

MEASURING IMPACT, DEFINING LIABILITY: A LITERATURE REVIEW ON THE LEGAL IMPLICATIONS OF ARTIFICIAL INTELLIGENCE IN THE JUDICIAL SYSTEM AND REGULATORY FRAMEWORK IN THE DIGITAL AGE

Gunawan Widjaja

Senior Lecturer, Faculty of Law Universitas 17 Agustus 1945 Jakarta,
widjaja_gunawan@yahoo.com

Abstract

This article presents a comprehensive literature review on the legal implications of artificial intelligence (AI) in the judicial system and regulatory development in the digital age, with a focus on measuring impacts and defining legal liabilities. The findings reveal that AI enhances the efficiency of predictive justice and RegTech, yet poses risks of algorithmic bias, the black box problem, legal liability gaps, and threats to democratic legitimacy. The study identifies research gaps in developing countries such as Indonesia, where there is a lack of normative and institutional analysis. Recommendations include an adaptive risk-based model akin to the EU AI Act, human-in-the-loop oversight, and national regulations grounded in the Pancasila ethical framework to balance innovation with substantive justice.

Keywords: artificial intelligence, judicial system, rulemaking, legal implications, algorithmic bias, AI accountability, digital regulation, rule of law

Introduction

The development of artificial intelligence (AI) technology over the past few decades has brought significant changes to various sectors, including the legal and judicial systems. This digital transformation is not only changing how the law is enforced but also how it is produced, interpreted, and implemented in modern society. AI is now used in various functions, ranging from legal document analysis to predicting court rulings, marking a paradigm shift in traditional legal practice (Zeng, 2020).

The integration of AI into the judicial system presents opportunities to enhance efficiency and consistency in legal decision-making. Technologies such as machine learning and natural language processing enable the processing of legal data on a large scale—a task previously difficult for humans to accomplish. This contributes to the acceleration of judicial processes and the reduction of case backlogs, which have long been a classic problem in many countries (Yuliana & Anita, 2026).

However, the use of AI in the legal system also raises various complex normative and ethical issues. One of the main concerns is the potential for algorithmic bias, which could reinforce existing injustices within the social system. Algorithms trained using historical data risk reproducing patterns of discrimination, thereby raising serious questions about substantive justice within AI-based judicial systems (Waelen, 2023). Furthermore, the often “black box” nature of AI poses challenges regarding transparency and accountability. In a legal context, decisions that cannot be rationally