
JUSTICE IN THE DIGITAL ERA: A TOOL OR A THREAT?

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"The future of justice may lie in the hands of machines, yet the essence of law is undeniably with human."

– Justice R.F. Nariman

ABSTRACT

Artificial Intelligence (AI) has become a revolutionizing force around the globe that is transforming judicial systems. Countries such as the United States, China, Brazil, and Estonia have adopted AI-Driven tools to mitigate the rising caseloads effectively and efficiently. In India, initiatives like the e-Courts Project, SUPACE, and SUVAS mark a significant digital shift. The main aim or key objective of this paper is to examine the amalgamation of AI in the Indian Judiciary. Further this research takes a systematic doctrinal approach to the answer the question: "How can India integrate AI-driven judicial innovations while safeguarding constitutional values of fairness, transparency, and judicial independence?" This study further provides an insight and reveals that this integration will improve efficiency and inclusivity in legal system.

Keywords: Artificial Intelligence, Courtroom, Digital Courts, Algorithmic Bias, Access to Justice.

INTRODUCTION

Artificial Intelligence (AI) has transcended from the realm of science fiction and has come to the reality of the courtrooms making a transformational change in the Indian justice delivery system. The automating and forecasting feature of AI make it a formidable partner to eliminate the significant hurdle faced by judicial systems globally. This technological shift has paved the way for a more transparent, accessible, and inclusive justice system.

US, China, Brazil, Estonia are some countries that used various AI powered tool to alleviate their substantial caseloads and to facilitate faster dispute resolutions mechanism. In India, the Supreme Court has made groundbreaking development for digital transformation. The projects such as the e-Courts Project, SUPACE, and SUVAS has made a significant advancement in the Indian Legal System. The launch of the nation's *first Digital Court for Negotiable Instruments Act* cases in Kollam align with the India goal of Viksit Bharat by 2047.

However, this new age of AI in the courtroom is accompanied by various issue and obstacle. Issues such as algorithmic bias, threats to judicial independence, lack of transparency pose significant ethical dilemmas. But these concern and challenge cannot over-weight the advancement and development that come with the AI. Furthermore, these concern and obstacle can be removed and eliminate by the empathy, wisdom and accountability of the responsible authority.

This paper has been divided into the four parts. The first Part of this paper deal with Application and Advantage of Artificial Intelligence (AI) in the courtroom. The second part delve into the realm of Different AI Algorithm across the word. In the third part, this paper talk about the evolution and significant AI development in India. Then in the fourth part, this paper take a systematic approach to identify the challenges associated with the AI in the Indian landscape and suggest various way to overcome these challenges.

PART-I: AI AND DIGITAL COURTROOM

There is a significant change in the field of law due to rise in the digital technology. In the realm of this technological advancement, the idea of the digital court has emerged as a beacon which enhance the accessibility and efficiency of justice. The digital court can be described as *"an ecosystem for managing and resolving disputes with the assistance of Artificial*

Intelligence." It leverages information technology, which improve access to justice make it more adaptable and affordable.¹ *John McCarthy*, a retired judge from the international court and an IT specialist, has characterized Artificial Intelligence (AI) as "*enabling a machine to act in a manner that would be deemed intelligent if a human were to act similarly.*"²

APPLICATION OF AI IN THE COURTROOM

The integration of Courtroom with the Artificial Intelligence (AI) lead the revolutionary change in the legal framework. This allows authorized personnel to attend court hearings, which help in boosting both accessibility and security.³ Further, AI is being progressive in supporting various courtroom functions, including legal research, case management, evidence evaluation etc. with the help of the automating mundane tasks and processing extensive datasets, AI help legal professionals to concentrate on legal reasoning and argumentation. The main application of AI in the courtroom are:

- **Transcription**

AI transcription can be utilized for recorded depositions and various forms of audio and video evidence which help to facilitate the creation of a thorough set of searchable records regardless of the original material's format.

- **Translation**

One of the significant challenges in the court proceeding is the language barrier. In the study titled: "*Language Need and Interpreter Use Study: Report to the Legislature 2020*"⁴ revealed that there were over one million interpretations annually for each of the last four fiscal years. This indicates that in highly diverse population may not be

¹ National legal service portal, "*E Court India Services*", INDIA GOV, <<https://services.india.gov.in/service/detail/ecourt-india-services>>, (last visited on 15 September, 2025)

² J. McCarthy et al., "*A Proposal for the Dartmouth Summer Research Project on Artificial Intelligence* (31 August 1955)", Jerry Kaplan (red.) *Artificial Intelligence: What Everyone Needs to Know*, Oxford University Press 2016.

³ Rishi Prakash, T. Mohanty, Ramji Gupta & Vinay Jain, *ICT in Indian Court Challenges & Solution*, Volume-1, Issue-2, IJIC, L. 21, 22, (2011), <https://ghconline.gov.in/library/document/conference2728072018/III2ICT%20i%20India%20Court%20Challenges%20&%20Solution.pdf>

⁴ Martin Hoshino, "*2020 Language Need and Interpreter Use Study: Report to the Legislature*", JUDICIAL COUNCIL OF CALIFORNIA, volume 1, 55, 2020. <https://courts.ca.gov/sites/default/files/courts/default/202412/2020-language-need-and-interpreter-use-study-report-to-the-legislature.pdf>

fully accessing civil justice services.

In a report by *California's Court Interpreters Advisory Panel (CIAP)*⁵ talk about rising costs and the extension of interpreter services into civil matters which led to consistent budget shortfalls. Another a report by *UNESCO on gendered AI*,⁶ indicates that gendered voice assistants experience unequal treatment.

But with the advent of AI technology in the courtroom, one can transform written content into audio formats. Furthermore, one can translate for witnesses, plaintiffs, and defendants who do not speak English or any other language. E-SCR portal provides a access to judicial document which translate legal research, automate processes, and transcribe oral arguments into Hindi and 16 other regional languages with the help of artificial intelligence.⁷

• Judicial Guidance

one of the most important applications of AI is that it provides the judicial guidance in the decision-making processes. For example, tools like Chat GPT can assist judges in evaluating and conducting research, thereby improving the quality of their rulings. AI with the storage of extensive legal data can pinpoint relevant legal precedents which help to simplify the judicial decisions. Studies by *ProPublica*⁸ demonstrate that these tools may harbor systemic biases of the judicial mind of the judge which further ensure fairness and impartiality in the decision making.

ADVANTAGES OF AI IN LEGAL DECISION MAKING

The entire legal framework has been enhanced with the integration of AI in the judicial system.

⁵ California's Court Interpreters Advisory Panel, "*Centre for Families, Children & the Court Interpreters Program*"

, <<https://courts.ca.gov/advisory-body/court-interpreters-advisory-panel>>, (last visited on 15 September, 2025)

⁶ Shutterstock, "*Generative AI: UNESCO study reveals alarming evidence of regressive gender stereotypes*", *UNESCO* (last visited on 15 September, 2025, 9:07 PM) [https://www.unesco.org/en/articles/generative e - aiunesco-study-reveals-alarming-evidence-regressive-gender-stereotypes](https://www.unesco.org/en/articles/generative-ei-aiunesco-study-reveals-alarming-evidence-regressive-gender-stereotypes)

⁷ *Supreme Court Confirm the use of ai in the legal research and translation*, *THE HINDU*, <https://www.thehindu.com /sci-tech/technology/supreme-court-confirms-use-of-ai-in-legal-research-and-translation/>, (last visited on 15 September, 2025)

⁸ Julia Angwin, Jeff Larson, Surya Mattu and Lauren Kirchner, "*Machine Bias*" *PROPUBLICA*, (last visited on 15 September, 2025, 9:07 PM) <https://www.propublica.org/article/machine-bias-risk-assessments-in-criminalsentencing>

This integration has ensured the efficiency, precision, and accessibility of decision making. This section explores how AI technologies have pushed the judicial process and improve the evaluation of legal arguments. Some of the advantage of AI in the legal decision making are as follow:

1. Reducing Judgment Duration

One of the most important and primary advantages of incorporating AI into legal decisionmaking is the reduction of time to deliver judgement. Traditional legal procedures are generally labor-intensive and can led to delays in case.

But with the help of *AI-driven document management systems*, one can easily organize vast amounts of legal documents. With the help of another AI-powered chatbots, users can easily access legal information in straightforward language. This AI are available anytime and anywhere making them service user-friendly.⁹

2. Enhancing Legal Analysis

Another important advantage of AI is that it improve the legal analysis. With the help of an AI, legal information can be effectively managed. This will enhance the accuracy and depth in legal assessment.

3. Improved Access to Justice

The amalgamation of AI in legal decision-making has increased the access to justice, particularly for individuals who find it challenging to navigate the existing system. Many individuals, especially those from underprivileged backgrounds or with limited financial means face difficulties in obtaining legal services. But with AI-driven technologies can help to mitigate some of these obstacles by offering affordable and effective legal support. for instance, Virtual platforms including professional counselors can provide immediate assistance to the people, especially in sensitive cases.¹⁰

⁹ KPMG, <<https://kpmg.com/de/en/home/insights/2024/03/artificial-intelligence-in-law.html>>, (last visited on 15 September, 2025)

¹⁰ PIB,< <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1907543>>, (last visited on 15 September, 2025)

4. Streamlined Document Management

Another important advantage of AI is that it provides a streamlined document management system the extracted, organized, and identified the potential threats. The adoption of this system has improved document analysis and reduce the manual effort.

PART- II: AI ALGORITHMS UTILIZED BY VARIOUS COUNTRIES

Artificial intelligence (AI) has been developed by various nations around the globe to meet their unique needs and priorities. Some of the AI algorithms implemented by different countries are:

1. UNITED STATES

Various initiative has been launched by United States to enhance the justice system. COMPAS (Correctional Offender Management Profiling for Alternative Solutions), an AI-driven tools aid judges in assessing risks. These tools utilize evaluate multiple factors such as criminal history, socio-economic background, and mental health to predict the chances of reoffending. Further it offers an unbiased evaluation of risks for all defendants without compromising public safety¹¹. The US Court System has also introduced *chatbots* which provide essential information to the public. These virtual assistants deal with court procedures, schedules, and other relevant topics.

2. ESTONIA

The AI systems in Estonia has replace judges at the first instance for decision-making. This approach is done to solve straightforward disputes such as accidents, divorces, and utility bills. Judges are only involved at the appellate stage. This AI systems in Estonia has help the judge not to waste on the case that exist merely for the sake of contention.¹²

3. BRAZIL

Brazil has emerged as a global leader in AI utilization, handling approximately 20

¹¹ Moor J. "The Dartmouth college artificial intelligence conference: The next 50 years". *AI Mag*, 2006; 27: 8787. DOI: 10.1609/aimag.v27i4.1911

¹² Consultative Council of European Judges. "Justice and information technologies (IT)", <<https://rm.coe.int/168074816b>>, (last visited on 15 September, 2025)

million disputes annually as compared to Ukraine's 4 million¹³. This high volume of disputes has led to the implementation of e-courts, which are supported by AI systems. In Brazil, an AI system analyzes appellate complaint, and automatically searches for pertinent case law using keywords, and proposes a draft decision. Statistics reveal that a Brazilian appellate judge processes around 500 appeals each month, making AI assistance essential.¹⁴

4. CHINA

China has actively used “*Smart Court system*” since 1990. This system connects to the desktops of all judges in China help in utilizing AI to assist with case analysis and decisionmaking. On WeChat, an online court conduct videoconferencing. *Hangzhou Court* was the first digital court in China, and this innovative court model has also been adopted in Beijing and Guangzhou.

Another AI-driven legal research platform called ‘*China Judgements Online*,’ has been established by the Supreme People’s Court of China which enable the judges to swiftly search for and access relevant legal documents.

PART-III: EVOLUTION OF DIGITAL COURTROOMS IN INDIA

The journey of courtroom advancement in India began with the launch of the E-Courts Project in 2005. The main objective is to revolutionize the nation's judiciary through technology, making the Indian justice delivery system more affordable, accessible, cost-effective, predictable, reliable, and transparent.¹⁵ This project is rolled out in three phases, with the first two phases focusing on the installation of hardware, software, and Case Information Software (CIS) in District and Taluka Court Complexes. Further this project create a several websites for District Courts and judicial officers for training purpose.

¹³ HSF Kramer Legal: “*Brazilian government hopes to make litigation savings with AI*” LATIN AMERICA NOTE, last visited on 15-September, 2025, 9:07 PM), <https://www.hsfkramer.com/notes/latamlaw/2024-posts/Artificialintelligence-in-Brazill> (June 2024)

¹⁴ Asaro P., “*Robots and responsibility from a legal perspective: IEEE Conference on Robotics and Automation*,” SEMANTIC SCHOLAR, 10-14 April 2007, < <https://www.semanticscholar.org/paper/Robots-and-Responsibilityfrom-a-Legal-Perspective-Asaro/24d74f0060b26393f4bce1f6220ac1b96616f509>>

¹⁵ E Committee, Supreme Court of India, < <https://ecommitteesci.gov.in/project/brief-overview-of-e-courtsproject/>>, (last visited on 15 September, 2025)

The third phase lead the establishment of Digital Courts. This phase also seeks to leverage emerging technologies like Artificial Intelligence (AI) and its components, such as Optical Character Recognition (OCR), to analyze case backlogs, forecast future litigation, and serve other functions.¹⁶

Another important developed under the E-Courts Project is the *National Judicial Data Grid (NJDG)* which is an online platform that serves as a comprehensive database of orders, judgments, and cases. *virtual hearings* and *Digital Supreme Court Reports (Digi SCR)*, are some of the initiatives of the Supreme Court of India that offer free access to judgment.¹⁷

In the landmark case of *Swapnil Tripathi vs Supreme Court of India (2018)*¹⁸, the court held that *the matter of constitutional and national significance should be made available to the public*. This initiative have increased the transparency in judicial proceedings Recently, the Kerala High Court has launched a set of guidelines for Artificial Intelligence (AI) in the district¹⁹.

SIGNIFICANT AI DEVELOPMENT IN INDIA

India is not left behind in the race of AI development. The Supreme court of India has launched various initiative and programmed to develop the presence of Ai driven Algorithm in the Indian Legal system. Some of the initiatives are:

- **SUVAS:**

The Supreme Court Vidhik Anuvaad Software (SUVAS) is a Software that translates judgments into 18 Indian languages. The main purpose of this software is to enhance the accessibility for litigants who do not speak English. The translated judgement by this software can be accessed on the E-SCR portal. The launched of this software by the Supreme court has marked the beginning of Artificial Intelligence (AI) usage in the

¹⁶ Drishti IAS, <<https://www.drishtiiias.com/daily-updates/daily-news-analysis/e-courts-integrated-mission-modeproject>>, (last visited on 15 September, 2025)

¹⁷ NIC Informatics, < <https://informatics.nic.in/files/websites/april-2024/Key-digital-tntiatives-launched-incelebration-of-the-supreme-courts-diamond-jubilee.php>>, (last visited on 15 September, 2025)

¹⁸ Swapnil Tripathi v. Supreme Court of India, (2018) 10 SCC 628

¹⁹ Leah Verghese, Smita Mutt, Dona Mathew, "Set the guardrails for AI use in courtrooms ", THE HINDU, (last visited on 15 September, 2025, 9:17 PM) < <https://www.thehindu.com/opinion/op-ed/set-the-guardrails-for-ai-usein-courtrooms/article69965256.ece>>

Indian judiciary. This software helps to boost efficiency, effectiveness, and overall productivity of the court in the decision-making process.²⁰

Hon'ble Allahabad High Court was the first court in the nation that uses SUVAS technology to launched "Nyabha," a monthly AI-powered magazine. This initiative by the hon'ble Allahabad High Court has enhanced digital and linguistic capabilities.

- **CASE MANAGEMENT & DEFECT DETECTION SYSTEM:**

Case Management & Defect Detection System is an AI tools which was developed by IIT Madras and NIC which identify, defects and extract metadata for the enhancement of speed and precision in the case proceeding.

- **SUPACE:**

The *Supreme Court Portal for Assistance in Court Efficiency* (SUPACE) is an AI-powered tool designed to aid judges by optimizing research and data analysis processes. It help to access to pertinent case law, precedents, and legal documents, enabling judges to concentrate on delivering informed and timely rulings.²¹

- **THE JUDGEMENT TRANSLATION SYSTEM**

The Judgement Translation System is an initiative which has been launched by justice DY Chandrachud in the year 2019. The main purpose of this system is to translates judgments from English into various regional languages, broadening accessibility for a wider audience.

- **E-COURT PROJECT**

Machine Learning (ML), Optical Character Recognition (OCR), and Natural Language Processing (NLP), are some of the initiatives which has been launched by the Supreme Court of India and the Ministry of Law and Justice under the E-Court Project. The main

²⁰ 'Justice Rao: "A Need Was Felt for New Age Cutting Age Technology of Machine Learning and Artificial Intelligence in Judiciary for Enhancing Productivity of Justice Delivery System" Live Law. <https://twitter.com/LiveLawIndia/status/1379400690607419393>, (last visited on 15 September, 2025)

²¹ *CJI launches top court's AI-driven research portal*, *The Indian Express*, [<https://indianexpress.com/article/india/cji-launches-top-courts-ai-driven-research-portal-7261821/>], (last visited on 15 September, 2025)

objective of this tool is to boost efficiency, transparency, and accessibility and to streamline case management.²²

- **HACKATHON**

Another important initiative of the Supreme Court is the Hackathon. Hackathon is basically an AI-Driven system which aim to enhance registry functions and stimulate innovation within legal technology.²³

SOME OF THE KEY AI REGULATION IN INDIA

Currently, India does not have specific legislation dedicated to AI; however, the Indian parliament is progressively enacting various regulations concerning artificial intelligence (AI) to manage its multiple sectors. Some of the key regulations include:

1. *Information Technology Act, 2000*²⁴ (IT Act): The IT ACT 2000 primarily deal with the digital and electronic transactions such as cybercrimes, and other computer originated crime. This act further extends to AI systems under the definition of computer resources, covering issues like digital records, electronic signatures, and cybersecurity.
2. *Digital Personal Data Protection Act, 2023*²⁵ (DPDPA): this act regulate the processing of personal data used in AI systems. this act further take user consent, process data minimization, and privacy safeguards which are crucial for AI applications sytem in the judiciary and legal professions.

PART- IV: CHALLENGES AND CONCERNS REGARDING AI

The amalgamation of courtroom with the artificial intelligence (AI) gave rise to various concern and considerable challenges. Some of the key concerns relating to the used of AI in

²² Dr Nivash Jeevanandam, "AI in judicial processes: Transforming India's legal system", *INDIA AI*, (last visited on 15 September, 2025, 9:44 PM), <<https://indiaai.gov.in/article/ai-in-judicial-processes-transforming-india-s-legalsystem>>

²³ Supreme Court of India, "Hackathon" 2024. <https://www.sci.gov.in/hackathon-2024/>(last visited on 15 September, 2025)

²⁴ Information Technology Act, 2000, Act No 21, Act of the Parliament, 2000, (India)

²⁵ Digital Personal Data Protection Act, 2023, Act No.22, Act of the Parliament, 2023, (India)

the courtroom are as follows:

1. Bias and Discrimination

One of the major concerns relating to the AI systems is Biasness and Discrimination. AI may produce the unjust outcomes which badly impact marginalized groups in the society.

2. Lack of Transparency

Another major drawback of AI systems in the decision-making processes is the lack of transparency. The lack of transparency may led to the situation of intricate nature of "black box" which further obscure the decision.

3. Judicial Independence

Transferring of decision-making authority from human judges to algorithms may adversely impact judicial independence. This transition may sway judicial decision.

4. Ethical Concerns

Ethical Concerns regarding accountability, privacy, and the risk of AI system is one of the major drawbacks. For example, if an AI system is compromised or tampered with, it could result in unfair outcomes.

5. Obscuring Human Judgment

Obscuring human judgment is another major concern relating to the use of ai in the decision making process. The favoring of algorithmic may harm the human insights. Critical elements such as context, intent may disregard the use of AI.

6. Security threats:

Case such as sexual assault are sensitive and involve the threat of the exposure of personal data on the online platforms which can cause significant harm to the individuals. The thirdparty applications pose a considerable security threat due to their

susceptibility to hacking and manipulation.²⁶ Even the official YouTube channel of the Supreme Court was compromised.²⁷

7. Digital Disparity and Skill Divide:

In various cases, lawyers and litigants does not have high-speed internet and essential infrastructure to perform their task. Consequently, although video conferencing serves as a vital alternative today, it fails to connect with the broader population and the underprivileged segments of society, who do not possess the essential resources and understanding to utilize it.

8. Judicial Resistance and Cultural Barriers:

Another important hurdle or challenge regarding the use of AI is the judicial resistance and cultural barrier A considerable number of judges and lawyers, particularly in district and lower courts, remain uncomfortable with virtual hearings.

9. Inefficiency in Managing Digital Case Records:

One of the important and major problem associated with the AI is the inefficiency in the digital case record. This problem further led to inconsistencies in case tracking.

SUGGESTION:

Some of the suggestion which resolve the concern accompanied with the use of AI are as follow:

1. Mitigating Bias and Promoting Fairness

A regular audit by independent, multidisciplinary teams can be done to detect and remove the biasness in the AI algorithms and results. To promote fairness in the use of AI-Driven tool, Then the outputs should be subject to review and override by

²⁶ Manorama Yearbook, <https://www.manoramayearbook.in/india/special-articles/2020/09/13/virtual-courts-inindia.html>, /(last visited on 15 September, 2025)

²⁷ Times of India, <https://timesofindia.indiatimes.com/india/supreme-courts-youtube-channel-hacked-streams-videospromoting-cryptocurrency/articleshow/113515329.cms>, /(last visited on 15 September, 2025)

judges.

2. Enhancing Transparency and Accountability

Transparency and accountability can be enhanced by mandating AI tools to adhere to explainability standards and to provide clear justifications for their decisions. Further an appeal process can be implemented to review, contest, and challenge AI-assisted recommendations.

3. Protecting Judicial Independence

The protection of judicial independence can be done by Clearly articulate AI's function as a supportive rather than a decisive, instrument. Further by establishing judicial protocols that confine automated suggestions to procedural or research assistance,

4. Addressing Ethical and Security Risks

Ethical and security risk can be address by creating a comprehensive ethical framework for AI in the judiciary that prioritizes privacy, data security, accountability. Data encryption and routine security assessment can be done to minimize the security risk

5. Bridging the Digital and Skill Divide

Allocation of resources can be done for digital infrastructure such as internet access, hardware etc., in rural and disadvantaged communities, backed by government initiatives and public-private collaborations. Moreover, a nationwide educational program can be initiated for the development of skill.

6. Record Management, Hybrid Models, and Resistance

Implementation of uniform digital record and formulation of guideline for hybrid hearing can be done to reduce the inefficiency in record management. Further responsible authorities must ensure the updates to the National Judicial Data Grid (NJDG) to overcome the hurdle associated with the system.

THE FUTURE OF AI IN THE LEGAL SYSTEM

The future of AI in the legal system holds tremendous potential to make revolution in the justice delivery System. The AI tools such as SUPACE, COMPAS has play a significant role in the Indian Judicial System. It not only streamlines research but also enhance decision-making processes. It is with the used of AI, the court become more efficient and accessible to common people. However, the amalgamation of AI with the courtroom should be carefully managed and controlled to ensure fairness, transparency, or human oversight.

As we approach this new era, it is important and crucial to keep in mind that technology should never eclipse humanity but instead it should enhance it. AI is not developed to replace judges, lawyers, or litigants but it is designed to empower them. As AI continues to evolve, the legal system will need to strike a balance between technological innovation and ethical responsibility. As it was well noted by Justice B. R. Gavai “*A judge must always have the final say. AI can support the process, but it must never drive the decision.*”²⁸

²⁸ Chayanika,” Technology should serve as an aid rather than replace human judgment: Justice BR Gavai on integration of AI in judiciary”, INDIA LEGAL, (last visited on 15 September, 2025, 9:44 PM), <<https://indialegallive.com/constitutional-law-news/courts-news/technology-should-serve-as-aid-rather-thanreplace-human-judgment-justice-br-gavai-on-integration-of-ai-in-judiciary>>