

Contemporary trends in the use of artificial intelligence in jurisprudence

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Abstract

The aim of this study was to identify the fundamentals for the effective application of artificial intelligence (AI) in the legal field through analysing theoretical frameworks and comparing international regulatory models. The research was based on a systematic review of academic literature and a comparative analysis of regulatory approaches. Five key theoretical paradigms concerning AI use in jurisprudence were identified: technological determinism, which asserts the inevitable transformation of legal practice; critical legal theories emphasising the reproduction of structural biases; socio-technical constructivism with its concept of mutual co-determinacy between law and technology; regulatory realism focusing on practical normative measures; and the institutional approach that examines the adaptive processes of legal organisations. The study revealed varying levels of technological maturity across different areas of legal activity, with the automation of legal research and document analysis demonstrating the highest development, while the automation of judicial proceedings remains experimental. A comparative analysis of the regulatory models of the European Union, the United States, and Singapore uncovered three fundamentally different regulatory philosophies: a preventive European approach with mandatory certification and fines of up to 6% of global turnover, a market-driven American model with minimal state intervention, and a pragmatically flexible Singaporean approach with voluntary standards. The categorisation of challenges associated with AI use included nine risk categories, from technological hallucinations to institutional transformations within the legal profession.

Keywords

legal process automation; technological determinism; algorithmic bias; regulatory models; legal technology governance; digitalisation of adjudication

Tendencias contemporáneas en el uso de la inteligencia artificial en la jurisprudencia

Resumen

El objetivo de este estudio era identificar los fundamentos para la aplicación eficaz de la inteligencia artificial (IA) en el campo jurídico mediante el análisis de marcos teóricos y la comparación de modelos normativos internacionales. La investigación se basó en una revisión sistemática de la literatura académica y en un análisis comparativo de los enfoques normativos. Se identificaron cinco paradigmas teóricos clave relativos al uso de la IA en la jurisprudencia: el determinismo tecnológico, que afirma la inevitable transformación de la práctica jurídica; teorías jurídicas críticas que enfatizan la reproducción de los sesgos estructurales; el constructivismo sociotécnico con su concepto de codeterminación mutua entre la ley y la tecnología; el realismo normativo centrado en medidas normativas prácticas; y el enfoque institucional que examina los procesos adaptativos de las organizaciones jurídicas. El estudio reveló diversos niveles de madurez tecnológica en diferentes áreas de la actividad legal, con la automatización de la investigación legal y el análisis de documentos como el mayor exponente de desarrollo, mientras que la automatización de los procedimientos judiciales sigue siendo experimental. Un análisis comparativo de los modelos reguladores de la Unión Europea, Estados Unidos y Singapur reveló tres filosofías reguladoras fundamentalmente diferentes: un enfoque europeo preventivo con certificación obligatoria y multas de hasta el 6 % de la facturación global; un modelo estadounidense impulsado por el mercado, con intervención estatal mínima; y un enfoque pragmático y flexible de Singapur, con estándares voluntarios. La categorización de los desafíos asociados al uso de la IA incluyó nueve categorías de riesgo, que iban desde alucinaciones tecnológicas hasta transformaciones institucionales en la profesión jurídica.

Palabras clave

automatización de procesos legales; determinismo tecnológico; sesgo algorítmico; modelos normativos; gobierno tecnológico legal; digitalización de adjudicación

Introduction

The rapid development of artificial intelligence (AI) technologies over the past decade has profoundly reshaped traditional approaches to the administration of justice and legal practice, creating new opportunities for enhancing judicial efficiency and access to legal services. The integration of AI into the legal domain has become particularly relevant in 2024, driven by the necessity to address systemic issues such as overburdened judicial systems, unequal access to justice, and the need to optimise legal decision-making in an increasingly digital society. At the same time, the large-scale implementation of AI technologies in the legal sphere poses complex ethical, procedural, and regulatory challenges for ensuring fairness, transparency, and accountability in automated decision-making. Special attention must be given to preserving the fundamental principles of the rule of law and protecting human rights in the context of the use of algorithmic systems in legal decision-making. A comprehensive investigation of current trends in AI use in jurisprudence is thus critically

important for developing balanced regulatory approaches and ensuring the responsible deployment of innovative technologies in legal practice.

A systematic review of AI's impact on the justice system was conducted by Vargas Murillo *et al.* (2024), who provided a comprehensive analysis of the opportunities, barriers, and probable consequences of AI integration across various areas of legal activity, including predictive policing, risk assessment, evidence analysis, and judicial decision-making. The authors identified AI's potential to improve accessibility, optimise court proceedings, and provide valuable support to legal practice, while simultaneously expressing concerns regarding fairness, accountability, and human rights protection. Kouroutakis (2024) explored conceptual challenges to the rule of law in the age of AI through a systematic review of the dynamic evolution of legal principles amid the information-technology revolution and the widespread use of AI applications. The scholar identified the "black box" problem and the general lack of transparency in automated decision-making mech-

anisms as key threats to the rule of law, proposing the “AI by humans, for humans” paradigm as a methodological basis for the balanced development of technology.

Several key studies have addressed the foundational theoretical premises for applying AI in the legal sphere. The historical evolution of law and its adaptation to technological challenges were analysed by Gul and Nofely (2021), who examined the development of legal systems from ancient times to the digital age, highlighting the revolutionary transformations in legal practice brought about by the implementation of information technologies. The potential of AI as a tool for legal reform was comprehensively explored by Kryvytskyi (2021), who investigated the theoretical foundations for employing AI to enhance the efficiency of legal transformations and identified the absence of a unified conceptual framework for understanding AI within the legal domain. The legal foundations for regulating AI as an object of intellectual property were examined by Toqsanbaeva (2022), who conducted a comparative analysis of national legislation and legal practice concerning AI use in jurisprudence and proposed a comprehensive legal definition of AI for inclusion in legislative acts. The transformative impact of AI on the legal profession was studied by Chiweta (2022), who systematised key application areas ranging from the automation of legal research to the prediction of judicial outcomes.

The analysis of existing reviews and theoretical studies has revealed several critical gaps in the academic discourse. The issue of developing unified international standards for evaluating the quality and reliability of AI systems in the legal sector remains largely unaddressed. Moreover, the long-term consequences of widespread AI implementation for the transformation of the legal profession, as well as mechanisms for ensuring cybersecurity and data protection in judicial AI applications, remain insufficiently explored. Most existing studies focus on specific aspects of AI application or examine the experience of individual jurisdictions without offering a comprehensive systematisation of theoretical approaches or a comparative analysis of regulatory models at the international level.

The aim of this study was to identify the foundations for the effective application of AI in jurisprudence and to determine optimal regulatory models for the successful integration of AI into legal systems. The research objectives were to systematise the fundamental theoretical approaches to AI application in jurisprudence by iden-

tifying their methodological features, advantages, and limitations; to assess the practical use of AI in key areas of legal activity; and to conduct a comparative analysis of regulatory models in leading jurisdictions.

The study was based on a systematic review of international academic literature on the application of AI in the legal field covering the period from 2020 to 2025. Literature searches and selection were conducted using international scientometric databases, including Scopus, Web of Science, PubMed, IEEE Xplore, and Google Scholar. The systematic review methodology followed a structured, transparent approach to ensure comprehensive and traceable results. The search results were screened for relevance based on titles, abstracts, and full texts, and duplicates were removed, forming the final corpus. Quality assessment was conducted prioritising empirical research, theoretical depth, and studies that clearly outlined their methodologies. The selected literature was then synthesised into key thematic areas, including AI in legal research, predictive analytics, and regulatory frameworks. The primary search terms included: “artificial intelligence”, “AI”, “legal practice”, “jurisprudence”, “legal technology”, “judicial decision-making”, “legal regulation”, and “law and technology” in various combinations. Inclusion criteria comprised publications in English, peer-reviewed journal articles, monographs from leading publishers, official documents from international organisations and governments, and thematic relevance to AI in the legal domain. Exclusion criteria included non-peer-reviewed publications, conference materials without full texts, and publications focused solely on the technical aspects of AI without a legal context. The heterogeneity of sources, comprising both academic articles and reports or outreach pieces, may introduce limitations, as statements about productivity and accuracy should not always be considered definitive conclusions. The literature review was utilised to identify the foundational theoretical approaches to AI application in jurisprudence.

1. Contemporary theoretical approaches to the use of AI in jurisprudence

Regulatory realism, as a theoretical approach, focuses on the analysis of practical regulatory measures and policy decisions developed in response to the challenges posed by AI. The EU AI Regulation represents the first compre-

hensive attempt at supranational legal regulation of AI. The EU Artificial Intelligence Act (2024) introduces a risk-based regulatory model that categorises AI applications by risk level - from minimal to unacceptable (Trail ML, 2024). Legal AI applications, such as predictive analytics for judicial outcomes, AI-driven legal research, and automated decision-making in court systems, are classified as "high-risk" because of their potential to affect individuals' rights and legal outcomes. For example, AI used in automated legal research or judicial decision-support tools falls into the high-risk category and requires comprehensive conformity assessments before deployment. Low-risk AI applications in the legal domain, such as AI tools used for document management or administrative tasks like scheduling, are subject to fewer regulatory requirements. European regulation recognises that these systems do not merely "assist" but effectively standardise decisions; consequently, it imposes mechanisms to govern this algorithmic normativity. An alternative regulatory model is demonstrated by the United States, where Executive Order No. 14110 "On the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence" (2023) marked a milestone by establishing mandatory risk assessment procedures for AI models at the federal level. Singapore merits special attention as an example of the Asian regulatory approach, with its "Model AI Governance Framework" and "AI Verify" programme for voluntary testing of AI systems (Thong, 2023).

The institutional approach, represented by the works of Legg and Bell (2020) and Farber (2024), concentrates on analysing how legal institutions themselves adapt to technological transformation. Farber provides an empirical case study on the integration of AI into legal education, examining the implementation of AI tools in a criminal law course at an Israeli law school. His study demonstrates both the practical benefits and challenges of incorporating machine learning technologies into traditional teaching methods. Legal education has un-

dergone a significant paradigmatic shift in recent years: as of 2025, most leading universities have integrated AI into their curricula. A survey conducted by the American Bar Association revealed that 55% of institutions already offer specialised AI courses (Mason, 2025). Legg and Bell advance the concept of the AI-augmented lawyer, arguing that AI will enhance human capabilities and enable legal professionals to better perform their roles, rather than replacing them entirely. This supports broader conclusions regarding the complementary nature of human-machine interaction in the legal sphere.

An analysis of academic literature from 2010 to 2024 reveals a significant evolution in scholarly discourse. While publications from the 2010s were largely characterised by optimistic predictions, research in the 2020s has become noticeably more complex, marked by the emergence of a strong critical dimension. Contemporary scholarly works increasingly converge around several fundamental principles: the necessity of maintaining human oversight over critical legal decisions; the importance of ensuring transparency and explainability in algorithmic processes; and the core obligation to uphold non-discrimination and data privacy standards.

At the same time, the reviewed literature reveals several substantial conceptual gaps. The first concerns the lack of empirical data on the actual impact of AI on the quality and efficiency of justice. The second concerns the challenge of integrating diverse theoretical perspectives: the academic literature is often fragmented, with technologists neglecting socio-legal contexts and legal theorists frequently lacking a nuanced understanding of AI's technical limitations. The third significant gap is the geographic and cultural narrowness of existing research: most academic studies focus on the experiences of North America and Europe, while the perspectives of developing countries and small jurisdictions remain underrepresented in the global scholarly discourse.

Table 1. Comparative analysis of theoretical approaches to AI application in jurisprudence

Theoretical approach	Key proponents	Key postulates	Methodological toolkit	Application areas	Advantages	Limitations
Technological determinism	Susskind (2013, 2019), Katz (2013), Schwarcz <i>et al.</i> (2025).	AI will inevitably and positively transform legal services; algorithms will replace human routine tasks.	Predictive scenarios, Large Language Models experiments, econometric productivity analysis.	Legal research engines, automated drafting, online courts.	Process acceleration, increased accessibility, cost reduction.	Ignores socio-ethical barriers, "hallucinations", risk of skill erosion.

Theoretical approach	Key proponents	Key postulates	Methodological toolkit	Application areas	Advantages	Limitations
Critical legal theories	Crawford (2021), Eubanks (2018), Dahan <i>et al.</i> (2023).	Algorithms reproduce and amplify biases, concentrate power.	Case studies, content analysis, Freedom of Information Act investigation.	Risk scoring, algorithmic hiring, social welfare.	Exposes discrimination, incentivises ethics.	Lack of quantitative evidence, potential hindrance to innovation.
Socio-technical constructivism	Maroni (2025).	Technologies and law co-evolve; context determines AI success.	Ethnography, interviews, design research.	AI implementation in courts (Singapore, Estonia).	Reveals hidden factors, facilitates co-design.	Context-dependency, difficulty in generalisation.
Regulatory realism	Trail ML (2024), Thong (2023).	Legal norms balance innovation and risks; requires audit and oversight.	Comparative regulatory analysis, political risk analysis.	High-risk AI certification, regulatory sandboxes.	Transparency, accountability, rights protection.	High administrative costs, regulatory arbitrage.
Institutional approach	Legg and Bell (2020), Farber (2024), Mason (2025).	Legal institutions and education adapt to the AI era.	Surveys, Key Performance Indicators analysis, curriculum reviews.	Law & Tech courses, internal AI chatbots.	Productivity growth, new roles (e.g., legal engineer).	Uneven resource distribution, lack of specialised instructors.

Source: compiled by the authors

Methodological choices shape empirical data, conclusions, and the applicability of research. Researchers with limited resources may use quantitative approaches, while grant-funded projects can afford labour-intensive fieldwork. Institutional affiliation also affects methodology, with academic scholars leveraging archival materials for long-term studies, while consulting organisations focus on regulatory analysis for policy relevance.

The systematisation of five fundamental theoretical approaches to the application of AI in law highlights a deep epistemological fragmentation within contemporary academic discourse, wherein each conceptual paradigm proposes a radically different interpretation of how technological innovation affects the legal system. The observed polarisation between techno-optimistic approaches, which posit the inevitability of digital transformation in legal practice, and critical social theories, which emphasise systemic risks associated with the reproduction of structural biases, reflects the evolution of academic thought from initial technological enthusiasm to a more nuanced understanding of the complexity of law-technology interaction. The emergence of an interdisciplinary consensus around the principles of human oversight, algorithmic transparency, and non-discrimination provides a methodological foundation for the further exploration of practical dimensions of AI implementation in specific areas of legal practice.

2. Practical applications of AI in core areas of legal practice

A review of the academic literature shows that the automation of legal research and document analysis is the most advanced area of AI application in legal practice. According to estimates by American scholars, nearly three-quarters of lawyers plan to use generative AI in their work, from reviewing case law and contracts to drafting pleadings (Surani & Ho, 2024). Findings about differing levels of technological maturity across various legal activities are supported by international studies examining practical aspects of AI deployment. For example, Kapoor *et al.* (2024) provide a critical assessment of claims about AI's revolutionary impact on the legal profession, arguing that the ease of evaluating legal applications varies greatly depending on the complexity of the legal tasks and the possibility of finding correct answers.

Pilot projects in corporate law firms have shown a significant time-saving impact: preparing a response to a claim has been cut from 16 hours to 3-4 minutes, boosting productivity by over 100 times while also enhancing both time efficiency and the accuracy of legal analysis (Couture, 2025). Similarly, research by Choi and Schwarcz (2023) provides empirical evidence on the effectiveness of AI-assisted legal analysis, showing that the use of

GPT-4 significantly improves performance on simple multiple-choice tasks but does not influence performance on complex essay-style questions – thus supporting the thesis that AI effectiveness is task-dependent and linked to the complexity of the legal issue.

Socio-technical constructivism emphasises that optimal results are achieved through the appropriate integration of technology into work processes, via collaborative models between lawyers and AI, in which machines perform initial data processing and routine operations, while humans verify and refine the outputs. Practice affirms this approach: legal librarians underscore the necessity of treating AI-generated responses only as starting points subject to mandatory verification using traditional research methods (Ambrogi, 2025a; 2025b). Biresaw (2023) analyses the transformative impact of AI on legal research as an essential skill for contemporary legal professionals, stressing the need to adapt traditional legal research methodologies to novel technological capabilities. Particularly noteworthy is the conclusion on the complementary nature of human-machine interaction, underscoring the indispensability of the human factor even amid substantial automation of routine processes.

Law firms continue to retain junior associates, recognising the importance of human analysis and mentorship in ensuring service quality, even with the introduction of AI-based assistants (Couture, 2025). Critical theories draw attention to the risks of over-reliance on algorithms, particularly the susceptibility of generative models to hallucinations – that is, the fabrication of non-existent facts and precedents. A symbolic incident occurred in 2023 when a lawyer submitted a memorandum to the court that referenced fictitious rulings generated by ChatGPT, resulting in disciplinary sanctions and an official warning from Chief Judge Roberts about the dangers of blind reliance on AI (Surani & Ho, 2024). A study by the American Bar Association found that 57.7% of respondents identified the accuracy of results as the primary concern, with 48.1% citing algorithmic unreliability and 46.5% highlighting risks related to data confidentiality (Kite-Jackson, 2023). Regulatory realism emphasises the need for clear rules governing the use of such systems: 96% of lawyers consider it premature to permit AI to represent clients autonomously in court, and 83% oppose granting advisory powers without human oversight (Thomson Reuters, 2025).

Predictive analytics and the modelling of judicial outcomes are among the most contested domains of AI application

in the legal field, according to a comprehensive review of the academic literature. Technological determinism views the development of predictive analytics as a pathway towards more consistent and foreseeable jurisprudence. Algorithms trained on vast corpora of judicial decisions can identify latent patterns and statistically forecast case outcomes, thereby equipping lawyers with data-driven insights into judicial tendencies and the likelihood of success. Modern analytics platforms leverage machine learning to estimate success rates and advise clients on whether to pursue litigation or negotiate settlements. In the United States, legal analytics services for forecasting jury decisions or judicial inclinations on motions are rapidly expanding. Within the European Union, such systems are acknowledged for their potential to promote consistency in legal reasoning by identifying doctrinal discrepancies and enhancing the predictability of adjudication (Socol de la Osa & Remolina, 2024).

Critical theories warn that algorithmic bias could compromise the accuracy of these predictions, as AI systems trained on historical data tend to replicate ingrained discriminatory patterns. A prominent example is the COMPAS risk assessment tool, which an independent investigation found to systematically assign higher risk scores to African Americans, thereby effectively reinforcing racial stereotypes (Shi *et al.*, 2021). The findings on algorithmic bias and associated social risks resonate with the critical research of leading scholars in the field. The work of Dahan *et al.* (2023) provides a robust theoretical basis for concerns about the systemic reproduction of structural inequalities via AI systems, arguing that the use of general-purpose AI in legal tasks poses significant risks to both the legal profession and participants in judicial proceedings.

Even when overtly prohibited criteria are excluded, proxy variables may introduce latent discrimination, creating a false veneer of objectivity by cloaking developer biases in numerical form. This raises concerns about judicial independence: algorithmic sentencing recommendations may lead judges to become overly reliant on AI-generated suggestions at the expense of their own reasoning, thereby threatening the autonomy of judicial decision-making (Socol de la Osa & Remolina, 2024). Restrepo-Amariles *et al.* (2021) add an important dimension to this discussion by analysing the potential and limitations of AI in assessing professional legal performance through a review of 8,045 cases from French appellate courts, illustrating both the

promise and the vulnerabilities of algorithmic evaluation in legal work. Socio-technical constructivism advocates balancing these risks through transparency and accountability: algorithms must be explainable, and their application in legal proceedings should be open to scrutiny by all parties, with the right to challenge the validity of AI-generated assessments. In practice, however, many AI systems remain opaque black boxes, offering no insight into their decision-making logic, thereby hindering contestability and eroding trust (Socol de la Osa & Remolina, 2024).

International experience reveals a variety of regulatory approaches to predictive analytics in the judiciary. In the United States, the judiciary adopts a cautious stance towards AI-generated analysis as evidence, recommending thorough scrutiny without treating such outputs as conclusive findings (Grimm *et al.*, 2024). In Europe, algorithms used to predict judicial outcomes are officially classified as high-risk systems and are subject to increased transparency and human oversight requirements. France has passed legislation banning the publication of individual judges' performance statistics to protect judicial independence from undue pressure. Singapore has adopted an experimental approach through its Judicial Analytics system, which suggests draft judgments in routine cases for subsequent human review and adjustment.

The automation of judicial proceedings and decision-support systems is among the most controversial areas of AI application in the legal domain, according to a review of the literature. Technological determinism is evident in the concept of digital courts and partial automation of case handling, aimed at reducing bureaucracy, accelerating proceedings, and alleviating judicial workloads (Shi *et al.*, 2021). China's Smart Courts initiative employs big data for case management, blockchain for evidence recording, and experimental AI modules for judgment recommendations. According to official reports, these measures have expedited the resolution of minor disputes and reduced associated costs. A socio-technical approach highlights the dependence of system efficacy on human factors and contextual conditions: the success of China's centralised programme necessitates adaptation in decentralised systems elsewhere, requiring procedural compatibility and staff training. The COVID-19 pandemic accelerated the digitalisation of justice systems – from remote hearings to electronic document management – thus laying the groundwork for AI-based case management solutions.

Critical theories raise fundamental concerns regarding the right to a fair trial and the right to defence in the context of automation. Scholars underscore the imperative of ensuring that procedural rights are fully realised for all parties when decisions are proposed or influenced by algorithms. The core challenges of judicial automation align with studies analysing the preservation of fair trial standards amidst technological transformation. Kuehl (2025) examines the evolving ethical landscape of generative AI use in judicial systems, calling for a reassessment and refinement of existing codes of professional conduct. The lack of transparency and explainability contradicts the legal requirement for reasoned judgments, as contemporary deep learning models often produce either overly simplistic or excessively detailed explanations lacking practical utility (Socol de la Osa & Remolina, 2024). This undermines the right to defence: a lawyer cannot cross-examine an algorithm or challenge its conclusions without access to its internal logic. The institutional approach advocates human primacy in final decision-making by establishing clear operational rules for AI in courts. The European Ethical Charter affirms the principle of human oversight, with judges retaining the final say and automated systems playing a strictly instrumental role (Council of Europe, 2018). The EU Artificial Intelligence Act (2024) categorises AI systems used for judicial decision-making as high-risk, imposing transparency and human supervision requirements that may entail mandatory certification and a right for parties to object to AI use.

AI technologies in the domain of access to justice present the most promising applications due to their potential to democratise legal services, according to scholarly findings. AI-based tools may serve as equalising mechanisms by overcoming financial and geographical barriers, offering online consultations on basic legal matters such as contract drafting or preparing legal claims (Grimm *et al.*, 2024). Notable examples include American chatbots that assist with child support form completion and European A2J Tech initiatives offering open-access legal consultation platforms. However, critical theories caution against the uncritical embrace of robo-lawyers as a panacea, warning of a two-tiered justice system: premium legal services provided by human lawyers for affluent clients and low-cost AI advisors for individuals with limited financial means.

Findings on barriers to justice and digital inequality are particularly salient and resonate with research on the

social dimensions of AI deployment. Atrey (2023) offers a comprehensive review of AI applications in the legal industry, weighing efficiency gains and cost reduction against challenges such as privacy, bias, and accountability. Low-quality algorithmic assistance can harm vulnerable groups by leading to improperly filed claims or missed deadlines, with no recourse for correction. Overreliance on AI without systemic reform risks entrenching inequalities in access to high-quality legal support (Simshaw, 2022).

Regulatory realism identifies legal obstacles in the form of licensing regimes and the legal profession's monopoly.

A notable case is DoNotPay in the United States, which illustrates how traditional institutions can impede radical innovation by invoking the threat of criminal liability for unauthorised legal practice (Allyn, 2023). The social dimensions include challenges related to digital literacy: only 55% of EU citizens possess basic digital skills, a figure that drops to 34% among individuals with low educational attainment and to 25% among elderly women (Eurostat, 2024). This underscores the need for complementary measures such as digital literacy programmes and the establishment of offline access centres to ensure the effective democratisation of justice through AI.

Table 2. Systematisation of key challenges and risks of AI application in jurisprudence

Challenge category	Specific risk	Area of manifestation	Potential consequences
Technological	Large language models "hallucinations".	Judicial analytics, procedural documents.	Erroneous arguments, sanctions, erosion of trust.
Technological	Data poisoning, adversarial attacks.	Risk prediction models, KYC.	Systemic failures, cyber threats, compliance risks.
Ethical	Algorithmic discrimination.	AI recruitment in law firms.	Lawsuits, reputational damage.
Ethical	"Black box"/unexplainability.	Sentencing systems.	Complicated appeals, doubts about fairness.
Legal	Establishing liability and foreseeability of harm.	Tort/contractual liability.	Legal uncertainty, increased costs.
Legal	Compliance with Artificial Intelligence Act (2024).	High-risk AI systems.	Administrative fines, service suspensions.
Social	Unequal access to reliable AI platforms.	Legal research services.	Widening "justice gap", information asymmetry.
Social	Low public trust in AI judges.	Bail/sentencing.	Questioned legitimacy of decisions, increased appeals.
Institutional	Deskilling of junior lawyers.	BigLaw HR policies.	Loss of expertise, market restructuring.

Source: compiled by the authors based on Selçuk *et al.* (2025), Crawford (2021), Nolte *et al.* (2025), Rigotti and Fosch-Villaronga (2024), Lee *et al.* (2025), Fraser and Suzor (2025), Kattinig *et al.* (2024), Dahl *et al.* (2025), Fine *et al.* (2025) and Faulconbridge (2025)

The nature of issues arising from AI integration into the legal domain is multidimensional, considering not only technical aspects but also social, ethical, legal, and institutional implications. This interdisciplinary approach identifies interconnections between various risks and their potential impact on the rule of law, judicial fairness, and access to justice. The framework shifts from technological optimism to a more nuanced understanding of the complexities and risks of legal digitalisation.

Algorithmic and AI-driven normativity refers to AI systems establishing rules that influence decision-making beyond mere data processing. When AI tools, such as risk assessment systems, score risk or predict outcomes, they create standards that affect critical decisions, such as bail and sentencing recommendations. These systems can introduce anchoring effects, where AI-generated suggestions become the norm, limiting judges' ability to challenge them. This raises concerns about judicial independence,

as reliance on AI may erode human control over decisions. Moreover, the opacity of AI algorithms undermines contestability, as affected parties cannot easily challenge the decision-making process. AI systems can perpetuate biases under the guise of impartiality by reinforcing historical inequalities.

An analysis of the practical application of AI in the legal field reveals the emergence of a hierarchical structure of technological maturity. Legal research automation has reached a high level of development thanks to well-defined success criteria and measurable performance indicators. In contrast, the automation of adjudication remains in an experimental phase, facing fundamental challenges in ensuring procedural fairness and constitutional safeguards. This identified dichotomy between technological potential and socio-legal constraints supports the conclusions of critical theories regarding the necessity of comprehensively accounting for ethical, legal, and institutional factors when assessing the feasibility of implementing AI-driven solutions. The identification of systemic risks such as algorithmic bias, digital inequality, and the degradation of professional competencies underscores the urgent need to develop balanced regulatory approaches that can reconcile the promotion of technological innovation with the protection of fundamental legal principles.

3. Comparative analysis of regulatory models and legal approaches to the use of AI in the legal sphere

An examination of regulatory approaches to AI use in the legal domain between 2021 and 2024 reveals the emergence of three primary models of legal regulation, each reflecting the specific political, economic, and cultural priorities of its jurisdiction. The European Union, the United States, and Singapore embody fundamentally different regulatory philosophies concerning technological innovation, allowing for a comparative evaluation of each model's effectiveness and suitability.

The EU has implemented a preventive regulatory model through the adoption of the EU Artificial Intelligence Act (2024), which constitutes the first comprehensive supranational legal framework for AI regulation. Adopted in 2024, this legislative act introduces harmonised rules

aimed at assessing and mitigating AI-related risks. A core feature of the European approach is the classification of AI systems into risk levels – from minimal to unacceptable – with differentiated requirements imposed for each risk category. Kuehl (2025) explores the evolving ethical landscape of generative AI in judicial systems, stressing the need to revise and clarify existing professional conduct rules, particularly ABA Model Rule 1.1 on technological competence.

The regulation explicitly prohibits the most dangerous AI applications that threaten individuals' rights or safety, including social scoring and other mass manipulation practices. High-risk systems, particularly those used for decision-making in justice administration, are subject to strict regulatory requirements concerning data quality, transparency, human oversight, and a mandatory conformity assessment procedure prior to deployment. The European model provides for the establishment of robust oversight mechanisms via empowered authorities with significant supervisory and investigatory powers, including the capacity to impose sanctions of up to 6% of a company's global turnover, in alignment with the General Data Protection Regulation.

The United States adopts a fundamentally different approach, grounded in a market-oriented philosophy with minimal state intervention. Unlike the EU, the US currently lacks a unified, comprehensive AI law, and regulation is shaped through governmental strategies and sector-specific legislative acts. In October 2022, the White House introduced the Blueprint for an AI Bill of Rights (2022), which outlines five principles for safeguarding individuals amid the rapid expansion of AI: system safety and effectiveness, protection from algorithmic discrimination, data privacy, transparency in decision-making, and human oversight. The wide-reaching Executive Order No. 14110 "On the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence" (2023) establishes a national AI strategy and delegates responsibilities across federal agencies.

The US model is characterised by decentralisation and sector-specific regulation, with various regulatory bodies applying tailored approaches within their respective domains. The Food and Drug Administration oversees AI in medical devices, the Federal Aviation Administration governs autonomous vehicles, and the Securities and Exchange Commission regulates AI in financial services. The legal foundations of AI regulation as an object of in-

tellectual property have been examined in a comparative context by Toqsanbaeva (2022), who analysed legislation and enforcement practices in the US, UK, Australia, Kazakhstan, and Uzbekistan regarding AI use in legal practice. The author concluded that AI must be recognised as a novel intellectual property object with unique characteristics and capacity for self-development, distinguishing it from traditional IP objects, and proposed a comprehensive legal definition of AI in statutory acts - an especially relevant issue amid the formation of international regulatory standards. Zuckerman (2020) analyses the expansive impact of AI on the legal profession, adversarial legal systems, and the rule of law, thereby adding theoretical depth to understanding of the European preventive model, which emphasises safeguarding core legal principles.

Singapore represents a third model - a pragmatic and flexible approach to AI regulation. The Singaporean government has refrained from enacting rigid AI legislation, favouring soft regulation through advisory frameworks and standards. The National AI Strategy and the Model AI Governance Framework provide detailed guidance for organisations on the responsible use of AI, encompassing principles of transparency, explainability, data governance, and risk assessment. The AI Verify initiative serves as a software platform for algorithm testing and certification, enabling organisations to voluntarily conduct self-audits of their AI systems to verify compliance with declared performance attributes and ethical standards.

A comparative analysis of the effectiveness of these models reveals varying strengths and weaknesses in integrating innovation-driven development with ethical standards. The European preventive approach is effective in mitigating risks and enhancing transparency and public trust in AI systems, offering safeguards to ensure that critical decisions are not made by opaque, black-box systems beyond oversight. The EU model also promotes international dialogue through the so-called Brussels Effect, whereby other countries adapt their products to comply with the requirements of the EU Artificial Intelligence Act (2024). However, critics argue that excessive regulatory stringency may hinder innovation by imposing disproportionate compliance costs on start-ups and small enterprises (Csernaton, 2025).

The American model is distinguished by its effectiveness in fostering rapid technological progress through minimal regulatory barriers, enabling the United States to become home to leading AI companies. Its flexibility facilitates

experimentation with diverse AI applications without the immediate threat of sanctions, yielding economic benefits and reinforcing the United States' leadership in the global digital economy. The key shortcoming of this market-oriented model lies in the absence of robust ethical and human rights safeguards, as evidenced by instances of problematic AI use resulting in discriminatory outcomes.

The Singaporean approach seeks to strike an optimal balance between fostering innovation and upholding ethical standards. Soft regulatory methods have enabled the country to rapidly become a testing ground for AI development, attracting investment and fostering the growth of domestic expertise. At the same time, the absence of mandatory rules does not yet guarantee comprehensive ethical compliance, as much depends on corporate goodwill. This pragmatic approach has proven effective within a small nation characterised by a high concentration of high-tech industries, a strong culture of compliance, and elevated levels of trust in governmental institutions.

The divergence of regulatory approaches to AI creates significant challenges for harmonising legal frameworks. AI technology is inherently global, and the lack of unified rules forces developers to navigate fragmented requirements across multiple jurisdictions. The geographical and cultural dimensions of AI governance identified in this study are corroborated by scholarship analysing national specificities in technological regulation. Negi (2023) offers a comprehensive analysis of AI's transformative impact on traditional legal practices, exploring its integration across various facets of legal processes - from legal research to decision-support systems. International standards for technical and organisational interoperability, particularly ISO/IEC 42001 and ISO/IEC 23894, provide a practical pathway toward harmonisation via mutual recognition of equivalent requirements. Prospects for further regulatory convergence hinge on the ability of leading jurisdictions to develop mechanisms for mutual recognition and cooperation in ensuring safe, transparent, and human-centric AI development (Csernaton, 2025).

The regulatory comparison presented in this work can be seen as a case of "normativity over normativity". Different models, especially the European risk-based approach, attempt to govern the normative power of algorithms by enforcing obligations and oversight mechanisms. These include transparency, human control, auditing, and liability, all aimed at regulating the influence of algorithmic decision-making.

The comparative analysis of regulatory strategies across major jurisdictions reveals three fundamentally distinct philosophies of AI legal governance, reflecting divergent approaches to the relationship between technological innovation and legal safeguards. The European preventive model, with mandatory certification and strict sanctions, prioritises the protection of fundamental rights over economic efficiency. By contrast, the market-oriented American strategy privileges innovation by minimising regulatory obstacles. The pragmatically flexible Singaporean model, based on voluntary standards and experimental sandboxes, seeks to optimise the balance between promoting technological progress and maintaining ethical standards in a small, high-tech economy. The emerging trend towards building international consensus around core principles – such as human oversight, algorithmic transparency, and non-discrimination – offers prospects for future regulatory convergence through mutual recognition mechanisms and international standards, while underscoring the need for continued research into the harmonisation of legal regimes in the global technological landscape.

Conclusions

The analysis of academic literature has revealed that the contemporary scholarly discourse on the application of AI in the legal field is structured around five fundamental theoretical approaches: technological determinism, critical legal theories, socio-technical constructivism, regulatory realism, and the institutional approach. Technological determinism, exemplified by the work of Susskind and Katz, rests on the postulate that legal practice will inevitably undergo radical transformation under the influence of AI technologies. It highlights the substantial potential of automation, as evidenced by achieving 70% accuracy in predicting the US Supreme Court's decisions. Critical legal theories, developed by Crawford and Eubanks, focus on the systemic reproduction of structural biases through AI systems, conceptualising AI as a socio-technical system that reinforces power asymmetries and creates mechanisms for the automated scripting of poverty. Socio-technical constructivism emphasises the mutual interdependence and co-construction of law and technology, underscoring the determinative impact of social context, institutional frameworks, and cultural particularities on the successful implementation of AI-based solutions.

A systematic review of the literature has revealed that the practical application of AI in legal practice is characterised by varying degrees of development across different domains. The automation of legal research and document analysis has reached the highest level of technological maturity, drastically accelerating the preparation of legal documents – from 16 hours to 3-4 minutes – while maintaining high analytical accuracy. Predictive analytics demonstrates growing potential, with accuracy levels reaching up to 85% in forecasting litigation outcomes, although significant risks of algorithmic bias persist, as illustrated by the COMPAS system, which has been shown to systematically overestimate risk scores for African American defendants. Judicial automation remains at an experimental stage, primarily due to fundamental challenges in upholding the right to a fair trial and effective defence when using opaque algorithmic systems. Technologies that enhance access to justice have demonstrated the greatest democratising potential by overcoming financial and geographical barriers. However, they face the challenge of digital inequality, given that only 55% of EU citizens possess basic digital skills.

The review of the academic literature also allowed us to establish that the comparative analysis of regulatory models reveals three fundamentally different legal philosophies governing AI in the legal domain. The European preventive approach, institutionalised through the AI Act (2024), introduces a comprehensive risk-based framework categorising risks from minimal to unacceptable. It mandates certification for high-risk systems and imposes sanctions of up to 6% of global turnover, thereby ensuring transparency and human oversight in critical decisions. The American market-oriented model is grounded in decentralised, sector-specific regulation through governmental strategies and targeted legislative acts, encouraging rapid technological advancement by maintaining minimal regulatory barriers, but resulting in a lack of ethical and human rights safeguards. The pragmatically flexible Singaporean model operationalises the concept of delayed regulation via soft standards and voluntary testing mechanisms, such as AI Verify. It successfully combines innovation stimulation with ethical oversight within the specific context of a small, high-tech jurisdiction.

As a result of the systematic review, an international consensus emerged around the core principles of preserving human oversight, ensuring transparency in algorithmic processes, non-discrimination, and privacy protection.

These principles form the basis for future harmonisation of regulatory approaches through mutual recognition of equivalent requirements and the adoption of international ISO/IEC standards. At the same time, the analysed studies reveal significant conceptual gaps: a lack of empirical data on the actual impact of AI on the quality of justice, a fragmented academic discourse characterised by a disconnect between technological and socio-legal perspectives, and geographic and cultural limitations in research, with a predominant focus on the experiences of North America and Europe and insufficient representation of practices in developing countries.

The analysis of the academic literature has revealed that certain thematic aspects remain underexplored, including the development of unified international standards for assessing the quality and reliability of AI systems in the legal domain; the long-term implications of widespread AI deployment for the transformation of the legal profession; mechanisms for ensuring cybersecurity and the protection of personal data in the context of AI use in judicial proceedings; and the specificity of implementing these technologies within diverse legal systems, taking into account cultural and institutional particularities. Promising avenues for further research include examining mechanisms for harmonising international standards, analysing AI's impact on access to justice in developing countries, and developing methodologies to empirically assess the effectiveness of automated legal systems with regard to the principles of fairness and the rule of law.

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