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AI-ML in Judiciary: Transformation or Threat?

Ipsita Tiwari^a Abhishek Madheshiya^b

^aGautam Buddha University, Greater Noida, India ^bB.Tech. Graduate, G.L. Bajaj Institute of Technology and Management, Greater Noida, India

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Our generation has been blessed with the upgraded and well-invented technologies of Artificial Intelligence, Machine Learning, etc. Through the application of these innovations in the Judiciary, it can be transformed into a more efficient, robust and fast-track system to ensure administration of justice and uphold the rule of law most effectively. But this transformation can also become a threat if not regulated through ethical safeguards, human oversight and a clear legal framework. The Indian judiciary, while constitutionally empowered and institutionally robust, faces a long-standing crisis marked by massive case backlogs, procedural inefficiencies, and limited access to timely justice. With over 50 million (5 crore) pending cases across various levels of courts, the justice delivery system has become increasingly inaccessible, especially to the marginalised. In this context, the integration of Artificial Intelligence (AI) and Machine Learning (ML) is being explored as a transformative solution to enhance judicial efficiency, streamline administrative functions, and fast-track adjudication. This research work ponders upon the question of “Whether the new-age technologies like AI lead to transformation or become a threat to the Judiciary?” Moreover, the study concludes that AI-ML is both a transformation and a threat. Its success in the judiciary will ultimately depend on how the country governs and implements these technologies to preserve the ideals of fairness, accountability, and human-centric justice.

Keywords: artificial intelligence, machine learning, judiciary, administration of justice, transformation.

INTRODUCTION

Across the world, the Judiciary is the organ of the government that is independent enough to protect the ‘Rule of Law.’ The Rule of Law lives longer only when the Judiciary renders administration of Justice. ‘Administration of Justice’ is effective when it is efficient, fair and on time or without delay. Delay in administration or delivery of justice is the most prominent challenge faced by the Indian Judiciary. “As of July 2025, approximately 50 million lawsuits are outstanding in the Indian courts, with the Supreme Court alone handling approximately 86,000 of these petitions. The recent news article published by The Hindu asserts that over 4.6 crore cases are pending at the District and Taluka levels, and more than 63 lakhs are still unresolved at the High Courts.”¹ Several factors are responsible for these backlogs, such as a Dearth of judges, a lack of infrastructure, procedural complexities, a manual case management system, etc. These factors are becoming more prone to challenges for the delayed administration of justice in India, and we already know the harsh truth:

“Justice Delayed is Justice Denied.”

- William Ewart Gladstone

Many countries use and believe that Artificial Intelligence (AI) and its varied technologies, such as Machine Learning (ML), shall be used to speed up the judicial system and to ensure effective & efficient Administration of Justice. Artificial Intelligence in the Judicial System was first integrated by the United States in the 1980s. “TAXMAN, an experimental project, developed in 1977-80 at Stanford University, in the application of artificial intelligence techniques to the study of legal reasoning and legal argumentation, using corporate tax law as an experimental problem domain.”² Then, gradually, many AI-ML programmes were developed to experiment legal reasoning of machines. SHYSTER and HYPO were such early AI programmes developed by the US to simulate legal reasoning. In the 1990s, European countries like the Netherlands, Sweden, France, the UK, and Italy began experimenting with Artificial Intelligence in the judicial system,

¹ Ishita Mishra, ‘Over 4.6 crore cases pending in lower courts, Centre tells Rajya Sabha’ *The Hindu* (31 July 2025) <<https://www.thehindu.com/news/national/over-46-crore-cases-pending-in-lower-courts-centre-tells-rajya-sabha/article69879720.ece>> accessed 02 September 2025

² Sandra Cook et al., ‘The applications of artificial intelligence to law: a survey of six current projects’ (AFIPS ‘81: National Computer Conference, Chicago Illinois, 1981)

mainly in the form of legal expert systems, decision-support tools, and automated administrative procedures.

A significant milestone was across in 2019 when Estonia announced plans to use AI to adjudicate small claims disputes, possibly the first official government attempt to use AI as a quasi-judicial tool. Further, China developed AI-powered ‘smart courts’ in 2020, where AI handles some administrative and case processing functions, especially in commercial disputes. However, India’s judiciary began experimenting with AI more seriously in the late 2010s. In 2021, the Supreme Court of India launched SUPACE (Supreme Court Portal for Assistance in Court’s Efficiency), marking the first official use of AI in aiding judicial decision-making.

Now, the question, or we can say, the problem is, what will be the ultimate impact of this integration of AI-ML into the Judiciary? Will it transform the judicial system into a better and efficient manner, or will it be a threat to judicial ethics and humanitarian values?

To analyse the implications of these AI advancements in the field of the Judiciary with special reference to the Indian Judiciary, this Article encompasses thorough research in the following areas:

- Experiments & Potential Applications of AI-ML in Judicial systems around the world,
- Current State of Indian Judiciary and Relevance of AI-ML,
- How is AI-ML Relevant or Helpful to the Indian Judiciary?
- Challenges & Threats to Justice,
- Recommendations for Mitigation,
- Conclusion.

EXPERIMENTS & POTENTIAL APPLICATIONS OF AI-ML IN JUDICIAL SYSTEMS AROUND THE WORLD

The integration of Artificial Intelligence (AI) and Machine Learning (ML) into the judicial system is no longer a matter of science fiction or distant innovation—it is a tangible and rapidly transforming reality, which is quite evident around us. As courts around the world struggle with rising caseloads, procedural inefficiencies, and demand for transparency, AI-ML technologies

offer a range of practical applications that can be implemented to complement judicial functions without undermining their constitutional sanctity.³

Unlike traditional digitisation efforts, which primarily focused on converting paper-based systems into electronic formats, AI and ML bring cognitive capabilities, enabling systems to learn from legal data, identify patterns, make predictions, and automate tasks that traditionally required human intervention. These technologies are not designed to replace judges or advocates, but rather to augment their decision-making capacity, improve access to legal resources, and streamline procedural workflows.

Thus, the potential applications of AI-ML in the judiciary are not just technical upgrades; they are strategic tools for reinventing how justice is accessed, administered, and perceived in the 21st century. The following sections explore these applications & implementations in depth, evaluating how these innovations can transform the judicial systems across the globe via reducing pendency, enhancing consistency, improving transparency, and ultimately fast-tracking justice without compromise of legal integrity.

Legal Research and Document Review: Legal research is a time-intensive process involving the retrieval and analysis of relevant statutes, precedents, and legal interpretations. AI tools powered by Natural Language Processing (NLP) and semantic search have transformed this domain. AI can quickly scan thousands of documents, filter relevant case laws, and provide contextual summaries. This significantly reduces the time spent by judges and lawyers on manual document review. AI-assisted tools like ROSS Intelligence, Westlaw Edge, and LexisNexis AI are widely used globally for this purpose.⁴

Example: ROSS Intelligence was one of the first AI-powered legal research platforms designed specifically for lawyers and legal scholars. Launched in 2015 by students from the University of Toronto, it used Natural Language Processing (NLP) and machine learning algorithms to allow users to pose legal questions in plain English, much like a Google search, but receive results tailored to the legal context.

³ Harry Surden, 'Artificial Intelligence and Law: An Overview' (2019) 35(4) Georgia State University Law Review

⁴ Kevin D Ashley, *Artificial Intelligence and Legal Analytics: New Tools for Law Practice in the Digital Age* (CUP 2017)

Case Prioritisation and Scheduling: One of the core reasons behind delays in courts is inefficient scheduling and prioritisation. AI can revolutionise case management systems by:

- Using algorithms to prioritise urgent cases (e.g., bail hearings, senior citizen litigations).
- Identifying repetitive litigation and bulk hearings.
- Predicting judge availability and workload to recommend optimal hearing slots.

This helps in intelligent docket management, reducing procedural delays, and improving case flow efficiency.

One of the most critical areas where Artificial Intelligence is showing tangible results in the Indian judiciary is case prioritisation and docket management. The Supreme Court of India, in its effort to tackle overwhelming pendency and procedural delays, launched the **SUPACE (Supreme Court Portal for Assistance in Court's Efficiency)** in April 2021.

While SUPACE is widely known for its role in aiding legal research, one of its advanced features includes intelligent case triaging, whereby it helps in sorting cases by urgency, complexity, and time-sensitivity. Additionally, the National Judicial Data Grid (NJDG), which compiles real-time data from over 20,000 district and subordinate courts, has recently begun incorporating AI-backed dashboards. This synergy between SUPACE and NJDG marks a foundational step toward AI-powered case flow management in India.

Decision-Support and Predictive Analytics: AI can assist judges by providing data-driven **judicial analytics** and **outcome predictions** based on historical data. Although it does not (and should not) replace judicial discretion, it aids decision-making by identifying patterns in rulings. ML models can assess probabilities of outcomes based on similar past cases. For example, they can estimate likely bail grants, sentencing durations, or the likelihood of appeal reversals. AI can also detect inconsistencies or deviations from standard legal reasoning, acting as a quality control mechanism.

Example: AI tools used in the United States, such as **COMPAS**, help evaluate the risk of recidivism during bail or parole hearings (though not without controversy due to concerns of algorithmic bias).⁵

Online Dispute Resolution (ODR): AI is a core component of Online Dispute Resolution platforms that resolve low-value or non-complex disputes without court visits. AI also facilitates the filing of complaints, evidence submission, and negotiation between parties, followed by either automated or human-moderated resolution. These systems use AI chatbots, decision trees, and automated templates to resolve complaints in areas like consumer rights, insurance, taxation, and small claims.⁶

Language Translation and Accessibility: In a multilingual country like India, language often acts as a barrier to legal understanding. Most judgments are written in English, though litigants in lower courts may be fluent only in regional languages. AI ensures linguistic accessibility, helping litigants understand court orders and legal positions in their own language, thereby democratising legal knowledge.

Example: The **SUVAS (Supreme Court Vidhik Anuvaad Software)** is an AI-based tool developed to translate judgments into nine regional languages, including Hindi, Tamil, Bengali, and Marathi.⁷

Fraud Detection and Compliance Auditing: In civil and commercial matters, AI is highly effective in detecting anomalies, fraudulent patterns, and non-compliance with regulatory frameworks. Algorithms can analyse contract data, financial records, and tax filings to identify suspicious activities before cases reach court. This helps regulators and courts to be proactive, reducing unnecessary litigation.

Example: Singapore has strategically adopted Artificial Intelligence and Data Analytics (AIDA) in both judicial and regulatory domains, especially in areas of fraud detection, financial compliance, and corporate litigation risk assessment. The Monetary Authority of Singapore

⁵ Julia Angwin et al., 'Machine Bias' (*ProPublica*, 23 May 2016) <<https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing>> accessed 02 September 2025

⁶ NITI Aayog Expert Committee on ODR, *Designing the Future of Dispute Resolution: THE ODR POLICY PLAN FOR INDIA* (October 2021)

⁷ 'ACTION PLAN FOR SIMPLE, ACCESSIBLE, AFFORDABLE AND SPEEDY JUSTICE' (*PIB*, 10 August 2023) <<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1947490>> accessed 02 September 2025

(MAS), the country's central bank and financial regulator, has led this effort through its AIDA framework.⁸

Judicial Behaviour and Workload Analytics: AI can also be used to study judicial behaviour, including:

- Judge-specific tendencies in case disposal.
- Adjournment patterns.
- Average time taken per case type.

This analysis can inform judicial policy, allocation of judicial officers, and capacity-building efforts. AI dashboards can guide High Court administrations in optimising judge caseloads.

CURRENT STATE OF INDIAN JUDICIARY AND RELEVANCE OF AI-ML

The Indian judiciary, while deeply rooted in constitutional values and known for its independence and autonomy, is currently struggling with a severe and longstanding problem: an overwhelming backlog of cases. “As of July 2025, approximately 50 million lawsuits are outstanding in the Indian courts, with the Supreme Court alone handling approximately 86,000 of these petitions. Over 4.6 crore cases are pending at the District and Taluka levels, and more than 63 lakhs are still unresolved at the High Courts.”⁹ This pendency affects the substantial fabric of the administration of justice. This is caused by a range of structural and procedural challenges, such as chronic shortage of judges, inadequate court infrastructure, outdated procedural laws, and a largely manual case management system. The result is a justice system often described as slow, inaccessible, and ineffective for a significant section of society, especially for the underprivileged who are most in need of timely remedies.

This pendency not only undermines procedural efficiency but also poses a direct challenge to the right to speedy justice, an integral component of Article 21 of the Constitution, as interpreted by the Supreme Court in *Hussainara Khatoon v State of Bihar*, where the Court declared that delay in trial amounts to denial of fundamental rights.¹⁰

⁸ ‘Artificial Intelligence and Data Analytics (AIDA) Grant’ (*Monetary Authority of Singapore*, 13 October 2021) <<https://www.mas.gov.sg/schemes-and-initiatives/artificial-intelligence-and-data-analytics-aida-grant>> accessed 02 September 2025

⁹ Mishra (n 1)

¹⁰ *Hussainara Khatoon v State of Bihar* (1980) 1 SCC 81

This is where the adoption of Artificial Intelligence (AI) and Machine Learning (ML) becomes not just relevant but essential for the transformation of the Indian Judicial System. Unlike static databases or e-governance tools, AI systems can analyse patterns, prioritise case types, and assist judges with legal research, document summarisation, and decision-making.

How is RELEVANT OR HELPFUL TO the INDIAN JUDICIARY?

Facilitating Legal Research & Document Review: Another crucial application of AI in the Indian judiciary is in legal research and document review. Traditionally, these are time-consuming processes that require hours of manual effort from judges and legal clerks. The launch of SUPACE (Supreme Court Portal for Assistance in Court's Efficiency) by the Supreme Court in 2021 marked a significant shift in this regard. SUPACE uses natural language processing to read case files, identify relevant precedents, and suggest key points for judicial consideration, thereby saving time and improving the quality of adjudication.

Addressing Linguistic Barriers: The introduction of SUVAS (Supreme Court Vidhik Anuvaad Software) has addressed the challenge of linguistic diversity in Indian courts by translating English judgments into several regional languages. In *People's Union for Civil Liberties v Union of India*, the Supreme Court also stressed that access to information is an essential facet of participatory democracy and justice.¹¹ This has greatly enhanced access to justice for litigants who are not comfortable with English, making judicial processes more inclusive and participatory.

Case Prioritisation & Management: Using ML algorithms, courts can automatically rank and prioritise cases based on factors such as the type of dispute, involvement of undertrial prisoners, urgency due to elections or public interest, and time since filing. This triage system can ensure that urgent or time-sensitive matters are listed early, reducing pendency in critical areas like bail, domestic violence, or senior citizen litigation.

Other Important Usages: The relevance of AI in the Indian judiciary extends beyond the courtroom. AI tools can help in *tracking judge-wise performance, monitoring court workload, identifying delay patterns*, and even flagging potential systemic bottlenecks through *real-time analytics dashboards*. Such insights can help court administrators and policymakers design

¹¹ *People's Union For Civil Liberties & Anr v Union of India & Ors* (2004) 2 SCC 476

more efficient allocation of resources, whether it be the redistribution of cases, deployment of infrastructure, or appointment of judges in overburdened jurisdictions. Moreover, AI can support data-driven policy-making by revealing trends and gaps in laws based on the types of disputes brought before courts, their frequency, and their outcomes.

Despite the transformative potential of AI, its integration into the Indian judicial system is not without challenges. There is currently no comprehensive legal or ethical framework to govern the use of AI in the courts, which raises questions about accountability, transparency, and data protection. Additionally, many lower courts lack the infrastructure to support AI technologies, and there is a general lack of technical capacity among judicial officers and staff to effectively use these tools. Nevertheless, the Indian judiciary's increasing openness to technology, evident from its digitisation efforts and pilot AI projects, indicates a readiness to embrace this transformation. To fully harness the benefits of AI and ML, India needs a clear roadmap: one that combines robust legal safeguards with targeted capacity-building, pilot-based testing, and stakeholder consultation. AI should not be seen as a replacement for judges but as a complementary force that empowers them to dispense justice more efficiently, fairly, and accessibly.¹²

The current state of the Indian judiciary makes a compelling case for the integration of AI and ML. These technologies, if implemented thoughtfully and ethically, have the power to revolutionise justice delivery in India, ushering in an era where technology and human intellect coalesce to fulfil the constitutional promise of timely, effective, and equitable justice for all.

CHALLENGES & THREATS TO JUSTICE

While Artificial Intelligence (AI) and Machine Learning (ML) promise to revolutionise judicial systems by improving speed, consistency, and efficiency, their application in the domain of justice raises serious legal, ethical, and constitutional concerns. These technologies, if not implemented cautiously and responsibly, can undermine core judicial principles such as fairness, transparency, accountability, and human empathy, thereby posing direct threats to the foundational ideals of justice. The following are the primary challenges, or we can say 'threats', posed by AI and its progressive technologies towards the Judicial system:

¹² Pulkit Yadav, 'Legal Implications of Artificial Intelligence in Indian Judiciary' (*Legal Service India*) <<https://www.legalserviceindia.com/legal/article-17452-legal-implication-of-artificial-intelligence-in-the-indian-judiciary-system.html>> accessed 02 September 2025

Algorithmic Bias: One of the major challenges is algorithmic bias. AI systems learn from data, and if the training data includes historical inequalities or social prejudices, the AI may replicate and amplify them. In India, where social hierarchies based on caste, religion, gender, and economic status are deeply entrenched, training legal AI models on historical case data without bias-correction mechanisms can lead to discriminatory outcomes. For example, bail or sentencing tools may unfairly assess a higher risk for certain social groups simply because they have historically been overrepresented in certain types of offences or legal actions. Such embedded bias not only undermines equality before the law but also risks institutionalising systemic discrimination under the guise of technological neutrality.¹³

Opacity and Non-Explainability of AI Algorithms: One of the most pressing concerns is the opacity and non-explainability of AI algorithms, commonly referred to as the “black box” problem. Most advanced AI models, especially those using deep learning, operate in ways that even their developers may not fully understand. In a judicial context, where decisions must be reasoned, reviewable, and justifiable, relying on systems that cannot explain their conclusions poses a fundamental threat to due process. A litigant has the right to know how a decision was arrived at, whether by a human judge or an AI tool assisting the bench. Without explainability, judicial accountability is compromised, and appeals or reviews of AI-supported judgments may become legally untenable.

Data Privacy: Data privacy is another critical issue in AI deployment in courts. Judicial records often contain sensitive personal, financial, and criminal information. AI systems, to function effectively, require access to large volumes of such data. However, India lacks a comprehensive and enforceable judicial data protection framework, especially for lower courts and semi-urban jurisdictions. If such data is leaked, misused, or exploited either due to cybersecurity vulnerabilities or commercial misuse by AI vendors, it would violate litigants' fundamental right to privacy, as recognised in *Justice K.S. Puttaswamy v Union of India*.¹⁴

No Clear Regulatory Framework: The absence of a clear regulatory framework governing the use of AI in the judiciary creates ambiguity about liability and oversight. Who is responsible if an AI-supported decision leads to a miscarriage of justice: the developer, the court, or the

¹³ Sandra G Mayson, ‘Bias In, Bias Out’ (2019) 128 Yale Law Journal 2218
<https://scholarship.law.upenn.edu/faculty_scholarship/2393> accessed 02 September 2025

¹⁴ *Justice K S Puttaswamy (Retd) & Anr v Union of India & Ors* (2017) 10 SCC 1

judicial officer? The lack of guidelines on procurement, deployment, auditability, and redressal mechanisms opens the door for arbitrary or unaccountable use of AI in sensitive judicial functions. In *Common Cause v Union of India*,¹⁵ the Court emphasised that state functionaries are accountable for unlawful acts, especially where public rights are involved. Applying this principle, the judiciary must ensure that AI tools used in legal proceedings are held to the same standard of constitutional accountability as human actors.

Digital divide & Uneven Access: Another often-overlooked challenge is the digital divide within the judiciary itself. Many district and taluka courts in India still lack basic infrastructure such as high-speed internet, modern computing systems, or trained IT personnel. Implementing AI in such settings could widen the technological gap between urban and rural justice systems, resulting in uneven access to AI-enabled efficiencies. Additionally, judges, advocates, and clerks may not be adequately trained to understand, validate, or challenge the outputs of AI tools, leading to undue dependence or blind trust in algorithmic suggestions.¹⁶

Judicial Deskilling & Over-Dependence on Machines: Another concern is the fear of judicial deskilling and over-reliance on machines. If AI tools consistently guide legal reasoning, there is a risk that judges, particularly new entrants, may become passive consumers of machine-generated summaries and predictions rather than active interpreters of law. This could lead to a decline in judicial creativity, doctrinal evolution, and nuanced interpretation, which are essential for justice to remain human and adaptive. Courts may lose the moral character that arises from empathy, experience, and context-specific understanding qualities that machines, however advanced, cannot yet replicate.¹⁷ In *Union of India v Madras Bar Association*¹⁸, the Supreme Court underscored the need for preserving judicial independence and the “application of mind” in judicial functions. Excessive automation may dilute this independence and turn judges into passive consumers of algorithmic outputs.

¹⁵ *Common Cause, A Registered Society v Union of India* AIR 2018 SC 1665

¹⁶ ‘POLICY AND ACTION PLAN DOCUMENT PHASE II OF THE ECOURTS PROJECT’ (*eCourt India Services*, 24 January 2014) <https://ecourts.gov.in/ecourts_home/static/manuals/PolicyActionPlanDocument-PhaseII-approved-08012014-indexed_Sign.pdf> accessed 02 September 2025

¹⁷ Karen Yeung, ‘A Study of the Implications of Advanced Digital Technologies (Including AI Systems) for the Concept of Responsibility within a Human Rights Framework’ (*Council of Europe*, 2019) <<https://rm.coe.int/a-study-of-the-implications-of-advanced-digital-technologies-including/168096bdab>> accessed 02 September 2025

¹⁸ *Union of India v Madras Bar Association* (2021) 7 SCC 369

So, while the application of AI and ML in judicial systems holds immense promise, it must be approached with caution, foresight, and regulatory integrity. A transparent, ethical, and legally accountable framework must be established to guide its implementation, ensure human oversight, prevent misuse, and protect the rights and dignity of all stakeholders.

RECOMMENDATIONS FOR MITIGATION

While Artificial Intelligence (AI) and Machine Learning (ML) can revolutionise the judiciary, their integration must be guided by a proactive, ethical, and human-centred framework. To mitigate the challenges and risks posed by AI-ML, such as algorithmic bias, lack of transparency, data privacy concerns, and judicial over-reliance, it is essential to implement strong safeguards at both policy and operational levels. The following recommendations aim to strike a balance between innovation and the core values of justice: fairness, transparency, and accountability.

A Clear Legal and Regulatory Framework: To ensure that the deployment of AI in the judiciary is lawful and transparent, a comprehensive legal framework specific to judicial AI tools must be introduced. This should define the permissible scope of AI use, ensure human oversight, and prescribe protocols for procurement, usage, audit, and accountability. The proposed Digital Personal Data Protection Act, 2023, must be enforced in tandem with judicial data anonymisation standards. Courts should adopt secure storage protocols, restrict vendor access, and ensure that litigants' privacy is not compromised by surveillance or misuse of data through AI platforms.

Ensure Explainability and Transparency of AI Tools: AI systems used in courts should meet the standard of “explainable AI”. That means every output or recommendation from an AI model must be auditable, traceable, and interpretable by human judges. Judges must not treat AI results as final but instead as assistive tools subject to human reasoning. Open-source models or public documentation should be encouraged, especially in critical systems like bail assessments, sentencing guidelines, and case prioritisation. Without transparency, judicial accountability is compromised.

Independent Audits & Bias Testing: There must be regular third-party audits of AI algorithms used in courts to check for errors, inconsistencies, and especially algorithmic bias. These audits should verify whether the system discriminates intentionally or inadvertently based

on caste, religion, gender, or economic status. Independent researchers, legal scholars, and data ethicists should be included in these oversight processes. Pre-deployment testing using synthetic case data can help identify red flags and prevent biased models from influencing real-world decisions.

AI Literacy Among Judges and Court Staff: To reduce dependence and misuse, the judiciary must invest in capacity building. Judges, court clerks, and registry officers should be trained in understanding how AI models work, their limitations, and how to critically interpret AI outputs. Dedicated training modules can be added to judicial academies, and a national certification system could be developed for AI tool use in courts. Enhancing AI literacy will empower users to question, understand, and control the system, rather than becoming passive consumers.

Phased and Pilot-Based Implementation Strategy: AI should not be implemented all at once. Instead, it should follow a phased, region-specific, and task-specific strategy. The judiciary could begin with non-adjudicatory applications like translation (SUVAS), document digitisation, and case indexing. Once reliability is demonstrated, pilot projects can be launched in selected courts to handle routine functions (e.g., traffic challans, tax appeals). The outcomes should be studied before scaling up to more complex domains like sentencing, bail, or civil disputes.¹⁹

AI and ML should not be viewed merely as technological tools but as socio-legal instruments with wide-ranging consequences. Their deployment in the judiciary must be guided by ethical foresight, legal accountability, and human compassion. These recommendations are aimed at ensuring that technology remains a facilitator of justice, not a substitute for it. The future of judicial reform lies in embracing innovation without sacrificing integrity.

CONCLUSION

The convergence of Artificial Intelligence (AI) and Machine Learning (ML) with the judiciary represents a momentous shift in the structure of the administration of justice. At a time when the Indian legal system is burdened with unprecedented case pendency, procedural delays, and resource constraints, AI-ML technologies present themselves as potent tools for modernisation.

¹⁹ Arindrajit Basu and Elonnai Hickok, 'Artificial Intelligence in the Governance Sector in India' (*Centre for Internet and Society*) <<https://cis-india.org/internet-governance/ai-and-governance-case-study-pdf>> accessed 02 September 2025

From streamlining legal research, automating administrative processes, enabling online dispute resolution, to offering predictive analytics and enhancing language accessibility, AI has already begun to redefine the contours of how justice is conceived, accessed, and administered. If deployed responsibly, these technologies have the capacity to revolutionise judicial efficiency, democratize access to legal resources, and usher in a new era of responsive and inclusive justice.

However, this transformation is not without its perils. The use of AI in justice raises complex ethical, constitutional, and jurisprudential questions. The risks of algorithmic opacity, embedded bias, data misuse, and the marginalisation of human reasoning strike at the very core of judicial integrity. The judiciary, as the guardian of fundamental rights, cannot afford to rely on decision-making tools that operate without transparency or accountability.

This study underscores that the future of AI-ML in the judiciary lies not in complete automation but in assisted augmentation. A carefully designed framework is required, one that mandates human oversight, ensures transparency and explainability of algorithms, incorporates robust privacy and data protection safeguards, enables public participation, and promotes indigenous, ethical AI development. Moreover, judicial officers must be trained to critically engage with AI tools rather than blindly rely on them. Technology must serve as a companion to the judge, not a replacement.

In summation, AI-ML in the judiciary can be both a transformation and a threat. The direction it takes will depend entirely on how consciously we legislate, regulate, and embed these tools into the justice ecosystem. With principled governance, thoughtful innovation, and constitutional fidelity, AI-ML can indeed become an instrument of judicial reform. But if left ungoverned, it could very well become a force that undermines the very ideals it seeks to advance. The challenge, therefore, is not to resist technological change, but to ensure that technology is made subservient to justice, and not the other way around.

“Technology can assist justice, but it must never eclipse the human values upon which justice depends.”