



## **“Legal technology as a tool for reducing the justice gap”: An evaluation of digital innovations in access to justice**

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### **Abstract**

Access to justice is still a major problem throughout the world; The COVID 19 pandemic has exacerbated the problem of limited access to justice. Legal technology has been a revolutionary force in recent years and has the ability to lessen these obstacles. This paper critically investigates how digital innovation might improve accessibility, cost, and efficiency in the provision of legal services, hence closing justice gaps. It is based on importance of legal technologies and Innovations such as online dispute resolution, Artificial Intelligence, virtual courts, e-witnesses, online hearing while also addressing their drawbacks, such as algorithmic bias, digital exclusion and regulatory issues. This paper makes the case that although legal technology can greatly improve access to justice; its efficacy depends on implementation, strong procedure, associated institutional reforms, appropriate time framework etc. It is generally accepted that access to justice is a fundamental component of democratic governance and the rule of law. However, ensuring that everyone has equal access to legal remedies continues to be a challenge for justice systems worldwide. Low-income people, rural communities, and other vulnerable groups are disproportionately affected by traditional legal procedures, which are frequently expensive, time-consuming, and technically complicated. Digital innovation, sometimes referred to as legal technology or "legal tech," has gained popularity in the legal sector as a possible solution to these issues. Further, it evaluates whether and to what extent legal technology as become a modern tool for Reducing the Justice Gap.

**Keywords:** Artificial Intelligence (AI), online dispute resolution (ODR), digital innovation, legal tech, rule of law, E-hearing, virtual courts

### **Introduction**

Legal technology is increasingly emerging as a major tool for improving access to justice. It is playing a progressively significant role in enhancing access to justice by reducing cost, time, and procedural barriers. Prior to the development of legal technology, access to justice posed significant challenges arising from high litigation costs, inefficiencies, accuracy concerns, reliance on forensic science, limited expertise in fingerprint analysis, and the non-recognition of virtual courts and electronic evidence. This paper evaluates how legal technology (legal -tech) innovations contribute to reducing the justice gap by enhancing access to justice through a review of currently available digital legal tools such as Online dispute resolution, AI-assisted services, Virtual Courts, e-hearing, e-evidences, e- summon, Latest techniques used in Arbitrations, online assistances etc.<sup>[1]</sup>

Access to justice encompasses not only formal court access but also the ability to understand one's legal rights, obtain legal advice, and obtain fair and timely outcomes. Justice gaps arise when structural, procedural, informational, or financial barriers prevent people from addressing legal issues. From a socio-legal perspective, justice gaps are not merely technical defects but rather larger inequalities embedded in legal systems. Therefore, it is necessary to consider digital innovation from the perspectives of equity, inclusion, and responsibility in addition to efficiency. In terms of technological advancement, the post-pandemic world is moving from the age of digital electronics to what is often described in the legal field as legal technology. Nowadays, accessing courts has become easier through

virtual setups, video conferencing, online proceedings, and the use of electronic evidence. The support of forensic science has also strengthened the justice system, making it easier to seek justice.<sup>[2]</sup>

### **Legal Technology as a Tool**

#### **▪ Online Dispute Resolution (ODR)**

Online Dispute Resolution (ODR) systems play a vital role in enhancing access to justice in contemporary disputes, particularly through AI-assisted negotiation and case triage mechanisms. Online dispute mechanism in-build digital platforms, artificial intelligence (AI), and communication technologies to resolve disputes through online negotiation, mediation, and arbitration. By eliminating the need for physical presence or appearances in courts, ODR makes justice more accessible, easy, affordable and resourceful. ODR systems enable parties to resolve disputes in small claims, consumer disputes, and family Law or Personal matters. It reduces costs, shortens resolution times, and increases procedural flexibility, thereby lowering entry barriers to justice. Now days, the virtual hearings, e-witnessing, e-filing, online document submission are now mainstream parts of judicial proceedings. Numbers of cases have been processed remotely, courts are digitally connected across country and litigants can file and track cases online. It helps to reduce the travel cost, court fees, delay in justice, repeated adjournments, backlogs in courts, physical presence, unethical practices etc.<sup>[3]</sup>

### ▪ **AI-Based Legal Assistance**

Earlier, cases were filed manually using paper-based systems. With the advent of the computerization era, the traditional method of case filing has been transformed into modern Electronic Case Management Systems (ECMS), whereas case information is now stored, processed, and managed digitally for greater efficiency, accuracy, and accessibility. Courts can register, track, manage, and resolve cases digitally with the use of electronic case management systems. Judges, court employees, attorneys, and litigants may all track the status of their cases in real time thanks to these systems, which substitute centralized digital databases for manual record-keeping. Administrative bottlenecks, redundant paperwork, and lost papers all contribute to delays that are lessened by ECMS. Electronic alerts, digital cause lists, and automated scheduling all help to improve judicial time management and streamline court operations. Artificial Intelligence becomes legal advisory tool which provides preliminary legal information, document automations, and case triage services. These technologies enhance legal literacy and empower users to take initial steps in resolving legal issues independently. For underserved communities, AI tools can serve as a first point of contact with the legal system.<sup>[4]</sup>

### ▪ **Digital Courts and E-Governance**

The administration of justice has undergone significant change with the adoption of e-governance tools and the digitization of judicial processes. Electronic case management systems, electronic hearings, electronic filing of digital records, as well as internet access to judicial services are all examples of how information and communication technology (ICT) is being incorporated into the legal system through digital courts. The goal of this change is to improve the administration of justice in terms of effectiveness, accessibility, transparency, and continuity. E-filing eliminates the requirement for physical filing by enabling parties to submit pleadings, petitions, affidavits, and supporting documentation online. This drastically cuts down on expenses, paperwork, and delays in the process. In addition to ensuring safe digital record preservation and reducing the possibility of loss or damage, paperless courts support environmental sustainability. Particularly in jurisdictions with high caseloads, e-filing offers attorneys and litigants ease and quicker access to legal remedies.

### ▪ **Virtual Hearings and Video Conferencing**

Geographical and logistical restrictions have been lessened with the advent of virtual hearings via video conferencing technologies. Time and travel costs can be reduced by allowing parties, witnesses, and legal experts to participate in processes remotely. For preliminary matters, bail hearings, remand processes, and procedural applications, virtual hearings are very advantageous. They also make it easier for under trial inmates and expert witnesses to participate without having to move, which improves efficiency and security. The significance of digital courts was highlighted by the COVID-19 pandemic. Virtual courts provided unbroken access to justice when real courtrooms were closed or only partially functional. To avoid judicial gridlock, courts in many countries quickly embraced digital filings, electronic communication, and online hearings.

Digital platforms made it possible to hear urgent cases quickly, including bail, habeas corpus petitions, and important civil issues. This strengthened the judiciary's position as a vital public institution even in times of crisis. By eliminating barriers related to time, money, and location, digital courts have increased access to justice. Without making long trips, litigants from isolated or rural locations can interact with the legal system. Transparency and public trust are improved by online portals that offer case status, rulings, and orders. Digital integration of alternative dispute resolution procedures and legal aid services can help increase the inclusivity and citizen-centricity of justice.

### ▪ **Emerging applications of explainable AI (XAI)**

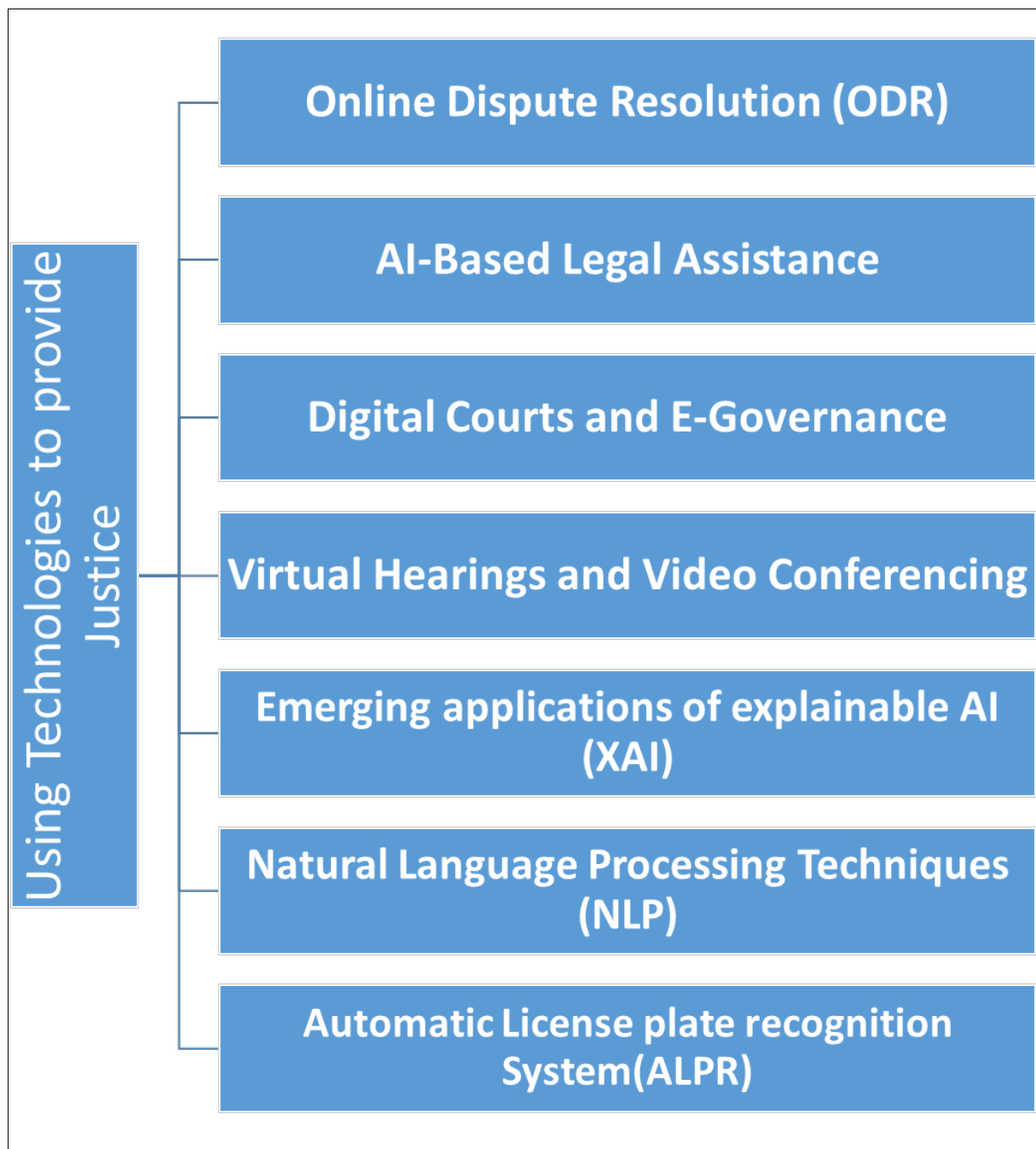
Emerging applications of explainable AI (XAI) is using to maintain the transparency and accountability in Indian Justice System. Indian courts are encouraging for openness by publishing cause lists, rulings, and court orders online. Better auditing, performance evaluation, and data-driven policymaking are made possible by digital records. The ability of judicial administrators to examine workload distribution, disposal trends, and pendency rates allows for better resource allocation and evidence-based reforms. Efficiency, cost savings, and administrative capacity have all increased measurably as a result of the incorporation of legal technology into justice systems. Its effect on justice gaps, however, is still unequal and contentious, as is the difference between the need for legal assistance and the capacity of individuals or groups to access efficient legal remedies. Despite the potential for digital tools to democratize access to justice, actual study shows that use of technology by itself does not ensure equitable outcomes. Instead, unless intentional institutional safeguards and inclusive design are included, legal technology frequently reflects current structural disparities. With the new court system (virtual court system), transparency and accountability can be effectively monitored. This will not only support the delivery of justice but also ensure that justice is achieved in its true sense.<sup>[5]</sup>

### ▪ **Natural Language Processing Techniques (NLP)**

It is a branch of Artificial Intelligence (AI), works in access to justice by enabling computers to understand, interpret, and process complex legal language, thereby transforming dense statutes, lengthy judgments, and complicated legal procedures into simple, clear, and user-friendly information. It functions through techniques such as named entity recognition, text classification, and semantic analysis, which help in identifying relevant laws, extracting key legal facts, and matching user queries with appropriate legal provisions. It also provides clarity in understanding ambiguous legal terms and maxims by explaining them in simple and local languages. In the field of law, the interpretation of statutes is extremely important at every stage of litigation, and even a slight misinterpretation of any implied or nuanced term can seriously hinder access to justice. NLP helps minimize such risks by offering precise and context-based explanations, ensuring that legal meaning is not distorted. Without such clarity, seeking justice can become as difficult as separating water from milk, but NLP makes the process more transparent, accurate, and accessible. As a result, NLP systems can provide accurate responses, generate concise

summaries of cases, translate legal content into multiple languages, and even assist in drafting legal documents like notices and petitions.<sup>[6]</sup> In the present legal system, NLP powers legal chatbots that offer instant guidance enhances multilingual accessibility especially in diverse societies, and significantly speeds up legal research for lawyers and

judges. Consequently, it reduces costs, saves time, minimizes dependency on legal professionals for basic issues, and makes justice more affordable, efficient, transparent, and accessible to the general public, particularly benefiting marginalized and underprivileged sections of society.



▪ **Automatic License plate recognition System(ALPR)**  
Automatic License Plate Recognition (ALPR) systems play an important role in enhancing access to justice by using advanced technologies such as AI & computer vision to automatically detect and read vehicle registration numbers from images or video footage in real time. These systems assist law enforcement agencies in identifying stolen vehicles, tracking offenders, monitoring traffic violations, and collecting reliable digital evidence in an efficient and accurate manner. By reducing human error and significantly speeding up investigations, ALPR ensures timely enforcement of laws

supports fair and consistent legal processes. It also strengthens accountability and transparency by maintaining proper records of vehicle movements, which can be produced in courts as credible evidence. Furthermore, ALPR contributes to better traffic management, enhances public safety, and helps in quick response during emergencies or criminal activities. In the broader context of justice delivery, it reduces delays, improves efficiency in policing, and ensures that offenders are identified and prosecuted promptly, thereby making the justice system more effective, technology-driven, and accessible to society.<sup>[7]</sup>

| Online Dispute Resolution (ODR)                                                                                                                                 | AI-Based Legal Assistance { ECMS- Electronic Case Management Systems}                                                                                                                                  | Digital Courts and E-Governance                                                                                                                                                                                                                                    | Virtual Hearings and Video Conferencing                                                                                                                                                                                     | Emerging applications of explainable AI (XAI)                                                                                                         | Natural Language Processing Techniques (NLP)                                                                                                                                                                   | Automatic License plate recognition System (ALPR)                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #Online Negotiation/ Mediation/ Arbitration<br># No need to physical presence/ appearances in courts.<br># Easy Accessible Justice<br>#Affordable& Resourceful. | # Digital Storage (Crucial Information, Processes, Legal/ Contractual Documents, Findings of cases etc.)<br># Greater efficiency, accuracy & accessibility<br># Easy to Track<br># Redundant Paperwork | # E- Filing, E- Hearing, E- stamps papers etc.<br>#Ensuring safe digital record<br># Reducing the possibility of loss/ Damage<br># Support Environmental Sustainability<br># Reduce the work loads<br># Speedy Trial/ Adequate & Quicker access to legal remedies. | #No Geographical Barriers & Logistical restrictions<br># Reduce the time & travel costs<br># Convenient for under trail inmates/ expert witnesses<br># Systematic & Time Saviour<br># Create transparency in legal concept. | # Publishing Cause lists, rulings, court orders online<br># Better auditing/ Performance evaluation<br># Resource allocation & evidence based reforms | #Transforming complex legal statutes & lengthy Judgment into Simple/ Clear & user friendly information<br># Semantic analysis of legal documents<br># Convert ambiguous Legal Terms/ Maxims into easy language | # To provide credible evidence in courts<br># AI& Computer vision to automatically detect and read vehicle registration numbers from images/ video footage<br># To identify the vehicle & its owner<br>For ensuring timely action on wrongdoer. |

### Emerging Issues & Challenges in India

In access to justice, digital innovations are not free from reasonable restrictions and limitations, and their implementation in India faces several practical, structural, and socio-economic challenges. Issues such as infrastructural limitations, digital illiteracy, privacy concerns, and institutional resistance continue to pose serious obstacles to their effective functioning. Moreover, the uneven distribution of technological resources and awareness further risks widening existing inequalities rather than reducing them.

#### ▪ Digital Divide & Digital Illiteracy

The digital divide remains a significant obstacle to inclusive justice. Socioeconomic disparities in technology access and digital skills can exacerbate existing justice gaps rather than reduce them. A large section of the population, especially in rural areas, lacks access to the internet and necessary technological infrastructure. Additionally, low digital literacy makes it difficult for many people to effectively use online legal platforms and tools.

#### ▪ Ethical and Regulatory Concerns

The use of AI in legal contexts raises ethical issues related to bias, explain ability, and professional responsibility. Current regulatory frameworks often lag behind technological developments, creating uncertainty regarding accountability and consumer protection.

#### ▪ Algorithmic Bias and Lack of Transparency

Another major concerns associated with the use of AI in the judicial system is the risk of algorithmic bias and lack of transparency. AI systems are trained on historical data, which may itself contain social, economic, or institutional biases. As a result, preset recommendations or predictions may unintentionally discriminate against certain individuals or groups, thereby affecting fairness and equality before the law. In addition to this, many AI systems operate as “black boxes,” where the reasoning behind a particular decision are not clear and vague. Such non transparency process undermines accountability and public trust in judicial processes. Therefore transparency, clarity, and regular auditing of AI-driven legal systems is essential to safeguard the principles of natural justice and fairness.<sup>[8]</sup>

#### ▪ Data Privacy and Cyber security Risks

The increasing digitization of judicial information involves the collection, storage, and transmission of vast amounts of

personal and legal information which is sensitive in nature. While digital platforms improve efficiency and accessibility, they also expose legal systems to significant data privacy and cybersecurity risks. Unauthorized access, data breaches, hacking, identity theft, and cyberattacks may compromise confidential court records and personal information of litigants. Such incidents can adversely affect public confidence. Therefore, what is required is a robust cybersecurity framework, secure data encryption, strict access controls, and comprehensive data protection regulations are necessary to ensure the confidentiality, integrity, and security of digital legal information.

#### ▪ Language Barriers, High Implementation Costs, and Lack of Uniform Standards

As far as the Indian sub-continent is concerned despite significant technological advancements, language barriers continue to restrict the effective use of digital legal services. Many legal technology platforms primarily operate in English, restricts the reach of people who are more comfortable with regional languages. Another significant challenge is the absence of uniform technological and procedural standards across jurisdictions, resulting in inconsistencies in implementation and service delivery. To address these challenges you firstly need multilingual softwares, capacity building, and a standardized legal technology.

### Conclusion

Access to justice is a fundamental pillar of the primary rule of law and thumb rule for democratic governance. This has been reiterated by Apex court in many leading cases. The traditional barriers of cost, distance, time, and complexity that have long hindered access to justice. Legal tech has changed the scenario. New Innovations such as Online Dispute Resolution (ODR), Artificial Intelligence-based legal assistance, digital courts, virtual hearings, Natural Language Processing, and automated evidence systems have significantly enhanced the efficiency, accessibility, transparency, and responsiveness of modern justice delivery mechanisms. These technological advancements have resulted into legal outreach, increased efficiency, speedy dispute resolution, and empowered general public with greater access to legal information and remedies.<sup>[9]</sup>

However, technology is not a substitute for human judgment, judicial discretion, and institutional

accountability. Challenges such as the digital divide, algorithmic bias, data privacy concerns, cybersecurity threats, infrastructural deficiencies, and regulatory uncertainties continue to pose significant . If not addressed adequately, these challenges may come up with more inequalities, changing the situation entirely. Therefore, the true potential of legal technology does not entirely based on technological innovation but in its equitable, ethical, and comprehensive implementation. A balanced approach that combines technological advancement, strong legal safeguards, institutional reforms, digital literacy initiatives, and human oversight is the need of the time. When deployed responsibly, legal technology can become a powerful instrument for democratizing justice, strengthening public trust in legal institutions, and ensuring that justice is not only delivered efficiently but is also accessible, fair, and meaningful for all sections of society which is the bedrock of any Independent country.<sup>[10]</sup> In the final analysis, technology can never replace justice; rather, it can serve as a catalyst that can bring justice closer to each and every citizen.

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