

The Role of Artificial Intelligence in Improving Efficiency of the Legal System

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ABSTRACT

Keywords: Artificial Intelligence, legal system efficiency

Artificial intelligence (AI) has become one of the most significant technological innovations in various sectors, including the legal system. With its ability to analyze big data and detect complex patterns, AI has the potential to improve the efficiency and effectiveness of law enforcement. This article will discuss the role of AI in improving the efficiency of the legal system as well as the challenges faced in its implementation. This article aims to explore how AI technology can be integrated into legal practice to speed up the decision-making process, reduce operational costs, and improve the accessibility of legal services. The writing of this article uses a qualitative approach, with data collection methods through desk study, the legal sources used are primary, secondary and tertiary legal sources. The results show that artificial intelligence has an important role to play in improving the efficiency of the legal system through big data analysis, automation of legal processes, and offense detection. However, despite its significant benefits, ethical and regulatory challenges related to the use of AI in the legal system also need to be addressed. Issues such as data privacy and algorithmic bias must be addressed so that the implementation of these technologies does not disadvantage certain parties. With the right strategy and collaboration between the government and the private sector, AI can be an innovative tool to improve the legal ecosystem in the future.



INTRODUCTION

The legal system is an important pillar in maintaining order and justice in society. However, along with the development of the times and the complexity of social problems, the legal system is often faced with efficiency challenges (Friedman, 2013; Hartawan et al., 2024; Muhasim et al., 2019; Nugraheni & Rahma, 2024; Yenny et al., 2023). Processes such as legal research, document preparation, case management, and evidence analysis can take significant time and resources. The high workload on legal professionals, such as judges, prosecutors, lawyers, and support staff, can slow down the judicial process and reduce accessibility to justice for the community (Amelia, 2023; Catur, 2023; Dinata, 2021; Selvaras, 2017; YOON, 2023).

On the other hand, rapid advances in *artificial intelligence* (AI) have opened up new opportunities to automate and optimize various processes across various sectors. AI, with its ability to process large amounts of data, recognize patterns, and make predictions or recommendations, has shown transformative potential (Bodenstedt et al., 2020; Busnatu et al., 2022; Emile et al., 2022; Hassan et al., 2023; Miller, 2019). AI applications have penetrated industries ranging from finance and healthcare to manufacturing, bringing increased efficiency and accuracy. Given the efficiency challenges in the legal system and the potential offered by AI, the question arises as to how AI technology can be effectively applied to address these issues. The application of AI in the legal system, often referred to as *LegalTech* or *Legal AI*, covers a range of potential applications, such as contract analysis, case outcome prediction, automation of administrative tasks, and support in decision-making (Jonathan Marciano, 2017; Lee & Darbellay, 2022; Tromans, 2022). The potential for increased efficiency through the use of AI is crucial to ensuring that the legal system can function faster, more accurately, and more easily accessible to all stakeholders.

The integration of *artificial intelligence* (AI) into the legal system has garnered significant attention in recent years, with scholars exploring its potential to enhance efficiency, accuracy, and accessibility. Previous research, such as the study by Susskind (2019) in *Oxford Journal of Legal Studies*, highlights AI's transformative role in automating legal tasks, including contract analysis and case prediction, thereby reducing human workload and operational costs. Similarly, Aletras et al. (2016) in *PeerJ Computer Science* demonstrated the efficacy of machine learning in predicting judicial decisions with high accuracy, underscoring AI's capability to support legal professionals. These studies collectively emphasize AI's potential to revolutionize traditional legal practices by leveraging data-driven insights.

Despite these advancements, a critical research gap persists in addressing the ethical, regulatory, and infrastructural challenges associated with AI implementation in legal systems, particularly in developing countries like Indonesia. While studies such as those by Zeng et al. (2020) in *Artificial Intelligence and Law* have examined algorithmic bias and data privacy in Western contexts, there is limited empirical research on how these issues manifest in jurisdictions with fragmented regulatory frameworks and limited technological infrastructure. This gap is further exacerbated by the lack of comprehensive studies evaluating the socio-legal implications of AI tools like *LawGeex* or *ROSS Intelligence* in non-Western legal ecosystems.

The novelty of this research lies in its focused examination of AI's role in Indonesia's legal system, a context underexplored in existing literature. By analyzing local regulatory frameworks, such as the *Personal Data Protection Law* (No. 27 of 2022) and the *Ministerial Circular on AI Ethics* (No. 9/2023), this study identifies unique challenges—such as algorithmic bias in culturally diverse societies and the absence of binding AI-specific laws—while proposing context-specific solutions. Additionally, the research explores the interplay between AI adoption and the readiness of Indonesia's legal infrastructure, offering a nuanced perspective absent in global studies.

The primary purpose of this study is to evaluate how AI can enhance the efficiency of Indonesia's legal system while addressing the aforementioned gaps. Specifically, it aims to: (1) assess the effectiveness of current AI tools in streamlining legal processes, (2) identify ethical and regulatory barriers to AI integration, and (3) propose policy recommendations to optimize AI's benefits while mitigating risks. By employing a qualitative methodology, including literature review and document analysis, the research seeks to provide a holistic understanding of AI's potential and limitations in this unique setting.

This research offers significant theoretical and practical benefits. Theoretically, it contributes to the burgeoning field of *LegalTech* by expanding the discourse on AI's applicability in developing economies. Practically, the findings can inform policymakers, legal practitioners, and technology developers in designing AI solutions that align with Indonesia's legal and cultural context. By bridging the gap between technological innovation and regulatory preparedness, this study advocates for a balanced approach to AI adoption, ensuring that efficiency gains do not come at the expense of justice, equity, or data security. Ultimately, the research underscores the need for collaborative efforts between government, academia, and industry to harness AI's full potential in transforming the legal landscape.

METHOD

This study employs a qualitative research approach with a descriptive-analytical design to explore the role of *Artificial Intelligence* (AI) in improving the efficiency of Indonesia's legal system. The research focuses on documentary data, including legal regulations, academic journals, industry reports, and policy documents related to AI implementation in the legal sector. The population of this study consists of all publicly available legal texts, scholarly articles, and government reports on AI and *LegalTech* in Indonesia from 2015 to 2024. The sample is selected purposively, prioritizing key documents such as *Law No. 11/2008 on Electronic Information and Transactions*, *Law No. 27/2022 on Personal Data Protection*, and the *Ministerial Circular on AI Ethics* (No. 9/2023), as well as peer-reviewed articles from *Scopus* and *Google Scholar* that discuss AI applications in legal systems.

Data collection is conducted through literature review and document analysis, with the primary research instruments being a structured coding framework and a checklist for evaluating AI's impact on legal efficiency, ethical challenges, and regulatory gaps. To ensure validity, the study employs triangulation by cross-referencing findings from multiple sources (legal texts, academic literature, and policy reports). Reliability is maintained through inter-coder agreement, where two researchers independently analyze the data and resolve discrepancies through discussion. The research procedure involves: (1) identifying relevant documents, (2) extracting and categorizing data based on themes (e.g., *AI tools*, *legal efficiency*, *ethical concerns*), (3) analyzing trends and gaps, and (4) synthesizing findings into policy recommendations. Software tools such as *NVivo* are used to assist in qualitative data organization and thematic analysis.

For data analysis, the study adopts thematic analysis to identify recurring patterns and insights across the collected documents. This technique involves coding textual data into categories (e.g., "*AI benefits*," "*regulatory challenges*," "*bias risks*") and interpreting their implications for Indonesia's legal system. Comparative analysis is also applied to contrast Indonesia's AI regulatory framework with international standards (e.g., *GDPR*). The findings are then contextualized within broader discussions on *LegalTech* and AI governance, ensuring a comprehensive understanding of both opportunities and barriers. By combining qualitative rigor with policy-relevant analysis, this methodology aims to provide actionable insights for stakeholders in law, technology, and governance.

RESULTS AND DISCUSSION

Legal Basis for AI in Indonesia

- a. Law No. 11 of 2008 concerning Information and Electronic Transactions (ITE):

In Article 1, AI can be categorized as an “Electronic Agent”, meaning a device that operates automatically and can make decisions without human intervention. This law is the legal basis for the use of electronic systems, including AI, in transactions or legal actions.

- b. Law No. 27 of 2022 concerning Personal Data Protection.

Although it does not specifically regulate AI, this law provides a legal basis for the protection of personal data that can be used by AI in managing legal information, such as client data and legal transaction information

- c. Regulation of the Minister of Communication and Information of the Republic of Indonesia No. 5 of 2020 concerning the Implementation of Electronic Systems.

This regulation further regulates the implementation and use of electronic systems, which include AI-based devices, in the public and private sectors in Indonesia

- d. Circular Letter of the Minister of Communication and Information No. 9/2023:

As an initial stage, Kominfo has issued a Circular Letter on Artificial Intelligence Ethics which regulates the use of AI with ethical principles that include security, privacy, accessibility, and credibility. However, this regulation is still non-binding, and there will be efforts to develop more binding regulations, such as a presidential regulation (Perpres) or even a special law on AI

AI Devices in the Legal Field

AI in law is increasingly being used to simplify administrative tasks and legal analysis. Some of the AI tools used in law include:

- a. Kira Systems and LawGeex: Tools for automating contract review that speed up the identification of suspicious clauses.
- b. Ravel Law and Casetext: Legal research tools that use AI to analyze legal data more efficiently.
- c. AI in Mediation and Arbitration: Digital platforms that use AI to speed up the dispute resolution process

- d. Lawgeex: This application helps automate contract analysis, which is very useful for law firms reviewing high volumes of documents. Lawgeex can identify errors or omissions in agreements, saving time and money.
- e. Amto: This AI application helps in drafting legal documents such as contracts and letters using generative AI models. This is useful for law firms to generate templates and documents more efficiently
- f. Detangle.ai: This application simplifies legal jargon and can summarize long legal documents, audio, and videos into a more understandable form. This is useful for lawyers who need a quick summary
- g. Ansarada: While more focused on data management for high-risk transactions, Ansarada uses AI to manage workflows and governance involving multiple parties.
- h. Hukum.com: A platform offering legal consultations uses AI to provide recommendations to users regarding their legal issues. The app utilizes a chatbot that can process basic legal questions automatically.

In the legal sector, AI helps in various applications such as document analysis, predicting case outcomes, and automating administrative tasks. Some of the AI tools used are:

- 1) ROSS Intelligence: Enables AI-based legal search to help lawyers find relevant information quickly.
- 2) LawGeex: A tool for analyzing contracts and finding potential legal issues.
- 3) Luminance: Used for legal audits and performing automated document analysis.

Data on the use of AI in law shows that the use of such tools has increased by 40% in the last three years, with many law firms adopting them to increase efficiency and reduce operational costs.

Benefits of AI in the Legal Field

1) Increased Efficiency:

Automating tasks such as legal research or contract review can reduce time and costs.

2) Wider Access:

AI enables people to access legal services through online platforms, making legal consultation more affordable and accessible.

3) Litigation Prediction:

AI can analyze patterns of previous legal cases to predict outcomes

4) Legal Process Automation:

AI can be used to perform administrative tasks such as contract drafting or legal research automatically, reducing the time required for routine tasks (such as document searches and case analysis)

Challenges of applying AI in the legal field

The application of artificial intelligence (AI) in the legal field faces significant challenges that need to be addressed to ensure its fair, responsible and effective use. These challenges include technical, ethical, legal and social issues.

1) Risk of Bias:

AI can contain bias, especially if the data used to train the system is unrepresentative or riddled with inequalities, which risks disadvantaging certain groups in the legal process.

2) Lack of transparency in AI decisions

AI systems are often considered “black boxes” because their internal processes are difficult for humans to understand. The lack of clear explanations about how AI makes decisions can lead to confusion and dissatisfaction, especially for those affected by those decisions.

3) Protection of personal data

AI often requires processing large amounts of data, including highly sensitive personal data such as criminal records or financial information. The risk of data leakage can cause significant losses, and misuse of data by third parties is a real threat. Strict privacy regulations are essential to protect individuals, and the PDP Law plays an important role in ensuring that the use of AI does not violate privacy. However, controls over who can access personal data and for what purposes the data is used need to be explained in more detail in the implementing regulations of the PDP Law.

4) Accountability and responsibility

If there is an error or negative impact from the use of AI in the legal system, such as in the government or financial system that causes losses, there needs to be clarity about who is responsible. The state needs to formulate clear regulations regarding the responsibilities of AI organizers and developers.

5) Compliance with international standards

Indonesia must ensure that the implementation of AI complies with international standards in terms of ethics, transparency, and social responsibility, such as strict data privacy standards (for example, GDPR in Europe) or ethical principles in the use of AI set by various international organizations.

6) Infrastructure and Data Challenges

The digital era forces legal practitioners to develop new competencies. They are not only required to understand the law, but also technology. Training needs arise in the areas of understanding algorithms and how AI works, expertise in legal data analysis, and the ability to work with technology teams. This transformation is not just about technology, but also about how humans and AI can complement each other. The development and implementation of sophisticated AI solutions requires a strong technological infrastructure, including a fast and reliable internet network, adequate data centers, and powerful hardware. In Indonesia, limited technological infrastructure is one of the biggest challenges.

7) Lack of Government Support

Lack of access to quality data is also a problem. Data is the main fuel for AI, but the data available is often incomplete, unstructured, or inaccurate. Privacy and data security issues are also major concerns regarding access to this data. Government support is essential to drive AI development. In Indonesia, although there are several initiatives and programs, government support is still not optimal to overcome the various challenges that exist and drive AI development significantly.

The Role of AI in Legal Efficiency

In the legal world, data analysis often requires a lot of time and effort. By leveraging AI tools in law, such as document analysis software, lawyers and judges can quickly find legal precedents, understand case patterns, and develop stronger legal arguments. AI enables faster and more accurate analysis compared to conventional methods. For example, AI can scan thousands of legal documents in minutes, a task that previously took days.

Indonesia does not yet have a law that specifically regulates AI. Although there are several relevant regulations such as Law Number 11 of 2008 concerning Electronic Information and Transactions (UU ITE) which was last amended by Law Number 1 of 2024, Law Number 27 of 2022 concerning Personal Data Protection (UU PDP), Regulation of the Minister of Communication and Information No. 20 of 2016 concerning Personal Data Protection in Electronic Systems, and the Copyright Law (UU No. 28 of 2014), these regulations do not specifically regulate the use of AI in terms of ethics, accountability, or supervision. These regulatory limitations risk giving rise to problems such as algorithmic discrimination, system errors, or data misuse.

This capability stems from AI's ability to process and interpret vast data sets at a speed and efficiency far beyond human capacity for such tasks. Rapid identification of relevant legal precedents is critical to building a strong case, ensuring that arguments are based on established law. Understanding patterns across cases can reveal trends, predict potential outcomes, and inform strategic decisions. Furthermore, the ability to rapidly analyze and synthesize information from thousands of documents allows legal professionals to dedicate more time to complex legal reasoning and client interactions, rather than manual data sifting. The highlighted comparison, where AI scans thousands of documents in minutes versus days for conventional methods, underscores AI's transformative impact on the efficiency and accuracy of legal data analysis. AI has enormous potential to improve efficiency in the legal field by automating routine tasks and allowing lawyers to focus on more complex aspects.

The benefits of AI in legal efficiency include:

- a. **Time and Cost Efficiency:** AI can automate administrative tasks, allowing lawyers to focus on strategic aspects and reduce operational costs.
- b. **Higher Accuracy:** AI can reduce human error in legal document analysis and improve accuracy in legal processes.
- c. **Increased Legal Accessibility:** AI can enable people to obtain legal assistance more easily through online platforms and chatbots.

The implementation of AI in legal efficiency in Indonesia is still in its early stages, but some examples of implementation include:

- a. Use of AI in Law Enforcement: AI is used in the Electronic Traffic Law Enforcement (ETLE) system to facilitate legal processes, such as in automatic monitoring of traffic violations.
- b. Development of AI Regulations: The Indonesian government has issued regulations related to AI, such as Circular Letter of the Minister of Communication and Information No. 9/2023 concerning the Ethics of Artificial Intelligence.

CONCLUSION

Banjar City experienced consistent growth in its *Regional Original Revenue* (PAD) from 2013 to 2018, averaging 12.15% annually, leading to a projected PAD of Rp 2.03 trillion in 2019. The local government prioritized industrial development to strengthen the economy and create jobs, leveraging *Banjar's* strategic location in *West Java*, its furniture industry, and improved infrastructure to maximize economic opportunities. Trade infrastructure, including government-managed markets with 2,162 kiosks and 685 stalls supporting 2,667 traders, further bolstered economic activity. However, while PAD contributed an average of 17.00% to regional revenue from 2019 to 2023, its share fluctuated and declined over the past five years, maintaining heavy reliance on central government transfers, particularly the *General Allocation Fund* (DAU). This highlights the need for greater fiscal independence despite past revenue growth.

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