The Judicial Application of Generative Artificial Intelligence and the Regulation of Its Risks

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Abstract: With the rapid development of generative artificial intelligence , its application in the judicial domain has continuously deepened, extending to litigation services, adjudicatory assistance, and numerous other functions. Although AI offers significant advantages in enhancing judicial efficiency, structural tensions between its technological logic and the inherent rationality of judicial activity have gradually surfaced. Problems such as the “algorithmic black box” undermine the openness, fairness, and authority of the judiciary and pose challenges to the independent adjudication of judges. This article therefore examines the present state of generative AI in judicial settings and the institutional risks it generates, identifying its principal risks and systemic deficiencies through the lens of the proper boundaries of adjudicatory innovation. It proposes a comprehensive governance framework that reconciles technological development with judicial fairness, comprising a technical governance pathway centred on algorithmic transparency and data security; an institutional regulatory pathway focused on human-machine collaboration and the delimitation of application boundaries; and a value-balancing pathway anchored in ethical review and public participation. The deployment of generative AI in the judicial sphere must adhere to its position as an instrument auxiliary to adjudication, thereby achieving harmonisation between technological rationality and judicial values.

Keywords: generative artificial intelligence; judicial application; algorithmic regulation; judicial ethics.

Introduction

The rise of generative artificial intelligence is driving a profound transformation of the operational mode of the judiciary. In contrast to traditional informatisation systems and expert systems, generative AI is capable not only of performing transactional tasks such as information retrieval, document drafting, and similar-case recommendation, but may also participate, through natural-language interaction, in the organisation of facts, the inductive systematisation of rules, and the preliminary

formation of legal arguments. Its deployment in the judicial domain corresponds, on the one hand, to the practical demands generated by the construction of "smart courts", the digitalisation of litigation services, and the optimal allocation of adjudicatory resources, and contributes to mitigating the persistent tension between heavy caseloads and limited judicial personnel, enhancing procedural efficiency, and promoting consistency in similar cases. On the other hand, it sharpens the tension among algorithmic logic, data-driven reasoning, and the logic of judicial adjudication.

Judicial activity is not merely a process of information processing; it is rather an institutionalised exercise of judgement centred upon fact-finding, normative interpretation, value-balancing, and procedural guarantees. Because generative AI produces its outputs by relying on large-scale corpora and probabilistic computation, its technical complexity and the indeterminacy of its outputs may give rise to risks such as the algorithmic black box, data bias, content distortion, ambiguity of liability attribution, and technological dependence. These risks may, in turn, encroach upon judicial openness, judicial impartiality, judges' independent adjudication, and the procedural rights of the parties. The judicial application of generative AI cannot, therefore, be understood solely in terms of efficiency gains, but must be examined within the operational rationality of judicial power and the value order of the rule of law. Against this background, the present article takes the judicial application of generative AI as its object of study. It first analyses the prospects and practical limits of such application; it then identifies the principal risks pertaining to algorithmic technology, data security, functional positioning, and value conflict; and it finally proposes a regulatory framework from the perspectives of algorithmic transparency, data security, human-machine collaboration, ethical review, and public participation, with a view to achieving a coordinated unity between technological empowerment and judicial fairness.

1. Judicial Reform Amid the Wave of Artificial Intelligence

1.1 The Prospects of Generative AI in Judicial Application

Generative AI holds extensive prospects in the judicial sphere, with particularly notable potential for enhancing judicial efficiency, optimising the allocation of judicial resources, and reinforcing judicial fairness. As early as 2016, United States courts had recognised the legitimacy of AI participation in this domain; AI began to intervene in judicial evidentiary reasoning and, with the passage of time and the advancement of technology, has progressively penetrated more deeply into the judicial process.[1]

Intelligent facilitation of judicial services. First, facilitating access to information and dismantling the barriers that have traditionally impeded the retrieval of judicial information. AI possesses the advantage of integrating massive datasets, and its in-depth deployment in adjudication is becoming increasingly conspicuous. Second, refining service targeting and establishing a high-quality system of judicial safeguards. By combining information integration with targeted service delivery, generative AI strikes a balance between technological innovation and the protection of rights, simultaneously enhancing judicial efficiency and exhibiting humanistic warmth,

[1] United States Courts, https://www.uscourts.gov/ (last visited Apr. 17, 2025).

thereby reconfiguring the intelligent landscape of judicial services. Optimal allocation of judicial resources. First, rationalising the deployment of human resources—shifting from "officers tied to cases" to intelligent collaboration. Technological innovation enables judicial assistants to devote greater attention to legal reasoning, giving rise to a new division of labour in which AI handles transactional work while human judges concentrate on the core adjudicatory functions. Second, the silent operation of judicial administration—data-driven invisible governance. The full integration of judicial big data with AI enables the construction of a "data cage," a silent, automated, and visually accessible system of full-process oversight that realises "technology-based control of power."

1.2 The Limits of Generative AI in Judicial Application

Although the application of generative AI in judicial settings has progressively revealed its capacity to enhance efficiency, significant limitations persist with regard to its technical boundaries and institutional adaptability. At present, most jurisdictions adopt a conservative stance towards judicial AI. In the United States, the federal courts operate two principal informatisation systems—the Public Access to Court Electronic Records (PACER) system and the Case Management/Electronic Case Files (CM/ECF) system[2]—which, though laying the groundwork for the deployment of AI in the judicial domain, have repeatedly attracted objection and criticism, requiring the courts to exercise considerable caution in deploying AI technologies. The United Kingdom, in its 2016 judicial reform programme, allocated £1.2 billion to digitalisation, yet expressly forbade AI involvement in criminal sentencing.

China, by contrast, has established a "full-process online litigation" model, achieving the deep integration of AI into procedural stages such as case filing and service of process.

1.2.1 The Boundaries of Adjudicatory Innovation

First, the risk of weakening the trial-centred system. Traditional procedural doctrine requires that the adjudicatory power be exercised exclusively by judges. The deployment of generative AI in the judicial domain alters this configuration: AI's intervention in evidentiary reasoning is no longer a purely instrumental form of assistance, but rather constitutes an interlocutor of the human judge at the epistemological level of the courtroom. In January 2023, in a Colombian case concerning a medical insurance dispute relating to an autistic child, Judge Juan Manuel Padilla García, after forming a preliminary view, consulted ChatGPT and incorporated into his judgment its opinion that the insurer should bear the relevant treatment costs.[3] Where preliminary or final adjudicatory conclusions are formed through dialogue with, and reliance upon, generative AI, the system becomes, to a significant degree, a substantive adjudicator.

Second, the risk of departing from the principle of evidence-based adjudication. In the field of criminal justice, an empirical study conducted by American scholars has demonstrated that computer-generated outputs exert a discernible influence on judicial decision-making.[4] As Professor Tribe observed in his critique of "trial by mathematics", one principal objection lies in the fact that, on matters such as the

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[2] UK Ministry of Justice, Transforming Our Justice System (2017), https://www.gov.uk/ (last visited Apr. 17, 2025).

[3] Purvish M. Parikh, Dinesh M. Shah, Kairav P. Parikh & Juan Manuel Padilla Garcia, ChatGPT and a Controversial Medicolegal Milestone, 75 Indian J. Med. Sci. 4 (2023).

[4] Sonja B. Starr, Evidence-Based Sentencing and the Scientific Rationalization of Discrimination, 66 Stan. L. Rev. 803, 803–872 (2014).

acceptable level of risk of convicting the innocent, quantitative analysis is politically inappropriate.[5] Judicial evidentiary reasoning by AI is entirely predicated upon mathematical computation—the outcome of algorithmic calculation—and thus departs from the philosophical and politically appropriate bases of adjudication, while also failing to satisfy the ethical dimensions of judicial decision-making.

1.2.2 The Conflict with Traditional Doctrinal Values

First, the deconstruction of judicial authority. In conventional adjudication, judges must demonstrate to the parties and to the public the reasoning that supports the legality and reasonableness of their decisions; such judicial reasoning is a vital means of strengthening the acceptability of judgments and of safeguarding judicial authority. Public confidence in the judiciary is grounded, in considerable measure, in judicial transparency. Whether a judge selectively adopts the recommendations of a decision-support system or directly applies its output, such conduct fundamentally conflicts with the openness intrinsic to the judicial function. The U.S. case of *State v. Loomis* (Wisconsin) first exposed the authority dilemma of algorithmic adjudication: the COMPAS risk-assessment tool classified the recidivism rate of Black defendants as twice that of white defendants, yet the court declined to disclose the underlying computational logic on the ground that it constituted a "trade secret."[6]

Second, the twofold dilemma of judicial ethics. At the level of data ethics, judgment documents remain the principal channel through which open judicial data are obtained in China; however, most of the disclosed judgments are in fact "template-style decisions" that have been formatted and stylistically standardised, lacking the actual decisional information that determines the outcome and reflecting only the final disposition. There may even exist discrepancies between the publicly disclosed reasoning and the actual grounds of decision. At the level of algorithmic equity, beyond the difficulty of rendering legal elements amenable to datafication, there remains the more fundamental problem that algorithmic systems cannot supplant legal reasoning.[7] Adjudication is by no means a mechanical application of statutory provisions; rather, it requires the integration of law with morality, politics, and a range of other considerations. As the Japanese scholar Yutaka Matsuo has remarked: "In civil litigation, rather than having a machine tell you that 'the probability of your claim being accepted by the court is 15 percent,' it may still be preferable for humans to coordinate and resolve the matter."[8] AI, devoid of affective cognition, is incapable of fully discharging judicial responsibilities.

2. Risks and Deficiencies in the Judicial Application of Generative AI

In judicial practice, the deployment of technology has often lacked due consideration of the inherent rationality and institutional characteristics of the judiciary, giving rise to difficulties in the interpretability of generated content, a mismatch between algorithmic systems and judicial institutions, the erosion of public trust, and gaps in

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[5] Laurence H. Tribe, Trial by Mathematics: Precision and Ritual in the Legal Process, 84 Harv. L. Rev. 1329, 1329–1393 (1971).

[6] Julia Angwin et al., Machine Bias, ProPublica (May 23, 2016), https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing.

[7] Zhang Linghan, Rule of Rights: Algorithmic Regulation in the Age of Artificial Intelligence 179 (Shanghai People's Publishing House 2021).

[8] Yutaka Matsuo, The Wave of Artificial Intelligence: Will Robots Surpass Humans? (Zhao Hanhong & Gao Huabin trans., China Machine Press 2016).

accountability.

2.1 The Complexity of Algorithmic Technology and Risks to Data Security

Algorithms construct identity and reputation through classification and risk assessment, and—owing to the absence of transparency, accountability mechanisms, monitoring systems, and due process constraints—create opportunities for discrimination, normalisation, and manipulation.[9] As AI becomes increasingly integrated with the judiciary, deep-seated tensions arising from algorithmic empowerment—epitomised by the "algorithmic black box" and "algorithmic discrimination"—prove difficult to pierce, forming an objective technical barrier to the realisation of judicial transparency and constituting an unavoidable practical risk in the development of judicial AI.

First, the comprehension barrier created by the complexity of algorithmic technology. Generative AI typically rests on deep neural networks built upon the Transformer architecture, the parameters of which have surpassed the hundred-billion scale.[10] Its defining features are deep-learning capability and autonomous generativity. This mode of technological implementation diverges fundamentally from the overt logical sequence of human legal reasoning, generating not only a comprehension barrier for judicial actors seeking to understand how algorithmic outputs are reached, but also significant obstacles to the implementation of accountability and supervisory regimes in the research, development, and application of judicial AI.

Second, decisional deviations occasioned by dynamic self-learning. The objective of AI-assisted judicial decision-making is to overcome the cognitive biases and discriminatory tendencies that may arise from judges' subjective inclinations. Yet the continuous learning mechanisms of generative models cause the bases of algorithmic decision-making to evolve dynamically over time. In practice, models continually refine the response strategies of legal question-answering systems through reinforcement learning, while the underlying data sources upon which they rely are themselves marred by flaws and deficiencies. The boundary between human and algorithmic action constitutes a prerequisite for genuine human-machine collaboration in judicial work. Although generative AI has gradually permeated the entire judicial process and has demonstrated value in enhancing efficiency and unifying adjudicatory standards, the displacement of its auxiliary role has become a critical impediment to the institutional adaptation of technology to judicial structures.

2.2 The Tension Between the Scope of AI Application and the Value of Fairness

The boundary between human and algorithmic agency in judicial activity is the precondition for their synergetic coexistence. At present, generative AI has gradually been integrated into every stage of the judicial process and has demonstrated value in enhancing efficiency and unifying adjudicatory criteria; nevertheless, the overreach of its auxiliary role has become a critical obstacle to the institutional alignment of technology with the judicial framework.

First, the functional distortion of AI within judicial processes. Both official policy and academic discourse have consistently emphasised the auxiliary positioning of

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[9] See Jack M. Balkin, The Three Laws of Robotics in the Age of Big Data, 78 Ohio St. L.J. 1217, 1217–1241 (2017).

[10] Ashish Vaswani et al., Attention Is All You Need, in Proceedings of the 31st International Conference on Neural Information Processing Systems 5998, 5998–6008 (2017).

generative AI in the judicial domain. However, applications such as criminal sentencing assistance, sentencing-deviation alerts, similar-case adjudication recommendation, and outcome prediction plainly extend beyond auxiliary functions and have come to incorporate certain supervisory and guiding capacities. This distortion is, in large measure, attributable to the conflation of normative positioning with practical operation: the interaction—indeed the reciprocal cancellation—of multiple functional roles within a single application causes certain functions to be eclipsed or even inverted. In judicial AI, this produces a deviation from the originally intended auxiliary role, with the supervisory and guiding functions progressively assuming a dominant position.

Second, the imbalance of empowerment among litigation actors. During the public-prosecution phase, prosecutors familiar with procedural mechanics are further empowered by AI-assisted systems, whereas the accused, lacking comparable technological support, remains without analogous means of empowerment. In an already unequal litigation structure, the technological empowerment afforded by judicial AI further widens the asymmetry in technical resources and capability, deepening the disparity in procedural competence between the strong and the weak, and risking the aggravation of underlying conflicts.

Third, the collapse of the value goals served by AI application. In the judicial domain, the stronger a judge's dependence on AI, the broader the inherent autonomy radiated by such technology, and the greater its capacity to exert reverse domination over the judge's autonomy. The erosion of the judge's primary status and the encroachment upon judicial cognitive capacity correspondingly intensify,[11] undermining the judge's right to independent adjudication and dissolving the inherent attributes of the judiciary. In the long term, the decisional primacy of the judge would be progressively expropriated, the equilibrium among prosecution, defence, and adjudication would be increasingly disrupted, and the value-oriented goals originally assigned to judicial AI would ultimately collapse.

3. Regulatory Pathways for the Judicial Application of Generative AI

3.1 Comprehensive Governance of Algorithmic Technology and Data Security

3.1.1 The Construction of an Algorithmic Transparency Mechanism

First, algorithmic filing and "white-box" transformation: establishing a mandatory filing regime for judicial algorithms. Generative AI, predicated on deep neural networks, possesses an inherent opacity in its decision-making processes, giving rise to the so-called "algorithmic black box." In judicial practice, the embedding of bias in training data and the latent discrimination encoded in model parameters fundamentally conflict with the principles of judicial openness and fairness. Such technical features may cause adjudicatory predictions to depart from substantive justice and interfere with both procedural and substantive justice in case handling. The racially discriminatory predictions of the U.S. COMPAS recidivism-assessment system, and the testing-stage finding that the EU's "AI Sentencing Assistance System"

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[11] See Ding Yufeng, The Domination of "Intelligence" and the Return of "the Human" Under the Disordered Expansion of Technological Logic: A Critical Reflection Based on Andrew Feenberg's Theory of Democratic Technology, 2022(6) Theoretical Guide 96.

recommended sentences on average 23 per cent higher for second-generation immigrants than for native-born offenders, exemplify the algorithmic discrimination that has already triggered widespread alarm. Where algorithmic decisions affect the rights and obligations of the parties, "automation bias" may erode judicial justice; procedural propriety therefore requires that the technical black box be penetrated. Drawing upon Article 4(5) of China's Interim Measures for the Administration of Generative Artificial Intelligence Services and the transparency obligations enshrined in Article 13 of the EU Artificial Intelligence Act, the State should support the research and development of vertical (domain-specific) models for the judicial AI sector and establish a dedicated algorithmic filing regime, regulated through both static filing and dynamic review.

Second, technical verification and dynamic monitoring: constructing a life-cycle supervisory regime for algorithms. Algorithmic discrimination is rooted in the "digital imprint" left by training data: structural biases relating to race, gender, and other categories embedded in historical judicial data may be magnified by algorithms, producing systemic discrimination. The self-reinforcing mechanism of generative AI tends to generate a "bias echo" effect, whereby erroneous adjudicatory outputs are fed back into training data. These technical defects pose substantive threats to the principle of judicial transparency and the value of equal protection. Because existing institutional frameworks have yet to provide systematic regulation of the application of generative AI within judicial settings, the establishment of a life-cycle supervisory regime combining technical verification and dynamic monitoring will help to address institutional articulation issues such as the legal force of technical standards and the professional capacity of verifying entities.

3.1.2 Improvement of the Data Security Protection System

First, a tiered and categorised protection mechanism: establishing standards of sensitivity classification for judicial data. Differentiated encryption technologies should be applied to judicial data of differing levels of classification; the boundaries of data sharing should be standardised; cross-system flow of core data should be strictly prohibited; the supply of core judicial data to judicial AI systems should be forbidden; and a data-vetting procedure—coupled with anonymisation—should be imposed where significant judicial data are to be provided. These measures will reduce the security risks of data leakage and unlawful use.

Second, full-chain access control: implementing dynamic management of technical personnel's access rights. Risks of data leakage exist at multiple stages of the data-processing chain. Establishing a "Judicial AI Permission Management Model"—a full-chain access-control system that divides processing into discrete managed segments—will effectively curtail the risk of excessive intervention by third-party technical personnel.

Third, optimisation of the data storage architecture and enhancement of cyber-defence capabilities for judicial data. The autonomous, distributed cloud-storage of data by judicial AI systems heightens the difficulty of data management and risk avoidance. A hybrid storage model combining physical isolation with logical stratification is therefore recommended, optimising the distributed storage architecture so as to reduce the risks of data residue and leakage.

3.2 Institutional Design for Human-Machine Collaboration and Regulatory Enforcement

3.2.1 Delimiting the Boundaries of Artificial Intelligence Application

First, a negative-list management system identifying judicial domains in which AI is expressly prohibited. While the application of generative AI in the judicial sphere empowers adjudication, enhances efficiency, and optimises resource allocation, it also carries negative implications for adjudication; its misuse would impair judicial fairness and authority. A rational delimitation of the scope of application of judicial AI systems, together with the establishment of a negative list identifying prohibited domains, is therefore essential to the proper functioning of AI as an auxiliary judicial instrument.

Second, standardisation of the human-machine collaboration process: establishing a "human-led, AI-assisted" operational protocol. Even as judicial AI empowers the modernisation of the judiciary, its auxiliary character must remain unequivocal; the central position of judicial personnel must be preserved. Technological rationality should reinforce the judge's exercise of substantive equity, while the application of technological rationality must not be divorced from the judge's evaluative judgement. The integration of human cognition with algorithmic computation should be effected through a human-machine collaboration mechanism and operational protocol grounded in the principle of human leadership and AI assistance.

Third, criteria for the matching of case types: formulating tiered guidelines for AI applicability. Judicial AI systems carry inherent and unavoidable risks; to minimise their materialisation, the rationality, characteristics, and inherent patterns of judicial activity must be preserved. In light of the developmental features of current generative AI technology and in conjunction with the realities of judicial practice, the scope and scenarios of application of judicial AI should be circumscribed,[12] and the deployment of technology should be subject to adaptive and dynamic adjustment. By integrating the advantages of big-data technology with judicial requirements, a precise alignment between technological supply and judicial demand should be achieved, thereby averting the value-hierarchy disorder and risk-prevention difficulties to which a "one-size-fits-all" approach would give rise.

3.2.2 The Supervisory Mechanism for the Operation of Intelligent Systems

First, establishing industry-wide technical standards aligned with social values and judicial requirements. China has yet to establish dedicated technical standards for generative judicial AI. To guard against the risks of technological application, it is necessary to construct, at both national and industry levels, technical specifications for judicial AI. On the foundation of social ethics and the core socialist values, such standards must take into account technological principles, judicial requirements, and public expectations, with industry-specific norms formulated in a manner differentiated by functional purpose.

Second, refining the entities authorised to use AI and formulating rules and limits of application. In contexts of human-machine interaction, alongside the regulation of algorithms, data, and technology, the role of human action must not be overlooked. Judicial personnel are the principal users of AI-assisted systems; procedural rules of

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[12] Frank Flemisch et al., Towards a Dynamic Balance Between Humans and Automation: Authority, Ability, Responsibility and Control in Shared and Cooperative Control Situations, 14 Cognition, Tech. & Work 3, 3–18 (2012), https://doi.org/10.1007/s10111-011-0191-6.

use must be prescribed, and substantive limits on the scope of their use must be drawn.

Third, strengthening the supervisory system through scenario-based classification and tiered oversight. Beyond standardising the technical norms of generative AI and safeguarding the right of judges to adjudicate independently, the supervisory and regulatory system must be reinforced. Attention should be paid to whether judicial AI systems are reasonably applied, whether they are effectively implemented in judicial activities, and whether they genuinely satisfy the practical needs of users—matters that bear directly upon the trajectory and design of judicial modernisation.

3.3 The Construction of a Framework Balancing Technological Ethics and Judicial Values

3.3.1 Mechanisms for the Prevention and Control of Ethical Risks

First, embedding ethical rules and establishing dynamically evolving norms for judicial AI ethics. The functioning of society cannot dispense with ethical constraints; generative AI, however, is exerting pressure on the established ethical order. In the judicial sphere, AI carries not only general technological risks but also specific ethical risks distinctive to the judicial setting. Once deployed in case handling without ethical safeguards, judicial AI may further erode judicial fairness and social ethics. In 2019, France introduced a "judicial big data prohibition," forbidding the use of judicial-decision predictions based on profiling of individual judges.[13] Yet reactive legislation, lagging behind risk emergence, struggles to mitigate the residual negative effects of pre-existing conflicts. For this reason, the embedding of moral and ethical rules into judicial AI systems must not be conceived in absolute or fixed terms, but must instead exhibit dynamic evolution and contextual adaptability. The ethical risks of generative AI in the judicial domain possess an endogenous character.

Second, ethical risk assessment and the establishment of an ethical-review mechanism for judicial AI. The "algorithmic black box," data bias, and the expansion of instrumental rationality may all undermine judicial transparency, judicial ethics, and value judgement. An ethical-review mechanism for judicial AI should accordingly be constructed: third-party experts should be involved at the stage of technological development, and a system of ethical evaluation, audit, and certification should be perfected; at the deployment stage, mechanisms for risk monitoring, early warning, and emergency response should be established. The ethical-review mechanism functions not merely as a tool of technological discipline but, more importantly, as a critical pathway for the reconstruction of the judicial-ethics system in the digital age.

3.3.2 Mechanisms for Mediating Conflicts Among Judicial Values

First, technological neutrality assessment: establishing a value-impact evaluation system for algorithms. Constructing such a system is a critical step in dispelling the myth of technological neutrality and in resisting the instrumentalisation of judges. To prevent judges from over-relying on technology and thus applying the law mechanically—lapsing into "mechanical adjudication"—an algorithmic value-impact evaluation system should be established at the research-and-development stage, including a "value firewall" that requires developers to disclose the sociological distribution map of training-data attributes and ensures that the value orientations embedded in the model design accord with modern socialist core values and with judicial values, with technological neutrality subjected to formal review and confirmation.

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[13] Official Gazette of the French Government, https://www.legifrance.gouv.fr/ (last visited Apr. 17, 2025).

Second, ethics-review committees: forming cross-disciplinary judicial-ethics oversight bodies. The creation of cross-disciplinary judicial-ethics oversight bodies offers a fundamental means of mediating ethical and trust-related conflicts between humans and machines. Central and local AI authorities should establish national and tiered AI expert-review committees, beneath which dedicated judicial-AI ethics-review committees should be constituted. Working in coordination with the courts at the corresponding or superior level, these committees should form hybrid ethical-review organisations comprising judges, technical experts, ethicists, and representatives of society, thereby guiding the developers, operators, and users of judicial AI systems within the relevant jurisdiction in their attention to ethical considerations and in their conduct of internal review.

Third, public participation: constructing a system of social hearings for the deployment of technology. Refining the social-hearing system for the application of technology offers a procedural guarantee that bridges the gap between technological expertise and public acceptability. A judgment embodies not only the judge's rational engagement with the law, but also a considered evaluation that integrates the facts of the case, its underlying context, and its prospective consequences. Such adjudicatory reasoning, broadly accepted and endorsed by the public, expresses the authority and the humanity of the judiciary. In generative AI, however, affective elements cannot readily be translated into algorithmic operation, and the bedrock of public trust risks being undermined. Enabling the public to participate meaningfully in judicial reform can therefore alleviate the crisis of confidence in the application of judicial AI.

4. Conclusion

The development of generative AI is profoundly transforming the traditional operational mode of the judiciary, with significant implications for enhancing adjudicatory efficiency and promoting consistency in similar cases. As the relevant technologies mature, AI is evolving from a traditional instrumental aid into an intelligent system extensively embedded in judicial activity. While technological innovation accelerates the convenience and intelligence of the judiciary, it also generates institutional risks and value-related challenges. Judicial activity is the product of the conjoint operation of legal norms, social ethics, and other interrelated factors; the data models and algorithmic logic of generative AI, beset by problems such as the technical black box, will, in the absence of regulation, weaken judicial transparency and impartiality. In confronting the trend of deepening integration between AI and the judiciary, equal emphasis must therefore be placed on technological empowerment and risk prevention, and a systematic regulatory framework must be constructed. On the one hand, regimes such as algorithmic filing should be perfected to strengthen the normative regulation of the entire operational cycle of the technology; on the other, the central position of the judge must be preserved, and the principle of "human leadership and AI assistance" must be clearly affirmed, so that technological logic does not come to dominate judicial reasoning. At the same time, mechanisms such as ethical review should be strengthened, so as to ensure that judicial AI remains consistent with judicial fairness and related values. In the future, generative AI should serve as an instrument for enhancing judicial capability and should, under institutional and ethical constraints, attain a coordinated development of technological innovation and the values of the rule of law.