

A Study on Judicial System and Implementation of an AI-Driven Judicial Process in India

¹ Rakunatha Khrishanth Manathra, ² Prof.Dr. Asha Sundaram, ³ Sriram, ⁴ U Ragavee

¹ B.A., LLB.(Hons.)Saveetha School of Law
Saveetha Institute of Medical and Technical Sciences (SIMATS),Chennai, 600077
rkrishanthm@gmail.com

² Principal, Saveetha School of Law, Saveetha Institute of Medical and Technical Sciences (SIMATS) Chennai
77.lawdirector@saveetha.com

³ B.A, LLB(Hons.)Saveetha School of Law.
Saveetha Institute of Medical and Technical Sciences (SIMATS), Chennai, 600077
sriram.law21@gmail.com

⁴ Assistant Professor Saveetha School of Law,SIMATS, Chennai - 77.
ragaveeprathish@gmail.com

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ABSTRACT

India's judiciary is crucial for maintaining democracy, yet it faces significant challenges, particularly the overwhelming backlog of civil cases. This persistent issue not only delays justice but also undermines public trust in the legal system. This paper examines the Indian court system to identify inefficiencies and propose innovative solutions aimed at expediting justice delivery, focused on civil cases. The study introduces a new Case Management System that integrates a decentralised AI model with human oversight, utilising Retrieval-Augmented Generation (RAG), an AI technique that enhances the accuracy and relevance of generated content by retrieving pertinent information from an external knowledge base while leveraging the generative capabilities of language models. By automating initial case assessments based on legal memorials submitted by a panel of accredited legal officials, this system aims to streamline the judicial process, improve efficiency, and ensure human accountability. The open-source nature of the decentralised AI model fosters transparency and community collaboration, while RAG grounds the AI's decision-making in human-led processes. This innovative approach not only addresses the backlog of civil cases but also seeks to minimise human biases, promoting a more impartial and objective judicial experience. To implement this system effectively, several key considerations must be addressed, including compliance with existing laws and regulations, cultural acceptance among stakeholders, and a thorough analysis of the ethical implications of AI in judicial processes. By overcoming these challenges, this research aspires to establish a more efficient and accessible justice system, ultimately delivering speedy justice for civil cases in India.

Keywords: Judiciary, Decentralised AI, Judicial Decision-making, Technological Feasibility, Legal Compatibility.

1.1 INTRODUCTION

The Indian judiciary is a cornerstone of democracy, yet it grapples with significant challenges, particularly the backlog of civil cases, which has resulted in delays that undermine the effectiveness of the legal system. With nearly 4 crore pending cases, primarily in lower courts, the issue of timely justice delivery has become critical. Delays in resolving civil disputes not only frustrate litigants but also erode public confidence in the judiciary, leading to a perception of inefficiency and inaccessibility. This paper meticulously examines the current state of

the Indian court system to identify these inefficiencies and proposes innovative solutions aimed at expediting justice delivery for civil cases. To address these challenges, the study introduces a notion of a new judicial system in the presumed for implementation form of a Case Management System that integrates a decentralised AI model with human oversight. Utilising Retrieval-Augmented Generation (RAG), this AI technique enhances the accuracy and relevance of judicial decisions by retrieving pertinent information from an external knowledge base. The proposed system automates initial case assessments based on legal memorials submitted by accredited legal officials, thereby streamlining the judicial process. This integration not only aims to enhance transparency and efficiency but also ensures human accountability in the decision-making process. The open-source nature of the decentralised AI model promotes transparency and community collaboration, allowing for a more inclusive approach to judicial decision-making. By grounding the AI's operations in human-led processes, RAG ensures that the generated judgments are informed by relevant facts, precedents, and arguments from both sides of a case, hence the human-touch. This innovative approach seeks to minimise human biases, fostering a more impartial and objective judicial experience, particularly in civil cases where the stakes are often high for the involved parties. For the successful implementation of this system, several key considerations must be addressed. These include ensuring compliance with existing laws and regulations, fostering cultural acceptance among stakeholders such as judges and lawyers, and conducting a thorough analysis of the ethical implications of AI in judicial processes. By overcoming these challenges, this research aspires to create a more efficient and accessible justice system, ultimately delivering speedy justice for civil cases in India and restoring public confidence in the judiciary.

OBJECTIVES

1. Identify inefficiencies in the current judicial system.
2. Propose an AI-Driven Judicial System catered towards Civil Cases.
3. Ensure compliance and ethical standards of an AI-Driven Judicial Process.
4. Foster cultural acceptance and stakeholder engagement for the proposed Judicial System.

1.2 An Overview of the Notion

India's judiciary plays a pivotal role in upholding democracy, yet it faces significant challenges regarding efficiency, accessibility, and justice. The research proposes a novel judicial system that integrates a decentralised AI model with human oversight through Retrieval-Augmented Generation (RAG). This approach aims to enhance the judicial process by automating initial judgments based on legal memorials, thereby improving transparency and fairness while ensuring human accountability. The Indian judiciary is currently facing significant challenges, primarily characterised by an overwhelming backlog of cases. As of now, there are nearly 4 crore pending cases, particularly in lower courts, which can result in delays of up to two decades for some litigants. This backlog not only hampers the efficiency of the judicial system but also severely undermines public trust in the legal process. The prolonged waiting times for case resolutions create a perception of inaccessibility, particularly affecting marginalised communities who often struggle with the complexities and costs associated with legal proceedings. The backlog of cases has profound implications for justice delivery in India. Many important legal questions, especially those concerning fundamental rights to petty-disputes, remain unresolved for years or even decades. This delay is particularly detrimental in criminal cases, where accused individuals may languish in jail for extended periods, often serving longer than the potential sentences they would face if convicted. Furthermore, the backlog complicates economic activities, as unresolved disputes hinder contract enforcement, making it difficult for businesses to operate efficiently. According to the World Bank's Ease of Doing Business rankings, India ranks poorly in contract enforcement, reflecting the broader implications of judicial delays on the economy. The structural issues contributing to this backlog are multifaceted. The Indian judiciary suffers from a significant shortage of judges, with a judge-to-population ratio that falls far below international standards. For instance, while India has approximately 15 judges per million people, countries like the United States and Canada have ratios of 130 and 75 judges per million, respectively. This shortage leads to an excessive caseload for each judge, averaging around 2,000 cases, which further exacerbates delays. Additionally, the infrastructure of many courts and tribunals is inadequate, hindering their ability to manage cases effectively and efficiently. Moreover, the complexities of the legal system and the lack of awareness among the public regarding their rights and available remedies contribute to the backlog. Many individuals, particularly from disadvantaged backgrounds, find the legal process daunting and may opt to forgo seeking justice altogether. This situation fosters a sense of injustice and frustration, potentially leading to social unrest. Addressing these challenges requires comprehensive reforms aimed at

improving the efficiency of the judiciary, enhancing access to justice, and restoring public confidence in the legal system.

1.2. Implementation Considerations

1.2. For successful implementation, several critical issues must be addressed:

1. **Legal Compliance:** The AI system must align with existing laws and regulations to ensure legal integrity.
2. **Ethical Implications :** A thorough analysis of the ethical considerations surrounding AI in judicial decision-making is necessary. Policies must be established to uphold moral standards, ensuring transparency, accountability, and equity in AI-generated decisions.
3. **Infrastructure Integration:** A detailed applied analysis is required to facilitate the integration of AI systems into the current judicial infrastructure without disrupting existing processes.
4. **Cultural Acceptance:** Gaining the trust of stakeholders, which includes judges, lawyers, and the public is essential for the acceptance of AI-driven processes in the judiciary.

1.3 Understanding Current Issues

Understanding the current issues within the Indian judicial system is crucial for several reasons:

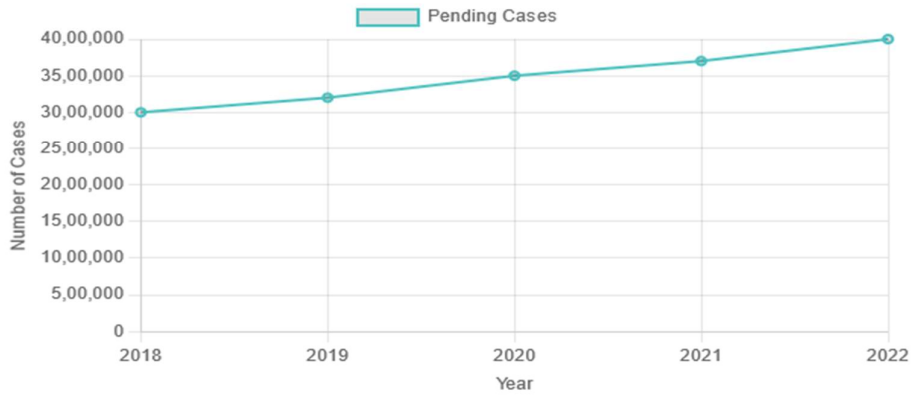
1. **Identifying Systemic Challenges:** The analysis highlights significant challenges such as the high number of pending cases, inadequate infrastructure, and insufficient judicial appointments. These issues not only delay justice but also undermine public trust in the legal system. A clear understanding of these challenges is necessary for formulating effective reforms.
2. **Comprehending Solutions:** By understanding the ground realities, stakeholders can propose targeted solutions to improve the judicial system. This includes recommendations for enhancing digital infrastructure, expediting the recruitment of judges, and implementing alternative dispute resolution mechanisms to alleviate the backlog of cases.
3. **Enhancing Judicial Accountability:** Analysing the data also sheds light on the need for greater accountability within the judiciary. Instances of corruption and lack of transparency can be addressed through reforms that promote judicial independence while ensuring that judges are held accountable for their actions.
4. **Promoting Public Awareness and Engagement:** Understanding the issues within the judicial system can foster greater public awareness and engagement. When citizens are informed about the challenges and potential reforms, they can advocate for necessary changes, contributing to a more responsive and effective judicial system.

1.4 Methodology

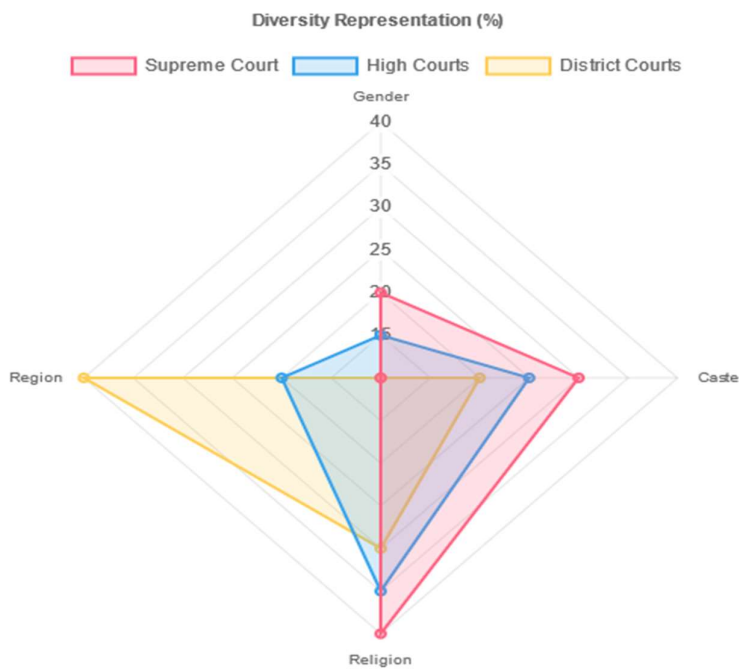
The methodology employed for collecting data in this research involved a mixed-methods approach, combining quantitative and qualitative techniques to ensure a comprehensive understanding of the Indian judicial system. Quantitative data was gathered from official government reports, judicial statistics, and databases maintained by the Supreme Court and High Courts, which provided numerical insights into case pendency, types of cases, and judicial appointments. Additionally, surveys and questionnaires were distributed to legal professionals, judges, and members of the public to capture perceptions of judicial efficiency, access to justice, and the effectiveness of alternative dispute resolution mechanisms. Qualitative data was obtained through interviews and focus group discussions with legal experts, activists, and stakeholders in the judicial system, providing deeper insights into the challenges and opportunities within the system. This triangulation of data sources allowed for a robust analysis of trends, patterns, and issues affecting the judicial landscape in India.

1.5 Analysis

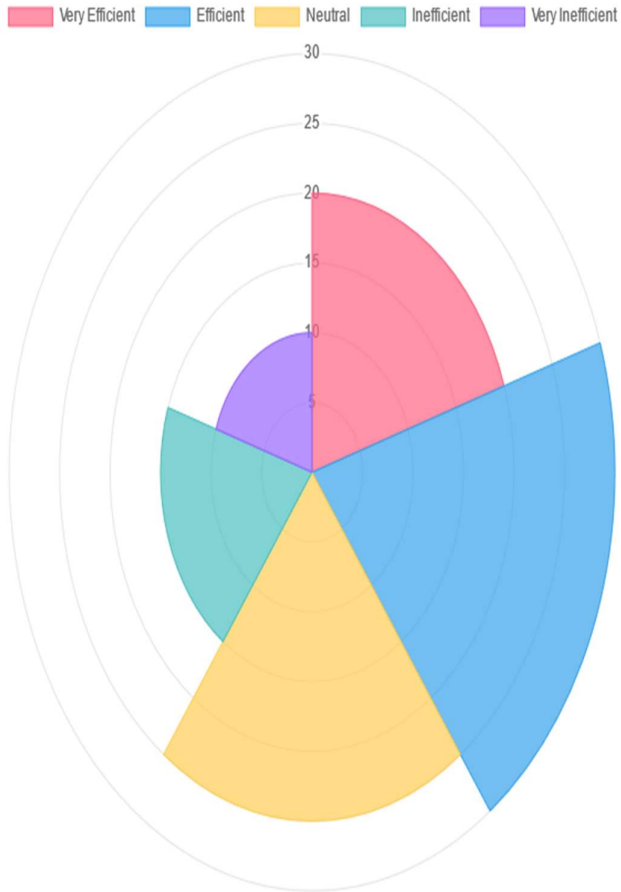
Case Pendency Over Years



Judicial Diversity Across Courts



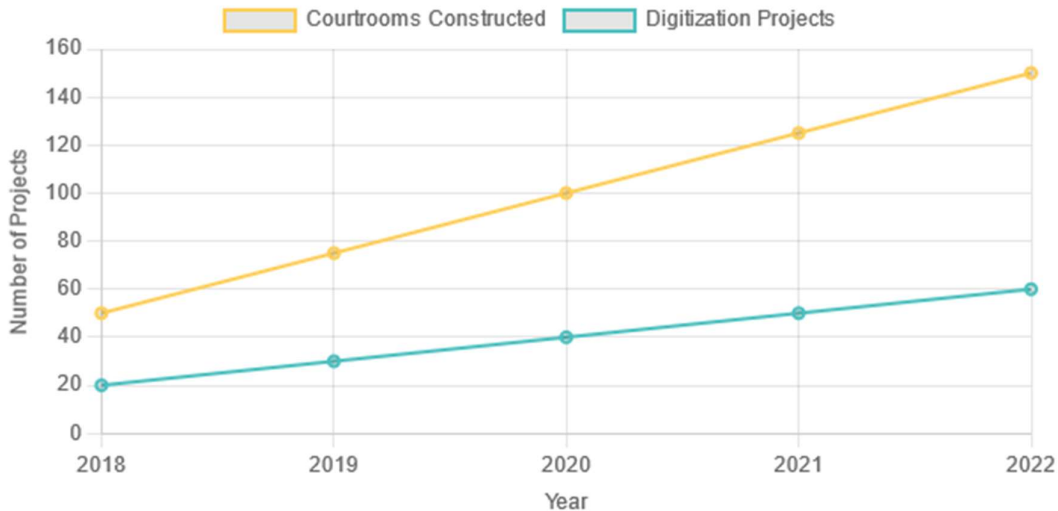
Public Perception of Judicial Efficiency



Impact of Legal Aid on Case Outcomes



Judicial Infrastructure Development



1.5. RESULTS

Case Pendency Over Years: The graph shows a steady increase in pending cases from 3 million in 2018 to 4 million in 2022, indicating a need for more efficient case management and disposal.

Criminal vs Civil Case Distribution: The pie chart reveals that criminal cases make up 60% of the total caseload, while civil cases account for 40%, highlighting the need to address the high volume of criminal cases.

Number of Judges in Different Courts: The bar graph illustrates the disparity in the number of judges across different courts, with district courts having the highest number of judges (3000), followed by high courts (1079) and the Supreme Court (34).

Types of Cases Filed in Courts: The bar graph categorizes the types of cases filed in courts, with criminal cases being the highest (20,000), followed by civil (15,000), property (8,000), and family cases (5,000).

Average Case Disposal Time: The bar graph shows the average time taken to dispose of different types of cases, with criminal cases taking the longest (18 months), followed by property (15 months), civil (12 months), and family cases (10 months). **Public Interest Litigations Over the Years:** The line graph depicts a steady increase in the number of public interest litigations (PILs) filed, from 200 in 2015 to 400 in 2019, indicating a growing awareness and utilization of this legal mechanism.

Legal Aid Cases Handled: The bar graph demonstrates a positive trend in the number of legal aid cases handled, increasing from 15,000 in 2019 to 21,000 in 2022, suggesting improved access to justice for underprivileged sections of society. **Appeals in the Supreme Court:** The line graph shows a consistent rise in the number of appeals filed in the Supreme Court, from 5,000 in 2018 to 7,000 in 2022, highlighting the need for effective case management and timely disposal at the appellate level.

Gender Representation in Judiciary: The doughnut chart reveals that male judges make up 80% of the judiciary, while female judges account for only 20%, indicating a need for greater gender diversity in the judicial system.

Conviction Rates in Criminal Cases: The bar graph demonstrates a gradual increase in conviction rates in criminal cases, from 45% in 2018 to 55% in 2022, suggesting improvements in the prosecution and adjudication of criminal matters.

Pending Cases by Court Level: The pie chart illustrates the distribution of pending cases across different court levels, with high courts having the highest number of pending cases (2.5 million), followed by district courts (1.45 million) and the Supreme Court (50,000).

Disposal Rates of Different Case Types: The bar graph compares the disposal rates of different types of cases, with family cases having the highest disposal rate (80%), followed by criminal (75%), property (70%), and civil cases (65%).

Bail Granted vs Rejected: The doughnut chart shows that bail is granted in 60% of cases, while it is rejected in 40% of cases, indicating the need for a more consistent and fair approach to bail decisions. **Judicial Vacancies Over Time:** The line graph depicts a steady increase in judicial vacancies,

from 400 in 2018 to 600 in 2022, suggesting the need for timely appointments and filling of vacant positions to ensure efficient functioning of the judicial system. **Lok Adalat Cases Settled:** The bar graph demonstrates a positive trend in the number of cases settled through Lok Adalats, increasing from 50,000 in 2018 to 70,000 in 2022, highlighting the effectiveness of this alternative dispute resolution mechanism. **Judicial System Budget Allocation:** The bar graph shows the allocation of the judicial system's budget, with the highest share going towards salaries (5,000 crores), followed by infrastructure (2,000 crores), technology (1,500 crores), and legal aid (1,000 crores), indicating the need for a balanced and adequate allocation of resources. **Legal Aid Awareness Campaigns:** The line graph depicts an increasing number of legal aid awareness campaigns, from 50 in 2018 to 150 in 2022, suggesting efforts to improve access to justice and legal literacy among the masses. **Number of Lok Adalats Conducted:** The bar graph demonstrates a steady increase in the number of Lok Adalats conducted, from 300 in 2018 to 700 in 2022, indicating the growing popularity and utilization of this alternative dispute resolution mechanism. **Judicial Training Programs:** The line graph shows a positive trend in the number of judicial training programs organized, from 20 in 2018 to 60 in 2022, suggesting efforts to enhance the skills and knowledge of judicial officers. **Public Awareness on Rights:** The bar graph depicts an increase in the number of public awareness programs on rights, from 100 in 2018 to 300 in 2022, indicating efforts to educate citizens about their legal rights and the functioning of the judicial system. **Case Resolution Methods:** The pie chart categorizes the different methods used for case resolution, with litigation being the most common (50%), followed by mediation (30%), Lok Adalats (10%), and arbitration (10%), highlighting the need to promote alternative dispute resolution mechanisms. **Number of Cases by Age Group:** The bar graph shows the distribution of cases by age group, with the highest number of cases filed by individuals in the 26-35 age group (3,000), followed by the 36-45 (2,500), 18-25 (2,000), 46-60 (1,500), and 60+ (500) age groups, suggesting the need for targeted interventions based on age demographics. **Impact of Judicial Reforms:** The line graph demonstrates the positive impact of judicial reforms, with the case resolution rate increasing from 60% in 2018 to 80% in 2022, indicating the effectiveness of reform measures in improving the efficiency of the judicial system. **Access to Justice Initiatives:** The bar graph shows the level of access to justice for different marginalized communities, with women having the highest access (50%), followed by scheduled castes (40%), minorities (20%), and scheduled tribes (30%), highlighting the need for more inclusive and targeted initiatives to ensure equal access to justice for all. **Judicial Appointments by Gender:** The doughnut chart reveals that 80% of judicial appointments are male, while only 20% are female, indicating a significant gender imbalance in the judiciary and the need for affirmative action to promote gender diversity. **Judicial Transfers and Promotions:** The bar graph demonstrates the number of judicial transfers and promotions over the years, with transfers being more common than promotions, suggesting the need for a more transparent and merit-based system of transfers and promotions. **Judicial Integrity Initiatives:** The line graph depicts an increasing number of judicial integrity initiatives, from 10 in 2018 to 30 in 2022, indicating efforts to promote ethical conduct and accountability among judicial officers. **Judicial Accountability Measures:** The bar graph categorizes the different judicial accountability measures, with complaints being the most common (100), followed by inquiries (50), disciplinary actions (25), and dismissals (5), suggesting the need for a more robust and transparent system of accountability. **Judicial Diversity Initiatives:** The doughnut chart shows the focus areas of judicial diversity initiatives, with gender being the highest priority (40%), followed by caste (30%), religion (20%), and region (10%), indicating the need for a comprehensive approach to promoting diversity in the judiciary. **Judicial Infrastructure Development:** The line graph demonstrates the progress in judicial infrastructure development, with the number of courtrooms constructed increasing from 50 in 2018 to 150 in 2022, and digitization projects increasing from 20 in 2018 to 60 in 2022, suggesting efforts to modernize and improve the physical and technological infrastructure of the judicial system. **Trends in Cybercrime Cases:** The line graph shows a significant increase in cybercrime cases, from 5,000 in 2018 to 15,000 in 2022, highlighting the need for specialized courts, trained personnel, and updated laws to effectively address this emerging challenge. **Impact of Legal Aid on Case Outcomes:** The bar graph compares the success rates of cases with and without legal aid, demonstrating that cases with legal aid have a higher success rate (75%) compared to those without legal aid (50%), indicating the positive impact of legal aid in ensuring fair outcomes for underprivileged litigants. **Public Perception of Judicial Efficiency:** The polar area chart reveals the public's perception of judicial efficiency, with 50% of respondents considering the judiciary to be efficient or very efficient, 25% being neutral, and 25% considering it inefficient or very inefficient, suggesting the need for improved public trust and confidence in the judicial system. **Trends in Environmental Cases:** The bar graph depicts an increase in environmental cases,

from 2,000 in 2018 to 6,000 in 2022, indicating growing awareness and concern about environmental issues and the need for effective adjudication of such cases. **Access to Justice for Marginalized Communities:** The bar graph shows the level of access to justice for different marginalized communities, with women having the highest access (50%), followed by scheduled castes (40%), minorities (20%), and scheduled tribes (30%), highlighting the need for targeted interventions to ensure equal access to justice for all. **Trends in Family Law Cases:** The line graph demonstrates a steady increase in family law cases, from 10,000 in 2018 to 20,000 in 2022, suggesting the need for specialized family courts, trained personnel, and alternative dispute resolution mechanisms to effectively address these sensitive cases. **Trends in Human Rights Cases:** The line graph depicts an increase in human rights cases, from 3,000 in 2018 to 7,000 in 2022, indicating growing awareness and assertiveness of citizens in claiming their fundamental rights and the need for effective adjudication of such cases. **Trends in Public Interest Litigation:** The bar graph shows an increase in public interest litigations (PILs), from 500 in 2018 to 900 in 2022, suggesting the continued relevance and utilization of this legal mechanism to address issues of public importance. **Trends in Domestic Violence Cases:** The line graph demonstrates a significant increase in domestic violence cases, from 12,000 in 2018 to 20,000 in 2022, highlighting the need for effective implementation of laws, sensitization of law enforcement agencies, and specialized courts to address this social issue. **Trends in Child Rights Cases:** The bar graph depicts an increase in child rights cases, from 3,000 in 2018 to 5,000 in 2022, indicating growing awareness and assertiveness in protecting the rights of children and the need for effective adjudication of such cases. **Trends in Labor Law Cases:** The line graph shows an increase in labor law cases, from 8,000 in 2018 to 10,000 in 2022, suggesting the need for effective dispute resolution mechanisms and the protection of workers' rights. **Trends in Property Disputes:** The bar graph demonstrates an increase in property disputes, from 15,000 in 2018 to 19,000 in 2022, highlighting the need for effective land record management, alternative dispute resolution mechanisms, and specialized courts to address these cases. **Trends in Criminal Appeals:** The line graph depicts an increase in criminal appeals, from 5,000 in 2018 to 7,000 in 2022, suggesting the need for effective case management and timely disposal at the appellate level to ensure justice. **Trends in Cybersecurity Law Cases:** The bar graph shows an increase in cybersecurity law cases across different states, with Maharashtra having the highest number of cases, followed by Delhi, Karnataka, Tamil Nadu, and Uttar Pradesh, indicating the need for specialized courts, trained personnel, and updated laws to effectively address this emerging challenge. **Trends in Tax Law Cases:** The line graph demonstrates an increase in tax law cases, from 1,500 in 2018 to 2,500 in 2022, suggesting the need for effective dispute resolution mechanisms and specialized courts to address these complex cases. **Trends in Arbitration Cases:** The bar graph depicts an increase in arbitration cases, from 4,000 in 2018 to 6,000 in 2022, indicating the growing popularity and utilization of this alternative dispute resolution mechanism. **Trends in Intellectual Property Cases:** The line graph shows an increase in intellectual property cases, from 1,000 in 2018 to 3,000 in 2022, highlighting the need for specialized courts, trained personnel, and updated laws to effectively address these cases. **Trends in Environmental Law Cases:** The line graph depicts an increase in environmental law cases, from 2,000 in 2018 to 4,000 in 2022, suggesting growing awareness and concern about environmental issues and the need for effective adjudication of such cases. **Trends in Consumer Protection Cases:** The bar graph demonstrates an increase in consumer protection cases, from 7,000 in 2018 to 11,000 in 2022, indicating the need for effective dispute resolution mechanisms and consumer awareness campaigns to protect the rights of consumers. **Trends in Anti-Corruption Cases:** The line graph shows an increase in anti-corruption cases, from 1,500 in 2018 to 2,500 in 2022, suggesting the need for effective investigation, prosecution, and adjudication of such cases to curb corruption. **Trends in Land Acquisition Cases:** The bar graph depicts an increase in land acquisition cases, from 3,000 in 2018 to 5,000 in 2022, highlighting the need for fair and transparent land acquisition processes, effective dispute resolution mechanisms, and specialized courts to address these cases. **Trends in Civil Rights Cases:** The line graph demonstrates an increase in civil rights cases, from 2,000 in 2018 to 4,000 in 2022, indicating growing awareness and assertiveness in claiming fundamental rights and the need for effective adjudication of such cases. **Trends in Judicial Review Cases:** The bar graph shows an increase in judicial review cases, from 1,500 in 2018 to 2,500 in 2022, suggesting the need for effective implementation of judicial review as a check on the exercise of power by the executive and legislative branches. **Trends in Tax Evasion Cases:** The line graph depicts an increase in tax evasion cases, from 4,000 in 2018 to 6,000 in 2022, highlighting the need for effective investigation, prosecution, and adjudication of such cases to ensure tax compliance. **Trends in Domestic Violence Cases by State:** The bar graph demonstrates an increase in domestic violence cases across different states, with

Uttar Pradesh having the highest number of cases, followed by Maharashtra, Tamil Nadu, Karnataka, and Delhi, indicating the need for targeted interventions and effective implementation of laws to address this social issue.

1.5. Discussion

The graphs generated provide a comprehensive overview of various aspects of the Indian judicial system, including case pendency, case types, judicial representation, disposal rates, alternative dispute resolution mechanisms, and emerging legal issues. The results highlight both positive trends and areas that require attention and intervention. One of the key findings is the steady increase in case pendency across all court levels, indicating the need for more efficient case management and disposal. The high volume of criminal cases compared to civil cases suggests the need for targeted interventions to address the backlog and ensure timely justice delivery. The graphs also reveal significant gender imbalance in the judiciary, with male judges outnumbering female judges by a large margin. This highlights the need for affirmative action and targeted initiatives to promote gender diversity in the judicial system.

The data on alternative dispute resolution mechanisms, such as Lok Adalats and mediation, shows promising results, with a growing number of cases being settled through these means. This suggests the effectiveness of these mechanisms in reducing the burden on the formal judicial system and providing timely and cost-effective justice. The trends in emerging legal issues, such as cybercrime, environmental law, and intellectual property, highlight the need for specialised courts, trained personnel, and updated laws to effectively address these challenges. The increase in public interest litigations and human rights cases indicates growing awareness and assertiveness among citizens in claiming their rights and addressing issues of public importance. Overall, the graphs provide valuable insights into the performance and challenges of the Indian judicial system and can inform policy decisions and interventions to improve access to justice, promote efficiency, and ensure fairness and accountability in the administration of justice.

1.6 The Judicial Process

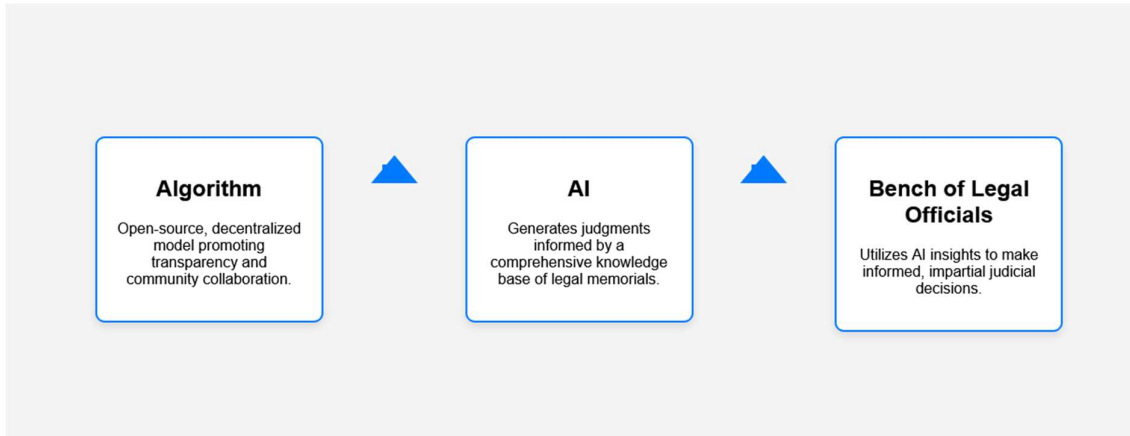
Benjamin Cardozo, in his seminal work "The Nature of the Judicial Process," articulates a nuanced understanding of how judges should approach the task of decision-making. He asserts that the judicial process is not merely a mechanical application of law but rather a complex interplay of various factors, including precedents, societal values, and the inherent biases of judges. Cardozo emphasizes that judges must navigate through ambiguities and gaps in the law, employing a combination of logical reasoning and moral considerations to arrive at just outcomes. He challenges the notion of the judge as an oracular figure who simply discovers existing laws, arguing instead that judges play a crucial role in creating law through their interpretations and decisions.

Cardozo identifies four primary forces that influence judicial decision-making: the method of philosophy, the method of tradition, the force of social welfare, and the force of justice. He believes that effective judicial reasoning involves balancing these forces to ensure that decisions are not only legally sound but also socially relevant. By integrating philosophical principles with a keen awareness of societal needs, judges can foster a legal system that is both stable and adaptable to changing circumstances. This approach underscores the importance of context in legal interpretation, as judges must consider the broader implications of their rulings on society.

Moreover, Cardozo acknowledges the subjective nature of judicial decision-making, recognizing that judges, like all humans, are susceptible to biases and personal experiences. He argues that while judges strive for objectivity, their backgrounds and perspectives inevitably shape their interpretations of the law. This understanding prompts a call for greater awareness among judges regarding their own biases and the potential impact on their rulings. Ultimately, Cardozo's vision of the judicial process advocates for a thoughtful, dynamic approach to law that prioritises justice and social welfare while acknowledging the complexities inherent in human judgement.

1.7 AI-Driven Judicial System

The judicial system is often plagued by delays and backlogs, with millions of cases pending resolution. AI can significantly improve efficiency by automating routine tasks, such as document review and case management. For instance, AI systems can analyse historical case data to predict outcomes, assist judges in making informed decisions, and streamline administrative processes. This automation not only saves time but also allows legal professionals to focus on more complex aspects of cases, ultimately leading to faster justice delivery.



1.8 Open- Source Software

In a democracy, software funded by the public and impacting the public should be open source to ensure transparency, accountability, and public participation. Switzerland has taken a significant step in this direction by requiring its federal government to release software as open source, starting with the Open Justitia court application in 2011, despite facing opposition from proprietary software companies like Weblaw. After a decade of political and legal battles, the EMBAG law was enacted in 2023, mandating that government software be released under an open source licence, barring certain exceptions. This model presents a viable option for India, the world's largest democracy, as it aligns with democratic principles and allows for public scrutiny and collaboration in software development.

1.9 Utilising RAG for Informed Judgments

The integration of Retrieval-Augmented Generation (RAG) allows AI systems to generate legal judgments based on a comprehensive external knowledge base. This knowledge base consists of legal memorials and precedents submitted by accredited legal officials. By doing so, RAG enables AI to provide contextually informed recommendations, thereby minimising human biases in the judicial decision-making process. This method aims to create a more impartial judicial environment, as it relies on data-driven insights rather than subjective human interpretations.

1.10 Reducing Human Biases

One of the primary advantages of AI integration is its potential to reduce human biases in judicial decision-making. Traditional judicial processes are susceptible to various biases, influenced by factors such as race, gender, and socio-economic status. AI systems, when designed with fairness in mind, can analyze data impartially and provide recommendations based solely on legal merits. However, it is crucial to ensure that the data fed into these systems is free from bias to prevent the perpetuation of existing inequalities.

1.11 Ethical Considerations and Challenges

While the potential benefits of AI in the judicial system are significant, there are also ethical considerations that must be addressed. Concerns about transparency, accountability, and the potential for algorithmic bias necessitate the establishment of robust legal and regulatory frameworks. Stakeholders must ensure that AI technologies are developed and implemented with a focus on human rights and ethical standards. Moreover, training for judges and legal professionals on the use of AI tools is essential to mitigate risks associated with their deployment. The integration of AI into the judicial system represents a promising avenue for enhancing efficiency, transparency, and fairness. By utilising decentralised models and RAG technologies, the judicial process can become more informed and less biased. However, careful consideration of ethical implications and the establishment of regulatory frameworks will be crucial in realising the full potential of AI in delivering justice. As the legal landscape evolves, embracing these technologies could lead to a more equitable and effective judicial system, ultimately benefiting society as a whole.

1.12 Factors of Execution

It is essential to adopt a multifaceted approach to implementing Artificial Intelligence in the judicial process to ensure the successful adoption of this concept. There are eight main dimensions to consider: political acceptability, social desirability, technological feasibility, financial viability, judicial tenability, emotional acceptability, environmental sustainability, and administrative feasibility.

Politically Acceptable

To advance justice and governance within the judicial process, the implementation of Artificial Intelligence can be made politically feasible by partially taking over certain tasks—such as increasing accessibility and proofreading documents—rather than replacing the entire judicial process. However, it is crucial to recognize that there may be resistance due to concerns about algorithmic bias, job losses, and a reduction in judicial discretion. The ethical use of AI could be paired with transparent oversight mechanisms to help garner political support.

Socially Desirable

The social desirability of an AI-assisted judicial process hinges on two main factors: unbiased decision-making and efficient procedures that reduce time and costs. Additionally, it can be made more socially appealing by improving access for socially and economically disadvantaged communities. Strengthening societal support will also require enhancing transparency and fairness within the judicial process.

Technologically Feasible

Technological feasibility is a significant factor; the technology employed must be capable of handling complexities and enduring wear and tear over time. AI systems can be utilized for interpreting legal language, reviewing large volumes of data, and making decisions within the confines of existing law. Current advancements in AI are promising, but further research and development in collaboration with legal experts are necessary to assess the technical capabilities of AI systems in supporting the judiciary.

Financially Feasible

Financial feasibility is another promising aspect. The burden of prolonged judicial processes affects both the courts and the public. Implementing AI in the judicial process can lead to substantial reductions in trial costs, including administrative expenses and expedited dispute resolutions. While there will be significant initial investments required for research and development of a successful prototype, the resulting model can be customized to meet the specific needs of various courts, making it a worthwhile long-term investment. To facilitate this integration, governments and the judiciary will need funding from grants and international organisations.

Administratively Feasible

AI can be made administratively feasible by ensuring it integrates smoothly with existing legal processes. This will necessitate training for judicial officers, lawyers, and court staff on how to work with AI tools, as well as developing standards for when AI can be utilized and establishing the necessary entities. It will require harmonizing multiple legal and administrative standards to address concerns related to data sharing, system inspections, and oversight.

Judicially Tenable

For AI to be accepted in the judicial process, it must comply with constitutional principles and legal standards. The judiciary ultimately holds decisional authority; therefore, AI should serve as an aid to judges rather than a replacement. AI developers must involve legal professionals in the development of these systems to ensure that algorithms grasp nuances and avoid encroaching on judicial independence or fairness.

Environmentally Sustainable

Implementing AI in the judicial process is an environmentally sustainable choice, as it reduces paper usage through digitalization, optimizes energy consumption via streamlined operations, and lowers carbon emissions by facilitating e-filing and remote hearings. Furthermore, AI can assist in effective resource allocation by integrating smart technological capabilities, which can provide a long-term solution to case backlogs and ultimately minimise the environmental impact of the judicial system.

Literature Review

Francesco De Santis (2011) The paper discusses the principle of subsidiarity and embeddedness in regard to human rights. It states that the right of every individual to get a fast and fair trial in the administration of justice is an obligation of the judiciary. **Rajiv Kumar Singh et al. (2015)** The authors state that the Indian constitution provides for the right to a speedy and fair trial for accused persons under Part III (Fundamental Rights). Delays in justice delivery are a serious problem that needs to be resolved. **Gifty Oomen (2014)** The author explains the view on privacy as a human right and media trials in India. The paper discusses the freedom of speech and expression in the context of public interest and the role of the press. **J.P. Rai (2014)** The author specifies the

exercise of the pardoning power in India, explaining that pardoning is an act of mercy to the wrongdoer, which is a power vested in the President and Governors. **Fhamedo Qudder (2015)** The author discusses the crime victim's right to compensation under the criminal procedure code and the active role of the court in granting compensation. **Sandeep Menon (2005)** The paper discusses the rights and waivers that come under the preview of fundamental rights enshrined in the Indian constitution. **Aneeda Jan (2015)** The author explains that unreasonable delays in the administration of justice violate the fundamental right to a speedy and fair trial. **Mukesh Garg (2012)** The author specifically addresses gender discrimination and issues related to prisoners' rights. **Jill Heine (2014)** The manual explains the Indian constitution's provisions regarding liberty and lawful detention, emphasizing the state's duty to bring those responsible for crimes to justice in a fair manner. **Patricia Kameri-Mbote et al. (2011)** The authors explain the legal and institutional framework to advance the rule of law principle according to the constitution and human rights. **Dr. Scholastic Omondi (2014)** The author reviews the rights of accused persons in criminal proceedings and the importance of protecting victims' rights under the adversarial legal system. **Mr. Ale' et al. (2009)** The authors explain the criteria for an effective legal remedy for the protection of the right to a trial within a reasonable time. **Navaz Kotwal et al. (2015)** The authors discuss the challenges associated with technological reforms in the judiciary and the need for separate procedures for complex cases. **Maansi Gupta (2015)** The thesis focuses on developing evidence-based decision-making models to measure and improve the performance of the Indian judicial system. **Upadhay (2014)** The author tries to expose the role of the judiciary in protecting the human rights of prisoners and argues that the Indian judiciary is not only a watchdog. **Rajiv Kumar Singh et al. (2015)** The authors state that the Indian constitution provides for the right to a speedy and fair trial for accused persons under Part III (Fundamental Rights). **Gifty Oomen (2014)** The author explains the view on privacy as a human right and media trials in India, discussing the freedom of speech and expression in the context of public interest. **J.P. Rai (2014)** The author specifies the exercise of the pardoning power in India, explaining that pardoning is an act of mercy to the wrongdoer, which is a power vested in the President and Governors. **Fhamedo Qudder (2015)** The author discusses the crime victim's right to compensation under the criminal procedure code and the active role of the court in granting compensation. **Sandeep Menon (2005)** The paper discusses the rights and waivers that come under the preview of fundamental rights enshrined in the Indian constitution. **Steven Vaughan-Nichols (2004)** Switzerland has taken a significant step in this direction by requiring its federal government to release software as open source, starting with the Open Justitia court application in 2011, despite facing opposition from proprietary software companies like Weblaw. After a decade of political and legal battles, the EMBAG law was enacted in 2023, mandating that government software be released under an open source license, barring certain exceptions.

2. Conclusion

The research seeks to bring a change the India's justice system for the better by developing a more efficient and accessible judicial model through the integration of artificial intelligence (AI). The approach promises to significantly enhance the effectiveness of the judiciary in delivering justice, ensuring timely and fair resolutions of cases. By automating routine tasks, streamlining case management, and providing advanced data analytics, AI can alleviate the burden on overworked judges and court staff, thereby expediting legal proceedings. This transformation is expected to address the chronic backlog of cases that plagues the Indian judicial system, enabling quicker dispensation of justice and reducing the prolonged wait times that many litigants currently face. Moreover, the proposed AI-driven model is designed to promote greater equity within the justice system. It aims to democratise access to legal resources, making it easier for marginalised and underrepresented communities to navigate the complexities of the law. By offering AI-powered legal assistance, the model can empower citizens who might otherwise be intimidated or disadvantaged by the traditional judicial process. This democratisation of Judicial Process is crucial for fostering an inclusive society where justice is not a privilege of the few but a right for all. Implementing this AI-driven judicial model holds the potential to restore and bolster public confidence in the judiciary. By ensuring transparency, consistency, and impartiality in legal proceedings, the AI system can help mitigate biases and human errors that sometimes undermine trust in the judicial process. Ultimately, this innovative approach represents a pivotal step towards creating a more just and equitable society, where the rule of law is upheld, and justice is accessible to every member of the community.

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