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ORIGINAL ARTICLE

Due process, cognitive bias and artificial intelligence in judicial decision-making

Debido proceso, sesgo cognitivo e inteligencia artificial en la toma de decisiones judiciales

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Abstract This study analyzes the legal and psychological implications of artificial intelligence in judicial decision-making, with particular emphasis on its effects on due process guarantees. The research adopts a qualitative, doctrinal, and comparative approach based on a systematic review of academic literature and international regulatory frameworks related to AI governance and digital justice. From a legal perspective, the findings identify risks associated with algorithmic opacity, automated bias, and the weakening of reasoned judicial decisions, potentially affecting equality before the law, judicial impartiality, and the right to defense. From a psychological perspective, the study highlights the influence of cognitive biases, particularly automation bias and anchoring effects, on judicial actors interacting with AI systems, which may reduce autonomy and critical reasoning. The results also indicate that procedural fairness and public trust in judicial institutions may be undermined when algorithmic processes lack transparency and explainability. In response to these challenges, the study proposes a hybrid model of adjudication in which artificial intelligence functions as a decision-support tool under strict human supervision, ensuring the protection of fundamental rights and the preservation of cognitive integrity in judicial decision-making processes.

Keywords Artificial intelligence, due process, judicial decision making, cognitive bias algorithmic transparency.

Resumen El presente estudio analiza las implicaciones jurídicas y psicológicas de la inteligencia artificial en la toma de decisiones judiciales, con especial énfasis en sus efectos sobre las garantías del debido proceso. La investigación adopta un enfoque cualitativo, doctrinal y comparado basado en una revisión sistemática de literatura científica y marcos regulatorios internacionales relacionados con la gobernanza de la inteligencia artificial y la justicia digital. Desde la perspectiva jurídica, los hallazgos identifican riesgos asociados a la opacidad algorítmica, los sesgos automatizados y el debilitamiento de la motivación de las decisiones judiciales, afectando la igualdad ante la ley, la imparcialidad judicial y el derecho a la defensa. Desde la perspectiva psicológica, el estudio destaca la influencia de sesgos cognitivos, particularmente el sesgo de automatización y el efecto de anclaje, sobre los operadores jurídicos que interactúan con sistemas de inteligencia artificial, lo que puede reducir la autonomía y el razonamiento crítico. Los resultados también indican que la imparcialidad procesal y la confianza pública en las instituciones judiciales pueden verse socavadas cuando los procesos algorítmicos carecen de transparencia y explicabilidad. En respuesta a estos desafíos, el estudio propone un modelo híbrido de adjudicación en el que la inteligencia artificial funciona como una herramienta de apoyo a la toma de decisiones bajo estricta supervisión humana, garantizando la protección de los derechos fundamentales y la preservación de la integridad cognitiva en los procesos de toma de decisiones judiciales.

Palabras clave Inteligencia artificial, debido proceso, toma de decisiones judiciales, sesgos cognitivos transparencia algorítmica.

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PUBLIS EDITORIAL

Introduction

Due process of law constitutes a foundational guarantee of the constitutional rule of law, insofar as it imposes normative constraints upon the exercise of public authority and ensures that any determination affecting individual rights is rendered through fair, transparent, and duly reasoned procedures. Traditionally anchored in principles such as judicial impartiality, the right to be heard (audi alteram partem), procedural equality, and the duty to provide reasoned decisions, due process has progressively evolved in response to institutional developments and, more recently, to the rapid advancement of digital technologies within legal systems.

In this regard, the integration of artificial intelligence AI into judicial administration represents a paradigmatic shift in the manner in which adjudicative functions are performed. Contemporary AI systems particularly those grounded in machine learning, natural language processing, and predictive analytics are increasingly deployed to assist, and in certain instances partially automate, decision making processes. These applications range from case management and legal research to risk assessment and outcome prediction, reflecting the broader expansion of legal technology aimed at enhancing efficiency and reducing judicial backlog (Sivasatyanarayanareddy, 2024). Notwithstanding these potential benefits, the growing reliance on algorithmic systems raises substantial concerns regarding their compatibility with the procedural safeguards inherent in due process.

From a jurisprudential perspective, AI must not be conceived merely as a neutral or auxiliary tool, but rather as a socio technical infrastructure capable of shaping legal outcomes and redistributing decision making authority. In this vein, Novelli et al (2026) contends that AI systems should be evaluated within a broader framework of information ethics, recognizing their capacity to influence the protection of fundamental rights and the architecture of legal accountability. Kumar et al (2025) underscores the risks associated with opaque algorithmic systems commonly referred to as black boxes which hinder meaningful oversight and undermine the principles of transparency and accountability essential to the rule of law.

A central doctrinal concern arises from the tension between algorithmic opacity and the duty to provide reasoned judgments. Due process requires that judicial decisions be supported by intelligible, reviewable, and legally grounded reasoning. However, many AI systems particularly those based on complex statistical models operate through processes that are neither readily interpretable nor susceptible to effective scrutiny. As Fisher (2025) has demonstrated, such opacity poses significant legal challenges, as it impairs the ability of affected parties to contest decisions and undermines the guarantees of procedural fairness and effective judicial protection.

Moreover, the emergence of algorithmic bias constitutes a critical threat to the principle of equality before the law. Empirical research, notably the study conducted by Neil, and Zanger-Tishler, (2025), concerning the COMPAS risk assessment tool, has revealed that algorithmic systems may reproduce and even amplify existing structural inequalities, particularly in criminal justice contexts. These findings call into question the neutrality of automated decision making and highlight the necessity of subjecting such systems to rigorous legal and ethical scrutiny.

From a psychological perspective, the incorporation of artificial intelligence into judicial decision making introduces additional layers of complexity that extend beyond normative concerns. Research in cognitive psychology has demonstrated that human decision making is inherently influenced by heuristics and biases, including anchoring effects, availability heuristics, and overreliance on automated systems, commonly referred to as automation bias (Rosbach 2026; Romeo & Conti, 2026). In judicial contexts, these cognitive tendencies may affect how judges interpret and rely upon algorithmic recommendations, potentially diminishing critical evaluation and independent reasoning. Furthermore, the perception of procedural fairness among litigants is closely linked to psychological factors such as transparency, explainability, and the opportunity to challenge decisions. When algorithmic systems operate without sufficient clarity, they may not only compromise legal guarantees but also erode trust in judicial institutions, thereby affecting the perceived legitimacy of the decision making process.

From the standpoint of legal theory, these developments prompt a reassessment of the nature of adjudication itself. While traditional judicial reasoning entails interpretative judgment, normative balancing, and contextual analysis, AI-driven systems rely predominantly on probabilistic inference and pattern recognition. This shift raises the concern that legal decision making may increasingly be guided by predictive outputs rather than principled legal reasoning, thereby eroding the normative foundations of adjudication (Khokhar et al., 2025)

At the international level, regulatory and policy frameworks have begun to address these challenges. Instruments such as those developed by Ayibam (2025) emphasize the necessity of ensuring that AI deployment within judicial systems adheres to core principles including transparency, accountability, non discrimination, and meaningful human oversight. These developments reflect an emerging consensus that technological innovation must operate within the boundaries imposed by fundamental rights and the rule of law.

In the Latin American context, the adoption of AI in judicial systems occurs against a backdrop of structural inequal-

ities, institutional constraints, and uneven technological development. While AI presents opportunities to enhance access to justice and administrative efficiency, its unregulated implementation risks exacerbating existing disparities and undermining procedural guarantees (Blount, 2026). Consequently, any normative assessment must be attentive to the specific socio legal conditions in which such technologies are deployed.

Despite the growing body of literature on artificial intelligence in judicial systems, existing studies have predominantly focused on technological efficiency, algorithmic accountability, and regulatory governance. Comparatively limited attention has been devoted to the interdisciplinary interaction between procedural due process and the cognitive dynamics affecting judicial actors in AI-assisted environments. In particular, there remains a significant gap regarding how automation bias, anchoring effects, and algorithmic opacity jointly influence both the normative legitimacy and psychological integrity of judicial decision-making. This study seeks to address this gap by integrating legal and cognitive perspectives into a unified analytical framework for assessing AI-assisted adjudication.

Against this backdrop, the present study is guided by the following research question to what extent does the implementation of artificial intelligence in judicial administration affect due process guarantees and under what normative conditions can such technologies be reconciled with a rights based model of adjudication. The primary objective is to undertake a critical analysis of this relationship, identifying the principal risks associated with AI deployment and proposing regulatory criteria aimed at safeguarding fundamental procedural rights.

The working hypothesis posits that, although AI systems may contribute to increased efficiency in judicial processes, their deployment in the absence of adequate safeguards particularly with respect to transparency, explainability, and human oversight poses a significant risk to essential elements of due process, including the duty to provide reasoned decisions, judicial impartiality, and the right to defense. Accordingly, this study advocates for the development of a hybrid model of adjudication, wherein AI functions as a decision support tool under strict human supervision, ensuring full compliance with constitutional and procedural guarantees.

Methodology

This study adopts a qualitative, doctrinal, and comparative research design aimed at critically examining the implications of artificial intelligence AI for due process guarantees within judicial systems. The research is grounded in a legal analytical approach, supported by an interdisciplinary perspective that integrates insights from legal theory, technology studies, public governance, and cognitive psychology. Such an approach is particularly appropriate for addressing complex normative and behavioral questions arising from the interaction between emerging technologies and fundamental procedural rights.

The methodological framework is primarily based on doctrinal legal analysis, which involves the systematic examination of legal principles, norms, and jurisprudential doctrines related to due process. Through this method, the study identifies and interprets core procedural guarantees such as the right to a fair hearing, the duty to provide reasoned decisions, judicial impartiality, and equality before the law, and evaluates how these guarantees may be affected by the incorporation of AI into judicial decision making processes. This analytical approach allows for a rigorous assessment of the compatibility between algorithmic systems and constitutional standards.

In addition, the research incorporates a structured review of academic literature published between 2020 and 2025, with particular emphasis on peer reviewed journals indexed in Scopus and Web of Science. The review focuses on key themes such as algorithmic accountability, explainability, bias in automated decision making, and the legal implications of AI in judicial contexts. Furthermore, it integrates contributions from cognitive psychology and behavioral sciences to examine how heuristics, cognitive biases, and human-machine interaction influence judicial reasoning in environments assisted by artificial intelligence. Relevant sources include leading journals such as Artificial Intelligence and Law and Computer Law and Security Review, as well as foundational works in decision making theory.

Furthermore, a comparative legal perspective is employed to examine regulatory and policy frameworks governing the use of AI in judicial systems across different jurisdictions. This includes the analysis of international guidelines such as those developed by UNESCO, as well as emerging regulatory approaches in Europe and Latin America. The comparative dimension enables the identification of common principles, divergences, and best practices in the legal governance of AI, thereby enriching the normative and interdisciplinary evaluation undertaken in this study.

The analysis is structured around a normative framework based on fundamental due process guarantees, which serve as evaluative criteria for assessing the legitimacy of AI-assisted decision-making. These include the right to be heard audi alteram partem, the requirement of reasoned judicial decisions, the principle of judicial impartiality, and equality before the law. In parallel, the study incorporates a psychological analytical dimension focused on cognitive bias, automation bias, and perception of procedural fairness, allowing for a more comprehensive assessment of how judicial actors interact with algorithmic systems.

Finally, it is important to acknowledge certain limitations

inherent in this research. As a qualitative and doctrinal study, it does not incorporate empirical or quantitative data, which may limit the generalizability of its findings. Moreover, given the rapid evolution of AI technologies and regulatory frameworks, some recent developments may not yet be fully reflected in the available literature. Notwithstanding these limitations, the study provides a robust and coherent analytical basis for understanding both the normative and psychological challenges posed by AI to due process in contemporary legal systems.

The literature review was conducted between January and March 2026 using the Scopus, Web of Science, SSRN, and Google Scholar databases. The search process employed combinations of keywords such as "artificial intelligence", "due process", "judicial decision-making", "algorithmic bias", "automation bias", "procedural fairness", and "explainable AI".

Inclusion criteria comprised peer-reviewed articles, legal reports, and academic book chapters published between 2020 and 2026 in English or Spanish. Sources were selected based on academic relevance, citation impact, methodological rigor, and direct relation to AI-assisted adjudication and procedural guarantees. Duplicate records and studies unrelated to judicial decision-making contexts were excluded.

Results and discussion

The findings of this study reveal that the incorporation of artificial intelligence AI into judicial systems produces a dual effect on the functioning of due process. On the one hand, it enhances procedural efficiency and decision making capacity, while on the other it introduces structural and cognitive risks that directly affect core procedural guarantees. This duality reflects a fundamental tension between technological optimization, normative safeguards, and human decision making processes.

As shown in Table 1, the risks associated with AI-assisted adjudication extend beyond purely technological concerns and involve both normative and cognitive dimensions. The findings indicate that algorithmic opacity and automation bias directly affect judicial autonomy, procedural fairness, and the legitimacy of legal reasoning. Consequently, the governance of AI within judicial systems requires interdisciplinary safeguards capable of protecting both constitutional guarantees and human cognitive integrity.

From an operational perspective, AI systems contribute significantly to the modernization of judicial administration. The automation of repetitive tasks, the capacity to process large volumes of legal data, and the use of predictive analytics enable courts to reduce case backlogs and improve procedural timelines. These advantages are particularly relevant in jurisdictions characterized by structural inefficiencies and limited institutional capacity. In this sense, AI may be understood as a tool that promotes access to justice by facilitating faster and more consistent decision making processes.

However, these benefits are accompanied by substantial risks that challenge the normative foundations of due process. One of the most critical issues identified is algorithmic opacity. Many AI systems operate through complex models that lack transparency, making it difficult for judges, litigants, and oversight bodies to understand the reasoning underlying automated or assisted decisions. This opacity undermines the duty to provide reasoned judgments, which is a cornerstone of procedural fairness and judicial accountability. As emphasized by Mugamba (2025), the proliferation of opaque decision making systems threatens the possibility of effective legal scrutiny and democratic control.

Closely related to this issue is the presence of algorithmic bias, which poses a direct risk to the principle of equality before the law. Empirical evidence indicates that AI systems trained on historical data may reproduce and amplify existing social inequalities. The well documented case analyzed

Table 1. Interdisciplinary Risks of AI-Assisted Judicial Decision-Making

Dimension	Legal Implication	Psychological Effect	Due Process Risk
Algorithmic opacity	Lack of explainability and limited judicial scrutiny	Distrust and reduced confidence in judicial outcomes	Weakening of defense rights and procedural transparency
Automation bias	Excessive reliance on algorithmic recommendations	Reduced critical reasoning and cognitive dependency	Risk of judicial partiality and diminished autonomy
Predictive analytics	Statistical dependence in legal reasoning	Anchoring effect and constrained deliberation	Erosion of reasoned judicial decisions
Algorithmic discrimination	Unequal treatment and potential discriminatory outcomes	Perceived unfairness and institutional distrust	Violation of equality before the law
Lack of human oversight	Accountability gaps and insufficient reviewability	Reduced judicial autonomy	Weakening of judicial legitimacy and democratic accountability

Yeung, and Hartmann (2025) demonstrates how risk assessment algorithms in criminal justice contexts can generate discriminatory outcomes, particularly along racial and socio economic lines. This finding is consistent with the arguments advanced by (Selbst, 2025), who contend that data driven systems may produce disparate impacts even in the absence of explicit discriminatory intent.

From a psychological perspective, the results suggest that the use of AI in judicial decision making may generate cognitive distortions that affect the autonomy of judicial reasoning. One of the most relevant phenomena is automation bias, which refers to the tendency of individuals to over rely on automated systems, even when such systems are fallible. In judicial contexts, this may lead judges to give disproportionate weight to algorithmic recommendations, reducing critical analysis and independent evaluation of the case. In addition, anchoring effects may arise when algorithmic outputs serve as initial reference points that shape subsequent reasoning, thereby limiting the scope of deliberation (Heo, 2025).

Another significant concern relates to the potential transformation of judicial reasoning as a normative practice. Traditional adjudication is grounded in interpretative reasoning, the balancing of principles, and contextual analysis. By contrast, AI systems rely on probabilistic inference and pattern recognition, which may shift the logic of decision making from justification to prediction. This transformation raises the risk that judicial decisions become increasingly dependent on statistical outputs rather than legal reasoning, thereby weakening the epistemic and normative foundations of adjudication. Braun (2025), argues, the ethical governance of AI must ensure that technological systems do not displace human judgment in domains where responsibility and accountability are essential.

Furthermore, the findings indicate that the use of AI may affect the right to defense and the principle of adversarial proceedings not only from a legal standpoint but also from a psychological perspective. When decisions are influenced by algorithmic outputs that are not transparent or explainable, litigants may be unable to understand or challenge the basis of those decisions. This limitation affects not only procedural guarantees but also the perception of fairness, which is a central element in the legitimacy of judicial systems. Research in procedural justice has shown that individuals are more likely to accept decisions when they perceive the process as fair, transparent, and participatory.

From a comparative perspective, the analysis of international frameworks reveals an emerging consensus on the need to regulate AI in accordance with fundamental rights principles. Instruments such as those developed by UNESCO emphasize the importance of transparency, accountability, non discrimination, and meaningful human oversight in the deployment of AI systems. These principles are increasingly reflected in regulatory initiatives, particularly within the European context, where efforts are underway to establish binding standards for trustworthy AI.

In light of these findings, it becomes evident that the integration of AI into judicial systems cannot be approached solely as a matter of technological innovation. Rather, it requires a comprehensive normative and interdisciplinary framework that ensures the compatibility of algorithmic tools with due process guarantees and human cognitive integrity. The concept of a hybrid model of adjudication emerges as a viable solution, whereby AI is employed as a decision support mechanism under strict human supervision. Such a model preserves the benefits of technological efficiency while maintaining the central role of judicial reasoning, accountability, and cognitive independence.

Ultimately, the results underscore that the legitimacy of AI in judicial contexts depends not only on its technical performance but also on its alignment with constitutional principles and its impact on human decision making processes. The challenge lies in designing regulatory and institutional mechanisms that enable the responsible use of AI without compromising the fundamental rights and psychological conditions that underpin the rule of law.

Toward a Hybrid Model of AI-Assisted Adjudication

The findings of this study suggest that neither fully automated adjudication nor exclusively traditional judicial decision-making provides an adequate response to the contemporary challenges posed by artificial intelligence in legal systems. In this context, a hybrid model of AI-assisted adjudication emerges as a normative and interdisciplinary framework capable of reconciling technological efficiency with due process guarantees, judicial accountability, and cognitive integrity.

Unlike purely technological approaches, the proposed model recognizes that the legitimacy of judicial decision-making depends not only on procedural safeguards but also on the preservation of independent human reasoning and critical evaluation in AI-assisted environments.

A. Legal safeguards dimension

From a legal perspective, the hybrid model requires that all AI-assisted judicial decisions remain subject to meaningful human review, procedural transparency, and constitutional accountability. Algorithmic systems must therefore operate within clear legal boundaries that preserve fundamental guarantees such as the right to defense, equality before the law, judicial impartiality, and the duty to provide reasoned decisions.

In this regard, explainability and reviewability constitute essential conditions for the legitimate use of artificial intelligence within judicial systems. Decisions influenced by algorithmic systems must remain understandable, contestable, and subject to judicial scrutiny in accordance with rule-of-law principles.

B. Cognitive safeguards dimension

Beyond normative guarantees, the proposed model incorporates a cognitive safeguard dimension aimed at mitigating the psychological risks associated with AI-assisted adjudication. Existing research demonstrates that automation bias, anchoring effects, and excessive reliance on algorithmic recommendations may weaken independent judicial reasoning and reduce critical analysis during decision-making processes.

Consequently, the model emphasizes the need to preserve cognitive autonomy among judicial actors through mechanisms such as bias-awareness training, critical reasoning reinforcement, and institutional protocols designed to prevent overdependence on automated systems. Within this framework, artificial intelligence functions as an advisory tool rather than a substitute for human judgment.

C. Technological safeguards dimension

From a technological standpoint, the hybrid model prioritizes the implementation of interpretable, auditable, and transparent AI systems capable of providing traceable decision pathways. Algorithmic processes should therefore be designed according to principles of explainable artificial intelligence (XAI), enabling judges, litigants, and oversight bodies to understand the rationale underlying AI-assisted outputs.

The incorporation of auditability and algorithmic traceability mechanisms is particularly important for ensuring procedural legitimacy and preventing arbitrary or discriminatory outcomes.

D. Institutional safeguards dimension

At the institutional level, the framework requires the establishment of regulatory oversight mechanisms, judicial ethics protocols, and specialized governance structures capable of supervising the responsible use of AI within judicial systems. This includes the development of ethical review committees, transparency standards, and interdisciplinary training programs aimed at strengthening both legal and technological competencies among judicial actors.

In addition, several international regulatory instruments have established normative standards aimed at ensuring the responsible and rights-based deployment of artificial intelligence within public institutions and judicial systems. Among the most significant developments is the EU AI Act adopted by the European Union, which introduces a risk-based regulatory framework for artificial intelligence and establishes specific obligations concerning transparency, accountability, human oversight, and the protection of fundamental rights in high-risk AI systems.

Likewise, the UNESCO Recommendation on the Ethics of Artificial Intelligence emphasizes the need to guarantee human dignity, fairness, transparency, non-discrimination, and democratic governance in the development and deployment of AI technologies. In the judicial sphere, these principles are complemented by the European Ethical Charter on the Use of Artificial Intelligence in Judicial Systems, which highlights respect for fundamental rights, non-discrimination, quality and security, transparency, impartiality, and user control as essential safeguards for trustworthy judicial AI systems.

These international instruments reinforce the argument that the legitimacy of AI-assisted adjudication depends not only on technological sophistication, but also on the existence of robust institutional, ethical, and constitutional safeguards capable of preserving due process and judicial autonomy.

Ultimately, the hybrid model proposed in this study seeks to preserve the central role of human judicial reasoning while simultaneously benefiting from the operational advantages offered by artificial intelligence. Rather than replacing judges with automated systems, the framework advocates for a collaborative relationship in which technological innovation remains subordinated to constitutional guarantees, cognitive integrity, and democratic accountability.

In this sense, the legitimacy of AI-assisted adjudication depends not on the sophistication of algorithmic systems alone, but on the capacity of legal institutions to ensure that technological efficiency does not undermine the fundamental principles of due process and the rule of law.

Figure 1 illustrates the interdisciplinary structure of the proposed hybrid model of AI-assisted adjudication, integrating legal, cognitive, technological, and institutional safeguards aimed at preserving due process guarantees and judicial autonomy.

This study contributes to the emerging literature on AI-assisted adjudication by integrating legal and cognitive dimensions into a unified due process framework. Unlike predominantly technological approaches, the proposed model emphasizes that judicial legitimacy depends not only on algorithmic transparency but also on the preservation of cognitive autonomy and independent legal reasoning.

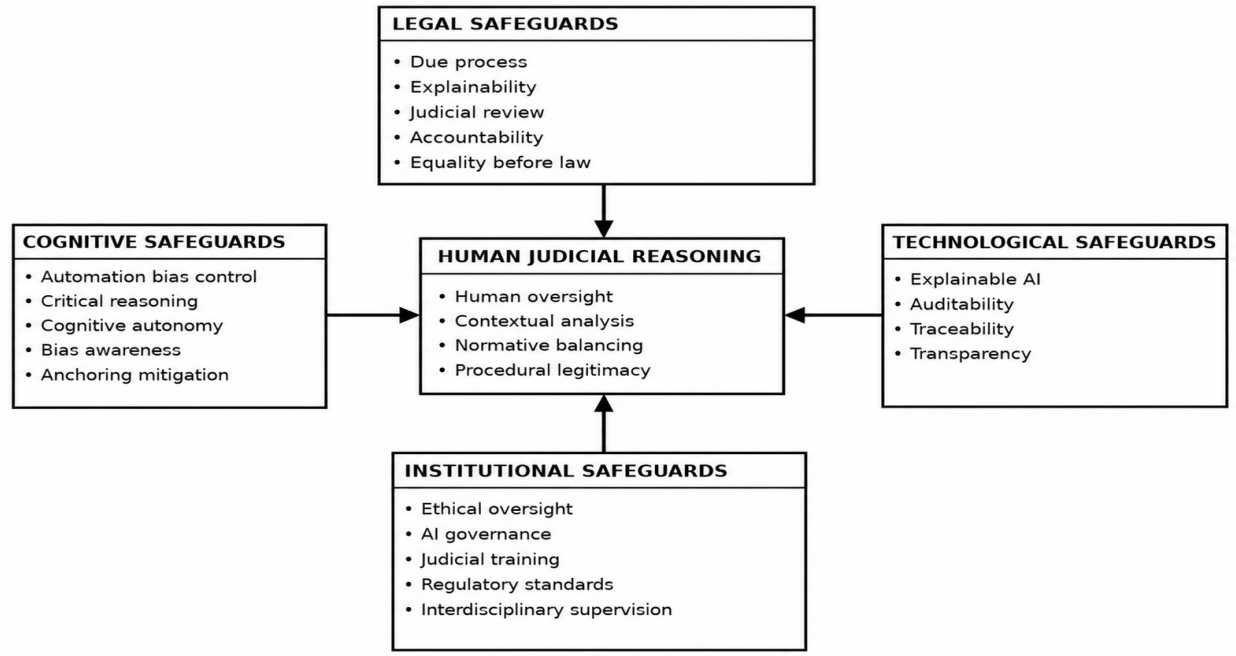

Figure 1. Hybrid Model of AI-Assisted Adjudication.

Note. Prepared by the authors based on the interdisciplinary analysis of due process, cognitive bias, and AI-assisted adjudication.

Conclusions

The integration of artificial intelligence AI into judicial systems represents a profound transformation in the administration of justice, with significant implications for the structure and guarantees of due process. This study has demonstrated that, while AI offers substantial benefits in terms of efficiency, consistency, and optimization of judicial processes, its incorporation also introduces complex normative and psychological challenges that cannot be overlooked.

From a legal perspective, the findings confirm that the most critical risks arise from algorithmic opacity, bias in automated decision making, and the potential weakening of the duty to provide reasoned judicial decisions. These factors directly affect core elements of due process, particularly judicial impartiality, equality before the law, and the right to defense. In this sense, the deployment of AI in judicial contexts must be understood not merely as a technological advancement, but as a transformation with deep constitutional implications that requires careful regulatory design.

At the same time, the study highlights that the challenges posed by AI extend beyond the normative dimension and significantly impact the cognitive processes underlying judicial decision making. The presence of automation bias, anchoring effects, and overreliance on algorithmic recommendations may reduce the autonomy and critical capacity of judicial actors. These psychological dynamics introduce a new layer of risk, as they can subtly influence decisions even when formal legal guarantees appear to be preserved. Consequently, the protection of due process must also consider the cognitive conditions under which judicial reasoning is exercised.

A central contribution of this research lies in articulating a comprehensive interdisciplinary framework that integrates legal and psychological perspectives in the analysis of AI-assisted adjudication. Within this framework, the concept of a hybrid model of adjudication emerges as a viable and necessary approach. This model advocates for the use of AI as a decision support tool under strict human supervision, ensuring that final authority remains with judicial actors and that reasoning processes remain transparent, accountable, and subject to review.

Furthermore, the study underscores the importance of developing regulatory and institutional safeguards grounded in fundamental rights principles. These safeguards must guarantee transparency, explainability, accountability, and non discrimination, while also addressing the psychological dimensions of trust, legitimacy, and perception of fairness. In this regard, the legitimacy of AI in judicial systems depends not only on its technical performance but also on its ability to preserve both the normative and cognitive integrity of the decision making process.

From a broader perspective, the findings suggest that the future of digital justice will depend on the capacity of legal systems to reconcile technological innovation with the pro-

tection of human judgment. The challenge is not simply to incorporate artificial intelligence into judicial systems, but to govern it in a way that strengthens rather than weakens the foundational principles of the rule of law.

Finally, this study acknowledges certain limitations, particularly the absence of empirical data and the rapid evolution of AI technologies and regulatory frameworks. Future research should therefore focus on empirical analyses of judicial behavior in AI-assisted environments, as well as on the development of measurable indicators to assess the impact of algorithmic systems on both due process guarantees and cognitive decision making dynamics.

In conclusion, artificial intelligence has the potential to enhance judicial systems, but its legitimacy ultimately depends on its alignment with due process principles and its compatibility with the psychological conditions that sustain fair and reasoned decision making. Only through a carefully designed interdisciplinary framework can AI contribute to a more efficient, equitable, and trustworthy system of justice.

Ultimately, the future legitimacy of AI-assisted adjudication will depend not on the replacement of human judges by intelligent systems, but on the capacity of legal institutions to preserve constitutional guarantees, cognitive autonomy, and democratic accountability within increasingly automated judicial environments.

Additional limitations include the rapid evolution of AI regulatory frameworks, limited access to proprietary judicial algorithms, and the absence of cross-jurisdictional empirical evidence regarding AI-assisted adjudication.

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Conflicts of interest

The authors declare that they have no conflicts of interest.

Author contributions

Ariadna Moya- Rodríguez and Yonayka Licea-Suárez: Conceptualization, data curation, formal analysis, investigation, methodology, supervision, validation, visualization, drafting the original manuscript and writing, review, and editing.

Data availability statement

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Statement on the use of AI

The authors acknowledge the use of generative AI and AI-assisted technologies to improve the readability and clarity of the article.

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