aids in resolving over 60 million disputes annually, a figure comparable to the total annual caseload of all US civil courts. This capacity underscores ODR's potential, both in terms of the volume of cases handled and the ability to empower parties to promptly resolve their disputes independently.[9]

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[4] Alexander Bevan, Alternative Dispute Resolution 2 (Sweet and Maxwell, London, 1992).

[5] Legalpay, "Use of Technology in ADR: A Case for Online Dispute Resolution (ODR)", *Medium*, May 17, 2023, *available at*: https://medium.com/@legalpayofficial/use-of-technology-in-adr-a-case-for-online-dispute-resolution-odr-df1296b9296c (last visited on Mar. 20, 2024).

[6] Katsh, Ethan, *et.al.,* "Ten Years of Online Dispute Resolution: Looking at the Past and Constructing the Future" 38 *University of Toledo Law Review* 101 (2006).

[7] Hibah Alessa, "The Role of Artificial Intelligence in Online Dispute Resolution: A Brief and Critical Overview" 31 Information and Communication Technologys Law 320 (2022).

[8] Luca Del Pabey, *E-Bay Dispute Resolution and Revolution: An Investigation on a Successful ODR Model* (2018) (Unpublished PhD thesis, Universitat Oberta de Catalunya, Information and Knowledge Society).

[9] M. Ethan Katsh and Orna Rabinovich-Einy, Digital Justice: Technology and the Internet of Disputes (Oxford University Press, New York, 2017).

More recently, courts have embraced and advocated for ODR, reminiscent of their earlier turn to Alternative Dispute Resolution (ADR) as a means of managing caseloads, enhancing outcomes, and better serving litigants. In the past few years, various stakeholder groups, including the Conference of Chief Justices, the Joint Technology Commission, the National Center for State Courts, and the Pew Charitable Trusts, have advocated for substantial changes to the civil justice system to incorporate ODR. Some state court administrative offices, such as those in Michigan and Utah, have already implemented ODR programs. With ongoing technological advancements, the proliferation of ODR is expected to continue.[10]

Essential Requisites for Application of ODR

The implementation of Online Dispute Resolution (ODR) necessitates the presence of essential components, including advanced information technology, adequately trained professionals, user-friendly online interfaces, and the preservation of disputants' privacy. These components and principles provide a basis for empirical research, aiming to visualize a triangle encompassing convenience, expertise, and trust. These three factors play a pivotal role in attracting users and services over time, with the emphasis on their significance varying based on usage. In the context of ODR, the triangle is expected to prioritize longer convenience. In contrast to other Alternative Dispute Resolution (ADR) mechanisms, ODR should prioritize simplicity, speed, and efficiency to be applicable in a "real-world setting," ensuring it does not impose costs, delays, or burdens that are disproportionate to the economic value at stake.

Types of ODR Mechanism in Use

Online Dispute Resolution (ODR) encompasses diverse dispute resolution methods, including Negotiation, Conciliation, Mediation, Arbitration, and hybrid mechanisms like Last Offer Arbitration, Medola, Mini Trial, Med Arb, and Neutral Evaluation. ODR may adopt either an adjudicatory or non-adjudicatory process. An example of an adjudicatory process is arbitration, where the arbitrator's binding award is crucial for both parties.

ODR involves Consensual and Automated Negotiation. Automated negotiation utilizes technology to determine economic settlements for uncontested claims. Two forms are prevalent: double-blind bidding for single monetary issues and Visual Blind Bidding for negotiations with multiple parties and issues. Successful in insurance and commercial activities, automated negotiation allows parties, including lawyers, to negotiate without revealing their positions until an agreement is reached.

Assisted Negotiation employs technology to aid the negotiation process, similar to a mediator in mediation. The technology may provide a process and/or evaluative advice to enhance communication. It is particularly useful for businesses, insurance companies, and municipalities dealing with B2C disputes, saving time and money.

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[10] Todd B. Carver and Albert A. Vondra, "Alternative Dispute Resolution: Why It Doesn't Work and Why It Does", *Harvard Business Review*, May 30, 1994, *available at*: https://hbr.org/1994/05/alternative-dispute-resolution-why-it-doesnt-work-and-why-it-does (last visited on Mar. 30, 2024).

Online Arbitration

Arbitration is a procedure in which a neutral third-party arbitrator issues a final and binding decision on both parties involved. This quasi-judicial process replaces a traditional judicial decision and often involves arbitrators who may be current or former trial judges, though this is not a strict requirement. In arbitration, parties typically have the autonomy to select the arbitrator and determine the basis for the decision, offering a less formal but more structured alternative to litigation. This method is frequently employed for resolving business disputes due to its privacy and faster resolution compared to litigation. Once initiated, parties generally cannot abandon arbitration unless they mutually agree to discontinue it, usually upon reaching a settlement.[11]

One notable feature of arbitration is its global enforceability, facilitated by the widespread adoption of the 1958 'New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards.' Arbitral awards are often easier to enforce internationally compared to court decisions.[12]

While legal studies generally affirm the compatibility of online arbitration with existing laws and arbitral principles, potential challenges arise in the absence of a regulatory framework for online processes. Although the New York Convention and the E-Commerce Directive may support the admissibility of online arbitration, concerns remain about ensuring due process, especially for consumers and weaker parties. Many arbitration providers allow partial online processes, such as downloading claim forms and submitting documents electronically.[13] However, challenges persist in achieving judicial enforcement of online arbitration decisions, partially undermining the purpose of having an online process.

Fundamental categories of IT Utilization in Arbitration.

The subsequent list offers a broad summary of fundamental categories of IT utilization in arbitration. With the exception of legal research, the majority of other IT activities are either variations or amalgamations of these applications.

1. **Transmitting messages and files**: Conveying messages and files represent one of the most apparent applications of information technology, extending beyond mere text editing. The electronic transmission of messages and documents through networks is commonly achieved using technologies such as emails, web interfaces, and bulletin boards.

2. **Meeting from a distance**: A subtle distinction exists between the concept of transmitting messages and files, often occurring asynchronously, and a more interactive online meeting experience. The latter involves technologies like chat rooms and videoconferences, implying synchronous communication.

3. **Handling documents**: Information technology facilitates the manipulation of documents, involving interaction with their content and offering significant advantages. For instance, the quick search for specific words enhances access to document information, potentially increasing the likelihood of

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[11] Abhinaba Maitra, "Online Dispute Resolution in India - a Study (With Reference to Information Technology Act, 2000)" 3 *International Journal of Law Management & Humanities* (2020).
[12] United Nations Commission on International Trade Law, "Convention on the Recognition and Enforcement of Foreign Arbitral Awards (New York, 1958" 8 (2009).
[13] Ihab Amro, *Online Arbitration in Theory and in Practice: A Comparative Study of Cross-Border Commercial Transactions in Common Law and Civil Law Countries* (Cambridge Scholars Publishing, United Kingdom, 2019).

effectively conveying a point to the recipient. Another evident and frequently utilized benefit is the ability to copy and paste entire sections of documents. Additionally, documents can be interconnected through hyperlinks.

4. **Managing documents**: Utilizing electronic documents streamlines their handling, treating them as files or information containers. This approach eases storage and significantly expedites the process of searching and locating documents, particularly when files adhere to a well-defined naming policy.

5. **Managing cases**: Information technology can enhance case management by employing progress tracking software. This software can display the current stage of a case, outline the anticipated next steps, and indicate deadlines. Additionally, it has the capability to visually represent the connections between different stakeholders involved in the case.

6. **Virtually presenting arguments and facts:** IT solutions like digital slideshows, video depositions, and video presentations are becoming more prevalent in arbitral hearings. This trend is driven by the recognition that visual presentations, particularly those with graphics, are more memorable and provide clearer communication compared to solely oral presentations.

7. **Tracking:** In simple terms, information technology possesses remarkable memory capabilities. It enables us to monitor all activities on our virtual desktop and, through collaboration, on others' desktops as well. IT can be utilized to capture and store not just documents but also presentations, spoken statements, and videoconferencing interactions. The benefit, and occasionally the risk, lies in the fact that anyone with access can reproduce such data with absolute precision at any given time.[14]

Factors Responsible For Growth of Online Arbitration in India

1. **Adaptability in dispute resolution through online methods or the selection of procedures -** The nuanced distinction in the 1996 Act concerning the provisions for conciliation proceedings, as opposed to arbitration proceedings, lies in the fact that the 1996 Act does not confine the application of its provisions solely to conciliation proceedings occurring within India.[15] Consequently, this provision provides parties with the flexibility to conduct their proceedings anywhere, including in cyberspace.

2. **Electronic Records and Signatures:** The Information Technology Act, 2000, was established to support and promote e-commerce, providing legal acknowledgment to electronic records and digital signatures. The implementation of this Act led to amendments in various other legislations. This law is designed to be relevant to methods of communication and information storage that serve as alternatives to traditional paper-based approaches.[16]

3. **Video Conferencing:** In a recent legal case, it was determined that video conferencing could be utilized for the purpose of recording a witness's testimony.[17] The apex court addressed various arguments presented before it, emphasizing that video conferencing is a technological advancement that allows individuals to see, hear, and communicate with someone at a distance as if they were physically present,

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[14] , "Introduction to Data Communications and Networking", *Mumbai University, available at*: https://archive.mu.ac.in/myweb_test/syllFybscit/dcn.pdf (last visited on Feb. 3, 2024).
[15] The Arbitration and Conciliation Act, 1996 (Act No. 26 of 1996).
[16] The Information and Technology Act (Act 21 of 2000).
[17] Santhini vs Vijaya Venketes AIR 2017 SCC 5745.

distinguishing it from virtual reality. The court emphasized that effective consultations can be achieved through electronic media and remote conferencing, negating the necessity for individuals to physically sit together unless legally required or specified in a contract. Under the IT Act, electronic records and signatures are recognized as evidence and are legally valid in the Indian legal system, as per Sections 4 and 5 of the IT Act and Section 65-B of the Indian Evidence Act, 1872. The Supreme Court, in the case of *State of Maharashtra vs. Dr. Praful B. Desai,* acknowledged the use of video conferencing for recording witness statements, affirming that submissions and proceedings can indeed occur online.[18]

4. **Written online agreement:** To achieve this objective, it is essential to examine the Arbitration and Conciliation Act along with the IT Act. The following issues are explored below to illustrate this point. Firstly, according to Section 7(3) of the Arbitration Act, the arbitration agreement must be in writing. However, if the parties mutually decide online to opt for online arbitration through an ODR service provider, the question arises regarding the legal validity of such an online agreement. Assuming both parties acknowledge the existence of such an online agreement, it would be legally sanctioned due to the operation of Section 4 of the IT Act. By incorporating Section 4 of the IT Act into Section 7(3) of the Arbitration Act, such an online agreement would be deemed legally valid. The same principle applies to any written submissions made by the parties online.

5. **Provision for E- Award:** The requirement for an award to be in 'writing' and 'signed' is outlined in the Arbitration Act,[19] which mandates that the arbitral award must be in written form and signed by the members of the arbitral tribunal. The 'writing' stipulation is addressed by Section 4 of the IT Act, while the 'signature' requirement is covered by Section 5 of the IT Act, which establishes that a digital signature holds the same legal validity as a signature on paper.

Instances, such as in the cases of *Shakti Bhog Foods Ltd. v. Kola Shipping Ltd.*[20] and *Trimex International FZE Ltd. v. Vedanta Aluminium Ltd.*[21] have occurred where parties opted for arbitration through emails. In accordance with Section 31 of the Arbitration Act, once the award is declared, it can be exchanged via emails by sending scanned copies, with the original copy to be sent later via post. This concludes the procedure, leaving only the enforcement of the award, which can be easily obtained as a decree in a court. Consequently, engaging in Online Dispute Resolution (ODR) is entirely valid in India. Currently, the National Internet Exchange of India (NIXI) employs ODR for domain name dispute resolution. While similar to traditional arbitration, the key distinction is that ODR is conducted over the internet. Therefore, the legal principles applicable to traditional arbitration are equally applicable to ODR. Just as Alternative Dispute Resolution (ADR) is legally recognized in India, the same holds true for ODR.[22]

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[18] AIR 2003 SCC 2053.
[19] The Arbitration and Conciliation Act 1996, s. 31(1).
[20] AIR 2009 SC 12.
[21] (2010) 3 SCC.
[22] *Ibid.*

Information Technology and Arbitration

Over the past two decades, there has been remarkable progress in Information and Communication Technologies (ICT), leading to a substantial surge in innovation across various industries, including the legal domain. In this age of globalization and technological integration, advancements in the arbitration process have been introduced, raising speculations about the potential replacement of arbitrators by robots.

The integration of Artificial Intelligence (AI) into arbitration systems is on the rise. However, the question remains: will AI truly become a practical solution for resolving disputes in the future? The answer lies in the unfolding future.[23]

Certainly, there are evident instances of enhanced services within the arbitration community due to the adoption of ICT, such as videoconferencing, electronic disclosure, online platforms, and cloud-based applications. Nevertheless, with the increasing dominance of AI, the traditional form of arbitration may cease to exist in the future.

A significant drawback of AI lies in its inherently rebellious nature, which can render the technology inefficient and complex. While AI can automate routine tasks, the complete substitution of human arbitrators by AI robots seems unlikely. Ultimately, the level of trust required to implement AI in dispute resolution adds another layer of complexity to its widespread adoption.

In *Grid Corporation of Orissa Ltd. vs. AES Corporation*[24] the Supreme Court explicitly mentions that: "When an effective consultation can be achieved by resort to electronic media and remote conferencing, it is not necessary that the two persons required to act in consultation with each other must necessarily sit together at one place unless it is the requirement of law or of the ruling contract between the parties".

The IT Act enumerates that electronic records and signatures can be introduced as evidence and given legal recognition under the Indian legal system[25]

In *State of Maharashtra vs. Dr. Praful B. Desai*[26] the Supreme Court acknowledged the use of video conferencing to record witness statements. Therefore, the submissions and the proceedings can take place online. For this, the International Chamber of Commerce has laid some guidelines which ought to be followed for uniformity. These include agreeing upon the time zone, format of documents and other paraphernalia.

Finally, when the award is declared, as per Section 31 of Arbitration Act, it can be exchanged via emails by sending scanned copies. The original copy can be sent later via post. This completes the procedure and the only thing left is the enforcement of the award, a decree for which can be easily obtained in a court.[27]

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[23] , "AI in Arbitration: Transforming Dispute Resolution with Machine Intelligence", *Express Computer*, Sept. 03, 2023, *available at*: https://www.expresscomputer.in/artificial-intelligence-ai/ai-in-arbitration-transforming-dispute-resolution-with-machine-intelligence/104047/#:~:text=The%20use%20of%20AI%20in%20arbitral%20proceedings%20offers%20synergistic%20opportunities.&text=AI%20holds%20immense%20potential%20in,saving%20both%20time%20and%20money. (last visited on Feb. 3, 2024).

[24] (2002) 7 SCC 736.

[25] Evidence Act 1872, s. 65-B, Information Act 2005, s. 4 & 5.

[26] (2003) 4 SCC 601.

[27] The Arbitration and Conciliation Act 1996, s. 31.

Artificial Intelligence and Arbitration

Artificial Intelligence (AI) is a term coined to describe the general process of combining vast amounts of data with powerful interactive processing systems and intelligent algorithms to facilitate the automatic learning of software. However, the term "Artificial Intelligence" is often used loosely, encompassing various concepts such as machine learning, cognitive computing, and natural language processing.[28]

The primary distinction between Artificial Intelligence and other automation and legal technology tools lies in the capacity for learning and evolving over time. Additionally, it is important to note the existence of two main types of Artificial Intelligence mechanisms: rule-based learning and machine learning. Currently, the majority of AI tools utilize machine learning, which is well-suited for static and gradually changing scenarios.

In the current landscape, where concerns about resource and time expenditures in litigation resolution are escalating, AI holds the potential to reduce the time and cost of resolving legal disputes, encouraging early settlements. However, apprehensions have arisen regarding the impact of AI on decision-making and access to justice. Factors such as who has access to AI benefits, transparency, control of arbitral data and algorithms, publication of awards, and potential risks to confidentiality and personal data protection are now under scrutiny.[29]

Over the past two decades, remarkable progress has been made in the field of AI, and it is increasingly evident that no occupation, including that of arbitrators, is immune to the influence of AI. The international arbitration sector faces potential disruption as AI develops programs with the ability to process information in a manner similar to human arbitrators.

AI holds the potential to deliver awards swiftly, in contrast to the lengthy periods arbitrators typically take to reach a decision, often spanning months or even years. These AI programs can autonomously learn from previous cases, enabling them to generate awards that may surpass those produced by human arbitrators. While technology has various ways to enhance and support international arbitration, it is important to note that AI is not poised to completely replace arbitration. This is reassuringly attributed to the enduring presence of a fundamentally human element in the resolution of disputes.[30]

The remarkable capacity of technology to transform established norms and assumptions of human behaviour is evident, particularly in the realm of arbitration. The integration of technology in arbitration not only enhances efficiency but also reduces costs, enabling the expansion of arbitration into new market segments.[31] Despite

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[28] Suzu Paisley and Margaret J. Foster, "Innovation in Information Retrieval Methods for Evidence Synthesis Studies", *Wiley Online Library*, Sept. 30, 2018, *available at*: https://onlinelibrary.wiley.com/doi/abs/10.1002/jrsm.1322 (last visited on Apr. 15, 2024).

[29] George Lawton, "AI Transparency: What is It and Why Do We Need It?", *Tech Target*, Mar. 03, 2023, *available at*: https://www.techtarget.com/searchcio/tip/AI-transparency-What-is-it-and-why-do-we-need-it (last visited on Apr. 15, 2024).

[30] Christine Sim, 'Will Artificial Intelligence take over arbitration' *available at* < http://www.kluwerarbitration.com/document/kli-aiaj-140101?q=artificial%20intelligence> accessed on 18 Apr, 2024.

[31] Ljiljana, "'International Commercial Arbitration in Cyberspace: Recent Developments" 21 *Northwestern Journal of International Law and Business* 345 (2001).

initial resistance from lawyers' conservatism towards embracing technological advancements, legal practices, including international arbitration, are gradually incorporating technology.[32]

Videoconferencing, electronic records, digital document production tools, and increasingly sophisticated legal research databases have become ubiquitous. Incremental changes, such as the exchange of pleadings via email and electronic communication from arbitrators, are now commonplace.[33] Technology is extensively utilized for document management and presentation, exemplified by initiatives like the NetCase at the ICC, a virtual case room facilitating secure online case filings. Innovations such as memorials with hyperlinks to exhibits have further enhanced the efficiency of legal processes. The next frontier in technological evolution involves independent 'learning' by computers, commonly referred to as Artificial Intelligence (AI).[34]

In various professional domains, including international arbitration, AI holds significant disruptive potential. Its ability to replicate and enhance human cognitive skills, automate routine tasks, and process vast amounts of data positions AI as a valuable tool for managing cases and identifying inefficiencies in the arbitration process.[35] AI could aid parties in selecting arbitrators by analyzing the track records of thousands of candidates in similar cases. It may also provide drafting suggestions for arbitration clauses, assisting clients and lawyers in error elimination, identifying blind spots, and safeguarding their interests.

The fundamental value proposition of AI lies in its capacity to streamline administrative tasks, allowing arbitrators and lawyers to concentrate on aspects of the process requiring the highest levels of human judgment, such as assessing facts, constructing arguments, and deliberating to determine outcomes. [36]

Automation or the efficient simplification of case management through software could provide arbitrators with more time to focus on their primary expertise: arbitration. A growing number of start ups are actively disrupting the legal industry, with some already offering case management and forecasting services specifically tailored for the international arbitration community.[37]

In response to the escalating demand for speed and efficiency, some practitioners advocate for the integration of AI in arbitration to handle the management of extensive documentation. A substantial shift in legal research and document review from physical libraries and client archives to online platforms has occurred. The practice of international arbitration, which involves navigating multiple legal systems simultaneously, often requires dealing with voluminous hard copy and electronic documents submitted to tribunals.

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[32] Gabrielle Kaufmann-Kohler and Thomas Schultz, "'Online Dispute Resolution: Challenges for Contemporary Justice" (Kluwer Law International 27 (2004).

[33] Megan Turchi, 'The future of International Arbitration may not be AI' *available at* <https://www.thinksetmag.com/issue-7/ai-may-not-be-the-future-of-international-arbitration> accessed on 19 Apr, 2024.

[34] Lucas Bento, 'International Arbitration and Artificial Intelligence: Time to Tango' *available at* <http://arbitrationblog.kluwerarbitration.com/2018/02/23/international-arbitration-artificialintelligence-time-tango/> accessed on 19 Apr. 2024.

[35] *Ibid.*

[36] Hogan Lovells, "The future of arbitration: New technologies are making a big impact — and AI robots may take on "human" roles," *available at* <https://www.hoganlovells.com/en/publications/the-future-of-arbitration-ai-robots-may-takeon-human-roles> accessed on 22 Apr, 2024.

[37] *Ibid.*

Given the document-intensive nature of international arbitration, legal professionals, including counsel and arbitrators, traditionally spend numerous hours on legal research and document review. Despite these efforts, they often have to sift through countless pages, including irrelevant text, in pursuit of comprehensive research or review. However, the landscape is poised for change, as the use of AI for legal research and document review in the foreseeable future is expected to drastically reduce the time needed for such tasks, potentially from hours, days, months, or even years to mere seconds, and in some instances, milliseconds.[38]

Artificial Intelligence in the constitution of the Arbitral Tribunal – Another Facet of Technology

One of the initial steps in the arbitration process involves the identification and appointment of arbitrators who will preside over and make decisions on the dispute. In certain disputes, parties invest a significant amount of time in a cumbersome process of arbitrator selection, a task that can be considerably eased with the assistance of Artificial Intelligence. Currently, there are platforms designed to address this challenge.

An example is the Arbitrator Intelligence program, which serves as a global information aggregator, gathering both qualitative and quantitative data on legal professionals and users regarding crucial factors in arbitrator selection. This platform enhances the efficiency of arbitrator selection by analyzing extensive information, including the history of potential candidates and their relevance to the specific nature of each case.[39]

This approach not only results in significant time savings during the arbitration process but also brings transparency to a pivotal stage, namely the selection of tribunal members. It particularly addresses concerns related to the "double-hatting" phenomenon, where certain legal professionals act as representatives of parties in some arbitration proceedings while serving as arbitrators in others, raising the risk of conflicts of interest.[40]

Artificial Intelligence as an interpretative consulting tool

One of the diverse applications of Artificial Intelligence in arbitration involves the processing of data and precedents to propose potential decision frameworks to arbitrators. However, this consultative interpretative function of AI does not entail direct resolution; instead, it involves generating patterns meant to serve as suggestions for arbitrators to form their opinions.

Currently, numerous software and applications are available to fulfill the aforementioned purpose. For instance, the "Arbilex" initiative utilizes AI to provide a coherent predictive analysis of potential arbitration outcomes. Additionally, notable examples include "Premonition," a vast litigation database; "Context," a tool capable of

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[38] Camelia Aknouche, ' Artificial Intelligence and International Arbitration: Going Beyond Email'
available at <https://www.tamimi.com/law-update-articles/artificial-intelligence-andinternational-arbitration-going-beyond-e-mail/>
last visited on on 22 Apr, 2024.
[39] "Arbitrator Intelligence Announces Launch of Arbitrator Intelligence Reports!", Arbitral Women, Apr. 03, 2020, available at:
https://www.arbitralwomen.org/arbitrator-intelligence-announces-launch-of-arbitrator-]intelligence-reports/ (last visited on Apr 22, 2024).
[40] J. Christopher Thomas and Harpreet Kaur Dhillon, "The Foundations of Investment Treaty Arbitration: The ICSID Convention, Investment Treaties and the Review of Arbitration Awards" 32 Nus *Centre for International Law Collection of Articles on an Appellate Body in Isds* 459 (2017).

evaluating millions of pieces of arbitral jurisprudence to structure potential awards; and "Kira," an automated learning and AI software designed for contract and document identification and interpretation.[41]

In essence, Artificial Intelligence has now been incorporated into the arbitration process as a tool that parties involved can utilize. However, its role in this particular method of dispute resolution has been primarily limited to serving as an auxiliary entity rather than an immediate judge of disputes. Nonetheless, this paradigm may evolve over time.

Legal Issues that Surround the Use of IT and AI in Online Arbitration

The utilization of artificial intelligence (AI) in the field of arbitration, although rapidly advancing in the legal domain, introduces intricate legal and ethical considerations. While AI has the potential to enhance the efficiency and precision of the arbitration process, it simultaneously raises apprehensions regarding various legal and ethical aspects, including confidentiality, bias, and decision-making. Addressing these concerns is imperative to guarantee responsible and equitable AI use.[42]

Handling default cases poses a delicate and multifaceted challenge, particularly in international settings, leading to specific scrutiny from judges or arbitrators, often initiated sua sponte. In default cases, meticulous examination of legal issues is essential to ensure that the party seeking a default judgment adheres to all legal requirements. This demands the involvement of a human judge or arbitrator equipped with legal training and experience to evaluate evidence and apply the law accurately.

While AI technology proves helpful in processing extensive data and identifying patterns, it cannot substitute the judgment of a human judge or arbitrator. AI systems are designed to analyze data and make predictions based on statistical models, lacking the ability to interpret legal rules and principles or exercise discretion.

Furthermore, the effectiveness of AI systems relies on the quality of the data they are trained on, and potential biases or flaws may arise if the training data is incomplete or inaccurate. Such discrepancies can result in errors and inconsistencies in legal decisions, carrying significant repercussions for the involved parties. Hence, even in straightforward cases, the presence of a human judge or arbitrator is indispensable to ensure compliance with legal requirements and the delivery of a fair and just resolution. While AI technology can aid judges and arbitrators in processing and organizing data, it cannot replace the indispensable legal expertise and judgment inherent in human decision-makers**.**

Some of the illustrations why Judges can't be replaced by Artificial Intelligence

1. **Confidentiality and Data Privacy:** Incorporating artificial intelligence (AI) into arbitration presents significant legal challenges, with confidentiality and data privacy being primary concerns. AI systems, reliant on extensive data for learning and prediction, may involve sensitive information, necessitating measures to safeguard confidentiality and privacy. The anonymization or protection of data used by AI

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[41] Michelle Bernier, "Technology and Arbitration: New Trends in Law", *Econlog Post*, Jan. 30, 2023, *available at*: https://www.econlib.org/technology-and-arbitration-the-new-trends-of-law/ (last visited on Jan. 30, 2024).
[42] Henk Snijders, "Arbitration and AI, from Arbitration to 'Robotration' and from Human Arbitrator to Robot'," 87 *The International Journal of Arbitration, Mediation and Dispute Management* 232 (2021).

systems is crucial to prevent unauthorized access. The Brookings Institution's report highlights the evolving capabilities of AI in using personal information, raising privacy concerns.[43] Notably, conflicts may arise with data protection laws like the European Union's General Data Protection Regulation (GDPR), as AI systems often require extensive personal data for effective functioning. Compliance with data protection laws, such as the GDPR, is imperative to address privacy concerns in arbitration involving AI systems. Additionally, collecting and processing sensitive personal data, subject to explicit consent requirements, poses challenges for organizations seeking to comply with data protection laws. Concerns also arise regarding the right to access and rectify personal data, given the complexity of AI algorithms in decision-making.

2. **Bias in AI Systems**: The integration of AI in arbitration introduces another legal concern, namely the potential for bias in AI systems. Training AI on biased data or algorithms may lead to unjust decisions. The amplification of bias across a larger population due to widespread AI deployment is a notable concern, as stated by Niti Aayog. Bias in training manifests in two ways: if training data is biased, the algorithm reflects and reproduces existing bias.[44] Notably, real-life instances, such as Amazon's biased recruiting algorithm, underscore the risk of encoding societal imbalances into AI outcomes. Measures to eliminate or reduce bias, such as deploying algorithms designed for this purpose, are crucial. Transparency and explainability in AI decisions are vital to ensure fairness and impartiality in the arbitration process.

3. **Decision-Making in AI Systems**: The third legal issue centres on the role of decision-making in AI systems. While AI can aid arbitrators, it cannot replace the judgment and expertise of human arbitrators. Decisions made by AI systems must undergo review and oversight by human arbitrators to ensure alignment with legal standards. AI systems should complement rather than replace human decision-making.[45] Parties involved in arbitration should prioritize the responsible and ethical design and implementation of AI systems, ensuring that human judgment remains central to the process.

4. **Licensing and Bar Requirements:** The legal profession, highly regulated and requiring a license to practice law, aims to protect the public and maintain the integrity of the legal profession.[46] AI raises concerns about unqualified individuals or entities providing legal advice without the necessary licensing and bar requirements. This lack of regulation may lead to inaccurate or misleading advice, with potential consequences for those relying on it. AI technology's susceptibility to biases and limitations further emphasizes the need for licensed professionals with specialized legal knowledge. Ensuring ethical and responsible AI use in legal practice is essential to maintain the standards and principles of the legal profession.[47]

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[43] Cameron F. Kerry, the Brookings Institution's Artificial Intelligence and Emerging Technology, "Protecting Privacy in an AI Driven World" (2020).

[44] NITI Aayog, 'Approach Document for India Part 1 - Principles for Responsible AI', (2020): *available at* https://www.niti.gov.in/sites/default/files/2021-02/Responsible-AI-22022021.pdf, last visited on 24 Apr, 2024.

[45] Solon Barocas and Andrew D. Selbst,, "Big Data's Disparate Impact" *California Law Review* 680 (2016).

[46] Gizem Halis Kasap, "Can Artificial Intelligence ("AI") Replace Human Arbitrators? Technological Concerns and Legal Implications," *Journal of Dispute Resolution* (2021).

[47] Harry Surden,, "Machine Learning and Law" 87 Washington Law Review 105 (2014).

Conclusion

In conclusion, the evolution of Alternative Dispute Resolution (ADR) into Online Dispute Resolution (ODR) and the integration of Artificial Intelligence (AI) in arbitration represent significant advancements in the field of conflict resolution. ADR methods, marked by their collaborative and non-adversarial nature, have proven to be efficient alternatives to traditional litigation. The introduction of ODR, spurred by the rise of digital interactions, has further expedited dispute resolution by leveraging technology and online platforms.

The genesis of ODR, notably exemplified by eBay's successful internal system, highlights its potential to handle a vast caseload independently. Advocacy for ODR adoption by various stakeholder groups and its implementation in state court administrative offices demonstrate its growing influence. However, the successful application of ODR necessitates essential requisites, including advanced information technology, user-friendly interfaces, and adherence to principles of affordability, accessibility, flexibility, and transparency.

The integration of IT in arbitration processes, from transmitting messages and handling documents to virtually presenting arguments, has already transformed traditional practices. The emerging role of AI in arbitration, particularly in the constitution of arbitral tribunals and handling extensive documentation, signifies a paradigm shift. AI's ability to process vast amounts of data, streamline administrative tasks, and offer insights into arbitrator selection presents significant advantages.

Nevertheless, the incorporation of AI in arbitration raises legal and ethical concerns. Issues such as confidentiality, data privacy, bias in AI systems, and the role of decision-making must be carefully addressed to ensure responsible and equitable AI use. While AI offers unprecedented efficiency, it cannot replace the nuanced judgment and expertise of human arbitrators.

In this evolving landscape, the legal profession faces challenges related to licensing and bar requirements. Striking a balance between embracing technological advancements and maintaining the integrity of the legal profession is crucial. The future of dispute resolution appears to be shaped by a harmonious integration of ADR principles, ODR platforms, and responsible AI applications, offering a promising trajectory towards more efficient, accessible, and fair conflict resolution mechanisms.