Preventing AI Crime Towards A New Legal Paradigm: Lessons From United States

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ABSTRACT

Indonesia has several laws to address AI-based crimes; however, the legal and criminal justice systems fail to address technology and AI-based crimes. This study aims to answer questions regarding the causes of the legal system in Indonesia having problems in resolving artificial intelligence-based crime cases and how the legal paradigm is developed and operationalised to anticipate the development of artificial intelligence-based crimes. This research employs a juridical-normative method and comparative law studies. The study shows that, firstly, positive criminal law with a legal-positivistic paradigm does not address adequately the dynamic and complex nature of AI-based crimes, which significantly impact social change. Learning from the US judicial system, which allows for the formation of legal sources through judges' decisions, the resolution of AI crime cases in Indonesia needs to begin with liberation from the shackles of rigid legal texts. Secondly, to anticipate the development of AI crimes, it is essential to optimise the applicable criminal law through a new law enforcement paradigm developed from the principles of progressive law. This includes applying the principle of law for humans and the pillars of search, liberation, and enlightenment as foundational elements for legal innovation. By embracing the flexibility of the progressive legal paradigm, Indonesia can anticipate to changes in society and effectively manage the growth of AI-based crimes.

1. Introduction

Technological developments have become increasingly sophisticated since the discovery of computers and microchip technology[1]. The real form of the resulting technology is what is popularly known as "Telematics" (Telecommunications, Media and Informatics). This latest technology is influential in global transformation, especially when the telematics technology is integrated with an artificial intelligence (AI) system. On the one hand, the presence of various applications developed by AI-based systems significantly makes all human activities more effective, efficient and perfect, but on the other hand, the presence of AI creates serious threats. Not only is there concern that many human jobs will

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[1] Shenming Electronic Components, 'The Evolution Of Microchip Technology: Revolutionizing The Digital Era' (ShenZhen: Shenming, 2024).

be replaced by AI-based machines[2], but also the threat when AI is misused as a new form of crime in the era of digital civilisation, which not only has a serious impact on society and the state but also presents difficulties in overcoming it. AI technology has the power of algorithms that enable AI to analyse large amounts of data and detect patterns so that machines work autonomously. AI-based crimes such as more sophisticated phishing and social engineering attacks, deepfakes and identity fraud, adaptive malware and ransomware, agentic AI and automated attacks, attacks on critical infrastructure, digital illicit trade and exploitation of personal data, are becoming more complex and undetectable[3].

An overview of the development of AI-based crimes globally, according to SoSafe's 2025 Cybercrime Trends report, is shown in the following description:

Table 1: Cybercrime Trends and their Impact

Threat	Percentage	Impact
AI-based Cyber Attacks	87%	Losses of $10.5 trillion/year
Social Engineering Attacks	42%	Difficult to detect
Cyber security	47%	Enhanced adversarial capabilities (phishing, malware, deepfake)

Source: Safe's 2025 (processed by the author)

This figure shows that cyberattacks supported by generative AI pose a significant threat to cybersecurity. Cybercrime supported by AI has been shown to result in losses that exceed the combined GDP of large economic countries, and this issue continues to grow at a rate of 15% annually. The use of AI-based technology in Indonesia has advanced significantly, but it has also led to an increase in AI-related crimes, posing a serious threat. A Jakpat survey entitled "Understanding AI Usage Today" found that the primary concern among respondents is dependency on AI. In this survey, conducted from April 10 to April 14, 2025, 63% of the 1,423 respondents expressed worry about the potential misuse of AI, including fraud and deepfakes[4]. These AI-related crimes present challenges for the legal system, as existing laws struggle to keep pace with rapid technological advancements. Consequently, the law often fails to address the evolving nature of crime. Theoretically, science and technology were initially intended to promote human welfare and societal order; they have instead contributed to chaos. This is evident

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[2] Josephine Nartey, 'AI Job Displacement Analysis (2025-2030)' (SSRN, 2025), p. 21 https://doi.org/http://dx.doi.org/10.2139/ssrn.5316265

[3] Kumar Shaswat Anand & Shailja Thakur, 'Challenges and Limitations of AI in Forensic Science: A Critical Review', *International Journal of Research Publication and Reviews*, 6.1 (2025), 5621–32 https://doi.org/https://doi.org/10.55248/gengpi.6.0125.0672

[4] Srikanth Madikeri and others, 'Autocrime - Open Multimodal Platform for Combating Organized Crime', *Forensic Science International: Digital Investigation*, 54 (2025), 301937 https://doi.org/https://doi.org/10.1016/j.fsidi.2025.301937

in the legal system's inability to foresee and manage technology-based crimes, leaving it ineffective in maintaining order.

Efforts to reform positive criminal law in Indonesia are currently underway to establish regulations that address the challenges posed by cyber law. This includes laws on electronic information and transactions, as well as personal data protection. The 2023 Indonesian Criminal Code has also been updated to reflect advancements in information technology. However, the existing criminal law framework struggles to adequately tackle the development of AI-based crimes in Indonesia, leading to significant issues. In various cases involving AI-based crimes in Indonesia, the Indonesian legal system has failed to uphold legal morality. As a result, those responsible for developing AI applications that create opportunities for crime often evade legal accountability. This issue can be analysed through the perspective of legal procedures and structures, particularly in relation to the "inner morality of law", as discussed by Lon Fuller[5], along with the principles of legal interpretation and moral values needed to uphold justice, as proposed by Dworkin[6]. Both Fuller and Dworkin emphasise that achieving justice requires more than just the existence of good laws; it necessitates an underlying moral foundation that supports those laws[7].

Positive criminal law in Indonesia is currently built on the old paradigm with its legality principle[8]. The characteristics of modern law, which are legalistic-positivistic, are based on the teachings of legism and legal analysis. Such a legal model prioritises the aspect of legal certainty, but in complex cases, it becomes weak in realising benefits and justice. The legalistic-positivistic paradigm relates not only to the substance of the law (criminal law rules) but also extends to the legal structure (bureaucracy of the criminal justice system) and its legal culture (legal reasoning). Positive criminal law is applied mechanically and textually, which risks "sterilising" complex aspects, including morality and humanity. This

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[5] Fila Rahmat Dhiva Ammade, Siti Nurhasanah Natalia Muslihat and Zahira Kamilia, 'Tantangan Dan Hambatan Dalam Upaya Penegakan Delapan Prinsip Moralitas Hukum Lon L. Fuller Di Indonesia', *Nusantara: Jurnal Pendidikan, Seni, Sains Dan Sosial Humaniora*, 1.02 (2023). https://journal.forikami.com/index.php/nusantara/article/view/562

[6] Shidarta, 'Ronald Dworkin Dan Pemikiran Hukumnya', 2025. https://www.researchgate.net/publication/389215015_Ronald_Dworkin_dan_Pemikiran_Hukumnya

[7] Muklis Al'anam, 'Moralitas Hukum Dalam Pemikiran Lon Fuller, H.L.A. Hart, Dan Hans Kelsen', *Law Journal*, V.2 (2025) https://doi.org/https://doi.org/10.46576/lj.v5i2.6015

[8] Rafiqoh Lubis Annisa Hafizah, Madiasa Ablisar, 'Asas Legalitas Dalam Hukum Pidana Indonesia Dan Hukum Pidana Islam', *Mahadi: Indonesia Journal of Law*, 1.1 (2022), 1–10 https://doi.org/https://doi.org/10.32734/mah.v1i1

approach can either render the law for new crime variants due to strict adherence to texts or lead to overcriminalization by detaching the rules from their context[9].

In the scientific realm, the limitations of legalism, developed by Austin with his theory of analytical jurisprudence[10], were addressed by various new thought movements such as the teachings of legal realism by Oliver Wendell Holmes[11], the responsive legal theory by Philippe Nonet and Philip Selznick[12], the critical legal studies movement championed by Unger[13] and the idea of progressive law initiated by Satjipto Rahardjo[14]. These new theories, which can be called postmodern legal theories, arise from sharp criticism of modern law and offer a new legal paradigm for addressing social change in the postmodern era. In the context of the Indonesian legal system, based on Pancasila, especially the principle of social justice, the idea of progressive law based on the principle of "law for humans" appears to be an alternative solution to the limitations of positive criminal law[15].

In the realm of practice, the weaknesses of the legalistic-positivistic legal system have clearly resulted in impacts such as the suboptimality of the law in achieving its objectives, leading to the emergence of "perverted justice" and a legal system that risks being used as justification for power (political or economic) in oppressing the weak (opposition, competitors or the people). This reality is reminiscent of Talcott Parsons' cybernetic theory. According to Talcott Parsons' cybernetic theory, the legal system is part of a social subsystem that interacts with other subsystems, such as politics, economics, social, and culture, within society. Weaknesses in any element of the legal system such as legal structure, legal substance, or legal culture will impact the effectiveness of the law. This occurs because law cannot stand alone but must work together with other subsystems to achieve social goals such as

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[9] Chuyue Zhang and Yuchen Meng, 'Bayesian Deep Learning: An Enhanced AI Framework for Legal Reasoning Alignment', *Computer Law & Security Review*, 55 (2024), 106073 https://doi.org/https://doi.org/10.1016/j.clsr.2024.106073

[10] Damir Banović, 'About John Austin's Analytical Jurisprudence: The Empirical-Rationalist Legal Positivism', *International and Comparative Law Review 2021*, 21.1 (2021), 242–61 https://doi.org/http://dx.doi.org/10.2139/ssrn.3858338

[11] John Mikhail, 'Holmes, Legal Realism, and Experimental Jurisprudence', in *The Cambridge Handbook of Experimental Jurisprudence*, ed. by Kevin Tobia, 1st edn (Cambridge: Cambridge University Press, 2025), pp. 49–66 https://doi.org/https://doi.org/10.1017/9781009170901.004

[12] Rr. Siti Murti Ningsih Agam Ibnu Asa, Misnal Munir, 'Nonet And Selznick's Responsive Law Concept In A Historical Philosophy Perspective', *Crepindo*, 03.02 (2021), 96–106 https://doi.org/10.14710/crepido.3.2.96-109

[13] Samuel Moyn, 'Reconstructing Critical Legal Studies', *The Yale Law Journal*, 134.1 (2024), 79–122. https://www.yalelawjournal.org/essay/reconstructing-critical-legal-studies

[14] Chandera Halim. Vincentius Patria Setyawan, 'The Importance of Law Enforcement Based on Progressive Law in Realizing Community Welfare', *Unes Law Review*, 6.3 (2024), 9270–74 https://doi.org/https://doi.org/10.31933/unesrev.v6i3

[15] Julia Guerra, Joana Monteiro and Vinicius Pecanha, 'Crime Prevention through Urban Requalification and Municipal Police Presence', *Economics Letters*, 254 (2025), 112448 https://doi.org/https://doi.org/10.1016/j.econlet.2025.112448

justice, order, and social integration[16]. AI-based technology has spurred the creation of a more effective and efficient economic system that impacts increased public welfare. However, a positive legal system constrained by rigid rules and procedures has produced contradictory results. Therefore, Richard Posner, in his economic legal theory, highlights the importance of flexible and pragmatic law to adapt to constantly changing social and economic needs[17].

Using AI-based technology to improve public welfare is inevitable[18]. The presence of the state is crucial to ensure that technology is not misused for criminal purposes. While seemingly late, the Indonesian government has taken strategic actions, such as updating regulations related to information technology. This includes updating the Law on Electronic Information and Transactions, ratifying the Personal Data Protection Law, and integrating cybercrime into the New Indonesian Criminal Code (Law Number 1 of 2023). However, these legal reform steps are still based on the legalistic-positivistic paradigm. Even though, as has been stated, it is this old paradigm that has resulted in the ineffectiveness of AI crime prevention or, in certain cases, has led to excessive criminalisation[19].v

Before discussing the new paradigm as a solution to the limitations of positive criminal law, it is essential to conduct a comparative study with other countries as a preliminary learning resource. As previously mentioned, a new movement of thought regarding law such as the critical legal studies movement, emerged in the United States in the 1970s[20]. Furthermore, the origin of the creation and development of the AI-based information technology industry lies in the United States. The experiences that transpired in the United States are anticipated to serve as a model or at least a source of inspiration for developing a legal paradigm to address AI-based crimes.

The issue of criminal law in combating high-tech crimes has been discussed in previous research. Yaumi Ramdhani, et al. researched how to tackle countering artificial intelligence crimes in a criminal law perspective. Their research indicates

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[16] Ahmad Khayat Tudin Laily Fitria Ramadhani, Nailul Maromi, 'Pendekatan Sibernetika Dalam Hukum: Analisis Presepsi Talcott Parsons Terhadap Dinamika Sistem Nasional Hukum Indonesia', *Media Hukum Indonesia (MHI)*, 4.2 (2024), 234–40 https://doi.org/https://ojs.daarulhuda.or.id/index.php/MHI/index

[17] Elisabeth Krecké, 'Economic Analysis and Legal Pragmatism', *International Review of Law and Economics*, 23.4 (2003), 421–37 https://doi.org/https://doi.org/10.1016/j.irle.2003.07.005

[18] Gorla Vamshidhar Reddy Thiyagarajan P, Tamizhanban G, Nandhakumar A, 'AI-Driven Welfare Scheme Assistance and Management System', *International Journal of Research Publication and Reviews*, 6.4 (2025), 7683–86. https://ijrpr.com/uploads/V6ISSUE4/IJRPR42523.pdf

[19] Luis A Garcia-Segura, 'The Role of Artificial Intelligence in Preventing Corporate Crime', *Journal of Economic Criminology*, 5 (2024), 100091 https://doi.org/https://doi.org/10.1016/j.jeconc.2024.100091

[20] Abyan Zhorif; M Raihan Syachputra; Varel Varandi; Ahmad Halimi; Mohammad Alvi Pratama., 'Studi Filsafat Dalam Gerakan Hukum Kritis : Analisis Filsafat Hukum Kritis Roberto Unger Dalam Konteks Amerika', *Jurnal Filsafat Terapan (*, 2.1 (2025), 1–25 https://doi.org/10.11111/praxis.xxxxxxx

that situational crime prevention can provide both short-term and long-term countermeasures against artificial intelligence crimes.[21]. Wahyudi[22] studied the challenges of law enforcement against crimes based on AI technology. This study finds that existing regulations, such as Law Number 11 of 2008 concerning Electronic Information and Transactions (UU ITE), do not yet cover the complexity of AI-based crimes, such as adaptive cyberattacks, large-scale data manipulation, and deepfake abuse. Similarly, Rineke Sara Agus Nawawi and Azis Budianto studied legal uncertainty in criminal law enforcement using AI technology in Indonesia. This study emphasises the evaluation of existing regulations on AI in law enforcement, identifies legal uncertainties, and advocates for comprehensive legal reform. Combating AI-based crime in Indonesia requires an analysis of this framework and its effectiveness in addressing accountability, privacy, and ethical implications[23].

Lena Klasén et al. [24]researched on digital forensics as key to solving crimes in the digital age. This research discusses how good AI can be used to combat bad AI and ultimately touches on the delicate balance between the increasing power of new digital forensic tools and personal integrity. Andreas Karapatakis[25] examines metaverse crimes include Fraud and virtual sexual offences under UK law. This study examines the application of existing laws to regulate criminal activity in the Metaverse through doctrinal research. Using a comparative approach, the article analyses the challenges in tackling virtual crimes by comparing fraud regulated in the Fraud Act 2006 with sexual assault regulated in the Sexual Offences Act 2003, highlighting the complexities in tackling crimes involving physical contact in virtual space compared to financial crimes. No studies have addressed the legal framework, making research on combating AI-based crimes urgently necessary.

This research aims to answer the question of why the modern legal system in Indonesia has problems in resolving crimes based on artificial intelligence and how the USA's experience in dealing with AI crimes can inspire the development of a legal paradigm to anticipate the development of crimes based on artificial

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[21] Ufran Yaumi Ramdhani, Amiruddin, 'No TitleCountering Artificial Intelligence Crimes in a Criminal Law Perspective', *Research Review International Journal of Multidisciplinary*, 9 No 4 (2024). https://doi.org/10.31305/rrijm.2024.v09.n04.020

[22] Wahyudi BR, 'Tantangan Penegakan Hukum Terhadap Kejahatan Berbasis Teknologi AI', *Innovative: Journal Of Social Science Research*, 5 No. 1 (2025) https://doi.org/doi.org/10.31004/innovative.v5i1.17519

[23] Rineke Sara Agus Nawawi, Azis Budianto, 'Legal Uncertainty in Criminal Law Enforcement through the Utilization of Artificial Intelligence Technology in Indonesia', *Asian Journal of Engineering, Social and Health,* 3(7), (2024) https://doi.org/doi.org/10.46799/ajesh.v3i7.362

[24] Lena Klasén, Niclas Fock and Robert Forchheimer, 'The Invisible Evidence: Digital Forensics as Key to Solving Crimes in the Digital Age', *Forensic Science International*, 362 (2024), 112133 https://doi.org/10.1016/j.forsciint.2024.112133

[25] Andreas Karapatakis, 'Metaverse Crimes in Virtual (Un)Reality: Fraud and Sexual Offences under English Law', *Journal of Economic Criminology*, 7 (2025), 100118 https://doi.org/doi.org/10.1016/j.jeconc.2024.100118

intelligence. These issues assume that digitalisation has affected various community sectors during the shift to postmodernism, which lacks a clear framework, complicating the definition of its legal implications. Indonesia is facing challenges in national legal development, which tends to prioritise the modern legal system. To effectively address the development of technology-based crimes, innovative thinking is crucial while considering existing realities.

2. Research Method

This normative legal research employs a holistic legal review[26] to identify a suitable legal paradigm for addressing the unique characteristics of AI-based crimes. This study utilises the juridical-doctrinal approach, supplemented by a comparative legal analysis of secondary data, which includes legal materials, such as laws, journal articles, previous research findings, and relevant books. This information is gathered through library research and is analysed qualitatively to develop a conceptual framework that addresses the research questions. The analysis process involves several steps: data classification, testing for data validity, ensuring data consistency, and interpretation[27]. Postmodern legal theories, particularly progressive legal theory, are applied to critique the limitations of the legal positivism paradigm. Using deductive syllogism, the results of the data analysis are constructed into a coherent research conclusion, thereby fulfilling the research objectives and addressing the identified issues[28].

3. Results and Discussion

Indonesia's Legal System in Addressing AI Crimes

Crimes involving AI technology, known as AI crimes, are illegal activities that use AI systems to facilitate, enhance, or conceal illegal actions. These offences include fraud, theft, extortion, manipulation, and other activities punishable by criminal law[29]. Initially, such crimes were known as "Computer Crimes"[30]. The classical forms include Joy computing (using a computer without permission), Hacking (illegally accessing a computer network), Trojan Horse (manipulating computer programs), Data Leakage, Data Diddling (manipulating computer data),

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[26] Vitalij Levičev, 'Holistic Approach To Legal Research', *Teisė*, 95 (2015), 111–22 https://doi.org/https://doi.org/10.15388/Teise.2015.95.7476

[27] P Ishwara Bhat, '143Doctrinal Legal Research as a Means of Synthesizing Facts, Thoughts, and Legal Principles', ed. by P Ishwara Bhat, *Idea and Methods of Legal Research* (Oxford University Press, 2020), p. 0 https://doi.org/10.1093/oso/9780199493098.003.0005

[28] John Mikhail.

[29] Thomas C. King, 'Artificial Intelligence Crime: An Interdisciplinary Analysis of Foreseeable Threats and Solutions', *Science and Engineering Ethics*, 2019 https://doi.org/doi.org/10.1007/s11948-018-00081-0

[30] R. Shak, 'Concepts and Types of Cyber Offenses in Criminal Law', *Вісник Національного Університету "Львівська Політехніка,"* 11(44), 32 (2024) https://doi.org/doi.org/10.23939/law2024.44.325

and Computer Data Destruction as technology advanced[31], especially with the convergence of digital technologies and media known as "Telematics" (Telecommunications, Media and Informatics)[32], and the virtual world (cyberspace)[33]. This crime has also developed and is known as "Cybercrime", "Cyberspace Crime"[34] or "Telematics Crime"[35]. The forms of cybercrime have expended to "hacking", "cracking", "carding", "Probing" (attempting to access a system), "scanning" (conducting large-scale probes), "account compromise" (illegally using of an account), "root compromise" (gaining privileges access to intruder), "denial of services (DoS)" (overwhelming a network to disrupt functionally), and domain name abuse[36].

AI integrated with information technology is misused in various criminal activities. As AI becomes more autonomous, the complexity of these crimes grows. AI-enabled crime includes financial fraud and cybercrime, where technology is exploited to facilitate and automate unlawful acts. For example, AI automates phishing campaigns, creates synthetic identities, and generates deepfake impersonations for fraudulent activities like business email breaches. AI-based malware can adapt dynamically to avoid detection, while ransomware operations specifically target critical data to maximise impact[37]. In relation to phishing and scams, AI generates highly convincing phishing messages on a large scale and uses deepfake voices or images to impersonate executives or trusted individuals, thereby increasing the sophistication and success of the fraud[38]. A particularly worrying form of AI crime is Child Sexual Abuse Material (CSAM). Criminals are using AI to generate realistic images and videos of child sexual abuse, including deepfake videos that overlay children's faces onto adult content. AI-generated CSAM complicates detection and law enforcement efforts and is a growing and

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[31] Alina-Daniela Matei, Estefanía Talavera and Maya Aghaei, 'Crime Scene Classification from Skeletal Trajectory Analysis in Surveillance Settings', *Engineering Applications of Artificial Intelligence*, 141 (2025), 109800 https://doi.org/https://doi.org/10.1016/j.engappai.2024.109800

[32] Nicola Christie and others, 'Managing the Road Safety Risks of Last Mile Deliveries with Telematics: Views among Drivers and Managers in the UK', *Journal of Transport & Health*, 40 (2025), 101954 https://doi.org/https://doi.org/10.1016/j.jth.2024.101954

[33] Dominic Idier, 'Science Fiction and Technology Scenarios: Comparing Asimov's Robots and Gibson's Cyberspace', *Technology in Society*, 22.2 (2000), 255–72 https://doi.org/doi.org/10.1016/S0160-791X(00)00004-X

[34] F. Lubis, 'Analisis Yuridis Kejahatan Mayantara Dalam Hukum Pidana Pencemaran Nama Baik Di Indonesia.', *Journal of Science and Social Research*, 6(1), 225. (2023) https://doi.org/doi.org/10.54314/jssr.v6i1.1192

[35] Martin Eling and Mirko Kraft, 'The Impact of Telematics on the Insurability of Risks', *The Journal of Risk Finance*, 21.2 (2020), 77–109 https://doi.org/https://doi.org/10.1108/JRF-07-2019-0129

[36] R. Simpson, G., Moore, T., & Clayton, 'Ten Years of Attacks on Companies Using Visual Impersonation of Domain Names', 2020 https://doi.org/doi.org/10.1109/ECRIME51433.2020.9493251

[37] Simon Moseley and Alice Joe Burton, Ardi Janjeva, *AI and Serious Online Crime* (CETaS Research Reports, 2025).

[38] Joe Burton, Ardi Janjeva.

deeply troubling problem in online crime[39]. In the political realm, AI is being used by "black politicians" to spread disinformation and propaganda. AI automates the creation and spreads of tailored misinformation campaigns, accelerating the polarisation of society and disrupting democratic processes by targeting vulnerable populations with tailored fake content[40]. The abuse of AI-based technologies also threatens cybersecurity systems. AI-based cyberattacks are increasing cyberattacks such as distributed denial of service (DDoS), reverse engineering malware, and cyber espionage by nation-state actors, increasing the sophistication of attacks and evasion of traditional security measures[41] AI-based attacks typically target AI systems by exploiting vulnerabilities in these systems through techniques such as jailbreaking, prompt manipulation, and poisoning attacks that compromise AI training, causing AI systems to malfunction or misbehave[42].

Another form that represents a modification of conventional crime is AI-enabled blackmail, exemplified by the generation of fake content created by AI for the purpose of blackmail or reputational damage, thereby facilitating the blackmail scheme[43]. AI enables synthetic identity fraud by amalgamating real and fictitious information to construct new false identities, which constitute a significant and growing component of identity fraud cases[44]. Finally, the advancement of increasingly autonomous AI poses a serious threat when autonomous devices are employed, including the misuse of AI-powered robots or drones for criminal activities, such as autonomous attack drones or surveillance bots used to spy on victims (cyber "automatic" stalking)[45]. In addition, the manipulation of AI-controlled systems, such as the application of AI to autopilot systems, if misused, can significantly constitute crimes involving interference or

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[39] TRM Blog, 'The Rise of AI-Enabled Crime: Exploring the Evolution, Risks, and Responses to AI-Powered Criminal Enterprises', 2025. https://www.trmlabs.com/resources/blog/the-rise-of-ai-enabled-crime-exploring-the-evolution-risks-and-responses-to-ai-powered-criminal-enterprises

[40] Junho Kim and others, 'A Hybrid Detection Method for YouTube Fake News Using Related Video Data', *Engineering Applications of Artificial Intelligence*, 156 (2025), 111130 https://doi.org/https://doi.org/10.1016/j.engappai.2025.111130

[41] Hania Mohamed and others, 'IoT-CAD: A Comprehensive Digital Forensics Dataset for AI-Based Cyberattack Attribution Detection Methods in IoT Environments', *Ad Hoc Networks*, 174 (2025), 103840 https://doi.org/https://doi.org/10.1016/j.adhoc.2025.103840

[42] Alexis Pengfei Zhao and others, 'AI for Science: Covert Cyberattacks on Energy Storage Systems', *Journal of Energy Storage*, 99 (2024), 112835 https://doi.org/https://doi.org/10.1016/j.est.2024.112835

[43] Matthew Edwards and Nick M Hollely, 'Online Sextortion: Characteristics of Offences from a Decade of Community Reporting', *Journal of Economic Criminology*, 2 (2023), 100038 https://doi.org/https://doi.org/10.1016/j.jeconc.2023.100038

[44] Mark Button and others, 'Preventing Fraud Victimisation against Older Adults: Towards a Holistic Model for Protection', *International Journal of Law, Crime and Justice*, 77 (2024), 100672 https://doi.org/https://doi.org/10.1016/j.ijlcj.2024.100672

[45] Daphne Leprince-Ringuet, 'Evil AI: These Are the 20 Most Dangerous Crimes That Artificial Intelligence Will Create', 2020. https://www.zdnet.com/article/evil-ai-these-are-the-20-most-dangerous-crimes-that-artificial-intelligence-will-create/

takeover of AI systems, including the utilisation of driverless vehicles as weapons[46]. The evolution of certain forms of conventional crime into sophisticated manifestations of crime is depicted in the following figure:

Figure 1. The Development of Increasingly Perfect Forms of Crime
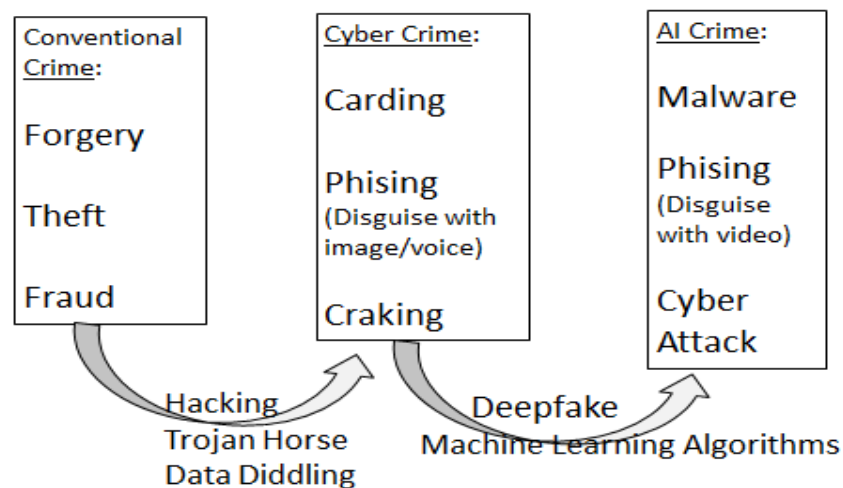
Source: Processed by the author

Although the exposure of AI-based crimes reflects that traditional types of crime are enhanced by AI capabilities, some appear to be new crimes made possible by unique AI features such as content creation, automation, and system manipulation. It is estimated that the types and forms of AI-based crimes have now developed even more rapidly, with various variations in modus operandi. Digital technology-based crimes have unique characteristics that differentiate them from conventional crimes. Crime technology integrated with AI is characterised by adaptive, automatic, hard-to-detect, highly targeted attack capabilities, and the use of sophisticated technology to deceive victims and avoid security systems. AI-based crimes have increasingly complex characteristics, including AI crimes related to technology that operates electronically and within digital or computerised systems, along with supporting facilities (especially data, programs, and systems)[47]. Technology in AI crimes can be positioned as a tool/means or object/target of the crime; it is even possible that it can be the subject of the crime, with the act carried out by deceiving or manipulating the technology,

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[46] Frank G Hoffman, 'Squaring Clausewitz's Trinity in the Age of Autonomous Weapons', *Orbis*, 63.1 (2019), 44–63 https://doi.org/https://doi.org/10.1016/j.orbis.2018.12.011

[47] Uyu Muawanah, Arita Marini and Iva Sarifah, 'The Interconnection between Digital Literacy, Artificial Intelligence, and the Use of E-Learning Applications in Enhancing the Sustainability of Regional Languages: Evidence from Indonesia', *Social Sciences & Humanities Open*, 10 (2024), 101169 https://doi.org/https://doi.org/10.1016/j.ssaho.2024.101169

hence it does not function as it should (according to the wishes of the perpetrator of the crime)[48].

The ability of generative AI to manipulate individuals' minds forms the characteristics of AI crimes that are certainly carried out illegally, without rights or unethically, to appear as normal acts. This poses a threat to a society whose digital literacy is inadequate in dealing with the post-truth phenomenon[49]. Moreover, technology-based crimes are committed by professionals who possess more knowledge and skills in the field of technology development and utilisation, and the losses incurred are not always material but also immaterial. This results in victims of technology-based crimes generally not reporting the crimes they experience, citing reasons such as not knowing that they are victims, distrust of law enforcement officers or fear of facing even more severe impacts.

The nature of AI crime follows the nature of information technology, intangible, virtual, and borderless[50], making it difficult for criminals to track. In information technology, a person's identity can be perfectly disguised. AI has adaptive and automatic learning capabilities, enabling malware to learn user and system behaviour patterns, allowing it to adjust attacks to be more effective and difficult to detect by security devices such as antivirus software[51]. AI crimes are supported using advanced technology and automation. In this case, perpetrators use generative AI technology to create manipulative content, authentic phishing messages, and even realistic fake videos and images to spread disinformation and manipulate victims[52]. AI can collect data secretly and massively, leading to a significant impact by gathering users' personal data without their knowledge, which is then used for identity theft, financial fraud, or blackmail. AI crimes are difficult to detect and anticipate because, in addition to being global and transnational, AI can recognise and avoid security device detection patterns. AI-based attacks are generally difficult to detect and overcome[53]. The increasingly autonomous characteristics of AI and its associated complex legal responsibilities also raise debates about its criminal liability. In cases of AI committing a violation

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[48] Antonia Merzon John Bandler, *Cybercrime Investigations: A Comprehensive Resource for Everyone*, 1st edn (Boca Raton: CRC Press, 2020) https://doi.org/https://doi.org/10.1201/9781003033523

[49] Vinanda Cinta Cendekia Putri Alem Febri Sonni, Muliadi Mau, Muhammad Akbar, 'AI and Digital Literacy: Impact on Information Resilience in Indonesian Society', *Journalism and Media*, 6.3 (2025), 1–18 https://doi.org/https://doi.org/10.3390/journalmedia6030100

[50] Bhatt N., 'Crimes in the Age of Artificial Intelligence: A Hybrid Approach to Liability and Security in the Digital Era', *Journal of Digital Technologies and Law*, 3.1 (2025), 65–88 https://doi.org/https://doi.org/10.21202/jdtl.2025.3.

[51] Faruq Aziz, 'Mengenal Malware Berbasis AI: Ancaman Terbaru Dalam Keamanan Cyber', 2023. https://csirt.nusamandiri.ac.id/home/detail/mengenal-malware-berbasis-ai-ancaman-terbaru-dalam-keamanan-cyber

[52] Rita Puspita Sari, 'Mengungkap Ancaman Dan Potensi AI Generatif Dalam Keamanan Siber', 2024. https://www.cloudcomputing.id/berita/ancaman-potensi-ai-generatif

[53] Coudeka, 'No Title7 Ciri-Ciri Cyber Crime Ketika Menyerang Sistem Anda', 2023.

of the law, responsibility often falls on the creator, developer, or user of the AI, not on the AI itself[54]. In short, the development of telematics technology that changes the paradigm regarding territorial boundaries, time, values, forms of objects, logic of thinking, work patterns, and social behaviour from manual to digitised, has influenced the form, method, target, and consequences of technology-based crimes. This paradigm change is increasingly difficult for the law to follow as a means of social order.

Limitations of the Modern Legal Paradigm

The problem of the existence of modern law cannot be separated from its historical background, along with social and cultural developments in Europe. Modern law emerged in Europe after going through a very long and "bloody" journey[55]. It emerged in the early 19th century, which was dominated by positivistic thinking, resulting in the doctrine of the rule of law characterised by formal rules, procedures, methodology, and bureaucracy[56]. The emergence of these characteristics is due to the historical context of modern law in the Constitutional State as a reaction to the "chaos" caused by the legal system of the previous era, namely Absolutism. Initially, this modern legal model was quite effective in regulating society. The positive legal model, characteristic of modern law, is increasingly "ineffective" outside Continental European countries in addressing cases arising from social changes due to rapid technological advances. Therefore, developed countries such as the United States seeks to establish their legal system, known as "Anglo-American Common Law"[57]. The modern legal model fails to anticipate social changes from rapid technological advances because its autonomy makes it inflexible and unresponsive to evolving concepts of justice.

The unfortunate reality is the existence of modern law in Indonesia. From its historical background, modern law, which was "forced" to apply in the politics of Indonesian legal development since the colonial era until Indonesia's independence[58], is like a "foreign object" that did not grow naturally with the development of Indonesian society and culture. Thus, the modern legal system,

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[54] Berliana Bahiyaturrohmah, 'Mimpi Buruk Dunia Digital: Tindak Kejahatan Yang "Dilakukan" Oleh Entitas Artificial Intelligence', 2025.

[55] Aikaterini-Christina Koula, 'Human Rights Violations Committed Against Human Rights Defenders Through the Use of Legal System: A Trend in Europe and Beyond', *Human Rights Review,* 25.1 (2024), 99–122 https://doi.org/10.1007/s12142-024-00717-8

[56] Al. Wisnubroto, *Quo Vadis Tatanan Hukum Indonesia*, 1st edn (Yogyakarta: Universitas Atma Jaya, 2010).

[57] SHAFEEK Sandy Sanbar, '2 - The American Legal System', ed. by American College of Legal Medicine and B T - Legal Medicine (Eighth Edition) American Board of Legal Medicine (New Delhi: Elsevier, 2025), pp. 11-15.e1 https://doi.org/https://doi.org/10.1016/B978-0-443-12128-9.00002-4

[58] H. S. Lahilote, 'Legal Transplant in the Substance of the Authority of Religious Courts in Indonesia. Journal of Law, Policy and Globalization', *Journal of Law, Policy and Globalization*, 93, 135–14 (2020) https://doi.org/https://www.iiste.org/Journals/index.php/JLPG/article/view/51355

which is "liberal in character", is certainly not in accordance with the reality of Indonesian society[59]. This situation is further exacerbated by weaknesses in the law-making and law enforcement processes in Indonesia. In general, the process of making laws into written form (as one of the demands of modern law to be positive and public)[60] almost always impacts the reduction of meaning. Satjipto Rahardjo has described in detail the process of reducing meaning, namely how the meaning of "thief", which according to Jakob Sumardjo can be interpreted into 15 types of "*maling*" (Javanese term) becomes one meaning of "theft" in Article 362 of the Indonesia Criminal Code[61]. This shows that positive law has been "flawed" since its inception.

Specifically, the process of making positive law in Indonesia lately shows a condition that tends not to be improve. This can be observed from several indicators, such as concern about the capacity and quality of human resources in positive law-making institutions in Indonesia, especially among members of parliament. The process of compiling a legislative product generally takes a very long time and is very expensive. The reality is that legislation is a political product, while politics is driven by interests, meaning that political and economic interests dominate the drafting process. Additionally, there is still a lack of public participation in the drafting process from the initial draft bill to discussions in the legislative institution. This situation will have implications for positive legal products (legislation) in Indonesia, which are of low quality, unequal, lack the ability to realise substantial justice, and do not adequately respond to societal developments (including technological advances)[62].

Meanwhile, the strong influence of positivist ideology generally causes the law enforcement process to be legalistic, formalistic, and mechanistic[63], which impacts the condition of law enforcement in Indonesia over time, appearing not to improve. This can be seen from several indicators such as particularistic policies in a sectoral system (which causes difficulties in realising an integrated justice system), the strong influence of political and economic forces that compromise the independence of judicial institutions, an inadequate recruitment system and development of human resources (especially law enforcement officers), limited

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[59] Muhammad Harun, 'Philosophical Study of Hans Kelsen's Thoughts on Law and Satjipto Rahardjo's Ideas on Progressive Law', *Walisongo Law Review (Walrev)*, 1.2 (2019), 199 https://doi.org/10.21580/walrev.2019.2.2.4815

[60] Brendan Edgeworth, *Law, Modernity, Postmodernity: Legal Change in the Contracting State*, 1st edn (London: Routledge, 2019) https://doi.org/https://doi.org/10.4324/9781315182582

[61] Lutfil Ansori, 'Reformasi Penegakan Hukum Perspektif Hukum Progresif', *Jurnal Yuridis*, 4.2 (2017), 148–63. https://doi.org/10.35586/.v4i2.244

[62] Siti Mariyam, Adhi Putra Satria and Markus Suryoutomo, 'The Making of Law in Indonesia: A Criticism and Evaluation of The Practise of Legislative Function in The House of Representatives', *LAW REFORM; Vol 16, No 2 (2020) https://doi.org/10.14710/lr.v16i2.33773*

[63] A. Chandra, 'Hakim Sebagai Pembaru Hukum Dalam Sistem Peradilan Di Indonesia', *Justisi*, 9(3), (2023), 355–364. https://doi.org/doi.org/10.33506/jurnaljustisi.v9i3.2337

supporting facilities for the law enforcement process (including a counter-performance system for law enforcement officers), and the lack of functioning control mechanisms in the administration of justice[64]. Such circumstances have led to various powerlessness in the law enforcement process. This powerlessness can manifest as: the lack of courage to take a stance or chosen an action that formally contradicts or lacks rules in the Law; an inability to creatively interpret the Law in resolving new cases for which there are no rules; and an inability/unwillingness to make breakthroughs or innovations in the interpretation of a rule in the law to realise justice in accordance with the community's sense of justice. In short, the implementation of modern law autonomously with a narrow approach will uproot the law from its community, producing only formal justice (not substantial justice). In relation to the development of AI-based crimes, the issues surrounding modern law in terms of form, process, and application will lead to serious problems.

Empirically, the most obvious fact is the failure of Indonesian criminal law in dealing with the increasing number of high-tech crime cases. For example, the case of "carding" (manipulating other people's credit cards to shop on e-commerce platforms) showed that most of the perpetrators were Indonesians from several big cities such as Bandung, Yogyakarta and Semarang. While the number of cases is significant, but only a few have been resolved through the legal process. Even though technology-based crime cases like "carding" that can be resolved in court come at "a high cost", this is still insufficient to change the perception for other countries that Indonesia is a 'paradise for cyber thieves' due to the shortcomings of the Indonesian legal system. Other cases also show futile resolutions due to the forced application of criminal law in Domain Name Dispute cases. This is suspected to have occurred because law enforcement officers have ignored the customary law applicable in the cyber community when resolving domain name disputes.

An interesting phenomenon is Indonesia's Law on Electronic Information and Transactions (Law Number 11 of 2008, amended by Law Number 19 of 2016 and Law Number 1 of 2024 - hereinafter referred to as the ITE Law), which is considered Indonesia's cyber law. The ITE Law regulates prohibited acts and imposes criminal sanctions to prevent cybercrime. One of the criminalised acts is the spreading of electronic information containing hate speech, insults, and pornography. The rules regarding the prohibition of negative content aim to uphold the noble values of the Indonesian nation. However, for more than a decade, the rules related to negative content in the ITE Law have been used by parties in a position of power to suppress weaker parties who are considered to

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[64] Aylin Aydın, 'Judicial Independence across Democratic Regimes: Understanding the Varying Impact of Political Competition', *Law & Society Review*, 47.1 (2013), 105–34 https://doi.org/DOI: 10.1111/lasr.12003

"disturb" the interests of power. Unfortunately, the judicial system in Indonesia (under the pretext of enforcing the rules in the ITE Law) tends to serve the interests of such power. Normatively, the legal process, by applying positive legal rules textually, has been in accordance with formal procedures in realising legal certainty. However, the empirical reality is that the tendency to apply the law in a legalistic-positivistic manner has hurt the sense of justice and threatened the right to freedom of opinion and expression. This phenomenon may be a small part of the evidence of the failure of the modern legal paradigm that operates in the legalistic-dogmatic and analytical-positivistic realm.

The USA's Experience in Supporting New Legal Paradigms for AI-Based Crime Prevention

The use of AI in the USA has been widespread, while the government has not yet regulated, like the "AI Act" in the European Union[65]. Hence, the US policy related to the development of AI is still fragmented. Meanwhile, several states, such as Colorado, Illinois, and California, have issued their own AI regulations that are more specific and stricter, including high-risk AI regulations, transparency, and accountability. These regulations lead to supervise and mitigate the risk of AI-based crimes. The problems of regulation and the development of AI utilisation in the USA pose challenges in combating AI-based crimes. Furthermore, the USA also faces other challenges, such as difficulty in determining legal responsibility, technical limitations of law enforcement, the risk of misuse of AI by officers, obstacles to international coordination, and slow adaptation of the law to the development of AI technology[66]. However, these cases can be addressed using current laws[67].

Cases of child pornography produced by AI are increasingly rampant in the USA. What is more concerning is that, if no legal action is taken, the ongoing normalisation of the exploitation of children as objects of AI-based pornography will continue. Normalising despicable acts will threaten social norms[68]. The efforts made by the US Department of Justice, in addition to monitoring the increasing threat of child sexual abuse images produced using AI-generated images, also encourage prosecutors to prosecute the perpetrators by optimising existing

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[65] Software Improvement Group, 'AI Legislation in the US: A 2025 Overview', 2025.

[66] T. Situmeang, S. M. T., Mahdi, U., Zulkarnain, P. D., Aziz, H. A., & Nugroho, 'The Role of Artificial Intelligence in Criminal Justice', *Global International Journal of Innovative Research*, 2.8 (2024), 1966–81. https://global-us.mellbaou.com/index.php/global/article/view/296

[67] Matthew Manning, Eray Arda Akartuna and Shane Johnson, 'Opportunities to Future Crime: Scoping the Future of Money Laundering and Terrorist Financing through Cryptoassets', *Technological Forecasting and Social Change*, 210 (2025), 123894 https://doi.org/doi.org/10.1016/j.techfore.2024.123894

[68] Bridget Diamond-Welch and others, 'The Crime of Luring a Minor for Contact Sexual Abuse: Exploration of Demographic Patterns & Criminal Records of Convicted Offenders', *Child Abuse & Neglect*, 158 (2024), 107118 https://doi.org/doi.org/10.1016/j.chiabu.2024.107118

regulations. With its common law system, the US judiciary does not need to worry about the limitations of regulations in dealing with AI crimes[69].

With the hard work of US prosecutors at both the federal and state levels in prosecuting perpetrators of AI-based crimes, the courts, through professional judges, can make legal discoveries stated in court decisions. In accordance with the principle of binding precedent (stare decisis), new decisions containing legal discoveries in handling AI crime cases will be binding for the resolution of other similar cases. In addition to the success of the US in facing challenges in combating AI-based crime, there is also a story of failure, namely when the US police used AI to arrest criminals. Often, in identifying perpetrators of cybercrime using an AI-based system, the results are not always accurate, resulting in many innocent people becoming victims of mistaken arrests[70].

Based on the efforts made, it appears that the challenges faced by the USA in combating AI-based crimes are not significantly different from those in Indonesia. The difference is that the Indonesian police have not relied too much on AI to identify crimes. Given the similarity of challenges in combating AI-based crimes, the USA's experience serves as a best practice for Indonesia. Even though the justice system in Indonesia does not adhere to the principle of binding force by precedent, judges' decisions in the form of jurisprudence containing legal discoveries or legal interpretations can be referenced in handling similar cases. In other words, in dealing with new cases for which there are no specific regulations (including criminal cases arising from the development of AI), the criminal justice system is encouraged to make legal discoveries by optimising the interpretation of existing regulations. With the principle of persuasive precedent, this method will produce quality court decisions that serve as references for resolving similar cases[71].

At the paradigmatic level, in the United States, new thoughts have emerged that criticise the limitations of modern law built on legalistic-positivistic reasoning constructions. New paradigms in legal reasoning, ranging from the teachings of legal realism to the critical legal studies movement, essentially encourage changes towards a more complete, critical understanding of law that is based on social reality in realising substantial justice. A real example of the application of the spirit of Critical Legal Studies (CLS) in law enforcement cases in the United States

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[69] Shuaiqi Liu and others, 'Low-Resource Court Judgment Summarization for Common Law Systems', *Information Processing & Management*, 61.5 (2024), 103796 https://doi.org/https://doi.org/10.1016/j.ipm.2024.103796

[70] L. Z. Kahla, 'Leveraging Artificial Intelligence for Crime Detection and Prevention', *Indian Scientific Journal Of Research In Engineering And Management*, 1.6 (2024) https://doi.org/10.55041/ijsrem34207

[71] Vincy Fon and Francesco Parisi, 'Judicial Precedents in Civil Law Systems: A Dynamic Analysis', *International Review of Law and Economics*, 26.4 (2006), 519–35 https://doi.org/doi.org/10.1016/j.irle.2007.01.005

is how this movement criticises legal practices that are considered formalistic and unfair and opens analysis of power relations and economic interests that influence legal decisions. Although researchers have not found concrete examples of the application of the CLS spirit in overcoming AI crimes in the criminal justice system in the USA, the CLS approach in analysing cases is very important, considering that the development of technology cannot be separated from economic interests that are often entangled with power[72]. The emergence of various new paradigms in legal reasoning in the USA has inspired legal studies that have produced "new legal theories" in response to the limitations of modern law in solving increasingly complex societal problems, along with technological developments. One of them is the idea of progressive law. Although not same as the CLS Movement in law enforcement in the USA, there are similarities in its spirit in criticising the status quo of mechanistic legal reasoning and offering alternatives to implementing law adaptively and creatively. One of the similarities between CLS and the idea of progressive law is that both were developed from critical theories of law[73].

Even though information technology has been developed to be increasingly perfect by integrating AI-based systems, the problem of overcoming crimes that arise from the misuse of AI does not seem much different in Indonesia. First, both the USA and Indonesia have inadequate regulations related to the use of AI. Second, both countries have experience in making breakthroughs using existing legal regulations (although they do not specifically address the misuse of AI) to resolve AI crime cases in the criminal justice system. Although court documents, in the USA and Indonesia, do not present a paradigm as the basis for legal considerations in resolving AI crime cases, the courage to prosecute AI crimes by optimising existing regulations aligns with the spirit of progressive law. The implementation of positive law with a progressive legal spirit approach requires certain conditions. Firstly, the concept of progressive law is based on the people behind the law, so "good" law enforcement human resources are essential. The term "good" refers to being professional in the sense of being moral, having a sharp conscience, possessing broad knowledge, and having legal practice skills. In this case, law enforcers in Indonesia need to improve themselves to become "better" through comparative studies with the USA, which generally has a relatively better system.

Crimes in the field of science and technology, especially those based on AI, are not merely legal issues; they also encompass a range of global issues. These include social change with the cyber community, economic issues related to the

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[72] Péter Sasvári and Gergely Ferenc Lendvai, 'The Overrepresentation of the United States in the Field of Legal Studies in the Science-Wide Author Databases of Standardized Citation Indicators', *Journal of Informetrics*, 19.3 (2025), 101680 https://doi.org/https://doi.org/10.1016/j.joi.2025.101680

[73] Mikhaïl Xifaras, 'The Role of the Law in Critical Theory: An Engagement with Hardt and Negri's Commonwealth', *Law and Critique*, 35.1 (2024), 19–62 https://doi.org/10.1007/s10978-024-09376-7

development of digital transaction systems, cultural shifts in values through social media, misuse of personal data, such as the creation of fake identities through deepfakes, and security threats, including the potential for terrorism through cyber technology[74]. Therefore, law enforcement officers, especially judges, must enhance in an interdisciplinary and multidisciplinary manner. In Indonesia, law enforcers should learn about and utilise AI in their work, similar to the initiatives undertaken by police agencies in the USA. It is crucial, however, to be aware of the failures made by the US Police in the past to avoid repeating those errors in legal decision-making.

The concept of progressive law merges legal science with other disciplines to effectively address global societal challenges. Integrating legal knowledge with insights from physics related to digital technology and social sciences is essential for tackling crimes arising from telematics and AI technology. Wilson's idea[75] of integrating diverse science knowledge, from genetics to culture, supports this integration. The differences in legal traditions and judicial systems between the USA and Indonesia should not be seen as barriers, as AI technology is global and encourages cross-adoption among different legal systems. Although Indonesia does not follow the principle of binding precedent in its courts, it can develop a good jurisprudence system. Legal decisions with strong foundations should be included in a readily accessible system for law enforcement to reference when dealing with similar cases.

Legal Paradigm in Handling Artificial Intelligence-Based Crime Cases

The figure of "progressive law" is closely associated with its initiator, Satjipto Rahardjo. He is both an early initiator and a developer of progressive law. Previously, Van Gerven/Leitjen in his book entitled "*Theorie en Praktijk van de Rechtsvinding*" had introduced the Progressive School in legal discovery, which argued that law and change are tools for social change[76]. What is written in this section serves as a reflection of his ideas. The idea of progressive law emerged as a reaction of concern towards the legal situation in Indonesia, as opinions emerged from international observers to the public that the Indonesian legal system was one of the worst legal systems. The undeniable fact is that Indonesian law is increasingly powerless in its efforts to realise justice and the welfare of the Indonesian people. The main principle that is used as the basis for progressive law

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[74] Folajimi O. Jejelola, 'The Role of Artificial Intelligence in the Eradication of Transnational Crime', *International Journal of Research and Innovation in Social Science (IJRISS)*, 8.11 (2024), 867–82 https://doi.org/10.47772/IJRISS.2024.8110069

[75] Inga Schwabe, Wilfried Jonker and Stéphanie M van den Berg, 'Genes, Culture and Conservatism-A Psychometric-Genetic Approach.', *Behavior Genetics*, 46.4 (2016), 516–28 https://doi.org/10.1007/s10519-015-9768-9

[76] Aditya Yuli Sulistyawan Mario Julyano, 'Pemahaman Terhadap Asas Kepastian Hukum Melalui Konstruksi Penalaran Positivisme Hukum', *Jurnal Crepindo*, 1.1 (2019). https://doi.org/10.14710/crepido.1.1.13-22

is "law is for humans", not the other way around. Hence, humans are the determinants, and it is understood in this case that humans are basically good. This principle wants to shift the theoretical basis from legal factors to human factors. Law is not absolute; it is continually evolving. This process aims to create just laws that promote welfare and prioritize the needs of the people [77].

The issue of interpretation is vital for advancing progressive law and addressing the stagnation and decline of legal systems. Progressive law interpretation goes beyond traditional methods like grammatical, historical, and systematic interpretation. It emphasises creative and innovative interpretation that aim for breakthrough legal meaning and promote a morally humane understanding of the law. In this new legal framework, judges should look beyond the strict wording of the law when making their decisions. This approach ensures that the application of criminal law upholds justice and serves the public good.[78]

In the previous description, it was mentioned that the national legal development arena, dominated by positive thinking, has reduced the opportunity for progressive legal ideas. However, this does not mean that efforts to socialise, develop, and empower this idea to overcome community problems are completely closed. In addition to the commitment of Satjipto Rahardjo as the initial initiator who continually sharpens the concept of progressive legal ideas and "campaigns" to the public, internalising it in his "students", there are many intellectuals in Indonesia the fields of law and social sciences who think "advanced", daring to go beyond established theories, concepts, principles, and habits. Although the concept of progressive law only emerged at the beginning of the second millennium, the spirit of progressive law enforcement has been present for a long time.

A very famous classic example is the *Arest Hoge Raad Nederland* in 1919, known as the *Lindenbaum-Cohen Arest*, which overhauled the paradigm of the meaning of unlawful nature from the understanding of law in the sense of statutory regulations (*wet*) to a broader understanding where law also includes the value of propriety in community life. According to Satjipto Rahardjo, the *H.R.* decision is said to be progressive because it revolutionarily dares to oppose the legal-positivistic flow of thought, which at that time was still an "iron law"[79]. The teaching of material unlawful nature in the *H.R.* decision of January 1919 relating

[77] Marsudi Dedi Putra Efendie Efendie, Agus Sugiarto, 'The Convergence Between Textual Law And Progressive Law In Addressing Contemporary Legal Challenges', *Jurnal Hukum Sehasen*, 10.2 (2024), 475–80 https://doi.org/https://doi.org/10.37676/jhs.v10i2.6780

[78] F. M. Gedicks, 'Working Without a Net: Supreme Court Decision Making as Performance', *Social Science Research Network*, 2017 https://doi.org/doi.org/10.2139/SSRN.2919682

[79] Sa'idatun Nafilah & Pujiyono, 'The Position of Moral in the Legal System in Indonesia and Its Practice in the Justice System in Indonesia', *International Journal of Social Science and Human Research*, 7.8 Agustus 2024 (2024), 6122–27 https://doi.org/https://doi.org/10.47191/ijsshr-v7-i08-37

to this civil case turned out to be applied in the course of time in other cases, including criminal cases. In Indonesia, the spirit of progressive law enforcement has also been demonstrated in several judicial processes. For example, Judge Bismar Siregar expanded the meaning of Article 378 of the Indonesian Criminal Code (fraud), hence it can be applied to cases of men breaking promises to women[80]; Supreme Court Justice Asikin Kusumahatmadja who made a leap in civil procedural law to interpret a sense of substantial justice in the *Kedung Ombo* case; Judge Benyamin Mangkudilaga in the Tempo Magazine case sided with the sense of justice of the community and many more.

In relation to artificial intelligence-based crimes that have created a legal vacuum (*rechtsvacuum*) due to difficulties in formulating laws and the inability of positive criminal law to keep up with technological advancements, or the existence of laws that accommodate such developments, resulting in excessive criminalisation, the idea of progressive law becomes relevant and strategic. Although there has been a method of legal discovery through legal interpretation instruments (statutes) and legal construction[81], the implementation in legal practice is often heavily influenced by legal positivist results in the law "failing to carry out its duties" in resolving cases of sophisticated technology-based crimes, which are rapidly evolving. With a progressive legal approach, the theories, doctrines, principles, and technical procedures commonly used as the basis for legal discovery and application will be reconstructed with new meanings, empowering them rather than hindering the search for substantive justice.

A classic example of a model of legal application considered very "revolutionary" at the time was the emergence of the *Electriciteit Arrest*. The Electric Arrest dated May 23, 1921, arose when the technological product called electricity first appeared. There were no positive rules; when there was a case of illegal electricity collection (by connecting wires to the electric current to be distributed for other purposes), a legal vacuum arose. To overcome this problem, the *Hoge Raad der Nederlanden* made a "leap" in legal logic by expanding the definition of "goods" to include not only tangible goods but also intangible goods that have economic value, allowing the Article on theft to be applied to cases of electricity theft. In the author's opinion, *Electriciteit Arrest*, as a classic model of legal application for electricity theft, can serve as a "milestone for a progressive legal approach" in the search for legal solutions to the development of technology-based crimes.

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[80] Aulia Nabila and Yunita Desmawati, 'Pembaruan Hukum Perlindungan Hak Atas Kesehatan Reproduksi Perempuan Di Indonesia', *Jurnal Hukum & Pembangunan*, 52.1 (2022), Article 2 https://doi.org/10.21143/jhp.vol52.no1.3322

[81] George H. Taylor, 'The Practice of Hermeneutics: The Legal Text and Beyond', *Budhi: A Journal of Ideas and Culture*, 20.2 (2016), 50–84. https://archium.ateneo.edu/budhi/vol20/iss2/3/

Although not explicitly stated in the judge's considerations, the spirit of legal "breakthrough" is evident in the 1988 Central Jakarta District Court Decision which applied the article on theft (Article 363 of the Criminal Code) in the case of "Unauthorised Transfer" of BNI 1946 New York Agency funds. This was allowed in the following year by the 1989 West Jakarta District Court Decision, which applied the article on theft (Article 362 of the Criminal Code) in the case of "Data Diddling" at PT Bank Bali, West Jakarta Branch. The rampant cases of cybercrime that accompanied the internet boom in Indonesia in the early 2000s did not hinder efforts to address it, even though there were no specific regulations on cybercrime. This is evident in the Decision of the Sleman District Court in 2002, which applied the article on fraud (Article 378 of the Criminal Code) in the "Carding" case, and the Decision of the Semarang District Court in 2003, which applied the article on theft (Article 362 of the Criminal Code) in the "Carding" case.

Regarding the controversy over the threat of criminal penalties for hate speech, several law enforcers have demonstrated their progressive thinking skills, including in the 2009 Tangerang District Court Decision, which provided a complete interpretation of the article on the dissemination of electronic information containing insults (Article 27 paragraph (3) of the ITE Law) in the case of "criminalisation of the right to expression", and the 2024 East Jakarta District Court Decision on the article on the dissemination of electronic information containing hate speech (Article 28 paragraph (2) of the ITE Law) in the case of "criminalisation of the results of advocacy for human rights activists" and the Yogyakarta Regional Police Investigation Termination Order in 2024 which was based on the interpretation of the article on the dissemination of electronic information containing insults (Article 27A of the ITE Law) in the case of "criminalization of women activists". The Director of Special Criminal Investigation of the DIY Regional Police said that in the process of terminating the investigation of this case, it refers to" progressive investigation" as the spirit for police investigators in seeking the truth.

These court decisions are considered progressive because the people (especially law enforcement officers) behind these cases have the courage to make efforts to "search, liberate and enlighten". The "search" effort is seen in the steps of law enforcement officers in the form of breakthroughs to creatively operationalise positive legal laws to resolve new cases that have not been specifically regulated. In this "search", law enforcement officers (who are progressive) have attempted to restore the meaning of an understanding that has been reduced in the formulation of positive laws, so that it can be applied in new cases that are developing rapidly. The "liberation" effort is seen in the attitude of law enforcement officers who have freed themselves from the paradigm of "mouthpiece of the law". To make a breakthrough in creatively operationalising laws and regulations, law enforcement officers must free themselves from the concept of thinking that is based on the rigidity of understanding the formulation/sound of positive legal rules. In

addition, courage is needed to free oneself from attitudes that are too tied to the rigidity of formal process procedures[82].

Liberation in this case must also be interpreted as setting aside pragmatic interests to focus on achieving substantive justice and quality legal products. The "enlightenment" effort is more apparent in the impact of these decisions in resolving legal issues in the field of technology-based crimes. Justice can be realised without having to wait for the emergence of positive legal rules that specifically regulate new cases. Enlightenment, in this case, places humans (law enforcement policies) above human-made laws (statutory regulations) to achieve human glory (justice and welfare). In Santos' language: "put emancipation before regulation"[83]. In certain cases, these decisions have also provided inspiration and moral encouragement for other law enforcers to dare to innovate creatively in operationalising existing positive law to resolve new cases and provide justice for the community. Although the progressive legal approach in several examples of technology-based crime case resolution, as explained above, perhaps has not yet reached the level of true progressive law, as in the concept of the initial initiator of progressive law, but at least its spirit of "search, liberation and enlightenment" has proven to be able to overcome problems that arise due to the limitations of modern law.

The development of telematics technology in an increasingly "perfect" digital civilisation, alongside the integration of artificial intelligence, has created a chaotic situation in understanding based on the reality of society. This reality must be addressed with "creative" (flexible and innovative) thinking while adhering to moral values. In such cases, the existence of a formal legal approach becomes less important, as the key focus returns to human capacity. However, the reality of the modern legal paradigm remains strong in the legal world in Indonesia, which places positive law as the main basis for law enforcement. Therefore, the progressive legal approach in practice cannot be applied radically by completely ignoring the normative aspect. The middle way is how the spirit of progressive law is applied and developed continuously in the operationalisation policy of positive legal rules.

4. Conclusion

The misuse of AI technology poses not only ethical violations but also leads to AI-related crimes. Regulation limitations in keeping pace with the development of

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[82] Sheshadri Chatterjee and Sreenivasulu N.S., 'Artificial Intelligence and Human Rights: A Comprehensive Study from Indian Legal and Policy Perspective', *International Journal of Law and Management*, 64.1 (2021), 110–34 https://doi.org/https://doi.org/10.1108/IJLMA-02-2021-0049

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AI-based technology are a significant issue. This phenomenon is not only an issue for developing countries, but also for developed countries. The study highlights key findings regarding the challenges posed by AI-based crimes within the positive criminal law framework. First, the current legal-positivistic paradigm of positive criminal law fails to adequately address the dynamic and complex nature of AI-related offenses, which can result in significant social change. While the United States has led the critical legal studies movement, this study finds limited evidence of how U.S. courts apply these principles to AI crime cases. However, the U.S. has extensive experience in establishing legal precedents through legal discovery and judicial decisions, which could serve as a valuable resource for addressing cases without specific regulations regarding new forms of AI crime. Second, there is a need to refresh the positive criminal law paradigm by developing a new legal framework rooted in progressive legal concepts. This framework should emphasise human-centric legal principles and the pillars of "search, liberation, and enlightenment" to foster legal innovations. Such an approach can enhance the adaptability required to respond to societal changes, including the emergence of AI-based crimes. For example, Indonesia could benefit from the U.S. model by promoting progressive court decisions as references for similar cases. As AI-based crimes evolve with global technology, criminal justice systems worldwide will face significant challenges if they remain rigidly tied to legal positivism. The new legal framework proposed in this study could serve as a model for further research and development in various countries, tailored to their levels of AI technology use, legal systems, and social contexts.

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