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RESEARCH ARTICLE

Towards a Framework for Judicial AI Sovereignty: Lessons from Asian Courts

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Abstract

As artificial intelligence (AI) becomes embedded in judicial systems worldwide, courts face a fundamental question: can judiciaries that rely on opaque algorithmic tools developed by external actors remain truly sovereign? This article develops the concept of judicial AI sovereignty, defined as courts' institutional capacity to retain meaningful control over algorithmic systems that shape legal outcomes, reflect legal traditions, preserve judicial independence, and maintain legitimacy. Drawing on extensive mapping of AI deployment in Asian courts by the Oxford Institute of Technology and Justice, the article examines three emerging governance models. China exemplifies a centralised coordination model with top-down integration; India reflects fragmented, crisis-driven experimentation without unified oversight; and Singapore illustrates a controlled innovation model centred on cautious piloting and judicial self-regulation. These trajectories expose shared tensions between efficiency and sovereignty that resonate globally. Building on these insights, the article proposes a seven-dimensional framework for evaluating judicial AI sovereignty.

Keywords: judicial AI sovereignty; algorithmic governance; fair trial; judicial independence; AI sovereignty

1. Introduction

As artificial intelligence (AI) becomes embedded in judicial processes worldwide, several questions have arisen regarding the future of judicial functions. One key issue arises: can a judiciary that uses algorithmic tools developed by external actors, operating through "black box" processes (Asia Business Law Journal, 2024; Hendrickx, 2025, p. 7), and shaping legal outcomes in ways that are not well understood by judges deciding the case, remain fully sovereign?

Across the globe, courts face pressures of resource constraints, demanding caseloads, and a need for efficiency and technological modernisation. AI promises solutions through faster document processing, pattern recognition, automated case management, and assistance with legal reasoning (Oxford Institute of Technology and Justice, 2025). But these promises also come with risks. When algorithmic tools trained on historical case data reproduce existing patterns of discrimination (see, e.g., Dodd, 2025), they can embed discrimination into legal outcomes (Malek, 2022). Algorithmic systems used in legal proceedings can also create dependencies on private corporations, a lack of transparency

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and accountability, and the potential for displacement of human judgment by machine prediction.

Asian judiciaries have emerged as early adopters of AI (Oxford Institute of Technology and Justice, 2025). Their experiences reveal that AI adoption in courts is a series of choices shaped by governance preferences and the wider technological context in the jurisdiction. These choices reflect deeper tensions between efficiency and legitimacy.

This article argues that these tensions cannot be resolved through general frameworks of AI governance or digital regulation. Courts occupy a unique position as both instruments of State power and guardians of individual rights against that power (Lauterpacht, 2013, pp. 184–193). The integration of AI into judicial processes demands its own conceptual and regulatory framework, one that we term "judicial AI sovereignty," understood here as a court's institutional capacity to retain meaningful control over algorithmic systems that shape legal outcomes, ensuring such systems reflect legal traditions, preserve judicial independence, and maintain legitimacy in the administration of justice. It encompasses governance authority over judicial AI systems, rather than absolute sovereignty akin to State power.

We develop this framework through an examination of three governance models emerging across Asia. By analysing how different judiciaries navigate practical challenges of AI deployment, we identify structural tensions that transcend individual jurisdictions and reveal fundamental questions facing courts worldwide. Our conclusion is that judicial AI sovereignty, if it is to be accepted, requires sustained, multidisciplinary work that treats AI not merely as an efficiency tool but as a domain of judicial authority.

The first section of this article outlines judicial AI sovereignty against the background of traditional conceptions of digital and AI sovereignty. The second section sets out three trajectories of AI deployment in Asian courts, focusing on China, India, and Singapore. The third section sets out the promises and pitfalls of AI adoption in these jurisdictions, and the lessons we might learn from them. Finally, this article proposes a framework for judicial AI sovereignty in the wider context.

2. Rethinking state control in the age of algorithmic justice

What happens if a judge uses an AI system developed by an overseas commercial developer to issue a prison sentence but cannot explain how the AI reached its recommendation on the time to be served?[1] As AI enters courtrooms worldwide, assisting with document summarisation, case management, and even judgment drafting (Oxford Institute of Technology and Justice, 2026), the question of who controls these systems becomes important. Navigating these changes requires extending traditional notions of State sovereignty into the specific, sensitive domain of judicial systems, ensuring that courts retain the institutional capacity to exercise meaningful control over algorithmic systems that shape legal outcomes, ensuring such systems reflect legal traditions, preserve judicial independence, and maintain the legitimacy of the administration of justice.

2.1. The evolution of sovereignty in the digital age

Under international law, sovereignty has traditionally meant a State's absolute authority within its territorial boundaries (Ishkhanyan, 2025, p. 125). As confirmed by the Permanent Court of International Justice, "[t]he first and foremost restriction imposed by international law upon a State is that—failing the existence of a permissive rule to the

[1] For example, in the United Kingdom, predictive risk-assessment tools (such as the Offender Assessment System or Offender Group Re-Conviction Scale) use data analytics to inform pre-sentence reports and offender management. See Oxford Institute of Technology and Justice (2026).

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contrary—it may not exercise its power in any form in the territory of another State" (Permanent Court of International Justice, 1927, p. 18).

As power has shifted into digital spaces, the concept of State sovereignty has evolved. Since the early 2020s, governments, corporations, and civil society have engaged in what scholars call "fights for digital sovereignty": struggles to control the infrastructure, standards, and data that constitute our digital world (Floridi, 2020; Roberts, 2024, p. 70). State sovereignty as envisioned in the digital domain encompasses control across three layers: the physical (infrastructure and devices), the code (standards and design), and the information (content and data) (Falkner et al., 2024, p. 2102, *citing* Chander and Sun, 2021; Floridi, 2020; Sheikh, 2022). States can pursue this sovereignty "through capacity-building, investment, or regulation" (Falkner et al., 2024, p. 2103), seeking to influence not only the design and production of digital systems but also their deployment and resulting outputs.

As AI systems have exploded in scale and economic importance, it has become clear that digital sovereignty is not enough, and a more specific demand has emerged in the form of AI sovereignty. This refers to a country's ability to understand, develop, and deploy AI systems while retaining control and self-determination over them (Belli, 2023, p. 1), achieved through algorithmic and data governance, computational capacity, digital connectivity, and technical expertise (Belli, 2023, p. 2). These enablers reflect AI-specific aspects of digital sovereignty: "the need for control, as necessary to develop and deploy AI technologies, of computing capacity and data storage, of access to human resources and potentially proprietary knowledge to build AI applications, and of training data" (Mügge, 2024, pp. 2200–2201).

Governments are already building on these ambitions. China introduced and put into force *Interim Measures for the Management of Generative AI Services* (rules specifically regulating public deployment of generative or large-model services) in 2023 (Zou and Zhang, 2025). Brazil's federal AI bill (Senate Bill No. 2338/2023) was approved by the Senate in December 2024 and is moving through the Chamber of Deputies at the time of writing (Artificial Intelligence Act, no date). Malaysia has also tabled an AI Governance Bill, which is in the early drafting stages at the time of writing but which will establish a comprehensive regulatory framework covering the entire lifecycle of AI systems (Soo, 2026). But AI sovereignty also "seeks to ensure that a nation retains the capacity to shape its AI future according to its own priorities and values, rather than being subject to the decisions or dominance of other countries or multinational corporations" (Cheng, 2024, p. 3).

2.2. *The special case of justice: why courts are different*

While AI sovereignty matters across all sectors, judicial systems present a uniquely critical area. Courts are not simply another government service. When citizens cannot trust that justice is fairly administered, the social contract begins to fracture. The right to a fair trial "is at the heart of human rights protection because 'without this one right, all others are at risk'" (Clooney and Webb, 2021, p. 1, *quoting* Robertson, 2004, p. 86). This is reflected, for example, in the guidance recently issued to judicial office holders in the United Kingdom, which explicitly frames AI use as permissible only if consistent with protecting "the integrity of the administration of justice" and upholding the rule of law (UK Courts and Tribunals Judiciary, 2025, p. 2, *quoting* Lord Justice Birss).

The integration of AI into judicial contexts demands its own framework of judicial AI sovereignty. If classical sovereignty describes a State's authority within its borders, and digital and AI sovereignty extend that authority into the digital domain and AI systems, then judicial AI sovereignty addresses a court's capacity to ensure that AI tools used in proceedings remain under institutional control, reflect legal traditions and values, and preserve the legitimacy of justice systems. As argued by Helberger:

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> [a]s a result of digitisation, we have become conditioned to let go of some of the most pivotal features and characterized courts as we once knew them: their materiality and link to a particular jurisdiction, the dominance of trained legal expertise and states' monopoly in organising authoritative adjudication (Helberger, 2025, pp. 8–9).

Judicial AI sovereignty offers a framework to reclaim these features by ensuring that the adoption of technological change unfolds on terms that preserve legitimacy in the legal system.

In this article, "judicial AI sovereignty" is used as a term of art to denote a court's institutional and governance capacity to shape, control, and account for the use of AI in adjudication. As understood here, it is a concern that implicates the separation of powers and the independence of the judiciary (Gentile, 2022). When courts lose effective control over the algorithmic tools that shape legal outcomes, the consequences risk the institutional autonomy necessary for courts to function as a meaningful check on executive and legislative power (UNESCO, 2025). Because judiciaries operate as distinct constitutional actors within the State, safeguarding judicial AI sovereignty may require constraints on the executive, such as limits on procurement and funding arrangements, as well as constraints on courts themselves, including disclosure obligations.

The key question raised by the concept of judicial AI sovereignty is what "institutional control" can realistically mean when many judicial AI tools are commercially developed due to a lack of judicial expertise. As Brazil's National Council of Justice (CNJ) Resolution 615 (2025) demonstrates, judicial AI sovereignty does not require courts to build every system in-house. Instead, it requires regulatory and contractual mechanisms that ensure external tools operate on judicial terms. This dual-track model (combining court-provided systems with tightly governed private subscriptions) shows that institutional control can be achieved even where external tools are deployed within courts (Ferrari, 2026). Sovereignty in this sense is not about excluding private innovation, but rather about building and structuring public-private partnerships.

Courts around the world face mounting caseloads and resource constraints. AI promises relief through faster document processing, pattern recognition across vast bodies of caselaw, and administrative efficiency (Oxford Institute of Technology and Justice, 2025). The longer that judges spend on these simple, repetitive tasks, "the less time can be allocated to tasks that require their unique skills and expertise" (Komoda, 2023, p. 147). But there are also risks. When judges rely on generative AI for judicial reasoning (as documented in several jurisdictions where judges have been found using ChatGPT and similar tools to draft judicial opinions) (Oxford Institute of Technology and Justice, 2025), they can undermine legal discretion, the rule of law, and fairness of outcomes. Issues of bias, lack of explainability, and overreliance on opaque models threaten the foundations of justice (de la Osa and Remolina, 2024). If judges cannot reliably control or explain AI outputs, the system may compromise procedural safeguards and fair trials (Contini et al., 2024, p. 1). Though AI offers efficiency, it may also erode the legitimacy that courts depend on, specifically the appearance and reality of human judgment (Solovey et al., 2025, §4.2.2), transparency, and accountability.

So, on what grounds should courts embrace the efficiency offered by AI? There are clear risks that arise from outsourcing AI creation to commercial entities. But as Komoda notes, it is also unrealistic to expect courts to develop AI tools exclusively internally, since:

> it is difficult for courts to generate enough internal expertise and budget to create and implement AI on their own. One way to deal with this dilemma is to select the tasks that should be handled by internal experts and outsource the rest. Technically complex but standardized tasks such as securing the database and upgrading

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> computer infrastructure may be outsourced, whereas designing, updating, and maintenance of the tools which must be tailored to the court's needs and policies are better handled by in-house experts (Komoda, 2023, pp. 186–187).

Another promising approach is collaboration with non-commercial entities such as universities or NGOs (Komoda, 2023, p. 187). Komoda suggests that "[b]y creating cooperative relationships with these non-commercial entities, courts can gain access to expertise without contracting with commercial companies or recruiting technologists" (Komoda, 2023, p. 187).

Alternatively, Ferrari's dual-track model (already discussed above) allows courts to prioritise institutionally developed AI systems while still permitting the regulated use of privately subscribed tools under strict safeguards, ensuring innovation without reducing judicial control (Ferrari, 2026, §II(1)).

As courts worldwide deploy AI systems without robust conceptual and institutional foundations, we are seeing that the deployment of AI often outpaces public debate and regulatory safeguards. Judicial AI sovereignty will therefore be critical in the years to come, in ensuring that AI tools are not deployed without robust conceptual and institutional foundations underlying usage.

3. Case studies: three trajectories of AI deployment in Asia

Across Asia, judiciaries have emerged as early and ambitious adopters of AI, driven by distinct institutional priorities and governance models. This analysis reveals a landscape marked by significant variations in deployment strategies, regulatory approaches, and the degree of State coordination.

In particular, Asian judiciaries exemplify three distinct governance models. First, the centralised coordination model, shown by China, features top-down mandates from apex courts, comprehensive integration across virtually all justice stages, standardised systems developed through public-private partnerships, and explicit timelines for full AI embeddedness (Wu and Lin, 2025, pp. 1–2). Second, the fragmented experimentation model, in India, involves crisis-driven adoption without unified oversight, proliferation of private and non-profit technological solutions, local (rather than national) regulatory responses, and a system wherein accountability for algorithmic failures becomes difficult to trace (Mathew and Aneja, 2023). Finally, the controlled innovation model, represented by Singapore, emphasises deliberate piloting within voluntary frameworks, professional training, and capacity-building over systemic replacement, judicial self-regulation through detailed guidelines, and careful limitations on AI for non-adjudicative functions only (Laboratoire de Cyberjustice, 2025).

These models each reflect different institutional theories about the relationship between judicial authority and technological augmentation. China's approach indicates a vision of technology focused on efficiency. Singapore's model treats AI as a tool for serving judges rather than potentially displacing their judgment. India's fragmented experimentation reflects crisis management, whereby the urgency of addressing massive backlogs in the most populous country in the world drives the adoption of diverse solutions even without comprehensive governance frameworks.

These models will be examined in depth through detailed case studies below, which explore how each jurisdiction navigates the practical challenges of implementing AI while attempting to preserve judicial sovereignty. By analysing these three trajectories, we analyse not only the diversity of approaches to judicial AI in Asia, but also the structural pressures, institutional adaptations, and unresolved governance questions that will likely shape wider judicial AI adoption.

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The comparative analysis in the following sections draws on data collected through the AI Justice Atlas by the Oxford Institute of Technology and Justice, which systematically documents the adoption of AI in criminal proceedings across China, India, Singapore, and other jurisdictions. The information contained in the AI Justice Atlas was gathered through a combination of desktop research and interviews with judicial actors and adopts a broad definition of AI.

3.1. The Chinese model: from early adoption to comprehensive integration

China represents one of the most comprehensive integrations of AI into criminal justice globally, characterised by early adoption, rapid scaling, and centralised coordination through the Supreme People's Court. The origins of judicial AI deployment can be traced to as early as 2006, when the Zichuan District People's Court in Zibo, Shandong Province, introduced computer-based sentencing software co-developed with a technology company, marking China's first attempt to apply algorithmic tools in criminal adjudication (Yang, 2006). Today, the Supreme People's Court has mandated that by 2030, AI will receive full operational embeddedness throughout targeted judicial processes (Reiling and Papagianneas, 2025). Unlike the situation in many other jurisdictions, "where the private sector is the major producer and consumer of ICT, [the Chinese] government is [the] first and foremost promoter and consumer" of new technology products, including in China's smart court systems where AI is integrated into judicial processes as part of a broader state-led reform agenda (Zheng, 2020, pp. 562–563).

These developments reflect features of the Chinese legal tradition, which has emphasised the fusion of rites and law, strong bureaucratic governance, and the use of legal norms as instruments of administrative order rather than autonomous constraints on state authority. Rooted in Confucian ideals of harmony, moral governance, and the supervision of officials, this tradition has historically prioritised uniformity, stability, and centralised oversight (Dong and Luo, 2025, pp. 1–13). The contemporary turn to judicial AI can therefore be seen as a modern continuation of these historical principles of standardisation and state-led legal management.

The 206 System, developed by Shanghai High People's Court with iFlyTek (a commercial AI tech provider) (Stern et al., 2021, p. 540), exemplifies this centralised model of judicial AI development and deployment, while also representing a strategic opportunity for Chinese courts—long perceived as weak political actors (Liebman, 2017, p. 243)—to assert institutional leadership both domestically and globally through technological innovation. Developed through collaboration between over 400 legal officials and approximately 300 iFlyTek staff (Stern et al., 2021, p. 540), the system was designed to standardise criminal case outcomes by addressing three main causes of wrongful decisions: weak or illegal evidence, insufficient examination of evidence, and inconsistencies among judicial personnel. To achieve such standardisation, the system introduced automated checks ensuring each required piece of evidence was submitted—a mechanism that official sources claimed would prevent evidentiary manipulation (Stern et al., 2021, p. 541). According to a 2019 official media report, a Shanghai police officer asserted that the software made it impossible for police to create false evidence or omit evidence (Pengpai Xinwen, 2019; Stern et al., 2021, pp. 541–542), illustrating the system's intended role in enforcing procedural fairness. Beyond these automated evidentiary checks, the system also learns from historical case data to generate sentencing predictions and recommendations, extracting information about statutory punishments, benchmark sentences, discretionary factors, and historical precedents to create machine learning training datasets (Oxford Institute of Technology and Justice, 2026).

The introduction of systems such as the 206 Platform has also prompted the expansion of judicial training requirements. According to Supreme People's Court announcements

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and provincial court implementation plans, judges must undergo specialised instruction covering evidentiary-checking functions, the logic of sentencing-recommendation modules, and the appropriate boundaries of reliance on automated outputs (Oxford Institute of Technology and Justice, 2025).

China's regulatory framework attempts to balance efficiency incentives with procedural safeguards through the Supreme People's Court's 2022 Opinions on Regulating and Strengthening AI Applications in Judicial Fields (Supreme People's Court, 2022). These guidelines, which followed earlier opinions promoting smart courts construction, affirm five essential principles: human oversight and accountability (explicitly stating that "AI shall not make judicial decision substituting for the judge in any case, disregarding technology advancement" and that "all judicial accountability ultimately falls on the decision-maker"); fairness and justice (requiring that AI uphold procedural fairness and avoid discrimination); transparency and credibility (mandating that data collection patterns, legal cognitive semantics processing, and algorithmic logic be open to examination and verification); security and legality (prohibiting illegal AI technologies and requiring protection of state secrets and data privacy); and alignment with socialist core values (requiring that such values be infused throughout AI development and deployment). The guidelines also specify that courts must establish mechanisms such as Judicial AI Ethics Councils and employ methods including ethical reviews, compliance reviews, and security assessments to prevent cybersecurity risks. However, these remain policy guidelines rather than enforceable regulations, with compliance overseen through internal disciplinary mechanisms and judicial evaluation committees that assess performance, professional ethics, and conduct.

A 2025 Xiamen Maritime Court ruling marked a potentially significant development in regulating AI use within Chinese litigation. The Court noted that the claimant's counsel may have used AI when preparing submissions. Drawing on the Chartered Institute of Arbitrators' Guidelines on the Use of AI in Arbitration, the Court emphasised the importance of disclosing AI usage to ensure fairness, transparency, and integrity. The ruling required counsel to disclose: the specific AI tools used; the scope and intended purpose of AI use; precise identification of portions where AI was employed; assurances that all AI-assisted materials underwent final review and verification by qualified personnel; and commitment to strict adherence to data security, personal information protection, and confidentiality obligations (Oxford Institute of Technology and Justice, 2026). This landmark ruling directly caused the Xiamen Maritime Court's launch of Guidelines for Litigation Participants' Use of Artificial Intelligence (For Trial) in September 2025, which reportedly provide that while litigants are generally permitted to use AI, its use to fabricate or alter evidence is strictly prohibited, and users must validate all AI-assisted documents and proactively disclose AI-generated content when it relates to evidence or matters potentially affecting adjudicatory outcomes (Oxford Institute of Technology and Justice, 2025).

China's model therefore illustrates complex trade-offs inherent in any national adoption of AI that is efficiency-driven. While the technological penetration of AI in China has been exceptional, this rapid deployment raises important questions about the evolving balance between algorithmic efficiency and traditional safeguards of judicial independence and procedural fairness.

3.2. "From backlogs to breakthrough": India's AI trajectory

India's approach to judicial AI adoption is shaped by the distinctive challenges of operating the world's largest democracy's judicial system amid an unprecedented capacity crisis. It has been characterised as an approach showing a shift from "backlogs to breakthrough," with courts managing over 50 million pending cases (Agarwal, 2024) across a vast and

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diverse territory. This creates institutional pressures that have resulted in ambitious digitalisation initiatives, positioning AI as a critical tool for enhancing both efficiency and access to justice (Mathew and Aneja, 2023, p. 22). While scholars describe India's AI-in-justice landscape as one of "organised irresponsibility" (Mathew and Aneja, 2023), this decentralised environment also permits bold experimentation and creates a laboratory for testing what does and does not work. In contrast to China's centrally coordinated model or Singapore's tightly managed innovation (discussed below), India's plural system has enabled rapid prototyping, diverse local solutions, and iterative learning, even as it continues to grapple with questions of standardisation and oversight.

India's judicial context is also shaped by a distinct legal tradition where, for centuries, the subcontinent's legal orders were pluralised and grounded in legal custom (ācāra) and layered adjudicatory institutions, with a jurisprudential culture in which sacred Hindu texts informed legal reasoning indirectly rather than serving as positive law (Singh and Kumar, 2019, pp. 1–22, 79–100; Davis, 2019). British colonialism altered this landscape by displacing complex customary orders with a codified, case-law–driven Anglo-Hindu framework whose direct use of sacred texts had little parallel in classical practice (Singh and Kumar, 2019, pp. 1–22, 79–100; Davis, 2019, pp. 319–324). This long history of pluralism and colonial reinvention explains why India's contemporary judicial AI ecosystem remains decentralised and experimental rather than centrally coordinated.

The scale of India's judicial backlog is staggering. According to the National Judicial Data Grid, as of 2024, approximately 45.7 million cases remain pending at District and Taluka levels, with an additional 6 million unresolved matters at High Courts and over 84,000 cases backlogged at the Supreme Court itself (Agarwal, 2024). At current disposal rates, it would take human judges more than 300 years to resolve this caseload (Yasir, 2024). This crisis is exacerbated by India's judge-to-population ratio of only 21 judges per million people, far below the United States' 150 (Gupta, 2025). Moreover, nearly 75% of India's prison population consists of individuals in judicial custody whose case has not yet resulted in conviction or acquittal, with cases pending for years before reaching trial, while over 180,000 cases have been pending for more than 30 years (Gupta, 2025), fundamentally undermining the constitutional principle that justice delayed is justice denied.

Against this backdrop of institutional crisis, India has pursued technological solutions through the e-Courts initiative, launched in 2004 and spearheaded by the Supreme Court in partnership with the Ministry of Law and Justice (Department of Justice, Government of India, no date). Phase III (approved in 2023 with an allocation of approximately USD $810 million, including approximately USD $6 million specifically earmarked for AI and blockchain technologies) represents the most ambitious integration of AI into judicial processes (Jeevanandam, 2025), incorporating machine learning, optical character recognition, and natural language processing for intelligent scheduling, automated filing, multilingual translation, and chatbot-based litigant assistance.

The Supreme Court's two flagship initiatives exemplify both promise and challenge. SUVAS (Supreme Court Vidhik Anuvaad Software) (Supreme Court Vidhik Anuvaad Software (SUVAS), 2024) provides AI-based translation between English and regional languages, though development revealed significant challenges in standardising legal terminology across India's linguistic diversity (Ministry of Law and Justice, Government of India, 2024). SUPACE (Supreme Court Portal for Assistance in Court Efficiency) (Optimize IAS, no date) functions as an AI research assistant, with former Chief Justice confirming it will not extend into judicial decision-making (Pinaca India, 2024)—a distinction reflecting judicial awareness of sovereignty concerns even amid efficiency pressures.

Beyond Supreme Court initiatives, India's ecosystem is characterised by proliferation of private and non-profit interventions. Nyaay AI, a commercial platform adopted by the Supreme Court and 16 High Courts, offers comprehensive case management tools

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(Bhatnagar, 2025). Adalat AI, a non-profit provider of real-time transcription, among other tools, has been integrated into between 20% and 25% of Indian courts, with reported 30–50% reductions in case timelines (AdalatAI, no date). While such results are promising, this proliferation raises important sovereignty questions about judicial institutions' capacity to maintain meaningful oversight of technologies developed and operated by external actors.

India's regulatory response has been incremental and localised rather than comprehensive. In July 2025, the Kerala High Court became the first Indian state to introduce a comprehensive Policy Regarding Use of Artificial Intelligence Tools in District Judiciary, prohibiting AI use "as a substitute for decision-making or legal reasoning," mandating that only court-approved tools may be deployed, requiring strict human supervision with verification of all AI-generated results, and establishing detailed audit requirements (High Court of Kerala, 2025). The Bombay Bar Association issued similar guidelines, though their enforcement mechanisms and practical implementation remain unclear (Lotlikar, 2025). These localised initiatives, while laudable, reflect the absence of national-level governance frameworks that could ensure consistent standards, accountability mechanisms, and protection of judicial sovereignty across India's diverse jurisdictional landscape.

Judicial responses have been cautious and occasionally sceptical. While some judges have disclosed voluntary use of AI tools—such as consulting ChatGPT for bail jurisprudence in *Jaswinder Singh v. State of Punjab*—courts have also firmly rejected AI-generated evidence (High Court of Punjab and Haryana, 2023). In *Christian Louboutin SAS v. The Shoe Boutique*, the Delhi High Court observed that "responses from ChatGPT cannot be the basis of adjudication," noting risks of "incorrect responses, fictional case laws, imaginative data" and concluding that "AI cannot substitute either the human intelligence or the humane element in the adjudicatory process" (High Court of Delhi, 2023). Both Chief Justice D.Y. Chandrachud and CJI Gavai have warned against using AI for judicial decision-making (Srivastav, 2025), reinforcing that core adjudicative functions must remain with human judges.

Training initiatives reflect growing recognition that effective AI adoption requires building human capacity. The National Judicial Academy conducted workshops in December 2024 for High Court judges on AI use (Oxford Institute of Technology and Justice, 2025), while trial court officers began receiving training from April 2025 (Das, 2025). But a May 2025 survey revealed that while 88.6% of legal professionals believe AI training is crucial, more than half identified data privacy and security as barriers to adoption (Manupatra Academy, 2025).

The Indian model thus presents a distinctive trajectory characterised by crisis-driven innovation through decentralised, market-driven experimentation rather than centralised State coordination. This approach has enabled rapid deployment and diverse solutions, but at the cost of coherent governance, consistent standards, and preservation of judicial sovereignty. The Ministry of Justice's February 2025 statement that "responsible AI adoption requires strong data security, legal reforms, and transparency to ensure it supports rather than replaces human judgment" (Ministry of Law and Justice, Government of India, 2025) articulates principles more easily stated than operationalised in India's fragmented, rapidly evolving landscape. As Chief Justice Surya Kant emphasised in November 2025, "arrears are my priority," calling the backlog the most urgent institutional challenge, while signalling a cautious approach to AI that prioritises human judgment over technological efficiency (Sarda, 2025). Whether India can develop governance mechanisms adequate to the complexity of its AI ecosystem remains an open question.

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3.3. Singapore's controlled innovation through deliberate piloting

Singapore's approach to judicial AI represents a distinct governance model characterised by deliberate experimentation, voluntary frameworks, and systematic capacity-building. Singapore was one of the world's first countries to issue a national AI strategy, publishing its National AI Strategy in 2019 and updating it in 2023 (Singapore Government, 2023) to confirm the country's belief in the transformative potential of AI. Yet this forward-looking posture coexists with (or is guided by) a firm commitment to preserving institutional foundations. As Chief Justice Sundaresh Menon (appointed in 2012) argued, courts "must be guided above all by the goal of preserving and strengthening the rule of law, because that is the bedrock on which both our societies are founded," emphasising that technological transformation should not allow "the rule of law" to be displaced by "the rule of technology" (Asia Business Law Journal, 2024).

Singapore's legal tradition is rooted in the English common law, though it has developed individually to take into account the "unique social circumstances and the needs of its population" (Tan, 2011, p. 337). When Singapore became a sovereign nation in 1965, its founding leaders recognised the rule of law as one of the most valuable legacies of the English system, but reshaped it to serve as "the pillar for Singapore's nation building," providing clear and predictable rules so that businesses and investors could feel confident putting down roots in an untested country (The Straits Times, 2026). This pragmatic, rule-of-law-focused culture explains Singapore's cautious, experimental, and capacity-building approach to judicial AI, which prioritises human oversight and limited deployments over automated decision-making.

Unlike China's comprehensive integration or India's fragmented proliferation, Singapore's judicial AI use remains deliberately limited (Oxford Institute of Technology and Justice, 2025), focused on case management rather than decision-making. There is currently no use of AI for judicial decision-making or outcome prediction in court proceedings (Oxford Institute of Technology and Justice, 2025). This restraint reflects conscious sovereignty preservation rather than technological lag. As Justice Aidan Xu noted, the judiciary approaches exploration "in a principled way," seeking to "find that right balance" between innovation and avoiding the "bleeding edge" (Xu, 2025).

The most ambitious deployment targets access to justice for self-represented persons. In August 2023, the Singapore judiciary signed a Memorandum of Understanding with Harvey AI (a generative AI platform designed for legal professionals) to develop an AI-powered platform for the Small Claims Tribunal (Lam, 2023), which handles more than 10,000 cases annually (Oxford Institute of Technology and Justice, 2025). The development of this system proceeded with a phased methodology: initial implementation in December 2024 focused on translating documents into Singapore's national languages (SG Courts, 2025), expanded to case summarisation in September 2025, with availability to individuals planned from November 2025 (SG Courts, 2025). Critically, the platform is designed to provide factual summaries without offering case-specific legal advice—reducing informational asymmetries without displacing adjudicative authority (Menon, 2025).

Singapore's regulatory approach emphasises voluntary guidance over binding mandates, maintaining judicial control through professional responsibility rather than technological restriction. The country does not have dedicated AI legislation (Oxford Institute of Technology and Justice, 2025), instead relying on frameworks like the Model Artificial Intelligence Governance Framework that emphasise stakeholder confidence and appropriate human involvement (Personal Data Protection Commission (PDPC), 2020). For the legal sector, Singapore's 2024 Guide on the Use of Generative Artificial Intelligence Tools by Court Users highlights that users remain "fully responsible for the content in all [their] court documents," with potential sanctions including adverse costs orders or disciplinary action (State Courts of Singapore, 2024, §5). In September 2025, the Ministry of

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Law launched public consultation on additional guidance for the legal sector (Ministry of Law Singapore, 2025).

The Singapore Academy of Law, in collaboration with Microsoft, released a guide on prompt engineering (Singapore Academy of Law & Microsoft, 2025), while in May 2025 the Academy launched the "Junior Lawyers Professional Certification Programme" including courses on AI ethics and prompt engineering (So, 2025). The government incentivises training through the Continuing Professional Development Programme, ensuring judges and lawyers develop technical capacity to maintain meaningful oversight (SILE, 2025).

However, even Singapore's measured approach cannot fully resolve sovereignty challenges. There has been at least one case where a self-represented person used ChatGPT to create submissions with fabricated case law (Chua, 2023), underscoring Chief Justice Menon's concern that "the spectre of unchecked falsehoods tainting judicial processes" threatens "public trust in the courts" (Asia Business Law Journal, 2024).

Singapore's restrained deployment suggests deep engagement with questions of judicial sovereignty. Chief Justice Menon has said that human judges cannot be replaced because "the process of judging must reflect the values of our justice system," and "AI tools are not imbued with these values" (Asia Business Law Journal, 2024). Moreover, "judging is an exercise that is intertwined with our shared humanity," with society's loyalty to justice systems depending on "the 'indefinable mixture' of the law and the judge dutifully undertaking the task" (Asia Business Law Journal, 2024). Nevertheless, Singapore acknowledges evolving roles. In July 2025, Justice Xu reflected on experiments to use AI for preparing first drafts of judgments and "red-teaming"—generating draft judgments for different outcomes to help judges identify reasoning strengths and weaknesses (Xu, 2025). Justice Xu emphasised that judges would proceed "carefully, and impose appropriate training, safeguards and supervision" (Xu, 2025).

4. Testing judicial AI sovereignty across three models

The three Asian trajectories examined above reveal different responses to the shared challenge of finding a way to harness AI's potential while preserving the authority and legitimacy of courts. We assess these models against our concept of judicial AI sovereignty identified in Section 2. By analysing these models through the lens of judicial AI sovereignty, this section identifies both the promises and pitfalls of different governance approaches and clarifies the structural tensions that these jurisdictions have not yet fully resolved.

4.1. Promises: what each model achieves

Considering China's centralised coordination model from a perspective of promises, by developing systems like the 206 System through partnerships between courts and technology firms, Chinese judiciaries have asserted leadership over technological transformation rather than passively accepting externally imposed solutions. The Supreme People's Court's comprehensive guidelines articulate principles (human oversight, transparency, fairness) that formally claim sovereign authority over AI deployment. The scale and speed of integration show that despite concerns expressed by Chinese legal scholars who have "tried to 'pour cold water' on AI fervor" (Stern et al., 2021, p. 547) regarding algorithmic opacity, anchoring effects, and the potential reduction of procedural rights (see, e.g., Wu and Lin, 2025, pp. 8–10), courts can become active participants in their technological development rather than mere adopters of commercial products. And China's expressly stated goal of reducing wrongful convictions through standardised evidentiary checks reflects an attempt to use AI

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to reinforce, rather than replace, judicial legitimacy and fair trial guarantees (Clooney and Webb, 2021, pp. 257–327).

India's fragmented experimentation promises sovereignty through diversity and adaptation. The proliferation of multiple AI tools (from SUVAS and SUPACE to Nyaay AI and Adalat AI) means that no single vendor captures the entire judicial ecosystem. Meanwhile, local regulatory responses allow jurisdictions to tailor governance to specific contexts and legal traditions and judicial scepticism (as evidenced in cases rejecting AI-generated evidence) suggests that courts retain judgment, despite a lack of expertise, about technological limits. And the emerging emphasis on training through India's National Judicial Academy suggests increasing capacity to engage with AI critically, which might assist in future co-design initiatives.

Finally, Singapore's controlled innovation model illustrates sovereignty through deliberate restraint, and suggests that judicial sovereignty in the AI age is not achieved through perfect solutions, but through sustained vigilance. By limiting AI to non-adjudicative functions and proceeding through phased pilots with extensive testing, Singapore preserves human control over core judicial functions. The voluntary guidance framework maintains judicial independence whilst maintaining professional responsibility for AI use. Capacity building through Singapore's Continuing Professional Development Programme ensures judges and lawyers develop the technical literacy necessary for informed oversight of AI use. And Chief Justice Menon's public articulation of AI's limitations (Asia Business Law Journal, 2024) suggests a boundary that protects judicial sovereignty even as technological capabilities expand.

4.2. Pitfalls: where sovereignty is compromised

China's comprehensive integration risks sovereignty through too much dependency on AI models. Although the 2022 Opinions formally prohibit AI from substituting for judges, the practical reality of systems that automatically calculate deviance ratios and trigger warnings when judges diverge from predictions creates what scholars term "technocratic dictatorship" (Wang and Tian, 2023, p. 351). When AI recommendations become so embedded in workflows that judges must actively justify departures, the burden of decisional authority shifts to the AI system, and "key elements or unique factors within individual cases" can be "missed, underweighted, or ignored amid aggregate outcomes" (Wang and Tian, 2023, p. 351). And the lack of transparency in these predictive systems risks further undermining procedural transparency and the ability of affected individuals to understand or contest algorithmic assessments.

The absence of enforceable regulations with clear remedial mechanisms means affected individuals cannot contest algorithmic assessments, cannot demand disclosure of AI's role in decisions, and have no clear avenue for redress when systems generate errors. And the lack of specific provisions addressing non-compliance in the Supreme People's Court's guidance means that judges who misuse AI would be potentially subject to general provisions prescribing sanctions for improper conduct, but the contours of "misuse" (Oxford Institute of Technology and Justice, 2025) remain undefined.

And the nature of the development of systems like the 206 System, created through partnerships with commercial firms like iFlyTek (a mid-tier AI firm), generates dependencies. Without co-designing the platform, courts may mandate AI use without fully understanding or controlling the algorithmic logic shaping outcomes. As recent scholarship emphasises, this creates "opaque decision-making processes—both at the judicial and algorithmic level," undermining both transparency and judicial independence (Socol de la Oas and Remolina, 2024, p. 20).

India's fragmented approach sacrifices sovereignty through "organised irresponsibility" (Mathew and Aneja, 2023, p. 66). Working together, many agents:

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> cumulatively and collectively generate risks for others, but in which all of the distinct agents are able to either minimise or fully avoid culpability because of the difficulty in tracing the overall damage to the specific harmful actions of any one of those agents (Mathew and Aneja, 2023, p. 66).

When courts adopt AI tools from multiple providers without centralised governance, no single institution can ensure consistent standards, audit AI performance, or trace accountability when systems fail. The expansion and rapid deployment of AI solutions mean courts become dependent on external actors whose incentives may not align with judicial values.

Moreover, India's gap between ambitious deployment (7,210 crore allocated for e-Courts Phase III) (Jeevanandam, 2025) and regulatory development (only Kerala and Bombay have issued comprehensive guidelines as of 2025) creates a risk of a dangerous lag, whereby technological facts on the ground outpace institutional capacity for governance. While judicial scepticism exists, these reactive developments differ from proactive sovereignty: courts have responded to problems *after* they arise rather than establishing frameworks that prevent them.

Singapore's controlled innovation cannot escape sovereignty concerns. Even the most carefully designed pilots create dependencies on systems that courts do not fully control. The partnership with HarveyAI, powered by OpenAI's GPT-4 model family (Wiggers, 2024), illustrates fundamental tensions even in controlled deployment models. While the phased rollout and extensive testing demonstrate judicial caution, the platform remains proprietary—creating what scholars identify as "three layers of opacity" (Beatson, 2018, pp. 25–26): an intentional layer imposed by software proprietors protecting trade secrets, an illiterate layer due to technical complexity beyond most judicial users' understanding, and an intrinsic layer where some algorithms function as inherent "black boxes" whose decision-making processes remain opaque even to their developers. As Chief Justice Menon warned, "there is a real risk that aspects of judicial decision-making may become a 'black box,' lacking transparency and, perhaps more importantly, undermining accountability" (Menon, 2024). This warning applies even to non-adjudicative functions. When courts cannot fully explain how AI-generated summaries were produced, or even when translation algorithms embed linguistic or cultural assumptions, opacity infiltrates judicial processes regardless of formal restrictions on decision-making authority.

In a broader sense, Singapore's model may be difficult to scale or replicate. Its success depends on high levels of judicial capacity, substantial resources for training and testing, and relatively manageable caseloads that allow for experimentation. Jurisdictions facing India's crisis-level backlogs or lacking Singapore's resources may find controlled innovation practically unavailable. Moreover, by contrast with China's 1.41 billion and India's 1.46 billion population, Singapore's population of approximately 5.9 million highlights the very different scale of judicial systems involved (Worldometer, no date).

4.3 . Lessons from judicial AI sovereignty in Asia

Clear structural tensions challenge the protection and promotion of judicial AI sovereignty globally, as shown by the diversity of the three trajectories. In mapping the experience of Chinese, Indian, and Singaporean courts, four specific lessons emerge.

First, the AI offers the greatest efficiency gains in areas where it most threatens legitimacy: in pattern recognition, outcome prediction, and automated decision-support that risk displacing rather than assisting human judgment. To maintain judicial sovereignty, courts must not allow AI to erode with their core functions and must promote the importance of the human judge in ensuring judicial legitimacy and trial fairness.

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Second, the more sophisticated AI systems become, the more difficult it is for courts to maintain meaningful oversight without developing in-house technical expertise that most judicial systems lack resources to build. Outsourcing to commercial developers solves the capacity problem but creates dependency, whilst building internal capacity requires resources and timelines incompatible with urgent institutional needs (Gentile, 2022) and large backlogs, particularly clear in jurisdictions like India.

Third, judicial legitimacy requires that affected individuals understand and can contest the basis of decisions. But AI systems, particularly those developed by commercial bodies, often involve proprietary algorithms that cannot be fully disclosed without compromising trade secrets. The COMPAS risk assessment system, used in over 20 US jurisdictions, exemplifies this tension: as a protected trade secret, its algorithmic methodology remains a "black box" that defendants and courts cannot meaningfully scrutinise (Winter, 2022, p. 191). In *State v. Loomis*, the Wisconsin Supreme Court acknowledged serious transparency concerns with COMPAS but allowed its continued use, with one justice noting how proprietary restrictions prevent courts from examining underlying methodologies (Buckland, 2023). Even when courts negotiate access to algorithmic development, the technical complexity makes meaningful scrutiny nearly impossible for judges who lack specialised expertise. This creates a fundamental accountability problem: defendants cannot contest AI-generated outcomes, and government agencies lose the ability to scrutinise decision-making processes when proprietary claims override transparency obligations (Hao and Stray, 2019).

Fourth, AI development concentrates in a small number of firms with global reach and standardised products (Markets and Markets, 2025) Courts seeking AI tools face limited options, most controlled by foreign corporations or requiring partnerships that create dependencies on entities beyond the State's jurisdictional control (Global Market Insights, 2025). Even when domestic firms like iFlyTek develop judicial AI tools in China, the underlying technologies (large language models, machine learning frameworks, computational infrastructure) often trace back to global technology ecosystems with no ties to judicial principles. Judicial AI sovereignty thus becomes entangled with broader questions of digital and technological sovereignty that individual judiciaries cannot resolve alone, prompting some jurisdictions to experiment with "dual-track" approaches that combine institutionally controlled AI systems with tightly regulated access to private-sector tools to mitigate dependence while preserving innovation (Ferrari, 2026).

No jurisdiction examined here has resolved these tensions definitively. So, what can we learn from these case studies? The lesson is not that judicial AI sovereignty is impossible. Instead, it can be protected through sustained institutional work across multiple disciplines. Courts must treat AI not merely as an efficiency tool but as an area of judicial (sovereign) authority that must be proactively claimed, carefully governed, and constantly defended against erosion. The divergent Asian trajectories examined here demonstrate both the urgency of this work and its difficulty, as challenges confronting judiciaries around the world only accelerate. Understanding how different governance models navigate these tensions provides groundwork for developing frameworks that can guide judicial AI adoption while preserving the legitimacy and independence that define sovereign courts.

5. Conclusion: towards a framework for evaluating judicial AI sovereignty

When theorising a framework for judicial AI sovereignty, inspiration might be taken from existing conceptions of sovereignty in the digital age. As outlined above, digital sovereignty consists of the control over the physical, the code, and the information of systems (Falkner et al., 2024, p. 2102). AI sovereignty, as an extension of its digital

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counterpart, relies on a State's ability to understand, develop, and deploy AI systems while retaining control and self-determination over them (Belli, 2023, p. 23). Yet judicial AI sovereignty requires a more granular analytical lens, taking into account to the specific values, procedures, and accountability structures that underpin legitimate adjudication. We propose that judicial AI sovereignty can be assessed through an assessment tool consisting of seven principles, representing interdependent capacities that together constitute judicial AI sovereignty:

1. Institutional control over design and deployment: Do courts actively shape AI tools to reflect legal traditions and values, or passively adopt commercial solutions? Who determines what tasks AI will perform and under what constraints? Some jurisdictions navigate this tension through dual-track models that prioritise institutionally governed systems while permitting regulated use of commercial tools under strict guidelines (Ferrari, 2026).
2. Transparency and explainability: Can judges, lawyers, and affected individuals understand how AI systems reach outputs? Do meaningful disclosure requirements exist? Can algorithmic logic be examined and contested?
3. Accountability mechanisms: When AI systems fail or produce errors, can responsibility be clearly traced? Do affected individuals have procedural rights to challenge algorithmic assessments? Are there effective remedies? This includes procedural contestability: parties receive notice of AI use, disclosure of how systems operated in their case, meaningful opportunity to challenge algorithmic assessments, clear standards of review for AI-influenced decisions, and proper record preservation for the purpose of appeals.
4. Capacity for critical oversight: Do judges and court personnel possess sufficient technical literacy to evaluate AI outputs meaningfully? Does training support ongoing capacity-building?
5. Regulatory coherence: Do clear, enforceable rules govern AI use, or do governance gaps allow unchecked deployment? Are standards consistent across jurisdictions within a legal system?
6. Value alignment: Do AI systems reflect and reinforce the constitutional, procedural, and ethical values of the legal system—or do they import foreign or commercial value systems?
7. Dependency management: What strategies (if any) exist to prevent overreliance on single commercial developers or technologies? Can courts switch providers, audit systems independently, or develop alternative solutions if needed?

These seven principles can be grouped together into four sub-dimensions: (1) Decisional sovereignty (principles 1–2), ensuring courts shape AI design and understand its operations; (2) Accountability sovereignty (principles 3–4), enabling responsibility-tracing and informed evaluation; (3) Governance sovereignty (principles 5–6), providing clear rules and cultural fit; and (4) Infrastructural sovereignty (principle 7), preventing vendor lock-in.

Rather than producing a binary answer, the application of these principles can produce a sovereignty profile, identifying strengths and weaknesses across distinct frameworks of judicial AI systems. This reflects that judicial AI sovereignty is not a binary state to be achieved or lost, but a dynamic capacity requiring constant negotiation between technological possibilities, institutional resources, and constitutional commitments.

AI is already embedded in courtrooms across Asia and beyond. The question is no longer whether to engage with these technologies, but how to do so in ways that preserve, rather than undermine, the autonomy, legitimacy, and integrity of legal systems. The framework

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proposed here offers courts, policymakers, and legal scholars a foundation for critically assessing existing deployments and shaping future projects, ensuring that as judicial systems adopt AI, they do so on their own terms, in service of their own values, and with meaningful sovereignty over the administration of justice itself.

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