The Role of Artificial Intelligence in Criminal Procedure Law: Can It Be Considered a Legal Subject?

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ABSTRAK

*Kemajuan teknologi yang pesat telah menghadirkan Kecerdasan Buatan atau Artificial Intelligence (AI) sebagai kekuatan transformatif yang mampu mensimulasikan proses kognitif manusia dan meningkatkan efisiensi di berbagai sektor. Dalam ranah hukum, integrasi AI memunculkan pertanyaan fundamental mengenai kapasitasnya untuk membantu atau bahkan menggantikan fungsi manusia dalam sistem peradilan. Tujuan: Penelitian ini bertujuan untuk menganalisis peran spesifik AI dalam hukum acara pidana dan mengevaluasi apakah AI dapat dikategorikan sebagai subjek hukum berdasarkan kerangka hukum yang berlaku saat ini. Metodologi: Penelitian ini menggunakan metode yuridis-empiris dengan pendekatan studi pustaka yang menggabungkan peraturan perundang-undangan, doktrin hukum para ahli, serta preseden hukum terkini untuk menguji persinggungan antara teknologi dan hukum. Hasil: Temuan penelitian menunjukkan bahwa meskipun AI secara signifikan mampu mengoptimalkan analisis alat bukti dan efisiensi pengambilan keputusan, AI saat ini masih kekurangan elemen esensial dari kepribadian hukum (*legal personhood*)—yakni kecakapan hukum dan pertanggungjawaban—yang diperlukan untuk diklasifikasikan sebagai subjek hukum mandiri. Dalam sistem hukum Indonesia saat ini, AI diposisikan sebagai alat pembuktian yang canggih (instrumentum) dan bukan sebagai pembawa hak dan kewajiban. Namun, penelitian ini menyimpulkan bahwa reformasi hukum sangat mendesak untuk menetapkan kerangka regulasi yang jelas terkait tanggung jawab hukum dan penggunaan* AI *secara etis dalam proses peradilan pidana.*

Kata Kunci: *artificial intelligence; subjek hukum; hukum acara pidana; reformasi hukum; yuridis-empiris*

ABSTRACT

The rapid advancement of technology has introduced Artificial

Intelligence (AI) as a transformative force capable of simulating human cognitive processes and enhancing efficiency across various sectors. In the legal domain, the integration of AI raises fundamental questions regarding its capacity to assist or even replace human functions within the justice system. Objective: This study aims to analyze the specific role of AI within criminal procedural law and to evaluate whether AI can be categorized as a legal subject under existing legal frameworks. Methods: This research employs a juridical-empirical method, utilizing a literature review approach that incorporates statutory regulations, expert legal doctrines, and current judicial precedents to examine the intersection of technology and law. Results: The findings indicate that while AI significantly optimizes evidence analysis and decision-making efficiency, it currently lacks the essential elements of legal personhood—namely, legal capacity and accountability—required to be classified as an independent legal subject. Under the current Indonesian legal system, AI is positioned as a sophisticated evidentiary tool (instrumentum) rather than a bearer of rights and obligations. However, the study concludes that legal reform is imperative to establish a clear regulatory framework that addresses liability and the ethical use of AI in criminal proceedings.

Keywords: artificial intelligence; legal subject; criminal procedural law; legal reform; juridical-empirical

INTRODUCTION

Systems equipped with Artificial Intelligence (AI) technology are capable of operating effectively and efficiently, thereby enhancing human productivity (niagahoster.co.id, 2023). According to Alan Turing, if humans can process information, solve problems, and make decisions based on available data, then machines should theoretically be capable of performing the same functions (Imtikhani et al., 2025). AI operates based on algorithms—programming embedded within computer systems during the human-led production process. *These algorithms serve as the cognitive framework for AI, requiring substantial and high-quality data storage to recognize relevant patterns for information processing and problem-solving*. Furthermore, Shestak and Volevodz define AI as an "electronic entity" structured from machines, computers, robots, or programs that possess human intelligence and the capacity to function autonomously, depending on human-designed algorithms (Imtikhani et al., 2025). In her research, Nabila Syahrani Lestari

interprets Artificial Intelligence as a machine-based technology designed to emulate human behavior, adopt human thought processes, and execute cognitive functions similar to those of humans (Beryl Helga Fredella Hibatulloh, 2025). This technology is engineered to replicate human capabilities across various domains, including speech and image recognition, natural language processing, decision-making, and even creativity.

Cruz and Almazan categorize AI techniques into two frameworks: hardware-based and software-based. Hardware-based AI is typically utilized in industrial sectors, such as robotics, aircraft manufacturing, autopilot vehicle technology (e.g., Tesla), and the integration of virtual reality and artificial vision within the gaming industry. Conversely, software-based AI is manifested through artificial neural networks and evolutionary computing, which encompasses evolutionary strategies, genetic programming, and genetic algorithms (Ni Made Yordha Ayu Astiti, 2023). AI can also be defined as the science and engineering of creating intelligent machines (Gede Ari Rama et al., 2023).

The interpretation of the Law of the Republic of Indonesia Number 11 of 2008 concerning Electronic Information and Transactions (the EIT Law), specifically Article 1 Paragraph (8) regarding electronic agents, states that: "An electronic agent is a device within an Electronic System created to perform actions on specific Electronic Information automatically, organized by a Person." In this context, AI is analogized as an electronic agent capable of assisting the Indonesian legal field (Mecca et al., 2025). Upon closer examination, the interpretation of "electronic agents" regarding AI characteristics highlights its capacity for autonomous action, such as analyzing, predicting, and providing recommendations. The article further specifies that "electronic agents" are created by individuals—a crucial point in determining the party liable for AI operations. Article 1 Paragraph (21) of the EIT Law defines these individuals as "natural persons, whether Indonesian citizens or foreign nationals, or legal entities." Furthermore, the derivative regulation of the EIT Law, Government Regulation (PP) No. 71 of 2019, delineates the assignments and responsibilities of electronic agent operators.

Based on various expert opinions regarding the definition of AI, it can be concluded that AI is a human-made system designed to perform tasks and cognitive processes similar to those of humans. Currently, the implementation of AI within the judicial system is promising, particularly in enhancing public services and administrative systems. These advancements necessitate legal updates to prevent a legal vacuum. This presents a future

challenge regarding the positioning of AI as a legal subject. Leading AI scientists Norvig and Russell provide an interpretation of AI by categorizing it into several domains based on its functions: (1) thinking humanly, (2) thinking rationally, (3) acting humanly, and (4) acting rationally (Sofian, 2025). Indonesia has established several regulations regarding technology, including Law No. 1 of 2024, the second amendment to Law No. 11 of 2008 concerning Electronic Information and Transactions (hereinafter referred to as the EIT Law), Law No. 27 of 2022 concerning Personal Data Protection (hereinafter referred to as the PDP Law), and Law No. 1 of 2023 concerning the Criminal Code (hereinafter referred to as the National Criminal Code). However, none of these regulations specifically govern the use of Artificial Intelligence (AI) (Mecca et al., 2025). The integration of AI within the judicial context raises various ethical considerations that must be addressed (Kirpichnikov et al., 2020), ranging from algorithmic bias, transparency in decision-making processes, accountability, and psychological impacts on witnesses, to implications for the defendant's right to a fair trial. Therefore, it is imperative to formulate specific regulations for AI that ensure transparency and accountability, while guaranteeing that the use of AI in court examinations considers ethical aspects and justice (Kleinberg et al., 2018).

This research introduces a novel approach by discussing the role of Artificial Intelligence in court examinations, specifically within criminal law. It focuses on the development of AI regulations in the Indonesian criminal justice system based on positive law. While previous studies, such as those by Irawati Natasya (2024) and Ekinia Karolin Sebayang et al. (2024), have explored the legal standing and implications of AI in civil procedure and the general legal system, there is a lack of research specifically addressing AI within the Indonesian criminal justice system and the legal liability associated with its use. Linda Ikawati et al. (2024) examined AI in law enforcement but did not conduct an in-depth analysis of legal responsibility and AI regulation in the criminal justice system. Thus, the novelty of this research lies in its discussion of AI regulatory developments in Indonesia based on positive law and the legal liabilities related to AI utilization in the criminal justice system, which have not been addressed in previous studies.

Research Objectives The objective of this research is to identify and understand the role of AI and its potential to serve as an expert in court examination processes. Based on the aforementioned background, the researcher identifies several issues for further investigation:

What is the role of Artificial Intelligence in assisting criminal procedural law?

What is the role of Artificial Intelligence in providing expert testimony in court proceedings?

METHODOLOGY

This study employs a normative legal research method. Normative legal research is an approach that focuses on the analysis of prevailing laws and regulations (Watkins & Burton, 2018). The data used is secondary data obtained from literature reviews, including scientific journals, statutory regulations, and other documents. Sources include Law No. 8 of 1981 on the Criminal Procedure Code (KUHAP), Supreme Court Circular (SEMA) No. 4 of 2020 on the administration and trial of criminal cases electronically, the EIT Law, the PDP Law, and other derivative regulations. The data collection technique utilized is library research. For data analysis, the researcher uses a qualitative approach, which is explained descriptively using legal theories and arguments to obtain systematic conclusions (Muhaimin, 2020).

RESULTS AND DISCUSSION

The Role and Mechanism of Artificial Intelligence in Criminal Procedural Law Artificial Intelligence (AI) plays a significant role in procedural law, particularly in assisting law enforcement officers, judges, and lawyers in collecting, analyzing, and interpreting information relevant to the case at hand (Brennan-Marquez & Henderson, 2019). According to Smith, research indicates that AI can enhance efficiency in legal document management and evidence analysis (Septiawan et al., 2025). In the investigation and inquiry stages conducted by the police, AI is highly necessary to improve public service (Judijanto, 2025). The police are obligated to identify whether an act constitutes a criminal offense (Article 1 point 5 of KUHAP). In this process, AI can assist the police in identifying data that has been examined (Yusefin & Chalil, 2018).

AI exists in both software and hardware forms. One example of hardware used by law enforcement to facilitate performance is the polygraph (lie detector). It operates through three sensors: pneumography sensors, skin resistance sensors, and blood pressure cuffs, which are visualized through frequency lines (Yusefin & Chalil, 2018). Meanwhile, AI in

software form includes applications like ChatGPT[26] or other similar artificial applications. Furthermore, in 2023, the Supreme Court launched five AI-based applications: Smart Majelis, Court Live Streaming, Satu Jari, Lentera 2.0, and e-IPLANS.

This implementation is applicable when law enforcement faces difficulties identifying acts committed by suspects before they are declared criminal offenses. If an act is proven to be a crime, the process proceeds to the investigation stage. This stage is a police obligation aimed at gathering evidence to clarify the crime and find the suspect (Article 1 point 2 of KUHAP). In the investigation process, AI can be used to identify data or documents and analyze digital evidence, such as emails, text messages, or video recordings (Maimun & Thomas, 2025).

After the identification of a criminal act, investigators hand over the investigation report and the suspect to the prosecution for file examination. If the files are complete, the prosecutor registers the case at the District Court and drafts an indictment (surat dakwaan). When drafting an indictment, prosecutors can use AI to structure the framework of the document. Since KUHAP only regulates formal and material elements without explaining the structure of the indictment, AI can assist in creating that framework. The same applies to drafting prosecution letters (surat penuntutan). AI can also assist judges in the trial process, for instance, in analyzing arguments and evidence submitted by the parties (Picard et al., 2021).

In these series of procedural law stages, AI provides assistance at every step. However, AI currently cannot be utilized up to the final sentencing stage. The imposition of punishment remains the authority of the judge, as verdicts must be based on the judge's conviction (keyakinan hakim). The conviction to declare someone guilty or innocent cannot yet be performed by AI. Legal certainty is paramount in law enforcement; therefore, the use of AI still requires human intervention and analytical thought. As previously explained, AI still has limitations, such as information constraints amidst rapid development and a lack of system updates regarding specific user queries (Sebayang et al., 2024a).

The Potential Role of Artificial Intelligence as an Expert Witness in Court Examinations A legal subject is essentially an entity that possesses a "guilty mind" (mens rea), the capacity for responsibility, and lacks justifications or excuses for its criminal acts. Some researchers argue that AI cannot be considered a legal subject but can be classified as

a subject of a criminal act if analogized to a corporation or a legal entity designed by humans. This aligns with Jorge's thought, proposing that AI can be considered a legal subject under a corporate analogy (Sofian, 2025).

The researcher identifies that based on the 2023 Criminal Code, legal subjects include individuals (natuurlijke persoon) and corporations. AI can be analogized to a corporation (Beryl Helga Fredella Hibatulloh, 2025). Factors categorizing corporations as legal subjects include the fact that companies have profited from illegal acts and that shareholders have encouraged crimes for the benefit of the company.Similarly, AI users who utilize AI to commit crimes do so based on their own will. Therefore, criminal liability for such acts is attributed to the AI user. According to Hallevy, AI can be subject to a direct liability model because certain AI systems can distinguish between unlawful and lawful actions (Mecca et al., 2025).

The potential for AI to serve as an expert in court examinations is an eventual certainty, even if it does not currently meet formal requirements. An expert in a court examination must meet formal requirements: being a physical person who can be held accountable for their statements. Formally, witness testimony must be given under oath according to their respective religions. Furthermore, material requirements must be met as per Article 1 point 27 jo. Article 185 paragraph (1) of KUHAP: "Witness testimony as evidence is what the witness states in court regarding a criminal event they heard, saw, and experienced themselves, stating the reasons for their knowledge."

The potential for AI to serve as an expert can be realized with specific conditions, such as a determined duration for AI use, ethical clearance during the AI's creation to replicate an expert's thought process, and limitations on usage duration. In some countries, AI Judges are used for small claims disputes under 7,000 Euros. The application of AI for minor disputes is considered efficient as it does not involve discretion (Sebayang et al., 2024b).

Following the previous explanation, AI can be analogized to a corporation. AI operates because of entities that use and create it. Thus, AI can be used to provide expert testimony based on data it possesses and obtains through profiling. The researcher analogizes AI that replicates an expert's thinking to research literature like journals or books. The creation of such AI requires usage limitations because of the limited data entered into its algorithms, ensuring that the AI remains relevant to current cases.

CONCLUSION

The results of this study indicate that AI can play a role in criminal procedural law, specifically in administrative systems during the inquiry, investigation, and court examination stages. While AI facilitates the work of law enforcement, concrete regulations are necessary to prevent legal violations. AI-driven procedural stages must still be analyzed by law enforcement to fulfill the objectives of the law: certainty, utility, and justice.

In procedural law, the potential of AI in Indonesia's law enforcement process is an eventual certainty in the future. Given the legal updates utilizing AI as a tool to ease law enforcement's workload, AI could eventually serve as a tool in courtroom examinations, such as providing expert testimony. While some research suggests AI could replace humans in applying the law, in this context, only minor litigation can utilize AI for verdicts, and human performance remains necessary in its operation.

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