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# **BOURGEONING BLOCKCHAIN TECHNOLOGY IN ALTERNATIVE DISPUTE RESOLUTION MECHANISMS: A LEGAL STANCE**

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## **ABSTRACT**

Alternative Dispute Resolution (ADR) has been identified as an important tool of dealing with the increasing pressure on the traditional judicial systems by providing cost effective, flexible, and consensual forms of dispute settlement like negotiation, mediation, arbitration and conciliation. In India, ADR is constitutionally compatible with the provisions of access to justice in the Constitutional Articles 14 and 21 as well as institutionally provided in the form of legislations like the Arbitration and Conciliation Act, 1996, the Mediation Act, 2023 and under Section 89 of the Code of Civil Procedure, 1908. Nonetheless, with this strong framework, conventional ADR systems are continuously challenged with time barriers to enforcement, and transparency, structural inadequacy, and eroding public confidence especially when it comes to volume of digital and cross-border conflicts.

The paper is a critical analysis of the convergence of blockchain technology and ADR in a legal perspective, specifically the regulatory and evidentiary frameworks in India, which is in the process of change. It also examines international trends in the comparative context, including decentralised arbitration models like Kleros, and how they can be adapted to the Indian law. Jurisdiction, confidentiality, enforceability, and due process challenges are also noted in the study and hybrid legal-technological models are needed. The paper wraps up by giving policy recommendations to ensure that blockchain based ADR are harmonised with the current legal frameworks thus ensuring efficiency, legitimacy and fairness in future dispute resolution.

## **Introduction**

Formal court-based adjudication has always been the main tool of distributing justice. Nonetheless, the boom in litigation that has been enhanced by the procedural delays and the increase in cost combined with institutional restraints has caused extensive strain in judicial systems worldwide. The pendency in the Indian judiciary has also reached critical levels and compromised the access to justice in a timely manner and thus there is the need to seek the effective alternatives. It is on this background that Alternative Dispute Resolution (ADR) mechanisms have become invaluable in dispute settling, in a more efficient, consensual, and less adversarial way as compared to the traditional litigation.

ADR is a broad concept that includes such processes as negotiation, mediation, arbitration, and conciliation that are aimed at flexible and party-oriented solutions without the need to damage relationships and minimise legal expenditures. In India, ADR is not just a convenience of procedure but a constitutional and legislative undertaking, based on a belief of equality before the law and justice accessibility through the Articles 14 and 21 of the Constitution and supported by Article 39-A of the Directive Principles of State Policy. The increasing institutionalisation of ADR in the Indian legal system in statutory recognition of ADR is demonstrated under the Arbitration and Conciliation Act, 1996, Section 89 of the Code of Civil Procedure, 1908, and the Mediation Act, 2023.

Irrespective of its potential, the conventional ADR mechanisms have found themselves in serious difficulties in the digital age. Problems with enforcement latency, a deficit of transparency, and limited scalability and eroding trust have limited their usefulness especially in disputes associated with e-commerce, cross-border dealings and blockchain-based business models. The growing sophistication of electronic transactions necessitates dispute resolution systems that are technologically compatible, secure and can perform cross-jurisdictional operations.

In this regard, blockchain technology has become a disruptive technology that can transform the operation of the ADR mechanisms. Blockchain creates new opportunities in managing evidence, procedural transparency, and automated enforcement of procedural transparency using smart contracts by providing decentralised, immutable and verifiable digital infrastructure. Combining blockchain with ADR especially in the context of Online Dispute Resolution (ODR) platforms is an indication of a paradigm shift in dispute prevention,

management, and resolution in the online economy. It is the aim of this paper to discuss the application of blockchain technology in ADR mechanisms in terms of its legal use, its applicability with current ADR frameworks, its advantages and disadvantages, and its prospects on the future of dispute resolution in India and elsewhere.

## **Alternative Dispute Resolution**

### **What is alternative dispute resolution (ADR)?**

Alternative Dispute Resolution (ADR) describes a number of procedures that assist parties to solve disputes without the court proceeding.<sup>1</sup>

Such techniques involve negotiation, mediation, arbitration, and other hybrid techniques. ADR is a less adversarial, flexible and less expensive option to conventional litigation.<sup>2</sup>

With the legal system getting more and more overwhelmed, ADR is becoming widely accepted as an inseparable part of dispute resolution.<sup>3</sup>

The knowledge of ADR is crucial not only to lawyers, but also to business individuals, communal leaders, and people who want to resolve conflicts amicably.

- ADR facilitates a cooperative and resolution culture.
- Reduces the litigation and backlog expenses in the courts.
- Enhances access to justice and eradicates emotional agony.

### **Meaning of ADR**

The other conflict resolution mechanism that has been innovative in India and has also been an interactive conflict solving mechanism is the Alternative Dispute Resolution (ADR), as an alternative to the traditional adversarial court process that has been the historic trait of the Indian legal system.<sup>4</sup> The ADR is a process that implies a sequence of steps, including

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<sup>1</sup> Alternative Dispute Resolution, BLACK'S LAW DICTIONARY (11th ed. 2019)

<sup>2</sup> Frank E. A. Sander, Varieties of Dispute Processing, 70 FED. R. DECISIONS 111, 111–13 (1976)

<sup>3</sup> Law Comm'n of India, 129th Report on Urban Litigation and Mediation as Alternative to Adjudication (1988)

<sup>4</sup> O. P. Malhotra & Indu Malhotra, The Law and Practice of Arbitration and Conciliation (4th ed. 2014)

mediation, arbitration, and conciliation, which offer efficient, economical, and cooperative alternatives to the conflicting parties.<sup>5</sup>

By adopting the strategies of arbitration, conciliation, mediation or negotiation, the neutral third party can successfully intercede the conflict between the conflicting parties in the ADR circle through a meeting point. ADR will thus target at providing a less expensive, faster and less rigid option to the aggrieved party. Such is what it generally attempts to accomplish: to provide a solution that best fits the particulars of the case. The principles of Alternative Dispute Resolution (ADR) in India are founded on the values, which are enshrined in the Constitution i.e. the equality before the law in the Article 14 and the right to life and their personal liberty in the Article 21. Also, the constitutional Directive Principles of State Policy (DPSP) as the clauses of Article 39-A that dwell upon the achievement of equal justice, the delivery of free legal assistance, etc., are quite like the purposes that can be achieved with the help of ADR.<sup>6</sup>

### Aspects of Alternative Dispute Resolution

The simplicity and flexibility, as well as accessibility of Alternative Dispute Resolution (ADR) in India, can be outlined. The main aspects that characterize the essence of ADR in India in short are the following:

- ❖ **Voluntary process:** The ADR practices in India are voluntary i.e. the interested parties must voluntarily decide to use the process. Nobody can be coerced to make use of ADR against his or her will.
- ❖ **Informal approach:** ADR is not as formal as in the conventional court room. It is also not easy to use and does not promote open discussion and cooperation between parties.
- ❖ **Greater range of choice:** India boasts of a large choice of ADR such as mediation, arbitration, conciliation and Lok Adalat. Parties would be in a position of choosing the ADR process that would best suit their needs.
- ❖ **Cost effective:** ADR can also turn out to be far cheaper than court attendance. It will save the cost of legal, less legislation will be involved, and it has been seen to clear

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<sup>5</sup> Arbitration and Conciliation Act, No. 26 of 1996, INDIA CODE; Code of Civil Procedure, No. 5 of 1908, § 89, INDIA CODE

<sup>6</sup> INDIA CONST. arts. 14, 21, 39-A; Hussainara Khatoon v. State of Bihar, (1979) 3 S.C.C. 532 (India)

lawsuits faster.

- ❖ **Quick solution:** ADR is said to be effective. It may result in faster resolutions, and the parties can resolve the disagreements soon.
- ❖ **Neutrality of experts:** The ADR procedures, which engage the services of neutral third parties like mediators, arbitrators, etc. do not mediate or make decisions. Such neutralities like these are fair.
- ❖ **Preservation of relationships:** ADR in India is also an option as it is known to sustain relationship. It encourages peaceful settlements and perhaps is not as inimitable as a court suit.
- ❖ **Enforceability:** The ADR laws and regulations in India are well defined including the Arbitration and Conciliation Act, 1996, which grants ADR awards their enforceability.<sup>7</sup>
- ❖ **Access to justice:** ADR can increase access to Justice since it provides alternative avenue of dispute resolution to the conventional court system, which will make justice more accessible to more individuals.
- ❖ **Respect for cultural diversity:** ADR in India honours the culture and society diversity in India. It enables remedies to conflicts which are culturally passionate locally.
- ❖ **Final and binding decisions:** Awards by arbitration and most ADR decisions are usually final and binding to the parties and offer some resolution to the dispute.<sup>8</sup>

Therefore, ADR in India can be interpreted as a satisfiable, less expensive and effective method of resolving a dispute, and it is anchored on the tenets of equity and rights to equal justice, and India, therefore, can afford her multi-cultural legacy.

## Types of ADR Mechanisms

### Negotiation

The least formal and accessible ADR practice is negotiation. It is a face-to-face contact between

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<sup>7</sup> Arbitration and Conciliation Act, No. 26 of 1996, §§ 35–36, INDIA CODE

<sup>8</sup> Vijay Karia v. Prysman Cavi E Sistemi SRL, (2020) 11 S.C.C. 1 (India)

parties in order to arrive at a solution that is agreeable to both. It may be applied in the personal dispute, commercial dispute, legal dispute and even international dispute. Legal representation is not necessary in the process of negotiation, but the preparation and the communication plan are highly beneficial.

- ❖ Basic building blocks: communication, commitment, interests, options, legitimacy, alternatives (BATNA).
- ❖ Classifications: Distributive (win lose) and Integrative (win-win).
- ❖ Example: In one such situation, a tenant and landlord agreeing upon the terms of the lease extension may give up on price and time and not go to the court.

Employment contracts, partnerships and complaints by consumers also require negotiation.

Negotiating well will lead to fostering of relationships and enhancing of satisfaction with results.

## **Mediation**

Mediation presupposes the intervention of a neutral facilitator (mediator) who helps parties in comprehending each other perspectives and comes to a new consensus. Mediation is particularly effective where relationships are of priority. The mediator is not telling the solution but instead encourages communication and compromise.

- ❖ Advantages: It has party control, confidentiality, speed and cost-efficiency.
- ❖ Appropriate in: family law, business disputes, labour conflicts and neighbourhood problems.
- ❖ Example: conflicts which arise at the workplace.

Mediation typically incorporates such methods as reframing, summarizing as well as reality testing so that parties can overcome the impasse.

## **Arbitration**

Arbitration is a formal ADR involving the use of a neutral arbitrator who listens to both sides

of the case, and provides a liquid decision. The arbitration process may be similar to a simplified court trial, although it is usually more secretive and looser. Most contracts currently also have arbitration clauses where all disputes have to be solved in an arbitral manner.

- ❖ The types of arbitration include binding, non-binding, ad hoc, and institutional.
- ❖ Merits: haste, competency, confidentiality, enforceability.
- ❖ Example: disputes that arise between a landlord and a tenant.

Through an existing arbitration clause, the case is settled in a few weeks by an expert arbitrator in the subject-matter.

Arbitration is typically not as open to appeal as a court, and it is a lot faster and more confidential, hence finality is an important factor.

## Conciliation

Conciliation is an alternative dispute resolution (ADR) which parties voluntarily settle their disagreement through the assistance of a neutral third party called the conciliator. Conciliation is not binding as is the case in arbitration or litigation unless a settlement is achieved and accepted by both parties. This is an informal and confidential process that aims at the maintenance of relationships. The conciliator is a proactive person as he recommends the potential solutions, promotes communication, and assists parties to have a mutually acceptable deal. The statute of arbitration and conciliation, 1996 of India governs it (Part III, Section 61-81).<sup>9</sup>

- ❖ This is how conciliation normally operates:
  - The conciliation begins with an invitation by one party into the other.
  - The parties jointly appoint a conciliator or an institution appoints him.
  - Vindicate the position of both sides and concerns.

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<sup>9</sup> Arbitration and Conciliation Act, No. 26 of 1996, §§ 61–81, INDIA CODE

- The conciliator makes suggestions on settlement and promotes dialogue.
- ❖ Example: In *Haresh Dayaram Thakur v. In the case, State of Maharashtra* (2000) explained that conciliation is not similar to arbitration because it has no formal award but the settlement of the case by consensus.<sup>10</sup>
- ❖ Practical Use Case: In the industrial disputes, conciliation is a common tool that is shared by the Conciliation Officer under the Industrial Disputes Act, 1947, who assists in solving the employer-employee conflicts without involving the litigation. It is one of the most useful techniques in sustaining a long-term business or job relationship.

### ODR and Hybrid ADR Models

Besides the classical types of ADR, there are hybrid forms and new technological innovations that have brought new dispute settlement ways. Hybrid ADRs are the processes that combine the aspects of two or more conventional ADRs. As an example, med-arb involves a combination of mediation and arbitration, whereby parties are initially trying to mediate with each other, and in the event of failure, they move to arbitration. Arb-med uses the reverse order where they begin with arbitration and later transition to mediation. These methods are flexible and can be tailored according to the character of the conflict. Another innovation that has been of great importance in the field is the Online Dispute Resolution (ODR). ODR makes use of digital platforms to conduct the remote negotiation, mediation, or arbitration. ODR is particularly helpful in cross-border conflicts, e-commerce, and in the times of global crises (such as the COVID-19 pandemic), it makes access and convenience even more manageable. Parties can interact through emailing, video conferencing or specialized dispute solving software. ODR services are provided by platforms such as eBay, PayPal and specific legal-tech companies.

- Model Hybrids enhance flexibility and performance.
- ODR gives the opportunity to participate globally and reduce logistical difficulties.

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<sup>10</sup> *Haresh Dayaram Thakur v. State of Maharashtra*, (2000) 6 S.C.C. 179 (India)



- Digital ADR solutions are less expensive and time-consuming.

The combination of technology and conventional approaches is the guarantee that ADR keeps developing in accordance with the demands of the contemporary society and remains relevant and efficient in the digital first-world environment.<sup>11</sup>

## **Blockchain Technology**

Blockchain Technology is the technology, which is a decentralized digital registry, of transactions made through a network in blocks, attached concerning one another chronologically, and would need network consensus to make changes to, which would make it transparent, secure, and trustworthy.

## **Convergence of ADR and Blockchain**

The convergence of Alternative Dispute Resolution (ADR) and blockchain technology marks the beginning of the implementation of decentralised digital infrastructure into the traditional non-judicial dispute resolution systems. This convergence is not an alternative to other ADR systems like arbitration or mediation, instead, it restructures the way that these systems work in online spaces, particularly when such disputes are as a result of technological-based transactions.

Fundamentally the convergence motivation is a common purpose, which is efficiency, trust, and finality. ADR aims to prevent the delay of the procedure and the inflexibility of the jurisdiction of the courts, whereas blockchain provides a decentralised, immutable, and verifiable framework of dealing with transactions and records. Integrated together, ADR processes can form part of digital ecosystems, with dispute resolution being an in-built aspect as opposed to a post-factum.

One of the main features of such convergence is the incorporation of smart contracts with ADR clauses. Smart contracts may have definitions to take disputes to arbitration or mediation in the event that pre-defined conditions arise. After a resolution is achieved, blockchain technology can be used to automatically or even near-automatically enforce it, hence minimizing the need

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<sup>11</sup> Ethan Katsh & Janet Rifkin, *Online Dispute Resolution: Resolving Conflicts in Cyberspace* (2001)

to use the judicial process and improving compliance.

The other aspect of convergence is the digitisation of procedural aspects of ADR. Blockchain facilitates the safe keeping of submissions, evidence, timelines, and awards in such a way that it can be considered data integrity and procedural transparency. This builds trust in the equity of the process especially where cross-border disputes are involved and one side may not trust the other institute. The convergence is also indicative of a move to decentralised resolution systems of dispute, particularly in blockchain-based business machineries. Protocol based decision-making authority can be allocated as well as algorithmic neutral selection, and code is enforced. This disrupts the institution-centric models and is an indication of technology-aided justice in the future.

Significantly, the convergence will necessitate rebalancing confidentiality and transparency. Whereas ADR prioritizes the privacy, blockchain brings in verifiable openness. The resulting convergence is therefore based on hybrid models like permissioned blockchains and encrypted records in order to retain the confidentiality of ADR as well as to enjoy the reliability of blockchain.

Essentially, ADR-blockchain convergence denotes a practical alignment of legal dispute resolution and decentralised technology, which forms a framework that is more responsive to digital trade, cross-border dealings and to automated implementations whilst preserving the essence of consensual and flexible dispute resolution.

### **Decline in the use of the Traditional ADR**

Alternative Dispute Resolution (ADR) such as mediation, negotiation and arbitration was at one time being hailed as a main cure to the congested courts and costly litigation. Despite the broadly promoted ADR in legal practice, the actual use and effectiveness of ADR in various settings have been hindered or even reduced by structural, cultural, and institutional factors.

Institutional and professional resistance is one of the major factors that invalidate the use of traditional ADR. The formal court litigation remains preferable in most jurisdictions to litigants and legal practitioners due to the perceived validity, enforceability, and perceived procedural protection. Research findings show that an apparent absence of formal authority and enforceability will reduce the willingness of commercial parties to choose ADR because results

will be regarded as less binding or prestigious than the court ruling. This impacts the trust in the arbitration and mediation even though they have theoretical advantages of speed and cost-effectiveness.<sup>12</sup>

What is also important is the awareness and familiarity. Lack of knowledge of ADR mechanisms - particularly in the legal market developing countries astounds potential users. In India, as an example, the scholars observe that ADR is yet to emerge as a favoured channel of dispute resolution and is underutilized despite the institutionalization of the practice, in part because of the lack of public awareness and inertia toward the courtroom litigation.

Also, erosion of trust in the results of ADR can be due to systemic cultural barriers and judicial intervention. Judicial overreach on arbitration issues in India, especially when seeking enforcement of awards, has been noted by corporate counsel and investors as a detriment to the self-contained character of ADR and the off-putting effect on international commercial dispute resolution. This type of judicial bottlenecks brings parties back to the old litigation routes thus watering down the appeal of ADR.<sup>13</sup>

A second aspect is an institutional performance and tracking of data. ADR was supposed to decrease the backlogs in court, but lack of measurement and effective evaluation of the programs has left agencies and ADR institutions struggling to popularize its actual use. In the absence of apparent evidence on the consistent benefits of case resolution, stakeholders might invest less on ADR initiatives and this will lead to apparent stagnation or a decline in uptake with time.

Thus, the weakening of the traditional ADR application in some fields is not caused by some structural defect of ADR, but a complex of the attitudes, institutional stagnation, legal culture and insufficient marketing. To turn this trend around, ADR needs to be reformed in a manner that creates enforceability, awareness, and make ADR processes more aligned with user-expectations.

### **Rise of Blockchain Technology in ADR**

Whereas the conventional ADR has struggled to be utilized, blockchain technology is proving

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<sup>12</sup> O. P. Malhotra & Indu Malhotra, *The Law and Practice of Arbitration and Conciliation* (4th ed. 2014)

<sup>13</sup> *Vijay Karia v. Prysmian Cavi E Sistemi SRL*, (2020) 11 S.C.C. 1 (India)

quick to become a futuristic device that transforms how disputes are resolved today, particularly in the context of an Online Dispute Resolution (ODR) initiative and smart contract automation.

The main advantage of blockchain is its ledger architecture as it is decentralized and tamper-resistant, meaning that once recorded on the chain, transaction records and evidence cannot be changed.<sup>14</sup> This removes numerous authenticity and fraud cases that often bog down ADR cases, which makes blockchain an attractive platform in which to store and verify data during a dispute case.

Smart contracts make up one of the most radical uses of blockchain in ADR. A smart contract is a computer program that is run on a blockchain and performs terms and conditions of a contract when previously set conditions are met.<sup>15</sup> Since the smart contracts bind parties together without human intervention, it becomes possible to automate the resolution or performance enforcement of the agreed terms, with the automation process circumventing the traditional human-reliant processes. This will significantly minimize waiting time, expense, and the chances of having a dispute that would need mediation.

Blockchain can also be used to store evidence safely and procedural transparency in ODR. Within ADR framework, using blockchain, the parties, arbitrators, and other authorities can post and retrieve documents and evidence related to a dispute through decentralized lists. It is the transparent though secure quality of blockchain that makes sure that all the stakeholders are viewing the same verifiable information, lessening the argumentation about manipulation and enhancing trust in the process.

Legal scholars and practitioners have observed that dispute resolution mechanisms that are enabled through blockchain technology take ADR into the digital economy. These systems not only support the conflicts of traditional contracts but also those directly related to the on-chain transactions and the decentralized trade. Due to the growing global digital trade, particularly across boundaries, decentralized, technology-sensitive dispute resolution based on blockchain is becoming more applicable.

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<sup>14</sup> Riikka Koulu, *Blockchains and Online Dispute Resolution*, 6 SCRIPTED 1 (2016)

<sup>15</sup> Nick Szabo, *Smart Contracts: Building Blocks for Digital Markets*, 16 EXTROPY 18 (1997)

Furthermore, ADR platforms based on blockchain can facilitate ODR growth by incorporating the elements of video, encrypted communication, and automated award execution into a smooth digital interaction. Other jurisdictions and India are considering legal frameworks that acknowledge electronic records and digital evidence, which would allow blockchains to be used as the valid instrument in ADR procedures.

Overall, the emergence of blockchain in ADR can be seen as a larger innovation trend in dispute resolution: the innovation that focuses more on transparency, automation, integrity of data, and efficiency. Instead of eliminating human judgment outright, blockchain complements the existing ADR systems - improving access to justice in the virtual world and making ODR the new border in the sphere of dispute resolution.

### **Comparative Analysis of Traditional ADR and Blockchain ADR**

<b>Aspect</b>	<b>Traditional ADR</b>	<b>Blockchain ADR</b>
Structure	Centralized, involves the use of neutrals such as arbitrators or mediators who are experts.	Decentralized, smart contract based and crowd-voting on blockchain networks.
Efficiency	Inexpensive and quicker than the courts, it also requires human agents.	Increased transparency and incorruptibility through tamper proof ledger, decreased time.
Enforcement	Awards that can be enforced by a convention such as New York Convention.	Self-executing through code yet it is not consistently legally recognized in most jurisdictions.

### **National and International Perspective on Blockchain based ADR**

#### **National Perspective**

Nationally, India is a place that is particularly favourable to the implementation of the blockchain technology into Alternative Dispute Resolution (ADR). Within the Indian legal system, the use of ADR has always been supported in the context of ensuring the right to justice, eliminating the judicial backlog, and encouraging the settlement of disputes by consensus. Articles 14 and 21 of the Constitution read in conjunction with Article 39-A creates a solid

normative foundation of effective and easy access to justice. In statute law, the Arbitration and Conciliation Act, 1996, Section 89 of the Code of Civil Procedure, 1908 and Mediation Act, 2023 provide a clear legislative desire to institutionalise ADR.

Nevertheless, the fast-digitising economy of India, which is characterized by the development of e-commerce, fintech, digital assets, and transactions using smart contracts, has manifested the shortcomings of traditional ADR in dealing with technologically sophisticated and high-volume conflicts. Blockchain-driven ADR and Online Dispute Resolution (ODR) provide a potential solution in this respect. The use of electronic records and digital evidence has been increasingly acknowledged by Indian courts as an Information Technology Act, 2000 and the Indian Evidence Act, 1872 (as amended) and, as such, has provided a basis to accept blockchain-based records in dispute resolution.<sup>16</sup>

Regardless of this willingness, there is now no clear legal text on blockchain-based arbitration or decentralised dispute resolution frameworks in India. Smart contract regulatory uncertainty, jurisdiction and on-chain award enforceability are still a problem. However, recent policy work like the NITI Aayog promoting ODR, judicial support of technology-assisted justice, and the pilot of a digital court suggests a slow transition to the acceptance of the legal-tech solution. At a national level, ADR using blockchain in India is in the evolutionary phase, therefore, it needs to be balanced by legislative reforms, institutional capacity, and pilot projects to become legitimate and scalable.

### **International Perspective**

On the global level, the development of blockchain-based ADR has been faster, especially within those jurisdictions and areas that focus on digital trade between countries and decentralised finance. The traditional international arbitration has disadvantages that include high cost, long duration and enforcement. The blockchain technology has come in response to these wastes as it includes decentralised, transparent, and automated dispute resolution frameworks.

Examples of the usage of blockchain in a dispute resolution system on a global scale include Kleros, Aragon Court, and other arbitration systems that are decentralised and do not require

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<sup>16</sup> Information Technology Act, No. 21 of 2000, § 65B, INDIA CODE; Anvar P.V. v. P.K. Basheer, (2014) 10 S.C.C. 473 (India).

state-based judicial bodies. These systems use smart contracts, cryptographic evidences and tokens to decide the disputes that come as a result of blockchain ecosystems directly. Although these models cast doubts on due process and accountability, they represent an emerging worldwide recognition of non-traditional and technology-based ADR models.

The application of blockchain in improving Online Dispute Resolution (ODR) has gained greater interest and recognition by international organisations and scholars, especially in low-value and high-volume disputes and those that are cross-border in nature. Other more liberal regulatory styles have been adopted in jurisdictions like the European Union, Singapore and the United States where electronic contracts, digital signatures and automated enforcement systems are acknowledged. These advancements make it easier to co-exist with blockchain-based ADR alongside traditional arb regimes regulated by such tools as the New York Convention, 1958.

On the global scale, blockchain-based ADR is a paradigm shift in dispute resolution the shift towards an institution-focused model to a protocol-focused and decentralised system. Although complete legal harmonisation is not achieved yet, the tendency to accept blockchain as a valid means of preventing and resolving various disputes in the digital economy is obvious worldwide.<sup>17</sup>

### **Policy Recommendations**

The introduction of blockchain technology in Alternative Dispute Resolution (ADR) mechanisms is a potentially transformative prospect, but to be successful, it has to be introduced in a well-balanced policy framework that balances technological innovation with legal legitimacy, procedural fairness, and constitutional values. The policy recommendations are outlined as follows in this respect.

To start with, there is an absolute necessity to have a statutory identification of blockchain-based ADR and ODR mechanisms. Although currently, the legislations in place like the Arbitration and Conciliation Act, 1996 and the Mediation Act, 2023 do offer a framework on which consensual dispute resolution can happen, they do not specifically cover disputes settled using smart contracts or decentralised platforms. New laws or other delegated regulations must

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<sup>17</sup> Pietro Ortolani, The Impact of Blockchain Technologies on Dispute Resolution, 24 UNIF. L. REV. 430 (2019).

be used to clarify whether the evidence of blockchain generation, dispute clauses activated by smart contracts, and digital settlements of the case produced should be considered legal under Indian law and admitted and enforced.

Second, technological automation and human control are to be taken as a hybrid regulatory model. Dispute resolution which is fully automated can bring about issues of due process, bias and accountability. Hence, policy frameworks are advised to enforce human intervention in key processes, including the appointment of arbitrators, validation of final awards, enforcement, whereas blockchain is free to govern the evidence storage and timelines as well as the transparency of the proceedings. This would maintain the essence of natural justice and at the same time take advantage of technological efficiency.

Third, there should be standardized guidelines on how smart contracts should be written and the terms of dispute. The government in conjunction with legal professionals, technologists, and industry stakeholders need to publish model smart-contract clauses with ADR triggers, choice of law, jurisdiction, and enforcement systems. It would decrease ambiguity by ensuring that predictability and confidence are increased among commercial users involved in transactions based on blockchains by means of standardisation.

Fourth, the privacy, confidentiality, and data protection should be improved. Considering that the ADR conventionally values confidentiality, blockchain, which is characterised by transparency, requires a regulatory orientation on the permissioned blockchains, encryption, and controlled access. Such safeguards need to be in line with the Digital Personal Data Protection Act, 2023, where sensitive data of dispute are maintained but at the same time the evidentiary integrity must be preserved.

Fifth, institutional preparedness and capacity building are important. CJA, arbitrators, mediators, lawyers, and ADR institutions need to be trained on the fundamentals of blockchain, smart contracts, and ODR platforms. To address the knowledge gap, special certification and CLE courses must be launched to provide sufficient information to administer and oversee the blockchain-facilitated ADR processes.

Sixth, regulatory sandboxes and pilot projects need to be stimulated. The blockchain-ADR models would be tried under a controlled setting by government-supported pilot programs in the e-commerce dispute, MSME contracts, and cross-border digital transactions. Evidence-



based changes and gradual national changes may be informed by insights of these pilots.

Lastly, harmonisation and global collaboration is to be encouraged. As blockchain transactions inherently have an international character, it is recommended that India work with the international arbitral institutions and standard-setting agencies to encourage the recognition of blockchain-helped awards and creation of congruent enforcement mechanisms in the instruments, e.g., the New York Convention.

## **Conclusion**

The dynamic character of conflicts in the digital economy has unveiled the weaknesses of the conventional dispute resolution systems such as the traditional models of Alternative Dispute Resolution (ADR). Although ADR has been quite helpful in decreasing the backlog of courts and encouraging consensual justice, it has been limited to its enforcement, transparency, scalability, and response to technology-based conflicts. The growing popularity of e-commerce, smart contracts, cross-border online transactions, and web 3.0 platforms requires a major technological resilient, legally sound, and efficient dispute resolution framework.

The blockchain technology presents an encouraging resolution to such challenges in that it proposes a decentralised, immutable and verifiable system that can create a more trustful and procedural integrity in the ADR processes. By incorporating certain functionalities like a tamper-proof record-keeping, smart contracts, automatic awarding and the ability to manage digital evidence, blockchain-enabled ADR, specifically Online Dispute Resolution (ODR) can improve efficiency, lower costs and guarantee more compliance with the results. These inventions fit well with the original purposes of ADR, i.e. speed, accessibility and finality and address the needs of contemporary digital disputes.

Nonetheless, there are no challenges to the integration of blockchain into ADR that lack legal and practical aspects. Issues of jurisdiction, confidentiality, due process, enforceability of rewards on-chain and the presence of human judgment in automated systems are not addressed. In India, although judicial processes include legislative actions, including the Arbitration and Conciliation Act, 1996, the Mediation Act, 2023, and the growing acceptance of electronic evidence, full legislative transparency in the area of blockchain-based dispute resolution is not yet achieved.

Consequently, the future of blockchain-based ADR is in the usage of hybrid approaches that can ensure equal efficiency in technology and the existing legal protection. To enhance the legitimacy and trust of the public, legislative reforms, uniformity of smart contract terms, investment in the judicial and professional capacity, and pilot projects in the policy context are critical. When well applied, blockchain technology will not be a substitute to ADR, but rather an effective enforcer--enhancing its effectiveness and making sure that the system of dispute resolution is not adversarial, biased, and exclusive to the digital realm.

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