

Thinking the Future Potential of Artificial Intelligence in Law Enforcement

Feby Milenia Yahya Krisna Putri¹, Hary Abdul Hakim^{2*}, Chrisna Bagus Edhita Praja³, Gerald Espares⁴

¹ Muhammadiyah University of Magelang, Indonesia, Email: fbmilenia@gmail.com

² Muhammadiyah University of Magelang, Indonesia, Email: haryabdulhakim@unimma.ac.id

³ Muhammadiyah University of Magelang, Indonesia, Email: chrisnabagus@unimma.ac.id

⁴ University of Saint Anthony, Iriga City, Philippines, Email: -

Article Information

Article History:

Received : 19-09-2024

Revised : 14-11-2024

Accepted : 26-11-2024

Published : 30-11-2024

Keyword:

Urgency;

Artificial Intelligence;

Technology;

Law;

Enforcement;

Abstract

*The use of Artificial Intelligence (AI) indicates the beginning of a new era in the development of digital technology. In general, AI's capabilities are considered to be able to solve problems which have been experienced by professionals, including AI robots which have also been widely used in law enforcement processes. However, the development of AI in law enforcement is certainly not without obstacles in which it is marked by the existence of a legal vacuum which forms the basis for the legality of AI use and a lack of literacy among law enforcers regarding the use of AI. In addition, law enforcement officials in Indonesia are still less aware of the benefits of using AI in order to support their profession. **The aim of this study** is to analyze the urgency of the implementation of AI for law enforcement in providing legal services and law enforcement processes. **The research method used** was a normative legal method with a statutory approach and a conceptual approach. Moreover, the analysis was conducted qualitatively and presented descriptively. **The result shows that** Artificial Intelligence (AI) is very important in helping develop services and law enforcement in which law enforcers in Indonesia so far still rely on manual or conventional methods in conducting their duties. Furthermore, AI can provide benefits in terms of time efficiency and accuracy in assessing cases which are urgently needed by law enforcement. Meanwhile, in terms of law enforcement's perception of the use of AI, they position AI as an assistant which cannot completely replace the law enforcement profession since AI does not have the human characteristics which law enforcement officers should have.*

Abstrak

Penggunaan Kecerdasan Buatan (Artificial Intelligence/AI) menandai dimulainya era baru dalam perkembangan teknologi digital. Secara umum kemampuan AI dianggap dapat menyelesaikan permasalahan yang selama ini dialami oleh para profesional, termasuk robot AI yang juga telah banyak digunakan dalam proses penegakan hukum. Namun demikian, perkembangan AI dalam penegakan hukum tersebut tentunya bukan tanpa hambatan, hal ini ditandai dengan adanya kekosongan hukum yang menjadai dasar legalitas penggunaan AI dan juga kurangnya literasi para penegak hukum terkait pemanfaatan AI. Selain itu, aparat penegak hukum di Indonesia masih kurang menyadari manfaat penggunaan AI untuk mendukung profesi mereka. Penelitian ini bertujuan untuk melakukan analisa urgensi penerapan AI bagi penegak hukum dalam memberikan layanan hukum dan proses penegakan hukum. Metode Penelitian yang digunakan adalah metode hukum normatif dengan pendekatan perundang-undangan dan pendekatan konseptual. Analisis dilakukan secara kualitatif dan disajikan secara deskriptif. Hasil Penelitian menunjukkan bahwa Kecerdasan Buatan (Artificial Intelligence/AI) sangat penting dalam membantu mengembangkan pelayanan dan penegakan hukum, yang mana selama ini penegak hukum di Indonesia masih mengandalkan cara-cara manual atau konvensional dalam menjalankan tugasnya. AI dapat memberikan manfaat dalam hal efisiensi waktu dan akurasi dalam menilai kasus-kasus yang sangat dibutuhkan oleh penegak hukum. Dari sisi persepsi penegak hukum terhadap penggunaan AI, mereka menempatkan AI sebagai asisten yang tidak dapat sepenuhnya menggantikan profesi penegak hukum karena AI tidak memiliki sifat-sifat manusiawi yang harus dimiliki oleh aparat penegak hukum.

INTRODUCTION

Industrial Revolution 4.0 era has a significant impact on the use of technology in daily life. In Indonesia, this epoch is defined by automation and easier mutual interaction¹. This industrial revolution changed the production process previously conducted by humans to be automated with machines. Furthermore, this enlargement shifts from the beginning manual work to digitalization and automation things. It is proved by the applying of various technological advances in this era in various component of life which make easier people's activities². It is certainly that in the development of this technology, need standardarization services, policy formulation and law enforcement systems are also possible through to use of artificial intelligence³. Even the concrete forms of AI utilization extend to the legal sector, helping police, prosecutors, judges and advocates in carrying out their duties⁴.

In 1955, John McCarthy offered a definition of Artificial Intelligence (AI) as the scientific and technical field concerned with the development of intelligent machines, particularly computer programs with intelligence. It pertains to the analogous endeavor of employing computers to comprehend human intelligence. Furthermore, in 1956 at the Dartmouth College Conference on AI launched the field of AI⁵. The rapid development of AI, which is considered an engineering discipline, uses new thinking and techniques in order to solve complex problems. Therefore, it means that AI focuses on developing computers and programs which are able to imitate human behavior, increase capacity, and plan solutions to various problems.

¹ Banu Prasetyo and Umi Trisyanti, "Revolusi Industri 4.0 Dan Tantangan Perubahan Sosial," *IPTEK Journal of Proceedings Series* 0, no. 5 (2018): 22–27, <https://doi.org/10.12962/j23546026.y2018i5.4417>.

² Sudipta Adhikary and Kaushik Banerjee, "Digitalisation and AI What Does the Future Hold for Labour Union," *Glocalism*, no. 1 (2022): 1–29, <https://doi.org/10.12893/gjcpi.2022.1.5>.

³ Hari Sutra Disemadi, "Urgensi Regulasi Khusus Dan Pemanfaatan Artificial Intelligence Dalam Mewujudkan Perlindungan Data Pribadi Di Indonesia," *Jurnal Wawasan Yuridika* 5, no. 2 (2021): 177, <https://doi.org/10.25072/jwy.v5i2.460>.

⁴ Diana Setiawati, Hary Abdul Hakim, and Fahmi Adam Hasby Yoga, "Optimizing Personal Data Protection in Indonesia: Lesson Learned from China, South Korea, and Singapore," *Indonesian Comparative Law Review* 2, no. 2 (2020): 2–9, <https://doi.org/10.18196/iclr.2219>.

⁵ Lisa Cliggett and Lene Pedersen, "The SAGE Handbook of Cultural Anthropology. Talking to AI: An Anthropological Encounter With Artificial Intelligence" (London: SAGE Publications Ltd, 2021), <http://digital.casalini.it/9781529756432>.

The integration of technology and AI in the legal sector facilitates the utilization of software and various instruments that assist law enforcement activities⁶.

Currently, AI, apart from the examples above, is also frequently seen within the government sector, the primary objective is to improve the caliber of public services, foster public confidence, and strengthen the efficiency and efficacy of government operations. Moreover, governments can employ AI to enhance the precision of estimations and simulate intricate systems, so facilitating experimentation with diverse policy alternatives⁷. AI able to answer questions, conducting commands, making decisions, and conducting other human actions depends on data input provided by humans to the knowledge base, which consists of facts, theories, thoughts, and relationships between this information⁸.

Recent research which had been conducted by Martin Katz et al., (2017) showed that AI systems can predict court decisions with up to 79% accuracy; especially, in human rights cases⁹. Another experiment which had been conducted by LawGeex showed that AI outperformed a team of lawyers in terms of accuracy and speed in vetting confidentiality agreements and other legal issues. LawGeex's AI achieves an average of 95 percent accuracy while the team's lawyers are only at 85 percent. In the contract identification procedure, LawGeex's accuracy rate even reaches 100 percent, compared to 97 percent by the team of lawyers. In terms of speed, the fastest AI completes the task in 26 seconds which is much faster than the average 92 minutes required by a team of lawyers¹⁰. In Indonesia, law firm UMBRA was the first to adopt Luminance's AI system in order to conduct due

⁶ Dedi Putra, "A Modern Judicial System in Indonesia: Legal Breakthrough of E-Court and E-Legal Proceeding," *Jurnal Hukum Dan Peradilan* 9, no. 2 (2020): 275, <https://doi.org/10.25216/jhp.9.2.2020.275-297>.

⁷ Hila Mehr, "Artificial Intelligence for Citizen Services and Government," *Harvard Ash Center Technology & Democracy*, no. August (2017): 1–19, https://ash.harvard.edu/files/ash/files/artificial_intelligence_for_citizen_services.pdf.

⁸ Shabrina Fadiah Ghazmi, "Urgensi Pengaturan Artificial Intelligence Pada Sektor Bisnis Daring Di Indonesia," *Jurnal Hukum Lex Generalis* 2, no. 8 (2021): 782–803, <https://doi.org/10.56370/jhlg.v2i8.104>.

⁹ Daniel Martin Katz, Michael J. Bommarito, and Josh Blackman, "A General Approach for Predicting the Behavior of the Supreme Court of the United States," *PLoS ONE* 12, no. 4 (2017): 1–18, <https://doi.org/10.1371/journal.pone.0174698>.

¹⁰ Emon Chowdhury, "Prospects and Challenges of Using Artificial Intelligence in the Audit Process," in *The Essentials of Machine Learning in Finance and Accounting*, 2021, 139–56, <https://doi.org/10.4324/9781003037903-8>.

diligence¹¹. In addition, the utilization of AI technology in the legal field, exemplified by electronic courts and other digital applications, is a clear indication that Indonesian law enforcement is making progress toward a more widespread usage of AI in the next years.¹²

The application of AI in law enforcement will proceed to expand as new technologies such as the Internet of Things, fifth-generation wireless networks, autonomous vehicles, and robotics become more advanced. Furthermore, several international organizations, including the UN, have begun assessing the utilization of AI in law enforcement and discussing its tactical, legal, and ethical impacts. AI applications thought to be “the future” may actually be close to reality “right now”. When viewed from other countries such as the Dubai Government which is testing police robots, technology providers are developing voice-based digital assistants for police duties, and China is using 200 million surveillance cameras in order to track law violators and prevent crime. Moreover, the National Institute of Justice (NIJ) supports various AI research projects, including public safety video, image analysis, DNA analysis, gunshot detection, and crime forecasting, showing how useful AI can be for law enforcement¹³.

However, the utilization of artificial intelligence (AI) in law enforcement in Indonesia is currently suboptimal. The limited comprehension of the advantages of artificial intelligence (AI) among law enforcement forces and the prevailing legal culture in society provide significant challenges for the widespread adoption of AI¹⁴. Furthermore, another problem in the use of AI, if viewed based on legal subject theory, is that AI cannot actually be categorized as a legal subject for all

¹¹ U L Firm, “UMBRA Law Firm Adopts Luminance’s Artificial Intelligence in Indonesia,” 2018.

¹² Ardina Khoirun Nisa, “The Prospect of AI Law in Indonesian Legal System : Present and Future Challenges,” *The Indonesian Journal of International Clinical Legal Education* 6, no. 1 (2024): 25–48.

¹³ James Redden et al., “Artificial Intelligence Applications in Law Enforcement: An Overview of Artificial Intelligence Applications and Considerations for State, Local, and Tribal Law Enforcement,” *U.S. Department of Justice, National Institute of Justice, Office of Justice Programs*, 2020, 1–10, <https://cjtec.org/files/5f5f94aa4c69b>.

¹⁴ Denico Doly, “Pemanfaatan Artificial Intelligence Dalam Penegakan Hukum Di Indonesia,” *Info Singkat-XV-19-I-P3DI-Oktober-2023-208* 19, no. 2 (2023), https://berkas.dpr.go.id/puslit/files/info_singkat/Info_Singkat-XV-19-I-P3DI-Oktober-2023-208.pdf.

kinds of things that AI does, including AI's role as a professional in the legal field¹⁵. Legal subjects should have legal skills which include awareness of wanting actions and the ability to be responsible for their legal consequences. AI, being human-made, does not have consciousness, will, or the ability to be morally accountable for its actions. AI only operates based on algorithms and data entered by humans so that it cannot have legal skills like humans¹⁶.

In addition, the legal position of AI in Indonesia is not explicitly governed by existing legislation. However, in some cases, AI is treated like a legal entity that has legal responsibilities such as an organization, company, or individual. However, in agreement with¹⁷, AI cannot be considered equivalent to a legal entity by virtue of the fact that legal entities have well defined goals and objectives in their formation and include human beings. Moreover, AI cannot stand independently since it is regulated and programmed by humans, and if AI makes decisions that resemble humans, the perfection of these decisions cannot be ensured without human supremacy in decision-making, because AI is not always free from system errors.

The study aims to is to assess the significance of integrating AI for law enforcement personnel in supplying legal services or enforcing the law in Indonesia. In addition, the need for collaboration between law enforcement and AI in law enforcement in Indonesia can provide much-needed solutions considering the increasingly modern society's need for flexibility and efficiency. The utilization of AI technology in justice can be an effective alternative solution in order to mitigate the risk of corruption and human error by offering more objective and data-

¹⁵ Muhammad Tan Abdul Rahman Haris and Tantimin Tantimin, "Analisis Pertanggungjawaban Hukum Pidana Terhadap Pemanfaatan Artificial Intelligence Di Indonesia," *Jurnal Komunikasi Hukum (JKH)* 8, no. 1 (2022): 307–16, <https://doi.org/10.23887/jkh.v8i1.44408>; Tegar Raffi et al., "Menilik Pro Dan Kontra Pemanfaatan Dan Penetapan Status Hukum Artificial Intelligence Dalam Hukum Positif Indonesia," *Journal of Analytical Research, Statistics and Computation* 3, no. 1 (2024): 51–70, <https://www.jarsic.org/main/article/view/28/18>.

¹⁶ Ekinia Karolin Sebayang, Mahmud Mulyadi, and Mohammad Ekaputra, "Potensi Pemanfaatan Teknologi Artificial Intelligence Sebagai Produk Lembaga Peradilan Pidana Di Indonesia," *Locus Journal of Academic Literature Review* 3, no. 4 (2024): 317–28, <https://doi.org/10.56128/ljoalr.v3i4.311>.

¹⁷ Haris and Tantimin, "Analisis Pertanggungjawaban Hukum Pidana Terhadap Pemanfaatan Artificial Intelligence Di Indonesia."

based decisions, as well as increasing transparency and accountability. AI can process information more quickly and accurately, reduce the workload of judges, and increase the operational efficiency of judicial institutions so that it increases public trust in judicial institutions and making law enforcement efforts cleaner and more transparent.

RESEARCH METHOD

This study was normative legal research, utilizing library research. This study used secondary data which consisted of primary legal materials such as Law Number 16 of 2016 Amendments to Law Number 11 of 2008 concerning Information and Electronic Transactions, journals, books, and other documents relevant to this study. Meanwhile, the data was then analyzed qualitatively and presented descriptively. The approaches used were the Statutory Approach and the Conceptual Approach.

RESULT AND DISCUSSION

A. Urgency Analysis for Law Enforcement

Artificial intelligence (AI) is a technology which allows machines to trained to conduct one or more functions that are usually conducted by humans¹⁸. The use of AI tools provides significant prospects in law enforcement¹⁹. The automation brought about by AI can save time that law enforcement would normally spend assisting clients and performing additional billable work²⁰. In addition, AI systems create new ways of solving problems, which have the capability to boost the quality of decision-making²¹. However, one of the weaknesses of AI is that if an error occurs in the system, the error may be difficult for humans to predict, namely there

¹⁸ Hary Abdul Hakim, Chrisna Bagus Edhita Praja, and Sung Ming-Hsi, "AI in Law: Urgency of the Implementation of Artificial Intelligence on Law Enforcement in Indonesia," *Jurnal Hukum Novelty* 14, no. 1 (2023): 122–34, <https://doi.org/10.26555/novelty.v14i1.a25943>.

¹⁹ Sutri Anggita and Tamaulina Br. Sembiring, "Reformasi Sistem Peradilan Pidana Tantangan Dan Prospek Di Era Digital," *Journal of International Multidisciplinary Research* 2, no. 1 (2024): 256–71.

²⁰ Katie Atkinson, Trevor Bench-Capon, and Danushka Bollegala, "Explanation in AI and Law: Past, Present and Future," *Artificial Intelligence* 289, no. November 2019 (2020): 103387, <https://doi.org/10.1016/j.artint.2020.103387>.

²¹ R. Clarke, "Regulatory Alternatives for AI," *Computer Law and Security Review* 35, no. 4 (2019): 398–409, <https://doi.org/10.1016/j.clsr.2019.04.008>.

is a tendency for errors in data collection and processing where Artificial Intelligence (AI) parameters cannot be measured or quantified accurately when it comes to individual welfare or social support for individuals²².

According to Soerjono Soekanto's opinion, in order to evaluate law enforcement, five factors proposed by Soerjono Soekanto are used, namely legal factors, law enforcement factors, facilities and infrastructure factors, community factors, and legal culture factors. Furthermore, in his statement, Jimly Asshiddiqie defined law enforcement as the maintenance or operation of legal standards as directives for conduct in legal interactions within society and the state²³. Therefore, it means that law enforcement constitutes a series of activities aimed at actualizing legal principles, concepts, purposes, and objectives²⁴. In addition Anshori's stated that the proficiency of law enforcement officials in legal norms, theory, and analysis is crucial for ensuring equitable law enforcement²⁵.

Furthermore, legal culture in Indonesia is the collective perception of society and law enforcement authorities toward the law and its enforcement. Legal culture encompasses all manifestations of human cultural conduct that impact or are connected to legal matters²⁶. Legal culture is also an integral part of the national legal system in Indonesia, which is also known to have a high level of complexity. Other subsystems which support the optimization of the national legal system include legal substance and legal structure. Legal substance includes aspects of written law and legal norms which regulate community behavior. Meanwhile, legal structure refers to institutions and law enforcement mechanisms. Legal culture, according to Friedman, is the patterns of behavior which are formed in society and

²² Max Tretter, Tabea Ott, and Peter Dabrock, "AI-Produced Certainties in Health Care: Current and Future Challenges," *AI and Ethics*, no. 0123456789 (2023), <https://doi.org/10.1007/s43681-023-00374-6>.

²³ Hasaziduhu Moho, "Penegakan Hukum Di Indonesia Menurut Aspek Kepastian Hukum, Keadilan, Dan Kemanfaatan," *Universitas Dharmawangsa* 13, no. 1 (2019): 138–49.

²⁴ Arsyad Aldyan and Abhishek Negi, "The Model of Law Enforcement Based on Pancasila Justice," *Journal of Human Rights, Culture and Legal System* 2, no. 3 (2022): 178–90, <https://doi.org/10.53955/jhcls.v2i3.51>.

²⁵ Anshori, "Gagasan Artificial Intelligence Dalam Penerapan Hukum Di Era 4.0 Perspektif Penyelesaian Perkara Model Restorasi Justice Dan Hukum Progresif," *Legal Studies Journal* 2, no. 2 (2022): 1–13, <https://ejournal.unuja.ac.id/index.php/ljsj/article/view/4190>.

²⁶ S Soekanto, *Faktor-Faktor Yang Mempengaruhi Penegakan Hukum* (Rajawali, 2004), <https://books.google.co.id/books?id=BK2aHAAACAAJ>.

reflect how the legal system functions in practice. By paying attention to legal culture, it is possible to identify how the legal system operates in people's daily lives since legal culture contains in-depth information regarding the interaction between law and society. In addition, Friedman stated that legal culture is the origin of the values which form legal norms in society. These core principles, reflected in thoughts, opinions, and behavior, serve as the foundation for the establishment of legislative regulations that shape societal transformation. Humans, as legal subjects, use reason in order to determine what is right and wrong, influencing responses to legal obligations and institutions. These behavioral patterns determine how individuals and society respond to the legal system, either by following or rejecting it²⁷.

Soerjono Soekanto and Lawrence Friedman have different views on law enforcement. Soekanto emphasized the importance of the legal structure and behavior of law enforcement officers in conducting law enforcement. The definition of law enforcement limits to only those who are directly involved in this field, including the judiciary, prosecutor's office, police, lawyers, and correctional institutions. On the other hand, Friedman define that the legal system as a unity comprising of three sub-systems: legal substance, legal structure, and legal culture. He argued that the effectiveness of law enforcement is influenced by the interaction between these three sub-systems, where legal substance includes legal material, legal structure involves institutions and law enforcement officers, and legal culture concerns attitudes, beliefs, and community values towards the law²⁸. Therefore, in this regard, AI can significantly improve the efficacy of law enforcement by improving the efficiency of legal structures, providing accurate data analysis for legal substance, and helping to change legal culture through greater transparency and accountability. In terms of technology, based on Friedman's opinion, the

²⁷ Izzy Al Kautsar and Danang Wahyu Muhammad, "Sistem Hukum Modern Lawrence M. Friedman: Budaya Hukum Dan Perubahan Sosial Masyarakat Dari Industrial Ke Digital," *Sapientia Et Virtus* 7, no. 2 (2022): 84–99, <https://doi.org/10.37477/sev.v7i2.358>.

²⁸ Lutfil Ansori, "Reformasi Penegakan Hukum Perspektif Hukum Progresif," *Jurnal Yuridis* 4, no. 2 (2018): 148, <https://doi.org/10.35586/v4i2.244>.

government needs to understand the social impact of technology before making new laws, in order to ensure relevance and public acceptance.

In order to realize the goal of law enforcement through AI, a legal framework is needed which guarantees and provides legal certainty besides, can fulfill effectiveness in law enforcement. Relevant concerns regarding the usage of AI encompass the fundamental nature of AI as a legal entity, inaccuracies in evaluating and resolving legal matters, data breaches, and other potential legal liabilities²⁹. Provisions regarding the utilization of digital technology or AI are contained in the ITE Law³⁰. The attributes of AI in automating information processing render it analogous to a "electronic agent" under Indonesian law. Article 1 of the ITE Law defines an "Electronic Agent" as "an electronic system device created to automatically conduct an action on certain Electronic Information owned by a person". The ITE Law stipulates that the deployment of AI (Electronic Agents) in Indonesia is permissible solely by individuals, state officials, business entities, and the public. It means that legal responsibility is imposed on electronic system operators which provide AI services³¹. However, Satjitpto Rahardjo asserted that progressive law prioritizes the human element, viewing law as an evolving product that requires ongoing development³².

The study conducted by Sihombing & Adi Syaputra reveals that the existing amenities and ways of support for law enforcement officers are currently comparatively limited. In the process of examination and decision-making process, judges, prosecutors, and police employ straightforward techniques, while advocates continue to assist clients in the conventional manner³³. This fact is in contrasts with the application of AI by law enforcement, where conventional tactics can be

²⁹ Doly, "Pemanfaatan Artificial Intelligence Dalam Penegakan Hukum Di Indonesia."

³⁰ Ghazmi, "Urgensi Pengaturan Artificial Intelligence Pada Sektor Bisnis Daring Di Indonesia."

³¹ Angga Priancha et al., "Rethinking 'Electronic Agent' Terminology In The Law On Electronic Information and Transaction From The Perspektif Of Indonesian Lastgeving Law," *Mimbar Hukum - Fakultas Hukum Universitas Gadjah Mada* 34, no. 2 (2022): 378–402.

³² S Rahardjo, *Penegakan Hukum Progresif* (Penerbit Buku Kompas, 2010), <https://books.google.co.id/books?id=f7EqH7E4x4IC>.

³³ Eka NAM Sihombing and Muhammad Yusrizal Adi Syaputra, "Implementasi Penggunaan Kecerdasan Buatan Dalam Pembentukan Peraturan Daerah," *Jurnal Ilmiah Kebijakan Hukum* 14, no. 3 (2020): 419, <https://doi.org/10.30641/kebijakan.2020.v14.419-434>.

circumvented. Artificial intelligence possesses the capability to supplant analytical and decision-making procedures in administrative affairs. Law enforcement officers can receive support and conduct their duties more efficiently³⁴. Social factors and legal culture in Indonesia greatly influence the characteristics of the utilization of AI in law enforcement. It is a very important element in this study³⁵. Findings from various surveys regarding public perceptions of law enforcement show the strong connection between our culture and the principles of trust in social interactions³⁶. In addition, our society has formed a culture of adherence to applicable legislation³⁷. Law is no longer only understood as written text in laws or other resources of positive law, but also as the result of empirical experience³⁸. Laws must to be correlated with actual circumstances. In other words, law in-abstracto must be connected to the context of specific events to facilitate the resolution of legal disputes³⁹. If the judge embraces this viewpoint, it will be regarded as law in-concreto⁴⁰.

According to Satjipto Rahardjo, as cited by Dewantara and Larasati, defines law enforcement is the process of actualizing legal objectives. Therefore, law enforcement encompasses more than the mere literal application of the law⁴¹. AI in law enforcement should be able to integrate legal rules with existing practices and

³⁴ Endang Irawan Supriyadi and Dianing Banyu Asih, "Implementasi Artificial Intelligence (AI) Di Bidang Administrasi Publik Pada Era Revolusi Industri 4.0," *Jurnal Sosial Dan Humaniora Universitas Muhammadiyah Bandung* 2, no. 2 (2020): 12–32, https://doi.org/10.1007/978-3-030-55190-2_49.

³⁵ Febri Jaya and Wilton Goh, "Analisis Yuridis Terhadap Kedudukan Kecerdasan Buatan Atau Artificial Intelligence Sebagai Subjek Hukum Pada Hukum Positif Indonesia," *Supermasi Hukum* 17, no. 2 (2021): 48–53.

³⁶ Vidya Prahassacitta, "Offences Principles and a Limitation for Disinformation Via the Internet in Indonesia," *Indonesian Law Journal* 14, no. 1 (2021): 37–51, <https://doi.org/10.33331/ilj.v14i1.49>.

³⁷ E. K. Purwendah et al., "The Influence of Legal Compliance in Farmer Group on the Growth and Development of Sustainable Mangrove Ecosystem," *Global Journal of Environmental Science and Management* 10, no. 3 (2024): 1371–90, <https://doi.org/10.22034/gjesm.2024.03.26>.

³⁸ S.H.M.H. Dr. Jazim Hamidi, *Hermeneutika Hukum (Sejarah, Filsafat \& Metode Tafsir) Edisi Revisi* (Dini Kozemake, 2014), <https://books.google.co.id/books?id=0WaKBAAQBAJ>.

³⁹ Sepa Munawar, "Review of Law Enforcement in Indonesia," *Ahkam* 2, no. 1 (2023): 136–47, <https://doi.org/10.58578/ahkam.v2i1.942>.

⁴⁰ Rahardjo, *Penegakan Hukum Progresif*.

⁴¹ Antonius Mahendra Dewantara and Dika Kirana Larasati, "Implementation of Progressive Law in Enforcement of Environmental Law in Indonesia: The Current Problems and Future Challenges," *Indonesian Journal of Environmental Law and Sustainable Development* 1, no. 2 (2022): 237–64, <https://doi.org/10.15294/ijel.v1i2.58044>.

norms in society. In addition, AI should have the capacity to embody a sense of humanity or employ conscience in the analysis and formulation of decisions⁴².

Based on the analysis which has been conducted, the utilization of AI offers great potential in order to increase the effectiveness of law enforcement. AI can expedite the evidence collection procedure and analyzing data which supports law enforcement processes. Due of its capacity to efficiently manage and analyze data and accurately, AI can help identify patterns of crime or law violations which are difficult to recognize manually. In addition, AI can provide more accurate predictions regarding the risk of certain crimes or legal violations, allowing law enforcement to take preventive action more efficiently.

In America, an AI robot called LawGeex has proven its effectiveness in the process of resolving legal problems⁴³. Meanwhile, the use of AI robots in China's judicial system facilitates comprehensive judicial efficiency and provides technical support for judges to decide cases⁴⁴. It can certainly be a solution to achieve efficiency and effectiveness against the obstacles to the justice system in Indonesia.

Apart from operational efficiency, the utilization of AI in law enforcement can also increase transparency and accountability. By basing legal decisions on objective data analysis, AI can reduce the potential for human bias in legal decision-making. It ensures that legal choices are grounded in robust evidence and clear standards, which can increase public confidence in the legal system as a whole. Thus, the integration of AI in law enforcement is not only about increasing efficiency but also about increasing fairness and public trust in legal institutions.

Artificial intelligence seeks to identify measures of fairness which comply with the law but are static enough to be coded for use by law enforcement. AI teaches computers to emulate human behavior by utilizing existing information and

⁴² Hary Abdul Hakim, "The Islamic Law within the Indonesian Legal System," *Journal Tsaqafah* 17, no. 2 (2021): 349–62, <https://ejournal.unida.gontor.ac.id/index.php/tsaqafah/article/download/6213/10037>.

⁴³ Chowdhury, "Prospects and Challenges of Using Artificial Intelligence in the Audit Process."

⁴⁴ Zichun Xu, "Human Judges in the Era of Artificial Intelligence: Challenges and Opportunities," *Applied Artificial Intelligence* 36, no. 1 (2022), <https://doi.org/10.1080/08839514.2021.2013652>.

generating the intended results. Since around 2000, there has been a transition in the domains of AI and law from knowledge representation techniques to machine learning-based models. Several legal technology startups are employing machine learning to enhance the efficiency and effectiveness of the law in multifaceted ways⁴⁵. According to study, the utilization of AI in law can be divided into three types of users: legal administrators (such as judges, legislators, administrative officials, and police), legal practitioners (such as lawyers), and those governed by law (such as individuals, businesses, and organizations who use the law to achieve their goals)⁴⁶.

Those utilization of AI in the law enforcement process still leaves challenges to be faced, for example the legal culture of Indonesian society attend to be unfamiliar with the use of technology. In addition, public perception currently tends to be more trusting when law services and enforcement are conducted conventionally.

B. The Potential of Artificial Intelligence (AI) to Replace Humans in Law Enforcement

Currently, Artificial Intelligence (AI) has been unable to supplant the role of law enforcers (police, prosecutors, judges, and advocates); especially, in the criminal justice system⁴⁷. At this stage, AI is only used to assist in case administration and it does not yet cover the legal aspects of trial procedures. The authority to determine punishment remains in the hands of the judge since the judge's decision is based on personal beliefs involving moral judgment and the complex context of the case in which this aspect cannot be handled effectively by AI⁴⁸. However, there is a view that in the future, with technological advances, AI may be able to develop the ability in order to provide recommendations about

⁴⁵ Andrew Mowbray, Philip Chung, and Graham Greenleaf, "Utilising AI in the Legal Assistance Sector: Testing a Role for Legal Information Institutes," *CEUR Workshop Proceedings* 2484 (2019): 12–18, <https://doi.org/10.2139/ssrn.3379441>.

⁴⁶ Rowena Rodrigues, "Legal and Human Rights Issues of AI: Gaps, Challenges and Vulnerabilities," *Journal of Responsible Technology* 4, no. August (2020): 100005, <https://doi.org/10.1016/j.jrt.2020.100005>.

⁴⁷ Xu, "Human Judges in the Era of Artificial Intelligence: Challenges and Opportunities."

⁴⁸ Sebayang, Mulyadi, and Ekaputra, "Potensi Pemanfaatan Teknologi Artificial Intelligence Sebagai Produk Lembaga Peradilan Pidana Di Indonesia."

punishment based on existing legal references, although still in a limited context compared to holistic human judgment⁴⁹.

The position of upholding justice is a very honorable; for example, a judge is considered an extension of God. It places judges in direct responsibility accompanied by social obligations towards society. The role and authority of a judge as a law enforcer is to adjudicate cases which have reached the final level; especially, in criminal cases. In handing down a decision, the judge should consider legal truth and philosophical justice in a balanced manner. The judge's obligation is that to make fair and wise decisions, considering the legal consequences and the impact on society at large⁵⁰.

Therefore, AI cannot be equated with humans as law enforcers since it does not have the awareness or ability to will its actions, or be morally responsible for its actions⁵¹. Humans in this case are related to entities which have clear goals and awareness, while AI is the result of human work which is regulated and programmed by humans themselves. Moreover, AI's ability to make decisions cannot be considered perfect without human intervention or supervision⁵². Therefore, human supremacy in decision-making remains crucial in legal and ethical contexts.

A fundamental difference occurs between law enforcement conducted by devices or tools and that conducted by humans. According to Rasyid Rizani⁵³, a judge brings three types of justice when handling cases: legal justice, moral justice, and social justice. However, according to Abdurrahman Rahim, AI is unable to provide justice since it cannot consider morally or take into account the benefits of a problem, even though it uses algorithms. In addition, AI cannot replace the role

⁴⁹ Eka Nanda Ravizki and Lintang Yudhantaka, "Artificial Intelligence Sebagai Subjek Hukum: Tinjauan Konseptual Dan Tantangan Pengaturan Di Indonesia," *Notaire* 5, no. 3 (2022): 351–76, <https://doi.org/10.20473/ntr.v5i3.39063>.

⁵⁰ D Y Witanto and A P N Kutawaringin, *Diskresi Hakim: Sebuah Instrumen Menegakkan Keadilan Substantif Dalam Perkara-Perkara Pidana* (Penerbit Alfabeta, 2013), <https://books.google.co.id/books?id=rFN3oAEACAAJ>.

⁵¹ Patrick Henz, "Ethical and Legal Responsibility for Artificial Intelligence," *Discover Artificial Intelligence* 1, no. 1 (2021): 1–5, <https://doi.org/10.1007/s44163-021-00002-4>.

⁵² Abdi Christia et al., *Kecerdasan Buatan: Arah Dan Eksplorasinya* (Prasetya Mulya Publishing, 2024).

⁵³ Rasyid Rizani, "Integrasi Keadilan Moral, Keadilan Hukum, Dan Keadilan Sosial Dalam Putusan Pengadilan," 2023, <https://konsultasi-hukum-online.com/2023/11/integrasi-keadilan-moral-keadilan-hukum-dan-keadilan-sosial-dalam-putusan-pengadilan/>.

of a judge since it does not have the ability to think like humans based on feeling, intention and conscience⁵⁴.

It is in line with the legal objectives stated by Gustav Radbruch that AI does have the ability to optimize several aspects of law enforcement, but it cannot completely replace the role of humans in this context. Gustav Radbruch emphasized that the aims of law encompass legal certainty, fairness, and legal advantages. The process of achieving justice does not only depend on written legal texts, but it also involves deep human dimensions and socio-cultural factors. AI, although it can help in data analysis and automation, does not have the ability to understand the moral context, ethics and human values which are important in the justice process⁵⁵. Therefore, AI is considered unable to replace the role of human judges or law enforcers who are able to consider these aspects holistically and based on character assessments.

In contrast to the Western world with a common law system, AI has the potential to be more easily used as a substitute for judges in terms of providing punishment recommendations for defendants since in this system the jury determines whether someone is guilty or not, while the judge is responsible for determining the sentence. It allows such patterns to be implemented more easily when AI only acts as a recommender in the legal decision-making process⁵⁶. This is an opportunity for AI to replace the role of humans in several aspects of law enforcement with AI's ability in order to provide accurate and consistent data analysis which can provide additional value in the process of making legal decisions; especially, in providing recommendations for punishment based on legal codes and jurisprudence which have been programmed even though AI does not have unique dimensions such as awareness, empathy and moral judgment which humans have in the law enforcement process.

The opinion expressed by Rika Anggita Sitompul and Mustika Putra Rokan emphasized the potential for using AI as a substitute for judges in making criminal decisions; especially, in certain cases such as traffic violations or minor theft. They

⁵⁴ Doly, "Pemanfaatan Artificial Intelligence Dalam Penegakan Hukum Di Indonesia."

⁵⁵ Anshori, "Gagasan Artificial Intelligence Dalam Penerapan Hukum Di Era 4.0 Perspektif Penyelesaian Perkara Model Restorasi Justice Dan Hukum Progresif."

⁵⁶ Rangga Hotman Hasibuan et al., "Artificial Intelligence in the Auspices of Law: A Diverge Perspective," *Mimbar Hukum* 36, no. 1 (2024): 111–40, <https://doi.org/10.22146/mh.v36i1.10827>.

emphasize that AI can manage cases with these standard characteristics more efficiently, reducing judges' workload through its ability to process data, legal references and trial facts quickly and accurately⁵⁷. By using preprogrammed algorithms, AI is able to provide consistent sentencing recommendations in accordance with established guidelines, improving the decision-making process in the justice system⁵⁸.

AI is experiencing three distinct phases of evolution. Artificial Narrow Intelligence (ANI) is a constrained version of AI that is solely capable of executing particular tasks. Then, there is Artificial General Intelligence (AGI), also known as Strong AI, possesses capabilities analogous to those of humans across diverse settings. Lastly, Artificial Super Intelligence (ASI) is a form of AI designed in order to significantly surpass human capabilities⁵⁹. Therefore, it does not preclude the potential for future developments in Indonesia, several things in law enforcement could be taken over by AI. It can be seen from the Estonian Government which has adopted the use of AI in the role of judge to handle small disputes especially, in civil cases with a value of less than 7,000 Euros. This decision was taken with the aim of increasing the efficiency of the justice system by reducing the workload of judges and addressing the backlog of cases. AI is used to process these cases since it can perform certain tasks without involving human discretion. This approach is considered effective in simplifying the resolution of small disputes and speeding up the legal process without sacrificing justice. Estonia's move reflects a global trend in the application of AI technology in the administration of justice in order to improve overall public services⁶⁰.

Analysis of the role of AI in the justice system shows that although AI has shown progress in assisting case administration and providing sentencing recommendations in certain cases, AI cannot yet completely replace the role of

⁵⁷ Sebayang, Mulyadi, and Ekaputra, "Potensi Pemanfaatan Teknologi Artificial Intelligence Sebagai Produk Lembaga Peradilan Pidana Di Indonesia."

⁵⁸ Frank Fagan and Saul Levmore, "The Impact of Artificial Intelligence on Rules, Standards, and Judicial Discretion," *Southern California Law Review* 93, no. 1 (2019): 1–36, <https://doi.org/10.2139/ssrn.3362563>.

⁵⁹ M. D. Ashshidqi, "Proyeksi Dampak Teknologi Artificial General Intelligence Dan Tanggung Jawab Ilmuwan," *Doctoral Dissertation, Universitas Gadjah Mada*, 2019, 362464.

⁶⁰ Panca Sarjana Putra et al., "Judicial Transformation: Integration of AI Judges in Innovating Indonesia's Criminal Justice System," *Kosmik Hukum* 23, no. 3 (2023): 233, <https://doi.org/10.30595/kosmikhukum.v23i3.18711>.

human judges. Judges as enforcers of justice have complex moral and social responsibilities, which involve a holistic assessment of legal truth, philosophical justice, and its impact on society. Judges' decisions are not only based on algorithms or data, but they also take into account the unique context of the case and deep moral values. Furthermore, in the legal system in Indonesia, when a judge makes a decision, Article 183 of the Indonesian Criminal Procedure Code emphasizes that apart from being supported by two pieces of evidence, the decision should be based on the judge's belief based on existing evidence (wettelijk negative legal system). AI will not be able to have this concept of “judge confidence” and faces significant challenges in developing algorithmic patterns which can accommodate the wide variety of existing legal cases. Although AI is capable of providing recommendations based on programmed legal codes, it does not have the ability to sense or understand these nuances in the same way as humans.

In addition, the presence of AI in law enforcement also raises questions related to ethics and justice. Although AI can process data quickly and accurately, the decisions it produces are often limited to what it has been programmed for and cannot capture important moral nuances in legal decisions. These aspects emphasize that, although AI technology can provide added value in the efficiency of justice administration, the role of human judges in making fair and wise decisions remains irreplaceable. Therefore, the development and application of AI in the justice system should be supported by a deep understanding of the limitations of this technology as well as the protection of the very human values of justice.

C. Relevance, Challenges and Solutions for Implementing AI in Law Enforcement

Artificial intelligence (AI) is a branch of science and technology which can solve super complex problems through sophisticated algorithmic calculation methods. AI has the capacity to address challenges and generate solutions by utilizing synthetic computer cognition, which is comprised of algorithms beyond the capabilities of human intelligence⁶¹. Several countries have applied AI

⁶¹ Herdandi Irsyad Bhagaskara, Sita Narawita Puteri, and Yoshiro Emillio Lumban Tobing, “Tinjauan Hukum Peran Artificial Intelligence (AI) Sebagai Pencegah Terjadinya Pelanggaran Kode Etik Oleh Auditor Publik,” *Universitas Nusantara PGRI Kediri* 01 (2022): 1–7.

technology in the legal field; such as, China with the Smart Courts and Anti-Corruption-Tools application which can analyze cases automatically and determine evidentiary standards⁶². Mexico also uses AI to analyze millions of government data records in order to identify risks of criminal acts; such as, fraud and tax evasion⁶³.

The use of AI in America has proven its benefits in increasing the efficiency, accuracy and accessibility of legal information⁶⁴. It has similarities to what can be seen on the Hukumonline.com site in Indonesia which also provides factual and updated legal information. The integration of AI in Hukumonline.com's operations can bring significant benefits, including automation of legal processes, increased efficiency, and faster and more accurate access to legal information so that it can benefit law enforcement and the wider community in Indonesia.

However, implementing AI in the Indonesian legal system is not without challenges. The Indonesian legal system has its roots in continental legal traditions which are different from precedent-based systems followed in the United States⁶⁵. Reforming the legal system by adopting AI requires a series of adjustments⁶⁶. Furthermore, the database which AI uses should be very comprehensive, covering all relevant laws, regulations and jurisprudence. In addition, AI should be "taught" to comprehend the intricacies of Indonesian culture and social environment in order to ensure that its decisions are pertinent and aligned with appropriate societal standards. Revamping the legal system by implementing artificial intelligence necessitates a sequence of modifications, which are outlined below⁶⁷:

⁶² Brilliantio Mochammad Prakoso et al., "Implementasi Artificial Intelligence (AI) Dalam Pembentukan Peraturan Perundang-Undangan Di Indonesia," *Depositi: Jurnal Publikasi Ilmu Hukum* 2, no. 1 (2024): 224–40.

⁶³ Sihombing and Adi Syaputra, "Implementasi Penggunaan Kecerdasan Buatan Dalam Pembentukan Peraturan Daerah."

⁶⁴ Chowdhury, "Prospects and Challenges of Using Artificial Intelligence in the Audit Process."

⁶⁵ Mochammad Tanzil Multazam and Aan Eko Widiarto, "Digitalisasi Pada Sistem Hukum: Peluang Dan Tantangan Bagi Indonesia," *Indonesian Journal of Innovation Studies* 11, no. 2 (2023): 1–12.

⁶⁶ Jaya and Goh, "Analisis Yuridis Terhadap Kedudukan Kecerdasan Buatan Atau Artificial Intelligence Sebagai Subjek Hukum Pada Hukum Positif Indonesia."

⁶⁷ Paulus Wisnu Yudoprakoso, "Kecerdasan Buatan (Artificial Intelligence) Sebagai Alat Bantu Proses Penyusunan Undang-Undang Dalam Upaya Menghadapi Revolusi Industri 4.0 Di Indonesia," *Simposium Hukum Indonesia* 1, no. 1 (2019): 574–86, <http://journal.trunojoyo.ac.id/shi>.

1. Comprehensive database encompasses all pertinent laws, regulations, and jurisprudence.
2. AI should be "taught" to understand the nuances of Indonesian culture and social context
3. Ensure the protection of human rights such as the right to a fair trial
4. Overcoming public skepticism towards legal decisions made by machines

The ideal mechanism for accommodating AI in law in Indonesia can be conducted through a bottom-up approach by involving the community in developing a crime indication reporting system. Openness of the government system is also important so that the application of AI receives public support in law enforcement⁶⁸. The integration of AI in law enforcement requires a careful approach by considering the fundamental principles of the legal system and human rights⁶⁹. Education and training for legal professionals is necessary so that they understand how AI works and its potential weaknesses. Transparency of AI algorithms is also important for building public trust⁷⁰. In addition, implementing AI requires a technological infrastructure which is reliable and safe from external interference⁷¹. Amendments to laws and regulations may be required to guarantee that AI utilization adheres to current legal and ethical norms⁷². Although the utilization of AI in law in Indonesia still faces various challenges, this technology offers great potential to increase efficiency and accuracy in law enforcement. Therefore, with a careful approach and involvement of stakeholders, Indonesia can utilize AI in order to transform its legal system in the digital era.

Artificial intelligence (AI) provides great capability to change various aspects of our lives. However, the development and utilization of AI also raises ethical questions and concerns which need to be seriously considered⁷³. Ethical principles

⁶⁸ Sihombing and Adi Syaputra, "Implementasi Penggunaan Kecerdasan Buatan Dalam Pembentukan Peraturan Daerah."

⁶⁹ Multazam and Widiarto, "Digitalisasi Pada Sistem Hukum: Peluang Dan Tantangan Bagi Indonesia."

⁷⁰ Jaya and Goh, "Analisis Yuridis Terhadap Kedudukan Kecerdasan Buatan Atau Artificial Intelligence Sebagai Subjek Hukum Pada Hukum Positif Indonesia."

⁷¹ Bhagaskara, Puteri, and Tobing, "Tinjauan Hukum Peran Artificial Intelligence (AI) Sebagai Pencegah Terjadinya Pelanggaran Kode Etik Oleh Auditor Publik."

⁷² Yudoprakoso, "Kecerdasan Buatan (Artificial Intelligence) Sebagai Alat Bantu Proses Penyusunan Undang-Undang Dalam Upaya Menghadapi Revolusi Industri 4.0 Di Indonesia."

⁷³ Azmi Firdhausi, "Etika Digital Dalam Artificial Intelligence," no. March (2023), <https://doi.org/10.13140/RG.2.2.30914.04807>.

should be the foundation at every stage of AI development in order to ensure this technology brings benefits to society at large while minimizing possible risks. One important aspect of AI ethics is ensuring fairness and avoiding discrimination. The development of AI algorithms should guarantee the absence of any specific prejudice, thereby ensuring that the yielding judgments are equitable and devoid of discrimination⁷⁴. Although AI possesses the capability to increase efficacy and impartiality in areas such as the judiciary, numerous social and ethical factors must be acknowledged, it is essential for Indonesia to establish a structural framework that guarantees the fair, transparent, and responsible implementation of AI, with a focus on justice and human rights⁷⁵. In order to guarantee smooth and equitable integration of AI, Indonesia needs to develop comprehensive regulations regarding the use of AI. An artificial intelligence system framework is also needed to improve the competence of Indonesia's human resources in facing the AI era. Several strategic measures need to be implemented as follows⁷⁶:

1. Public consultation and dialogue to provide understanding and accommodate community input.
2. Training and education for all stakeholders on how AI works and its ethical and social implications.
3. Establish an AI ethics framework which emphasizes transparency, accountability, and fairness.
4. Provide an independent audit mechanism and review of AI decisions.
5. Establish an appeal mechanism for AI decisions in order to protect individual rights.
6. Encourage ongoing research on the social and ethical impacts of AI.
7. Ensure AI reflects Indonesia's cultural diversity and local values.
8. Build multisectoral cooperation between government, researchers, industry and civil society.

⁷⁴ Daniel Varona and Juan Luis Suárez, "Discrimination, Bias, Fairness, and Trustworthy AI," *Applied Sciences (Switzerland)* 12, no. 12 (2022), <https://doi.org/10.3390/app12125826>.

⁷⁵ NCSC, "Artificial Intelligence (AI) AI and the Courts : Judicial and Legal Ethics Issues," no. May (2024): 1–2; Putra et al., "Judicial Transformation: Integration of AI Judges in Innovating Indonesia's Criminal Justice System."

⁷⁶ Adhitia Presetiyo Sudaryanto and Stevy Hanny, "Manajemen Sumber Daya Manusia Sektor Publik Menghadapi Kemajuan Kecerdasan Buatan (Artificial Intelligence)," *Musamus Journal of Public Administration* 6, no. 1 (2023): 513–21, <https://doi.org/10.35724/mjpa.v6i1.5402>.

By implementing these steps, Indonesia can ensure that AI implementation not only improves efficiency, but it also strengthens the fairness and integrity of the existing system. As technological advances continue to develop, it is important for us to be open to innovation while remaining careful in its application. With a thoughtful, reflective, and inclusive approach, we can navigate these changes in a way that ensures new technologies are implemented ethically, fairly, and benefit all of society. In addition, an open attitude towards innovation and the courage to continue learning are the keys to continuing to move forward with developments while upholding strong ethical principles.

CONCLUSION

Artificial intelligence (AI) provides significant prospects in law enforcement. AI can automate tasks, save time, and open up new ways of solving problems so that it potentially improves the quality of decision-making. However, if an error occurs in an AI system, it may be difficult for humans to predict. In order to achieve the goal of law enforcement with AI, a legal framework is required to ensure legal certainty. Issues such as the basis of AI as a legal subject, errors of judgement, data leaks, and legal liability need to be addressed. The ITE Law states that the implementation of AI in Indonesia can only be conducted by individuals, state administrators, business entities, and the public so that legal responsibility falls on AI system operators. However, implementing AI in the Indonesian legal system faces challenges due to differences in legal traditions. Reforming the legal system by adopting AI requires adjustments; such as, comprehensive databases, understanding cultural nuances, protecting human rights, and overcoming public skepticism. Moreover, strategic steps; such as, public consultations, training, ethical frameworks, audit and appeal mechanisms, and multisectoral cooperation are needed in order to ensure fair, transparent and responsible implementation of AI. Despite the challenges, AI offers great potential to increase efficiency and accuracy in law enforcement in Indonesia. Thus, with a careful approach and involving stakeholders, Indonesia can utilize AI in order to transform its legal system in the digital era.

BIBLIOGRAPHY

Books:

Dr. Jazim Hamidi, S.H.M.H. *Hermeneutika Hukum (Sejarah, Filsafat, dan Metode Tafsir) Edisi Revisi*. Dini Kozemake, 2014. <https://books.google.co.id/books?id=0WaKBAAQBAJ>.

Rahardjo, S. *Penegakan Hukum Progresif*. Penerbit Buku Kompas, 2010. <https://books.google.co.id/books?id=f7EqH7E4x4IC>.

Soekanto, S. *Faktor-Faktor Yang Mempengaruhi Penegakan Hukum*. Rajawali, 2004. <https://books.google.co.id/books?id=BK2aHAAACAAJ>

Journals:

Adhikary, Sudipta, and Kaushik Banerjee. "Digitalisation and AI What Does the Future Hold for Labour Union." *Glocalism*, no. 1 (2022): 1–29. <https://doi.org/10.12893/gjcpi.2022.1.5>.

Aldyan, Arsyad, and Abhishek Negi. "The Model of Law Enforcement Based on Pancasila Justice." *Journal of Human Rights, Culture and Legal System* 2, no. 3 (2022): 178–90. <https://doi.org/10.53955/jhcls.v2i3.51>.

Anshori. "Gagasan Artificial Intelligence Dalam Penerapan Hukum Di Era 4.0 Perspektif Penyelesaian Perkara Model Restorasi Justice Dan Hukum Progresif." *Legal Studies Journal* 2, no. 2 (2022): 1–13. <https://ejournal.unuja.ac.id/index.php/ljsj/article/view/4190>.

Ansori, Lutfil. "Reformasi Penegakan Hukum Perspektif Hukum Progresif." *Jurnal Yuridis* 4, no. 2 (2018): 148. <https://doi.org/10.35586/v4i2.244>.

Ashshidqi, M. D. "Proyeksi Dampak Teknologi Artificial General Intelligence Dan Tanggung Jawab Ilmuwan." *Doctoral Dissertation, Universitas Gadjah Mada*, 2019, 362464.

Atkinson, Katie, Trevor Bench-Capon, and Danushka Bollegala. "Explanation in AI and Law: Past, Present and Future." *Artificial Intelligence* 289, no. November 2019 (2020): 103387. <https://doi.org/10.1016/j.artint.2020.103387>.

Bhagaskara, Herdandi Irsyad, Sita Narawita Puteri, and Yoshiro Emillio Lumban Tobing. "Tinjauan Hukum Peran Artificial Intelligence (AI) Sebagai Pencegah Terjadinya Pelanggaran Kode Etik Oleh Auditor Publik." *Universitas Nusantara PGRI Kediri* 01 (2022): 1–7.

Chowdhury, Emon. "Prospects and Challenges of Using Artificial Intelligence in the Audit Process." In *The Essentials of Machine Learning in Finance and Accounting*, 139–56, 2021. <https://doi.org/10.4324/9781003037903-8>.

Christia, Abdi, A Hadi, A Febriana, A Budiharjo, A Wiradarmo, D Elfriede, and T Trilaksono. *Kecerdasan Buatan: Arah Dan Eksplorasinya*. Prasetya Mulya

Publishing, 2024.

Clarke, R. "Regulatory Alternatives for AI." *Computer Law and Security Review* 35, no. 4 (2019): 398–409. <https://doi.org/10.1016/j.clsr.2019.04.008>.

Cliggett, Lisa, and Lene Pedersen. "The SAGE Handbook of Cultural Anthropology. Talking to AI: An Anthropological Encounter With Artificial Intelligence." London: SAGE Publications Ltd, 2021. <http://digital.casalini.it/9781529756432>.

Dewantara, Antonius Mahendra, and Dika Kirana Larasati. "Implementation of Progressive Law in Enforcement of Environmental Law in Indonesia: The Current Problems and Future Challenges." *Indonesian Journal of Environmental Law and Sustainable Development* 1, no. 2 (2022): 237–64. <https://doi.org/10.15294/ijel.v1i2.58044>.

Disemadi, Hari Sutra. "Urgensi Regulasi Khusus Dan Pemanfaatan Artificial Intelligence Dalam Mewujudkan Perlindungan Data Pribadi Di Indonesia." *Jurnal Wawasan Yuridika* 5, no. 2 (2021): 177. <https://doi.org/10.25072/jwy.v5i2.460>.

Doly, Denico. "Pemanfaatan Artificial Intelligence Dalam Penegakan Hukum Di Indonesia." *Info Singkat-XV-19-I-P3DI-Oktober-2023-208* 19, no. 2 (2023). https://berkas.dpr.go.id/puslit/files/info_singkat/Info_Singkat-XV-19-I-P3DI-Oktober-2023-208.pdf.

Fagan, Frank, and Saul Levmore. "The Impact of Artificial Intelligence on Rules, Standards, and Judicial Discretion." *Southern California Law Review* 93, no. 1 (2019): 1–36. <https://doi.org/10.2139/ssrn.3362563>.

Firdhausi, Azmi. "Etika Digital Dalam Artificial Intelligence," no. March (2023). <https://doi.org/10.13140/RG.2.2.30914.04807>.

Ghazmi, Shabrina Fadiah. "Urgensi Pengaturan Artificial Intelligence Pada Sektor Bisnis Daring Di Indonesia." *Jurnal Hukum Lex Generalis* 2, no. 8 (2021): 782–803. <https://doi.org/10.56370/jhlg.v2i8.104>.

Hakim, Hary Abdul. "The Islamic Law within the Indonesian Legal System." *Journal Tsaqafah* 17, no. 2 (2021): 349–62. <https://ejournal.unida.gontor.ac.id/index.php/tsaqafah/article/download/6213/10037>.

Hakim, Hary Abdul, Chrisna Bagus Edhita Praja, and Sung Ming-Hsi. "AI in Law: Urgency of the Implementation of Artificial Intelligence on Law Enforcement in Indonesia." *Jurnal Hukum Novelty* 14, no. 1 (2023): 122–34. <https://doi.org/10.26555/novelty.v14i1.a25943>.

Haris, Muhammad Tan Abdul Rahman, and Tantimin Tantimin. "Analisis

- Pertanggungjawaban Hukum Pidana Terhadap Pemanfaatan Artificial Intelligence Di Indonesia.” *Jurnal Komunikasi Hukum (JKH)* 8, no. 1 (2022): 307–16. <https://doi.org/10.23887/jkh.v8i1.44408>.
- Hasaziduhu Moho. “Penegakan Hukum Di Indonesia Menurut Aspek Kepastian Hukum, Keadilan, Dan Kemanfaatan.” *Universitas Dharmawangsa* 13, no. 1 (2019): 138–49.
- Hasibuan, Rangga Hotman, Aurelya Jessica Rawung, Denisha M. D. Paranduk, and Fidel Jeremy Wowiling. “Artificial Intelligence in the Auspices of Law: A Diverge Perspective.” *Mimbar Hukum* 36, no. 1 (2024): 111–40. <https://doi.org/10.22146/mh.v36i1.10827>.
- Henz, Patrick. “Ethical and Legal Responsibility for Artificial Intelligence.” *Discover Artificial Intelligence* 1, no. 1 (2021): 1–5. <https://doi.org/10.1007/s44163-021-00002-4>.
- Jaya, Febri, and Wilton Goh. “Analisis Yuridis Terhadap Kedudukan Kecerdasan Buatan Atau Artificial Intelligence Sebagai Subjek Hukum Pada Hukum Positif Indonesia.” *Supermasi Hukum* 17, no. 2 (2021): 48–53.
- Kautsar, Izzy Al, and Danang Wahyu Muhammad. “Sistem Hukum Modern Lawrance M. Friedman: Budaya Hukum Dan Perubahan Sosial Masyarakat Dari Industrial Ke Digital.” *Sapientia Et Virtus* 7, no. 2 (2022): 84–99. <https://doi.org/10.37477/sev.v7i2.358>.
- Martin Katz, Daniel, Michael J. Bommarito, and Josh Blackman. “A General Approach for Predicting the Behavior of the Supreme Court of the United States.” *PLoS ONE* 12, no. 4 (2017): 1–18. <https://doi.org/10.1371/journal.pone.0174698>.
- Maulana, Irfan, Khotibul Umam, Aditya Riqiandry Saputra, Hafidz Al Amin, and Perani Rosyani. “Teknologi Berbasis Kecerdasan Buatan Pada Aplikasi Grab Penumpang Maupun Driver Menggunakan Metode Forward Chaining.” *Biner : Jurnal Ilmu Komputer , Teknik Dan Multimedia* 1, no. 3 (2023): 505–9. <https://journal.mediapublikasi.id/index.php/Biner>.
- Mehr, Hila. “Artificial Intelligence for Citizen Services and Government.” *Harvard Ash Center Technology & Democracy*, no. August (2017): 1–19. https://ash.harvard.edu/files/ash/files/artificial_intelligence_for_citizen_services.pdf.
- Mowbray, Andrew, Philip Chung, and Graham Greenleaf. “Utilising AI in the Legal Assistance Sector: Testing a Role for Legal Information Institutes.” *CEUR Workshop Proceedings* 2484 (2019): 12–18. <https://doi.org/10.2139/ssrn.3379441>.
- Multazam, Mochammad Tanzil, and Aan Eko Widiarto. “Digitalisasi Pada Sistem

- Hukum: Peluang Dan Tantangan Bagi Indonesia.” *Indonesian Journal of Innovation Studies* 11, no. 2 (2023): 1–12.
- Munawar, Sepa. “Review of Law Enforcement in Indonesia.” *Ahkam* 2, no. 1 (2023): 136–47. <https://doi.org/10.58578/ahkam.v2i1.942>.
- Nisa, Ardina Khoirun. “The Prospect of AI Law in Indonesian Legal System : Present and Future Challenges.” *The Indonesian Journal of International Clinical Legal Education* 6, no. 1 (2024): 25–48.
- Prahassacitta, Vidya. “Offences Principles and a Limitation for Disinformation Via the Internet in Indonesia.” *Indonesian Law Journal* 14, no. 1 (2021): 37–51. <https://doi.org/10.33331/ilj.v14i1.49>.
- Prakoso, Brilliantio Mochammad, Clarisa Puspa, Nabila Putri, and Elsa Farah. “Implementasi Artificial Intelligence (AI) Dalam Pembentukan Peraturan Perundang-Undangan Di Indonesia.” *Depositi: Jurnal Publikasi Ilmu Hukum* 2, no. 1 (2024): 224–40.
- Prasetyo, Banu, and Umi Trisyanti. “Revolusi Industri 4.0 Dan Tantangan Perubahan Sosial.” *IPTEK Journal of Proceedings Series* 0, no. 5 (2018): 22–27. <https://doi.org/10.12962/j23546026.y2018i5.4417>.
- Priancha, Angga, Ardia Khairunnisa, Tasya Caroline, and Gilang Sephia. “Rethinking ‘Electronic Agent’ Terminology In The Law On Electronic Information and Transaction From The Perspektif Of Indonesian Lastgeving Law.” *Mimbar Hukum - Fakultas Hukum Universitas Gadjah Mada* 34, no. 2 (2022): 378–402.
- Purwendah, E. K., N. A. Sasongko, H. Susanto, R. Mawardi, T. Cahyono, H. L. Susilawati, T. Wahyuni, et al. “The Influence of Legal Compliance in Farmer Group on the Growth and Development of Sustainable Mangrove Ecosystem.” *Global Journal of Environmental Science and Management* 10, no. 3 (2024): 1371–90. <https://doi.org/10.22034/gjesm.2024.03.26>.
- Putra, Dedi. “A Modern Judicial System in Indonesia: Legal Breakthrough of E-Court and E-Legal Proceeding.” *Jurnal Hukum Dan Peradilan* 9, no. 2 (2020): 275. <https://doi.org/10.25216/jhp.9.2.2020.275-297>.
- Putra, Panca Sarjana, Zico Junius Fernando, Bhanu Prakash Nunna, and Rizaldy Anggriawan. “Judicial Transformation: Integration of AI Judges in Innovating Indonesia’s Criminal Justice System.” *Kosmik Hukum* 23, no. 3 (2023): 233. <https://doi.org/10.30595/kosmikhukum.v23i3.18711>.
- Raffi, Tegar, Putra Jumanoro, Nadhif Nur Rahmansyah, and Jessenia Hayfa. “Menilik Pro Dan Kontra Pemanfaatan Dan Penetapan Status Hukum Artificial Intelligence Dalam Hukum Positif Indonesia.” *Journal of Analytical Research, Statistics and Computation* 3, no. 1 (2024): 51–70.

<https://www.jarsic.org/main/article/view/28/18>.

- Ravizki, Eka Nanda, and Lintang Yudhantaka. "Artificial Intelligence Sebagai Subjek Hukum: Tinjauan Konseptual Dan Tantangan Pengaturan Di Indonesia." *Notaire* 5, no. 3 (2022): 351–76. <https://doi.org/10.20473/ntr.v5i3.39063>.
- Redden, James, Brian Aagaard, Travis Taniguchi, and Criminal Justice Testing and Evaluation Consortium. "Artificial Intelligence Applications in Law Enforcement: An Overview of Artificial Intelligence Applications and Considerations for State, Local, and Tribal Law Enforcement." *U.S. Department of Justice, National Institute of Justice, Office of Justice Programs*, 2020, 1–10. <https://cjtec.org/files/5f5f94aa4c69b>.
- Rizani, Rasyid. "Integrasi Keadilan Moral, Keadilan Hukum, Dan Keadilan Sosial Dalam Putusan Pengadilan," 2023. <https://konsultasi-hukum-online.com/2023/11/integrasi-keadilan-moral-keadilan-hukum-dan-keadilan-sosial-dalam-putusan-pengadilan/>.
- Rodrigues, Rowena. "Legal and Human Rights Issues of AI: Gaps, Challenges and Vulnerabilities." *Journal of Responsible Technology* 4, no. August (2020): 100005. <https://doi.org/10.1016/j.jrt.2020.100005>.
- Sebayang, Ekinia Karolin, Mahmud Mulyadi, and Mohammad Ekaputra. "Potensi Pemanfaatan Teknologi Artificial Intelligence Sebagai Produk Lembaga Peradilan Pidana Di Indonesia." *Locus Journal of Academic Literature Review* 3, no. 4 (2024): 317–28. <https://doi.org/10.56128/ljoalr.v3i4.311>.
- Setiawati, Diana, Hary Abdul Hakim, and Fahmi Adam Hasby Yoga. "Optimizing Personal Data Protection in Indonesia: Lesson Learned from China, South Korea, and Singapore." *Indonesian Comparative Law Review* 2, no. 2 (2020): 2–9. <https://doi.org/10.18196/iclr.2219>.
- Sihombing, Eka NAM, and Muhammad Yusrizal Adi Syaputra. "Implementasi Penggunaan Kecerdasan Buatan Dalam Pembentukan Peraturan Daerah." *Jurnal Ilmiah Kebijakan Hukum* 14, no. 3 (2020): 419. <https://doi.org/10.30641/kebijakan.2020.v14.419-434>.
- Sudaryanto, Adhitia Presetiyo, and Stevy Hanny. "Manajemen Sumber Daya Manusia Sektor Publik Menghadapi Kemajuan Kecerdasan Buatan (Artificial Intelligence)." *Musamus Journal of Public Administration* 6, no. 1 (2023): 513–21. <https://doi.org/10.35724/mjpa.v6i1.5402>.
- Supriyadi, Endang Irawan, and Dianing Banyu Asih. "Implementasi Artificial Intelligence (AI) Di Bidang Administrasi Publik Pada Era Revolusi Industri 4.0." *Jurnal Sosial Dan Humaniora Universitas Muhammadiyah Bandung* 2, no. 2 (2020): 12–32. https://doi.org/10.1007/978-3-030-55190-2_49.

Sutri Anggita, and Tamaulina Br. Sembiring. “Reformasi Sistem Peradilan Pidana Tantangan Dan Prospek Di Era Digital.” *Journal of International Multidisciplinary Research* 2, no. 1 (2024): 256–71.

Tjahyanti, Luh Putu Ary Sri, Putu Satya Saputra, and Made Santo Gitakarma. “Peran Artificial Intelligence (AI) Untuk Mendukung Pembelajaran Di Masa Pandemi Covid-19.” *Jurnal Komputer Dan Teknologi Sains (KOMTEKS)* 1, no. 1 (2022): 15–21. <https://doi.org/10.1097/01.ccm.0000474893.34162.5c>.

Tretter, Max, Tabea Ott, and Peter Dabrock. “AI-Produced Certainties in Health Care: Current and Future Challenges.” *AI and Ethics*, no. 0123456789 (2023). <https://doi.org/10.1007/s43681-023-00374-6>.

Varona, Daniel, and Juan Luis Suárez. “Discrimination, Bias, Fairness, and Trustworthy AI.” *Applied Sciences (Switzerland)* 12, no. 12 (2022). <https://doi.org/10.3390/app12125826>.

Witanto, D Y, and A P N Kutawaringin. *Diskresi Hakim: Sebuah Instrumen Menegakkan Keadilan Substantif Dalam Perkara-Perkara Pidana*. Penerbit Alfabeta, 2013. <https://books.google.co.id/books?id=rfN3oAEACAAJ>.

Xu, Zichun. “Human Judges in the Era of Artificial Intelligence: Challenges and Opportunities.” *Applied Artificial Intelligence* 36, no. 1 (2022). <https://doi.org/10.1080/08839514.2021.2013652>.

Yudoprakoso, Paulus Wisnu. “Kecerdasan Buatan (Artificial Intelligence) Sebagai Alat Bantu Proses Penyusunan Undang-Undang Dalam Upaya Menghadapi Revolusi Industri 4.0 Di Indonesia.” *Simposium Hukum Indonesia* 1, no. 1 (2019): 574–86. <http://journal.trunojoyo.ac.id/shi>.

Other Source:

Firm, U L. “UMBRA Law Firm Adopts Luminance’s Artificial Intelligence in Indonesia,” 2018.

NCSC. “Artificial Intelligence (AI) AI and the Courts : Judicial and Legal Ethics Issues,” no. May (2024): 1–2.