Fronteiras: Journal of Social, Technological, and Environmental Science
http://periodicos.unievangelica.edu.br/fronteiras/
ISSN 2238-8869

Article

Artificial Intelligence in the Brazilian Judiciary: Algorithmic Governance, Data Protection, and Auditable Sustainability

Ana Cláudia Borges Coutrim dos Reis[1], **Francisco Itami Campos**[2]

[1] Ph.D. candidate in Society, Technology, and the Environment. Evangelical University of Goiás. ORCID: 0009-0000-8825-3050. E-mail: ana.coutrim@gmail.com

[2] PhD in Political Science. Professor and advisor in the Graduate Program in Society, Technology, and Environment. Evangelical University of Goiás. ORCID: 0000-0002-8643-9406. E-mail: itamicampos@gmail.com

ABSTRACT

The incorporation of artificial intelligence (AI) into the Brazilian judiciary is a topic of high scientific, social, and technological relevance, as it redefines forms of institutional management, the administration of justice, the protection of fundamental rights, and public oversight of decisions mediated by algorithmic systems. This article examines how AI is integrated into the Results-Based Governance model and what safeguards govern its use, in light of CNJ Resolutions 594/2024, 615/2025, and 641/2025, constitutional protection of personal data, the General Personal Data Protection Law, and measurement tools such as PLS-Jud, IDS, the Sustainability Balance Sheet, and the RDC indicator. A qualitative design is adopted, combining normative and documentary analysis with a review of recent literature. The study investigates the institutional role of AI in this model and its connection to sustainability, personal data protection, public spending efficiency, access to justice, and democratic legitimacy. The main contribution is to propose a digitally auditable analytical framework for sustainability that integrates personal data protection, human oversight, democratic legitimacy, and technological sovereignty into an operational framework of indicators. Tensions are identified regarding the energy and material footprint of the systems, the risk of technological capture, decision-making opacity, and algorithmic discrimination. It is concluded that personal data protection, qualified human oversight, transparency, explainability, and contestability constitute conditions of democratic legitimacy for the use of AI in the judiciary.
Keywords: artificial intelligence; results-based governance; sustainability; data protection.

RESUMO

A incorporação da inteligência artificial (IA) ao Judiciário brasileiro constitui tema de elevada relevância científica, social e tecnológica, pois redefine formas de gestão institucional, prestação jurisdicional, proteção de direitos fundamentais e controle público sobre decisões mediadas por sistemas algorítmicos. Este artigo examina como a IA é integrada ao modelo de Governança por Resultados e quais salvaguardas condicionam seu uso, à luz das Resoluções CNJ 594/2024, 615/2025 e 641/2025, da proteção constitucional dos dados pessoais, da Lei Geral de Proteção de Dados Pessoais e de instrumentos de mensuração como PLS-Jud, IDS, Balanço da Sustentabilidade e indicador RDC. Adota-se desenho qualitativo, com análise normativa e documental combinada à revisão de literatura recente. O estudo investiga o papel institucional da IA nesse modelo e sua conexão com sustentabilidade, proteção de dados pessoais, eficiência do gasto público, acesso à justiça e legitimidade democrática. A principal contribuição é propor um enquadramento analítico de sustentabilidade digitalmente auditável, que integra proteção de dados pessoais, supervisão humana, legitimidade democrática e soberania tecnológica em um quadro operacional de indicadores. Identificam-se tensões relativas à pegada energética e material dos sistemas, ao risco de captura tecnológica, à opacidade decisória e à discriminação algorítmica. Conclui-se que a proteção de dados pessoais, a supervisão humana qualificada, a transparência, a explicabilidade e a contestabilidade constituem condições de legitimidade democrática para o uso de IA no Judiciário.
Palavras-chave: inteligência artificial; governança por resultados; sustentabilidade; proteção de dados.

Submission: 13/11/2025 Accepted: 14/05/2026 Publication: 18/06/2026

Vol. 15, No. 2, 2026 • pp. 1–21. • DOI http://dx.doi.org/10.21664/2238-8869.2026v14i4.8415

Introduction

In recent years, the Brazilian Judiciary has begun to integrate sustainability, expenditure efficiency, and access to justice under a single framework of goals, indicators, and accountability, shifting artificial intelligence (AI) from the role of mere automation to that of a regulated infrastructure for judicial activity. In this framework, the technology is integrated into the Results-Based Governance cycle—plan–measure–publish–account—with an emphasis on transparency and comparability among agencies (Martins and Marini 2010; TCU 2020). At the institutional level, this integration aligns with the 2030 Agenda, particularly SDG 16[1] , which calls for effective, accountable, and inclusive institutions (UN 2015). In an unelected branch with significant distributive impact, democratic legitimacy depends not only on technical quality but also on public accountability, responsible use of resources, and expanding territorial access to justice (Campos 2005).

Despite this progress, recent literature and regulations still lack a framework that explicitly links the use of AI to auditable metrics of sustainability, economic and fiscal efficiency, and inclusion, as well as to safeguards for transparency, contestability, qualified human oversight, explainability, non-discrimination, and personal data protection. This is where the problem of this research lies: what is the institutional role of AI in the Brazilian Judiciary's Results-Based Governance model, and how does the Algorithmic Governance outlined by CNJ Resolution 615/2025 connect sustainability, personal data protection, public spending efficiency, access to justice, and democratic legitimacy? The question arises from a critical reading of CNJ Resolutions 594/2024, 615/2025, and 641/2025, the measurement and reporting tools (PLS-Jud[2] , IDS[3] , Sustainability Report and RDC indicator[4]), the constitutional protection of personal data, the General Personal Data Protection Law, and the recent debate on Algorithmic Governance in the justice system (Brazil 1988; Brazil 2018; Brazil 2022; CNJ 2024b; CNJ 2025a; CNJ 2025b; CNJ 2025c; CNJ 2025d; Doneda 2019; Bioni 2021; Mendes 2014; Ribeiro and Segatto 2025; Ferreira 2024).

Furthermore, the integration of AI into the judiciary requires specific analysis regarding fundamental rights and the protection of personal data, since algorithmic solutions can process large volumes of procedural data, influence decision-making processes, create information asymmetries, and affect guarantees such as due process, the right to a fair hearing, the right to a full defense, equality, and non-discrimination. In this context, the legitimacy of judicial AI depends not only on its efficiency, sustainability, or cost-saving capacity, but also on compliance with constitutional protections for personal data, the General Personal Data Protection Law, legitimate public purpose, data minimization, transparency, security, the prevention of bias, and the effective possibility of human review and challenge (Brazil 1988; Brazil 2018; Brazil 2022; CNJ 2025b; Doneda 2019; Bioni 2021; Mendes 2014).

As an interpretive hypothesis, it is assumed that AI has been incorporated into the core of the Judiciary's institutional policy: (i) as a means to achieve environmental goals (decarbonization and rational use of

---

[1] **Note.** SDG 16: Sustainable Development Goal 16 (effective, accountable, and inclusive institutions) (UN 2015; CNJ 2025d).

[2] **Note.** PLS-Jud: Sustainable Logistics Plan of the Judiciary (standardized reporting system to the CNJ) (CNJ 2025c).

[3] **Note.** IDS: Sustainability Performance Index (consolidated indicator based on data reported by the courts) (CNJ 2025c).

[4] **Note.** RDC: Cost Reduction Resulting from the Adoption of New Technologies or Processes (requirement of CNJ Resolution No. 641/2025) (CNJ 2025a).

resources), economic-fiscal goals (verifiable cost reduction, via RDC), and social goals (expanding access on territorially inclusive grounds); and (ii) as an object of democratic control, subject to transparency, explainability, contestability, and qualified human oversight throughout its entire life cycle (CNJ 2024b, 2025a, 2025b, 2025c, 2025d; Almeida 2025; Spohr and Fontanela 2025; Gabriel, Porto, and Araújo 2025). This hypothesis is tested through normative-documentary analysis and triangulation with recent literature.

The relevance is twofold. From a scientific perspective, it offers a framework that integrates algorithmic governance and Results-Based Governance, clarifying conditions of democratic legitimacy in the use of AI by courts and tribunals. From an institutional perspective, it systematizes how environmental, economic-fiscal, and social goals come to be held accountable based on verifiable evidence, strengthening *accountability*[5] and mitigating risks of technological capture[6] and of merely formal compliance with safeguards[7] (TCU 2020).

This article fills a gap: it connects the recent regulatory framework (CNJ Resolutions 594/2024, 615/2025, and 641/2025) with measurement and reporting tools (PLS-Jud, IDS, Sustainability Report, RDC, and CNJ Goal No. 9), develops the concept of digitally auditable sustainability, and articulates conditions of legitimacy—personal data protection, human oversight, transparency, contestability, non-discrimination, and technological sovereignty—which form the basis of Section 3.

The general objective of the article is to analyze the institutional role assigned to AI in the Brazilian Judiciary's Results-Based Governance model and to explain how CNJ Resolution 615/2025 connects sustainability, personal data protection, expenditure efficiency, access to justice, and democratic legitimacy. Specific objectives include: (i) reconstructing the recent regulatory framework and its implications for the life cycle of AI systems; (ii) describing how PLS-Jud, IDS, the Sustainability Report, and RDC operationalize auditable targets and metrics; (iii) identifying tensions and risks related to the energy-digital footprint, personal data protection, algorithmic discrimination, institutional capacity asymmetries, and supplier dependency; and (iv) proposing a digitally auditable sustainability framework applied to the Judiciary.

The article adopts a qualitative design of an exploratory-explanatory nature, structured as an institutional study of the Brazilian Judiciary, focusing on a normative-documentary examination of the recent regulatory framework, personal data protection regulations, and measurement instruments associated with Results-Based Governance. The methodology combines: (a) a normative and documentary analysis of CNJ Resolutions 400/2021, 550/2024, 594/2024, 615/2025, and 641/2025; Law No. 14,133/2021; the Federal Constitution; Constitutional Amendment No. 115/2022, and Law No. 13,709/2018—the General Personal Data Protection Law; (b) an examination of measurement and reporting tools, such as PLS-Jud, IDS, the Sustainability Report, and RDC; and (c) a literature review focused on the period from 2016 to 2025, including recent studies on AI, algorithmic governance, democratic legitimacy, personal data protection, fundamental rights, and sustainability

[5] **Note.** *Accountability* is understood as the duty to render accounts, justify decisions, and answer for consequences through transparency, justifiability, and corrective mechanisms—applied here to AI-mediated decisions in the Judiciary (TCU 2020; Martins and Marini 2010).

[6] **Note.** "Technological capture" refers to the loss of institutional autonomy in the face of opaque suppliers or solutions, reducing the ability to audit, explain, and replace systems (Ribeiro and Segatto 2025; Holanda 2025; Braga et al. 2025).

[7] **Note.** "Merely formal compliance" occurs when safeguards (transparency, explainability, contestability, and human oversight) are satisfied only on paper, without having any substantive effect on decisions and rights (CNJ 2025b; Spohr and Fontanela 2025; Leal and Trinks 2025; Gabriel, Porto, and Araújo 2025).

in the justice system, without prejudice to the use of earlier classic and foundational works necessary for the conceptual and methodological grounding of the article (Flick 2009; Cellard 2008; Gil 2019).

The analysis included thematic coding of documents and literature, triangulation among normative, instrumental, and bibliographic frameworks, as well as the maintenance of analytical memos and an audit trail in an internal repository to facilitate the traceability of the interpretive process (TCU 2020). The study proposes and theoretically grounds a set of operational indicators (Table 4) in light of the regulatory framework, measurement instruments, and safeguards for the protection of personal data and fundamental rights.

Since the research relied exclusively on public sources and did not involve the processing of participants' personal data, it was not submitted to an ethics committee. The corpus included CNJ regulations and related legislation, instruments for measuring judicial sustainability, and literature published primarily between 2016 and 2025, selected from SciELO, DOAJ, and academic portals.

Literature Review

This section reviews seven key areas: Results-Based Governance; artificial intelligence; Algorithmic Governance; institutional sustainability; transparency, contestability, and access to justice; personal data protection; and state capacities in the face of vendor lock-in.

Results-Based Governance: Concepts and Implications

Public management literature defines Results-Based Governance as an integrated cycle of planning–measuring–publishing–accountability, supported by explicit goals, comparable indicators, and periodic reporting (Martins and Marini 2010; TCU 2020). This framework shifts the emphasis from means to verifiable evidence of performance, requiring methodological standardization, data transparency, and accountability mechanisms.

In the judiciary, recent studies point to increased regulatory and institutional complexity and the need to integrate environmental, economic-fiscal, and social dimensions into comparable data series (Silva 2023; Ferreira 2024). This conceptual framework provides the analytical vocabulary to understand how digital technologies are incorporated into goals and indicators, and under what conditions such metrics generate public credibility.

Artificial Intelligence: operational concepts applicable to the public sector

For the purposes of this study, Artificial Intelligence (AI) is understood as the set of computational methods capable of learning patterns in data and producing classifications, prioritizations, predictions, or summaries to support human decisions (Russell and Norvig 2021; Goodfellow, Bengio, and Courville 2016). In contexts of high public relevance, the literature emphasizes requirements for contextual explainability, risk management, and data governance (OECD 2019; CNJ 2025b).

In the Brazilian judiciary, the use of AI requires identifying its application, understanding its general logic, and ensuring the effective possibility of review by qualified individuals, especially when there is a potential impact on rights (CNJ 2025b; Watanabe and França 2025; Silva and Rocha 2025). This operational definition allows for linking automation to obligations of transparency and control, without reducing AI to mere routine automation.

Algorithmic Governance in the Brazilian Judiciary: Principles and Institutional Arrangements

Algorithmic Governance is understood as the set of rules, roles, and safeguards that govern the life cycle of AI solutions—design, development, procurement, implementation, monitoring, auditing, updating, and

discontinuation—with transparency, traceability, risk classification, contestability, and continuous human supervision (CNJ 2025b).

Qualified human supervision refers to the institutional mandate, established within the regulatory framework, to review, endorse, correct, and, if necessary, override algorithmic outputs, with technical expertise and decision-making authority. This is not merely a formal control, but effective human accountability regarding impacts on rights and resource allocation, with requirements for traceability, sufficient documentation, and channels for challenge (CNJ 2025b; Gabriel, Porto, and Araújo 2025; Spohr and Fontanela 2025).

Legal interpretations converge on treating algorithmic outputs as state acts subject to due process and the "humanity reserve" (Gabriel, Porto, and Araújo 2025; Spohr and Fontanela 2025; Leal and Trinks 2025). From an international perspective, guidelines such as the OECD AI Principles (OECD 2019) reinforce values of safety, robustness, transparency, and accountability, which are useful for guiding implementations in the public sector. In Brazil, recent standardization establishes a comprehensive governance framework, including committees, registries, and audit trails, distinguishing it from generic notions of "technological innovation."

Institutional sustainability and measurement tools

Contemporary literature associates institutional sustainability with auditable metrics and the publication of results. In the Judiciary, CNJ Resolution 400/2021 established the Sustainability Policy within the Judiciary, later refined by CNJ Resolution 550/2024, which strengthened the framework for indicators, variables, and tools for monitoring sustainability. Subsequently, CNJ Resolution 594/2024 introduced the goal of carbon neutrality by 2030 and standardized inventories; and CNJ Resolution 641/2025 aligned the Sustainability Policy with Law No. 14,133/2021, transforming "innovation" into an obligation to demonstrate cost reduction through the RDC and life cycle analysis (CNJ 2021; CNJ 2024a; CNJ 2024b; CNJ 2025a; Brazil 2021).

These directives are implemented through PLS-Jud, IDS, and the Sustainability Report, which compile data on consumption, emissions, sustainable procurement, performance indicators, and related initiatives (CNJ 2024a; CNJ 2025c). The literature on digital sustainability cautions against evaluating the net benefit of digitization by balancing logistical and energy gains—such as reduced travel and paper use—with the digital footprint associated with processing energy consumption and hardware replacement (Araújo 2025; Jansen and Abreu 2024). This debate shifts the focus from statements of intent to comparable evidence.

In this article, digitally auditable sustainability is understood as the framework through which environmental, economic-fiscal, and social commitments are converted into verifiable, comparable, and publicly disclosed metrics, with audit trails that allow for the reconstruction of sources, methods, and data series, particularly through PLS-Jud, IDS, the Sustainability Balance Sheet, and RDC. This concept shifts the focus from statements of intent to measurable and replicable evidence, consistent with the plan–measure–publish–account cycle of Results-Based Governance, and requires sufficient documentation for internal and external audits (CNJ 2024a; CNJ 2024b; CNJ 2025a; CNJ 2025c; TCU 2020; Martins and Marini 2010).

Transparency, contestability, and access to justice under automation

Research on digital justice highlights that automation can reduce time and travel, but it can also create new barriers for groups with lower digital literacy or connectivity (Silva and Rocha 2025; Ribeiro 2025). In response, CNJ Resolution 615/2025 requires that the use of AI be identifiable, understandable, and contestable, with qualified human review when there are significant effects on rights (CNJ 2025b).

In parallel, CNJ Goal No. 9 links "innovation" to measurable social benefit and territorial inclusion, in line with SDG 16 (CNJ 2025d). The literature recommends public disclosure of the grounds for decisions and

accessible review mechanisms, so that the pursuit of efficiency does not stifle due process (Watanabe and França 2025; Silva and Rocha 2025).

Democratic legitimacy, in the context of the judiciary, refers to the public justifiability of decisions and the guarantee of procedural rights (public disclosure of grounds, a real possibility of challenge, and human review), especially when algorithmic mediations influence priorities, triage, or outcomes. Legitimacy is, therefore, both procedural and substantive: it depends on transparency, adequate public explainability, and accessible review mechanisms, lest efficiency gains compromise due process (Almeida 2025; Watanabe and França 2025; CNJ 2025b; CNJ 2025d).

Fundamental rights, personal data protection, and limits on algorithmic decision-making in the Judiciary

The incorporation of artificial intelligence systems into the Brazilian judiciary cannot be understood solely from the perspective of administrative efficiency, sustainability, or cost reduction. Because it operates on procedural information, litigation profiles, decision-making patterns, judicial documents, and, potentially, sensitive personal data, the use of AI directly impacts fundamental rights, particularly the protection of personal data, due process, the right to a fair hearing, the right to a full defense, equality, non-discrimination, and access to justice (Brazil 1988; Brazil 2018; Doneda 2019; Bioni 2021; Mendes 2014).

The protection of personal data acquired constitutional status in Brazil with the inclusion of item LXXIX in Article 5 of the Federal Constitution, according to which the right to the protection of personal data is guaranteed, in accordance with the law, including in digital media (Brazil 1988; Brazil 2022). This recognition shifts data protection from a merely instrumental level to the realm of fundamental rights and guarantees, making it a validity criterion for digital public policies and for technological solutions used by the State. At the infra-constitutional level, Law No. 13,709/2018 — the General Personal Data Protection Law — regulates the processing of personal data, including in digital media, by natural persons or legal entities under public or private law, and establishes principles such as purpose, adequacy, necessity, free access, data quality, transparency, security, prevention, non-discrimination, and accountability (Brazil 2018).

In the judicial context, these principles take on specific significance. The processing of data by AI systems must adhere to legitimate public purposes, compatibility with the administration of justice, data minimization, information security, access governance, traceability of operations, and accountability mechanisms. The use of large procedural datasets, including for training, validation, or model improvement, requires caution regarding anonymization, pseudonymization, data curation, the prevention of bias, and the clear definition of institutional responsibilities throughout the solution's lifecycle. The mere existence of a legal basis for data processing by the government does not eliminate the duty to demonstrate necessity, proportionality, security, and compliance with data subjects' rights (Brazil 2018; Doneda 2019; Bioni 2021; Mendes 2014).

CNJ Resolution No. 615/2025 reinforces this framework by establishing guidelines for the development, use, and governance of AI solutions in the Judiciary, with express observance of fundamental rights. The regulation links the responsible use of AI to transparency, explainability, contestability, auditability, reliability, human supervision, and the prevention of abusive or unlawful discrimination. It also recognizes risks related to privacy, the protection of personal data, information security, the intensification of discriminatory biases, and the need for oversight, review, and human intervention when AI assists judicial activities (CNJ 2025b; Gabriel et al. 2025; Spohr and Fontanela 2025).

This regulatory framework prevents algorithmic outputs from being treated as technically neutral or automatically legitimate results. In judicial matters, recommendations, classifications, prioritizations, summaries, or suggestions produced by AI can influence the formation of judicial reasoning, the management of case

dockets, the triage of claims, the identification of precedents, and the allocation of institutional resources. Therefore, the democratic legitimacy of judicial AI depends on its results being comprehensible, verifiable, and contestable (Almeida 2025; Watanabe and França 2025; CNJ 2025b), especially when they affect legal positions, procedural expectations, or the exercise of fundamental rights (Almeida 2025; Watanabe and França 2025; CNJ 2025b).

In this context, the protection of personal data is directly linked to due process. The litigant must be able to understand, in terms appropriate to the context, when an AI solution was used, what its purpose was, what data was processed, what limitations exist in its inferences, and what mechanisms are available for review or challenge. Transparency does not necessarily require full disclosure of source code or technical secrets, but it does require sufficient information for institutional oversight, auditing, accountability, and effective challenge. Without this layer of intelligibility, automation can produce decision-making opacity and informational asymmetry incompatible with the adversarial process and the right to a full defense (Brazil 1988; Brazil 2018; CNJ 2025b; Mendes 2014).

Attention must also be paid to the risk of algorithmic discrimination. Procedural frameworks reflect historical inequalities, territorial asymmetries, institutional patterns, and varying capacities for access to justice. Models trained or fine-tuned without adequate oversight may reproduce or intensify biases, affecting vulnerable groups, frequent litigants, people with low digital inclusion, or geographically remote populations. Thus, AI governance in the judiciary must incorporate impact assessment, periodic monitoring, results auditing, technical documentation, and correction mechanisms, so as to prevent the pursuit of efficiency from compromising equality, impartiality, and substantive justice (Brazil 2018; CNJ 2025b; Silva and Rocha 2025; Ribeiro 2025).

From this perspective, qualified human oversight is not an administrative formality, but an institutional guarantee of rights protection. The person responsible for the review must possess technical competence and decision-making authority to understand the solution's limitations, question its inferences, correct inadequate results, and suspend its use when there is a risk of rights violations. Human supervision, therefore, must be recorded, auditable, and proportional to the application's risk level, preventing it from becoming a mere automatic rubber-stamp of the algorithmic recommendation (CNJ 2025b; Gabriel et al. 2025; Spohr and Fontanela 2025; Leal and Trinks 2025).

The integration of AI, data protection, and fundamental rights reinforces the central thesis of this article: digitally auditable sustainability is not limited to measuring economic savings, paper reduction, energy consumption, or administrative efficiency. It also requires democratic and informational sustainability, expressed in the ability to protect personal data, prevent discrimination, ensure contestability, preserve due process, and maintain effective human control over systems that influence judicial activity. Thus, algorithmic governance in the judiciary is only legitimate when it combines efficiency and innovation with substantive protection of fundamental rights (Brazil 1988; Brazil 2018; CNJ 2025b; Doneda 2019; Bioni 2021; Mendes 2014).

State Capacities and Vendor Dependency

The responsible adoption of AI requires institutional capabilities to document, audit, explain, version, and, when necessary, discontinue systems. Studies on Brazilian public organizations indicate variations in technological maturity among courts and risks of vendor lock-in—where technological replacement is costly and the institution depends on the provider even to explain inferences and calculate performance indicators (Ribeiro and Segatto 2025; Holanda 2025; Braga et al. 2025).

Recent regulations seek to mitigate such risks through mandatory minimum documentation, traceability, contestability, and criteria for sustainability and cost-effectiveness in procurement (CNJ 2025a; CNJ 2025b;

Brazil 2021). The literature on results-based governance emphasizes that technological capacity is an component of institutional justice, as it determines the credibility of environmental, economic-fiscal, and social metrics (Martins and Marini 2010; TCU 2020).

Technological sovereignty, as used in this study, consists of the institutional capacity to explain, audit, correct, and replace critical digital solutions, while preserving public control over documentation, data, versions, and decisions. Operationally, it involves auditable documentation, contractual portability, measurement independence (especially from the RDC), and internal capabilities for evaluation and technical challenge, thereby mitigating information asymmetries and prolonged dependence on suppliers (Ribeiro and Segatto 2025; Holanda 2025; Braga et al. 2025; CNJ 2025a; 2025b).

In summary, digitally auditable sustainability defines what to measure and disclose; personal data protection and fundamental rights define material limits on the algorithmic processing of procedural information; qualified human oversight and democratic legitimacy define how to make justifiable and contestable decisions; and technological sovereignty defines the capabilities required to maintain public control over algorithmic infrastructure. These axes guide, in Section 3, the reading of the regulatory framework (3.1), the analysis of measurement instruments (3.2), the integration of goals–metrics–RDC (3.3), and the materiality of institutional capacities (3.4).

Results and Discussion

A comprehensive review of the regulatory framework, measurement tools, and the literature reveals a consistent trend: AI is no longer merely "automation" but has become an integral part of the Brazilian judiciary's regulated infrastructure, linked to goals of sustainability, personal data protection, cost efficiency, and access to justice. This article connects the regulatory framework (CNJ Resolutions 594/2024, 615/2025, and 641/2025) to measurement tools (PLS-Jud, IDS, Sustainability Balance Sheet, RDC/CNJ Goal No. 9), develops the concept of digitally auditable sustainability, and outlines conditions for legitimacy — data protection, transparency, contestability, and human oversight (Martins and Marini 2010; TCU 2020; Brazil 1988; Brazil 2018; Brazil 2022; CNJ 2024b, 2025a, 2025b, 2025c, 2025d).

To make this process empirically verifiable, Section 3 is organized into five steps:

1. reconstruction of the regulatory framework, consolidated in Table 1, and its effects on the life cycle of AI systems;
2. description of the measurement and reporting tools that operationalize auditable series, summarized in Table 2;
3. analysis of the integration between environmental goals and economic-fiscal efficiency, with a focus on the obligation to demonstrate results;
4. examination of personal data protection and fundamental rights as material limits to AI-assisted decision-making; and
5. detailed discussion of technological sovereignty as a verifiable condition of legitimacy, with operational indicators, a bibliographic summary in Table 3, and an operational framework of indicators in Table 4.

AI as Regulated Public Infrastructure

The normative analysis (see Table 1) shows that recent CNJ resolutions treat AI as a regulated institutional activity. CNJ Resolution 615/2025 regulates development, procurement, use, monitoring, and auditing, requiring transparency, personal data protection, traceability, explainability, contestability, and qualified human supervision, including risk classification and change governance (Brazil 2018; CNJ 2025b; Gabriel et al. 2025; Spohr and Fontanela 2025).

CNJ Resolution 594/2024, in turn, places environmental sustainability at the center of the Judiciary's institutional agenda by establishing the goal of carbon neutrality by 2030. CNJ Resolution 641/2025, on the other hand, reinforces the economic and fiscal dimension of innovation by linking new technologies and processes to the demonstration of measurable results, particularly through the Cost Reduction Result (RDC) indicator and life-cycle analysis, in alignment with Law No. 14,133/2021 (CNJ 2024b, 2025a; Brazil 2021). Within this same framework, CNJ Goal No. 9 anchors judicial innovation in SDG 16, linking technology, access to justice, institutional accountability, and measurable social benefit (CNJ 2025d).

Table 1 – Regulatory Framework for AI, Sustainability, and Results-Based Governance in the Brazilian Judiciary

Regulation analyzed	**Core regulatory scope**	**Institutional accountability mechanisms imposed on courts**	**Role assigned to AI / technology**	**Implications for Results-Based Governance**
CNJ Resolution 594/2024	Establishes the Judiciary's carbon neutrality target by 2030 and sets guidelines for emissions mitigation and offsetting.	Requires courts to prepare emissions inventories, reduction and offset plans, and to report on energy and water consumption, travel, and logistics.	AI emerges as a potential tool for near-real-time monitoring of energy consumption, building climate control, and institutional mobility.	Environmental sustainability becomes an explicit and measurable institutional goal (decarbonization), with measurement and reporting centralized by the CNJ.
CNJ Resolution 615/2025	Regulates the development, use, governance, auditing, monitoring, and mandatory human oversight of AI systems in the Judiciary.	It mandates transparency, personal data protection, traceability, explainability, contestability, and qualified human review of algorithmic outputs that affect rights.	Treats AI as public decision-making infrastructure: it cannot operate as a "black box"; it must be auditable, contestable, and subject to continuous human supervision.	Algorithmic activity now becomes directly integrated into the sphere of democratic legitimacy and due process, and not merely into the sphere of administrative efficiency.
CNJ Resolution 641/2025	Updates the Sustainability Policy (CNJ Resolution 400/2021) to align it with Law No. 14,133/2021, incorporating life-cycle cost analysis and sustainable innovation into procurement.	Requires courts to record and report Cost Reductions Resulting from the adoption of new technologies or processes (RDC), linking budgetary savings to positive socio-environmental impact.	AI (and other innovations) must generate measurable evidence of logistical and economic- -fiscal efficiency and be associated with sustainable and inclusive practices.	"Innovation" ceases to be mere rhetoric and becomes a quantifiable obligation for economic, fiscal, and environmental efficiency, reportable to the CNJ and comparable across courts.
National Goal	Links judicial innovation to	Requires that innovation	AI is framed as a tool that	It introduces social

Regulation analyzed	Core regulatory scope	Institutional accountability mechanisms imposed on courts	Role assigned to AI / technology	Implications for Results-Based Governance
No. 9 / 2030 Agenda	the 2030 Agenda, particularly to SDG 16 (effective, accountable, and transparent institutions), emphasizing access to justice and measurable social benefits.	projects be evaluated for social impact, inclusion, and expanded access to justice, and not merely for internal efficiency.	should expand access and reduce territorial and material barriers to justice services.	sustainability (access to justice, inclusion) as a key pillar of institutional performance evaluation and not merely as a programmatic best practice.
Law No. 14,133/2021	Establishes a new general regime for public bidding and contracts, including criteria for sustainability, efficiency, cost-effectiveness, transparency, and life-cycle analysis.	It imposes a duty to technically justify contractual choices, demonstrate efficiency gains, and consider socio-environmental impacts in procurement.	Serves as the legal basis for the CNJ to link technology contracts (including AI) to life-cycle analysis and the demonstration of cost reductions.	Legal basis for treating technology as a pillar of public policy on sustainability and economic-fiscal efficiency, not merely as an IT purchase.
CNJ Resolution 400/2021 (amended by CNJ Resolution 641/2025)	Establishes the Judiciary's Sustainability Policy and sets guidelines for the rational use of resources, sustainable procurement, and reduction of environmental impact.	Requires courts to adopt sustainable practices in infrastructure, consumption, and procurement, and to report results periodically.	Following the 2025 amendment, the concept of "sustainable innovation" now includes digital technologies (such as AI) provided they are measurable and auditable.	It serves as the historical foundation upon which the CNJ will integrate, in 2024–2025, the climate agenda, the economic-fiscal agenda, and the algorithmic agenda into a single framework of goals.

Notes. Time frame: CNJ regulations and Law No. 14,133/2021 in effect between 2021 and 2025. The column "Implications for Results-Based Governance" presents an interpretive summary, based on the regulatory text and the literature, and does not create additional obligations. Acronyms: PLS-Jud = Judiciary's Sustainable Logistics Plan (reporting system to the CNJ); IDS = Sustainability Performance Index; RDC = Cost Reduction Resulting from the Adoption of New Technologies/Processes; SDG 16 = Sustainable Development Goal 16 (effective, accountable, and inclusive institutions); Target 9 = National Target No. 9 of the Judiciary. The references align with Law No. 14,133/2021, which establishes the principles of efficiency and economy, and with CNJ Resolution 641/2025, which requires proof of resulting cost reduction (RDC). Source: Prepared by the authors (2025) based on CNJ (2021; 2024b; 2025a; 2025b; 2025d) and Brazil (2021).

Three consequences emerge: (i) the AI-mediated decision is treated as a state decision, subject to parameters of democratic legitimacy—transparency, disclosure of grounds, protection of personal data, the possibility of challenge, and human review (Brazil 1988; Brazil 2018; Almeida 2025; Watanabe and França 2025); (ii) CNJ Resolution 615/2025 institutionalizes continuous governance (committees, risk management, audits, and lifecycle reviews), characterizing AI as critical state infrastructure (CNJ 2025b; Leal and Trinks 2025); and (iii) the algorithmic processing of procedural data requires a legitimate public purpose, data minimization, security, prevention of bias, and accountability, under penalty of compromising due process and public trust in

the justice system (Brazil 2018; Doneda 2019; Bioni 2021; Mendes 2014). The operationalization and measurement are detailed in Tables 2 and 4 (Sections 3.2 and 3.5).

Transparency, contestability, and social sustainability of justice

The measurement and reporting tools (see Table 2)—PLS-Jud, IDS, Sustainability Report, and RDC—transform goals into auditable and comparable data series across agencies. CNJ Resolution No. 550/2024 reinforces this framework by amending CNJ Resolution No. 400/2021 and refining the guidelines for the indicators and variables of the Sustainability Policy, contributing to the standardization of data submission, for the compilation of the Sustainability Balance Sheet, and for the periodic monitoring of indicators by the agencies of the Judiciary (CNJ 2024a). In these instruments, AI appears as a means of monitoring, logistical optimization, and digitization of workflows, subject to the conditions of identifiability, comprehensibility, protection of personal data, and the ability to challenge its interventions, with effective human review, especially when there is a potential impact on rights (Brazil 2018; CNJ 2025b; Gabriel et al. 2025; Spohr and Fontanela 2025).

By linking the measurable social benefit outlined in Target 9 and SDG 16 to due process guarantees, the CNJ shifts sustainability from a strictly environmental perspective to a dimension that is also procedural and democratic (Silva and Rocha 2025; Ribeiro 2025; CNJ 2025d).

Table 2 – Institutional instruments for measuring and reporting on the socio-environmental and economic-fiscal performance of the Judiciary

Instrument analyzed	Stated institutional purpose	Type of data produced/reported	Method of data collection and reporting	Relationship with AI and technological innovation	Relevance to Results-Based Governance
PLS-Jud (Judiciary Sustainable Logistics Plan)	Standardize the submission of sustainability data by courts to the CNJ and monitor compliance with targets for the rational use of resources.	Energy, water, paper, and fuel consumption; institutional mobility; waste management; building climate control; among others.	Courts periodically feed quantitative indicators into the PLS-Jud system; the CNJ consolidates and tracks progress.	AI emerges as a potential tool for monitoring consumption in near real time and optimizing routes/logistics to reduce emissions and travel.	It converts environmental sustainability into a measurable and comparable obligation among courts; it transforms operational efficiency into an institutional goal.
IDS – Sustainability Performance Index	Classify and compare courts based on performance in sustainability, resource efficiency, and sustainable procurement.	Standardized indicators for water, energy, and material consumption; mobility policies; sustainable procurement criteria.	Calculated based on data submitted to PLS-Jud and supplementary information provided by the courts to the CNJ.	AI and automation are introduced as tools for efficient management: digitization of workflows, reduction of paper use, and reduction of resource-intensive in-person services.	Introduces comparable ranking among agencies; creates reputational and institutional pressure to achieve environmental and cost-efficiency goals.
Judiciary Sustainability	Consolidate annually, at the national level,	Aggregated data by branch and court:	Public document produced by the CNJ	It begins to frame technological innovation	Serves as an instrument of external

Instrument analyzed	Stated institutional purpose	Type of data produced/reported	Method of data collection and reporting	Relationship with AI and technological innovation	Relevance to Results-Based Governance
Report	the Judiciary's socio-environmental and logistical efficiency performance and publicize it.	consumption of resources, estimated emissions, mitigation initiatives, reduction targets, and results.	based on submissions from the courts; provides external visibility and institutional memory.	(including AI) as a sustainability policy, linking automation to environmental impact and economic-fiscal efficiency.	accountability: the Judiciary reports to society on sustainability and efficiency as a matter of state policy.
Indicator of Cost Reduction Resulting from the adoption of new technologies or processes	To measure and demonstrate budgetary efficiency gains associated with technological innovation and process improvements.	Reported figures for cost savings (logistics, travel, material consumption, etc.) attributed to new technologies/processes.	Each court must calculate, record, and report the RDC to the CNJ; this record is required as part of the revised sustainability policy.	AI is explicitly classified as an innovation that must generate verifiable budget savings and a positive socio-environmental impact.	"Innovation" becomes an obligation to deliver measurable results (economic-fiscal and socio-environmental), and is no longer mere rhetoric. It aligns public spending, sustainability, and technology.
National Goal No. 9 – Innovation aligned with the 2030 Agenda and SDG 16	Require courts to demonstrate that their innovations generate measurable social benefits and expand access to justice.	Qualitative and quantitative reports and indicators on expanding access, territorial inclusion, and facilitating access for litigants.	Annual reporting by the courts to the CNJ, incorporated into the national institutional performance evaluation.	AI is treated as a tool for expanding access and reducing territorial and material barriers, provided it is supervised and subject to challenge.	Incorporates "access to justice" and social inclusion as dimensions of institutional outcomes—not just environmental or economic-fiscal goals.

Notes. Nature of the data: data series provided by the courts to the CNJ systems, subject to methodological validation and review (where applicable). PLS-Jud/IDS/Sustainability Balance Sheet consolidate input consumption, estimated emissions, and initiatives; CNJ Goal No. 9 combines quantitative indicators and qualitative evidence of social benefit and territorial inclusion; the RDC requires a traceable methodology for attributing savings to technological/procedural innovation. References to AI describe potential uses (monitoring, screening, logistics optimization), subject to identification, personal data protection, contestability, and human oversight in accordance with CNJ Resolution 615/2025 and Law No. 13,709/2018. Limitations: heterogeneity in maturity among agencies and risk of underreporting of benefits/distributive effects. Acronyms: see Table 1. Source: Prepared by the authors (2025) based on Brazil (2018), CNJ (2024a; 2024b; 2025a; 2025c; 2025d), and TCU (2020).

Table 2 highlights the conceptual shift: sustainability is no longer restricted to carbon, water, and energy but now encompasses due process and inclusive access. Aspects of human oversight and contestability, as well as technological sovereignty, are explored in greater depth in Sections 3.4 and 3.5.

Environmental goals, economic and fiscal efficiency, and the obligation to "demonstrate results"

A combined reading of regulations (Table 1) and instruments (Table 2) reveals explicit integration between AI, environmental goals, and economic-fiscal efficiency goals. In the environmental dimension, CNJ Resolution 594/2024 establishes the Zero-Carbon Justice initiative and sets a target for carbon neutrality by 2030, with inventories, mitigation/offsets plans, as well as standardized reporting, operationalized through PLS-Jud, IDS, and the Sustainability Balance Sheet. In the economic-fiscal dimension, CNJ Resolution 641/2025 makes the RDC mandatory, converting "innovation" into a quantifiable obligation to save resources, with comparable reporting and disclosure (Brazil 2021; CNJ 2024b; CNJ 2025a; CNJ 2025c).

The tension is acknowledged: AI can reduce physical footprints (paper, transportation, air conditioning), but increase the digital footprint (energy, hardware). CNJ Resolution 615/2025, by requiring monitoring, auditability, and transparency of purpose, creates a basis for also tracking this energy-environmental dimension (CNJ 2025b; Araújo 2025; Jansen and Abreu 2024).

The materiality of benefits and tensions depends on institutional capacities to explain, audit, and correct solutions. It is at this point that technological sovereignty ceases to be a technical attribute and becomes a verifiable condition of legitimacy (Section 3.4)—later anchored in indicators (Section 3.5).

Technological sovereignty, capacity asymmetries, and the risk of capture

An analysis of the literature and institutional instruments indicates that technological capacity—to document, audit, explain, version, and discontinue systems—has ceased to be a merely technical attribute and has become a criterion for the legitimacy of AI use in the judiciary. In contexts of lower institutional capacity, there is a growing dependence on opaque proprietary solutions, with information asymmetries regarding training data, inference criteria, and usage limits. A synthesis of these analytical dimensions, along with guiding questions, assumptions, and the normative link to CNJ Resolution 615/2025, is presented in Table 3. This situation can undermine measurement series (PLS-Jud, IDS, Sustainability Balance Sheet, and RDC) and reduce effective contestability by internal and external users (Ribeiro and Segatto 2025; Holanda 2025; Braga et al. 2025).

Table 3 – Recent literature on AI in the Judiciary: legitimacy, data protection, access, sustainability, and technological sovereignty

Analytical dimension	Guiding question	Main authors cited	Identified institutional assumption	CNJ Guideline
Democratic legitimacy and human oversight	Does the judiciary's use of AI affect the legitimacy of the exercise of judicial power?	Almeida 2025; Watanabe and França 2025; Amorim 2025.	An AI-mediated decision remains a state decision and must be publicly justifiable and subject to human review.	CNJ Resolution 615/2025 requires transparency, explainability, contestability, and continuous human oversight, treating AI as an exercise of state power, not merely as technical support.
Transparency, contestability, and access to justice	Does automation expand or restrict access to justice, especially for vulnerable and geographically remote populations?	Silva and Rocha 2025; Ribeiro 2025; Gabriel et al. 2025; Spohr and Fontanela 2025	Digital inclusion is treated as if it were universal and neutral, and AI-mediated service delivery is presumed to be sufficient and non-discriminatory.	National Goal No. 9 and CNJ Resolution 615/2025 link innovation to SDG 16 (accountable and accessible institutions) and require that algorithmic interventions be identifiable and ly contestable, preserving due process and

Analytical dimension	Guiding question	Main authors cited	Identified institutional assumption	CNJ Guideline
				equality.
Environmental sustainability and economic-fiscal efficiency	Is AI presented as a tool for sustainability? And at what environmental and economic-fiscal cost?	Araújo 2025; Jansen and Abreu 2024; CNJ 2024b; CNJ 2025a; CNJ 2025c	AI is treated as a technology that always generates efficiency (less paper, less travel, less air conditioning, etc.), and its energy and hardware costs are rarely questioned.	CNJ Resolution 594/2024 (Carbon-Neutral Justice) and CNJ Resolution 641/2025 link AI to decarbonization and logistics efficiency goals, with proof of Cost Reduction Resulting from New Technologies/Processes (RDC), but they also recognize that AI has its own environmental footprint.
Personal Data Protection and Fundamental Rights	How does the use of AI in the judiciary affect the protection of personal data, due process, equality, and non-discrimination?	Doneda 2019; Bioni 2021; Mendes 2014; Gabriel et al. 2025; Spohr and Fontanela 2025.	The algorithmic processing of procedural data cannot be presumed legitimate merely because it serves a public purpose, without sufficient assessment of necessity, minimization, risks, biases, and impacts on rights.	CNJ Resolution 615/2025 requires observance of fundamental rights, transparency, explainability, contestability, auditability, human oversight, and the prevention of abusive or unlawful discrimination, in accordance with the LGPD.
Technological sovereignty and the risk of capture	Who controls AI? The court or the provider?	Ribeiro and Segatto 2025; Holanda 2025; Braga et al. 2025	It is assumed that courts possess similar technical capacity to audit AI models and explain algorithmic results, although risks of dependence on opaque proprietary solutions persist.	CNJ Resolution 615/2025 requires traceability, minimum technical documentation, and the possibility of human review. This is presented as a safeguard against technological capture and as a condition for the environmental, economic-fiscal, and democratic credibility of the Judiciary itself.

Notes. Non-exhaustive bibliography, focused on 2018–2025, incorporating earlier foundational works on personal data protection, governance, and methodology. The column "Guideline of CNJ Resolution 615/2025" is an interpretive mapping that relates findings from the literature to regulatory requirements (transparency, explainability, contestability, and human oversight), and should be updated in light of new regulatory versions and empirical studies. "Identified institutional assumption" indicates recurring hypotheses (e.g., the assumption of broad digital inclusion) that warrant empirical testing. Source: Prepared by the authors (2025) based on Almeida (2025); Amorim (2025); Watanabe and França (2025); Silva and Rocha (2025); Ribeiro (2025); Ribeiro and Segatto (2025); Holanda (2025); Braga et al. (2025); Gabriel, Porto, and Araújo (2025); Spohr and Fontanela (2025); Araújo (2025); Jansen and Abreu (2024); Doneda (2019); Bioni (2021); Mendes (2014).

Minimal technological sovereignty—the institutional capacity to explain, audit, correct, and replace solutions—is a prerequisite for the democratic legitimacy of AI use and for the reliability of the metrics underpinning Results-Based Governance. Where there are capacity asymmetries and dependence on opaque suppliers, the risks increase of: (i) merely formal compliance with transparency/explainability safeguards and human oversight, without substantive guarantees of due process (CNJ 2025b; Leal and Trinks 2025; Spohr and

Fontanela 2025); (ii) intermediation of accountability by AI solutions that also produce and interpret the very efficiency/sustainability data (RDC, PLS-Jud, Sustainability Balance Sheet), with possible weakening of data series (CNJ 2025a, 2025c; Ribeiro and Segatto 2025); and (iii) technological capture, when the institutional capacity to justify decisions and expenditures is, in practice, outsourced, putting pressure on the model's environmental, economic-fiscal, and democratic credibility (Holanda 2025; Braga et al. 2025).

To make technological sovereignty observable, four axes are proposed: (i) coverage of auditable documentation (% of systems with model cards and version trails); (ii) explained replication capability (time and resources required to reproduce a typical inference); (iii) measurement independence (whether or not the RDC calculation depends on the supplier); and (iv) portability clauses and access to audit artifacts in contracts. Personal data protection must cut across these axes, with records of purpose, legal basis, minimization, risks, and mitigation measures. In summary, technological capacity and informational compliance are dimensions of institutional justice: without them, comparability, auditability, and contestability—pillars of the outcomes-based arrangement—are compromised (Brazil 2018; CNJ 2025a, 2025b, 2025c).

Operational framework: micro-operations and indicators to materialize the five analytical axes

To reduce the risk of "principles without practice" and transform the five analytical axes of this article into verifiable routines, we propose a set of low-complexity micro-operations accompanied by operational indicators. The design is compatible with CNJ Resolutions 594/2024, 615/2025, and 641/2025, with the LGPD, and with PLS-Jud, IDS, Sustainability Balance Sheet, and RDC, although it is not literally included in any of these regulations. The definition of responsible parties and workflows is the responsibility of each court and must comply with its internal governance.

With a view to operationalizing the five pillars—digitally auditable sustainability, personal data protection, human oversight, democratic legitimacy, and technological sovereignty—a minimum set of micro-operations and indicators is presented, detailed in Table 4.

Design principles: simple, replicable indicators with baselines extractable from existing databases (PLS-Jud/IDS/Balance Sheet/RDC); focus on defined periodicity; and inclusion of risks/biases and respective mitigations to avoid merely formal compliance.

Table 4 – Operational indicators for digitally auditable sustainability, personal data protection, human oversight, democratic legitimacy, and technological sovereignty

Axis	Micro-operations (process)	Proposed indicators	Data source and frequency	Risks/bias and mitigation
Digitally auditable sustainability	Publish technical specifications for the series (metadata, formula, scope, quality) in an institutional repository; version spreadsheets/codes used for PLS-Jud/IDS/Balance Sheet/RDC.	% of series with published methodology; % of series with verified reproducibility (quarterly sample).	PLS-Jud/IDS/Balance Sheet/RDC; institutional repository; quarterly.	Risk: incomplete publication. Mitigation: minimum metadata checklist; review by internal audit.
Personal data protection	Record purpose, legal basis, categories of data processed, minimization measures, anonymization or pseudonymization, access controls, and security	% of AI systems with recorded purpose and legal basis; % of systems with data protection risk assessments; % of	Inventory of AI systems; data processing records; data governance and information security	Risk: excessive data processing, incompatible reuse of procedural databases, and undue exposure of personal data.

Axis	Micro-operations (process)	Proposed indicators	Data source and frequency	Risks/bias and mitigation
	measures applicable to AI solutions.	databases with documented minimization, anonymization, or pseudonymization measures.	reports; semi-annual.	Mitigation: impact assessment, minimization, access control, anonymization/pseudonymization, and periodic compliance review.
Human (qualified) supervision	Mandatory field for human review in the system that records AI-assisted decisions/outputs; audit trail of who reviewed and justification.	% of AI systems with review records for relevant decisions; average time to review in high-impact cases.	AI system logs; AI governance reports; monthly.	Risk: Formal "rubber-stamping." Mitigation: Qualitative sampling; training and rotation of reviewers.
Democratic legitimacy	Standardized channel for challenging algorithmic outputs (internal/external) with deadlines and aggregated public tracking.	Average response time to appeals; grant rate (partial/full); % of cases with published reasoning (aggregated data).	Ombudsman's Office + AI system; quarterly.	Risk: underreporting. Mitigation: active communication; anonymization to reduce barriers.
Technological sovereignty	Contractual clauses on portability and access to audit artifacts (model cards, test *datasets*, logs); prohibit reliance on the vendor to calculate RDC.	% of contracts with portability and access to artifacts; reliance on the vendor to measure RDC (binary: yes/no); % of systems with a published model card.	Contract management; model repository; semi-annual.	Risk: unenforced clauses. Mitigation: contractual triggers and penalties; external technical audits.

Notes. Author's proposal for micro-operations and indicators, compatible with CNJ Resolutions 550/2024, 594/2024, 615/2025, and 641/2025, with Law No. 13,709/2018 — General Personal Data Protection Law — and with the PLS-Jud/IDS/ Sustainability Balance Sheet /RDC instruments; not literally included in these regulations. The reporting frequencies are suggestions to enable continuous monitoring and intertemporal comparability. It is recommended to: (i) publish the methodology for the indicators and version the artifacts; (ii) record the purpose, legal basis, categories of data processed, and measures for minimization, anonymization, or pseudonymization where applicable; (iii) ensure access control, traceability, and risk assessment regarding personal data protection; (iv) avoid "formal compliance" through qualitative sampling and audits; and (v) include contractual clauses on portability and access to audit artifacts. Acronyms: see Table 1. Source: Prepared by the authors (2025), based on Brazil (2018), CNJ (2024a; 2024b; 2025a; 2025b; 2025c; 2025d), and TCU (2020).

As can be seen, the indicators directly address the requirements for personal data protection, transparency, contestability, and human oversight (Brazil 2018; CNJ 2025b), with evidence of cost reduction (CNJ 2025a) and with the climate agenda (CNJ 2024b), reinforcing the notion of digitally auditable sustainability. The gradual adoption of these metrics can reduce capacity disparities, prevent technological capture, and increase the reliability of accountability reports—conditions necessary for democratic legitimacy in the judiciary's use of AI.

Final Considerations

In the Brazilian Judiciary's Results-Based Governance model, Artificial Intelligence plays an institutional role as a regulated public decision-making infrastructure, integrating performance targets and metrics and

connecting environmental, economic-fiscal, social, informational, and democratic dimensions—particularly environmental sustainability, public spending efficiency, expanded access to justice, the protection of personal data, due process, equality, non-discrimination, and the contestability of decisions assisted by algorithmic systems. The algorithmic governance outlined by CNJ Resolution No. 615/2025 integrates these dimensions through mandatory safeguards—personal data protection, transparency, explainability, contestability, prevention of unlawful or abusive discrimination, and qualified human oversight—and lifecycle routines, such as documentation, monitoring, auditing, and discontinuation. As a result, normative principles are converted into verifiable obligations, compatible with measurement tools—PLS-Jud, IDS, and the Sustainability Balance Sheet—and with the demonstration of cost reduction provided for in the RDC indicator.

The overall objective was achieved through normative-documentary analysis and a review of recent literature, leading to the conclusion that:

1. AI-mediated decisions are government decisions and require personal data protection, transparency, explainability, contestability, and qualified human oversight as conditions for democratic legitimacy (Brazil 1988; Brazil 2018; Brazil 2022; CNJ 2025b).
2. Within the framework of Results-Based Governance, technology becomes linked to goals and indicators with publicly verifiable outcomes, particularly on three fronts: decarbonization and the rational use of resources, cost reduction through the RDC, and the territorially inclusive expansion of access to justice.
3. Sustainability, in this context, broadens its scope: in addition to carbon, water, energy, and input consumption, it now includes procedural and informational dimensions, such as personal data protection, due process, disclosure of grounds, traceability, and the possibility of appeal.
4. Measurable technological sovereignty—understood as the institutional capacity to audit, explain, correct, and replace solutions—is a prerequisite for the credibility of environmental and economic-fiscal data series and, therefore, for the legitimacy of AI-supported decisions.
5. The protection of personal data is a condition for the legitimacy of judicial AI, as the algorithmic processing of procedural data must observe the principles of purpose, necessity, adequacy, transparency, security, prevention, non-discrimination, and accountability, under penalty of compromising due process, the right to a fair hearing, the right to a full defense, and public trust in the justice system (Brazil 1988; Brazil 2018; Brazil 2022; CNJ 2025b; Doneda 2019; Bioni 2021; Mendes 2014).

The study integrates Results-Based Governance and Algorithmic Governance into a digitally auditable analytical framework for sustainability, with protection of personal data and fundamental rights. It also offers a replicable path for normative-instrumental analysis and translates the regulatory framework into verifiable routines, summarized in Table 4.

The regulatory framework is still being consolidated, the data series are still short, and part of the data is produced by the justice system itself. These factors call for interpretive caution and reinforce the need for independent verification.

It is recommended to: (i) standardize records of human oversight and challenges, with openness to external audit and compliance with personal data protection; (ii) incorporate algorithmic impact assessments and data protection evaluations into the AI solutions used in the Judiciary; (iii) estimate the net environmental impact of digitization, weighing logistical-energy gains against the digital footprint; (iv) adopt clauses and routines that reduce technological dependence, such as portability, access to artifacts, version governance, and independence in measuring results; (v) promote independent and comparable verification of results in PLS-Jud, IDS, the

Sustainability Report, and RDC; and (vi) deepen empirical studies on the distributional effects of AI-mediated service delivery on access to justice.

In short, the institutional role of AI is that of an integrating axis which, under CNJ Resolution No. 615/2025, connects sustainability, spending efficiency, access to justice, and the protection of fundamental rights through auditable metrics, democratic safeguards, and personal data protection mechanisms. The legitimacy of this use stems from the institutional capacity to produce and make available comparable and auditable public evidence, with sufficient data protection, qualified human oversight, and technological autonomy to explain, audit, correct, and replace systems—conditions without which "innovation" does not translate into results or public trust.

References

Almeida MCCM 2025. The Use of Artificial Intelligence in Judicial Proceedings and Its Impact on the Legitimacy of the Judiciary. Doctoral Dissertation, University of Brasília, Brasília, 2025. [cited 20 Oct 2025]. Available from: http://repositorio.unb.br/handle/10482/52564

Amorim ALBF 2025. Governance strategies for the use of artificial intelligence in the Brazilian Judiciary. Doctoral dissertation, University of Brasília, Brasília, 2025. [cited 16 Oct 2025]. Available from: http://repositorio.unb.br/handle/10482/52747

Araújo IMP 2025. Artificial Intelligence & Sustainability: applications, impacts, and influences in Brazil. Final Course Project, Water, Environmental, and Energy Resources Management Program, Institute of Engineering and Sustainable Development, University of International Integration of Afro-Brazilian Lusophony, Redenção, Ceará, 81 pp. [cited 06 Oct 2025]. Available from: https://repositorio.unilab.edu.br/jspui/bitstream/123456789/7316/1/Igo%20Maxwel%20Pereira%20Araujo.pdf

Bioni BR 2021. Personal Data Protection: The Role and Limits of Consent. Forense, Rio de Janeiro.

Braga PAN, et al. 2025. Regulation of artificial intelligence in the Judiciary: perspectives, challenges, and the dialogue between the European framework and Brazilian solutions. Rev CEJUR/TJSC 2025:1-20. [cited 23 Oct 2025]. Available from: https://doi.org/10.56083/RCV5N7-035

Brazil 1988. Constitution of the Federative Republic of Brazil of 1988. Brasília, DF, Presidency of the Republic. [cited 09 May 2026]. Available from: https://www.planalto.gov.br/ccivil_03/constituicao/constituicao.htm

Brazil 2018. Law No. 13,709, of August 14, 2018. General Personal Data Protection Law. Brasília, DF, Presidency of the Republic. [cited 09 May 2026]. Available from: https://www.planalto.gov.br/ccivil_03/_ato2015-2018/2018/lei/l13709.htm

Brazil 2021. Law No. 14,133, of April 1, 2021. Establishes general rules for bidding and contracting for the direct, autonomous, and foundational public administrations of the Union, the States, the Federal District, and the Municipalities. [cited 23 Sep 2025]. Available from: https://www.planalto.gov.br/ccivil_03/_ato2019-2022/2021/lei/l14133.htm

Brazil 2022. Constitutional Amendment No. 115, of February 10, 2022. Amends the Federal Constitution to include the protection of personal data among fundamental rights and guarantees. Brasília, DF, Office of the President. [cited 09 May 2026]. Available from: https://www.planalto.gov.br/ccivil_03/constituicao/Emendas/Emc/emc115.htm

Campos FI 2005. Political Science: An Introduction to State Theory. UFG Press, Goiânia, 2005.

Cellard A 2008. Document analysis. In: Poupart J, et al. Qualitative research: epistemological and methodological approaches. 3rd ed., Vozes, Petrópolis, 2008, pp. 295–316.

CNJ (National Council of Justice) 2021. CNJ Resolution 400, dated June 16, 2021. Establishes the Sustainability Policy within the Judiciary. [cited 23 Sep 2025]. Available from: https://atos.cnj.jus.br/atos/detalhar/3986

CNJ (National Council of Justice) 2024a. CNJ Resolution No. 550, dated April 3, 2024. Amends CNJ Resolution 400/2021, which provides for the sustainability policy within the Judiciary. [cited 22 Nov 2025]. Available from: https://atos.cnj.jus.br/atos/detalhar/5509.

CNJ (National Council of Justice) 2024b. CNJ Resolution No. 594, dated November 8, 2024. Establishes the Zero Carbon Justice Program and sets a goal for the Judiciary to achieve carbon neutrality by 2030. [cited 22 Nov 2025]. Available from: https://atos.cnj.jus.br/atos/detalhar/5845

CNJ (National Council of Justice) 2025a. CNJ Resolution 641, dated September 22, 2025. Amends CNJ Resolution 400/2021 to bring it into compliance with Law No. 14,133/2021 and encourage innovative practices. [cited 26 Sep 2025]. Available from: https://atos.cnj.jus.br/atos/detalhar/6320

CNJ (National Council of Justice) 2025b. CNJ Resolution 615, dated March 11, 2025. Establishes standards for the development, governance, auditing, monitoring, and responsible use of solutions that employ artificial intelligence techniques within the Judiciary. [cited 26 Sep 2025]. Available from: https://atos.cnj.jus.br/atos/detalhar/6001

CNJ (National Council of Justice) 2025c. Sustainability Report of the Judiciary / PLS-Jud / Sustainability Performance Index (IDS). Brasília, 2025. [cited 06 Sep 2025]. Available from: https://www.cnj.jus.br/wp-content/uploads/2025/06/9o-balanco-da-sustentabilidade-do-poder-judiciario.pdf

CNJ (National Council of Justice) 2025d. National Goal No. 9 of the Judiciary. [cited 26 Sep 2025]. Available from:
https://www.cnj.jus.br/gestao-da-justica/politicas-judiciarias-nacionais-programaticas/politica-nacional-de-gestao-da-inovacao/meta-9-do-poder-judiciario/

Doneda D 2019. From privacy to personal data protection: foundations of the General Data Protection Law. 2nd ed., Revista dos Tribunais, São Paulo.

Ferreira LS 2024. Resolutions of the National Council of Justice as a Regulatory Instrument: An Overview of Regulatory Activity from 2005 to 2023. Master's Thesis, University of Brasília, School of Law, Graduate Program in Law, Regulation, and Public Policy, Brasília, 2024. [cited 01 Nov 2025]. Available from: https://repositorio.unb.br/handle/10482/52246

Flick U 2009. Introduction to Qualitative Research. 3rd ed., Artmed, Porto Alegre, 2009, 343 pp.

Gabriel AP, Porto FR, Araújo VS 2025. Artificial Intelligence, Precedents, and CNJ Resolution 615/2025. Rev EMERJ 27:e649:1-17. [cited 12 Oct 2025]. Available from: https://ojs.emerj.com.br/index.php/revistadaemerj/article/download/649/346/2653

Gil AC 2019. Methods and Techniques of Social Research. 7th ed., Atlas, São Paulo, 2019, 248 pp.

Goodfellow I, Bengio Y, Courville A 2016. Deep Learning. MIT Press, Cambridge (MA), 775 pp.

Holanda MC 2025. Artificial Intelligence in the Judiciary: Technological Revolution, Governance, Risk Management, and Responsible Development in Justice Systems. Doctoral Dissertation, Christus University Center, Fortaleza, 2025. [cited 16 Oct 2025]. Available from: https://repositorio.unichristus.edu.br/jspui/handle/123456789/1902

Jansen EPM, Abreu RRG 2024. Artificial Intelligence and Sustainability: a possible union? Rev Bras Filosof Dir 10(1):1-21. [cited 20 Oct 2025]. Available from: https://www.indexlaw.org/index.php/filosofiadireito/article/view/10405

Leal MRL, Trinks MSVM 2025. Use of Artificial Intelligence in the Brazilian Judiciary: an analysis of the regulatory evolution from CNJ Resolution 332/2020 to CNJ Resolution 615/2025. University of Brasília, Brasília, 2025. [cited 06 Oct 2025]. Available from: https://ppee.unb.br/wp-content/uploads/2025/09/Artigo-1-3.pdf

Martins HF, Marini C 2010. A governance guide for results in public administration. Publix Editora, Brasília, 262 pp. [cited 01 Nov 2025]. Available from: https://bvsms.saude.gov.br/bvs/publicacoes/guia_governanca_resultados_administracao_publica.pdf

Mendes LS 2014. Privacy, data protection, and consumer protection: general principles of a new fundamental right. Saraiva, São Paulo, 246 pp.

OECD 2019. OECD Council Recommendation on Artificial Intelligence. Paris: OECD. [cited 12 Nov 2025]. Available from: https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449

UN (United Nations) 2015. Transforming Our World: The 2030 Agenda for Sustainable Development. Resolution A/RES/70/1, New York, 2015. [cited 13 Nov 2025]. Available from: https://undocs.org/en/A/RES/70/1

Ribeiro AP 2025. Technology and sustainability: the impacts of the Justice 4.0 Program on access to justice within the Santa Catarina Judiciary and its relationship with innovation. Master's Thesis, Federal University of Santa Catarina, Florianópolis, 2025. [cited 13 Oct 2025]. Available from: https://repositorio.ufsc.br/xmlui/handle/123456789/267934

Ribeiro MM, Segatto CI 2025. Artificial intelligence in Brazilian public organizations: heterogeneities and capabilities in information technology. Rev Adm Públ 59(1):e2024-0066. [cited 06 Oct 2025]. Available from: https://doi.org/10.1590/0034-761220240066

Russell S, Norvig P 2021. Artificial Intelligence: A Modern Approach. 4th ed., Pearson, Hoboken (NJ), 1136 pp.

Silva FM, Rocha AA 2025. Artificial Intelligence: Ethical and Inclusive Use of AI in Law, Its Applications in the Judiciary, and Its Impacts on Access to Justice. Rev Juríd Gralha Azul (TJPR) 2025:e-jmxgpj49. [cited 06 Oct 2025]. Available from: https://revista.tjpr.jus.br/gralhaazul/article/view/191

Silva SB da 2023. Governance in the Judiciary: a comparative analysis of indicators. Thesis (Master's in Governance, Technology, and Innovation), Catholic University of Brasília, Brasília, 2023. Advisor: Helga Cristina Hedler. [cited 01 Nov 2025]. Available from: https://bdtd.ucb.br:8443/jspui/handle/tede/3324

Spohr GC, Fontanela C 2025. Legality of the use of generative artificial intelligence by the Judiciary: an analysis of CNJ Resolution 615/2025. Rev CEJUR/TJSC 2025:1-18. [cited 06 Oct 2025]. Available from: https://doi.org/10.37497/revistacejur.v13i-TJSC-.464

TCU (Federal Court of Accounts) 2020. Governance Framework for Public Organizations: 2020. Brasília, TCU. [cited 08 Nov 2025]. Available from: https://pesquisa.apps.tcu.gov.br/redireciona/norma/NORMA-21367

Watanabe CYV, França TC 2025. The impact of artificial intelligence on the Judiciary. Rev Em Tempo 24(1):1-15. [cited 02 Oct 2025]. Available from: https://revista.univem.edu.br/emtempo/article/view/3647

Yin RK 2018. Case Study Research and Applications: Design and Methods. 6th ed., Sage, Thousand Oaks, 2018, 282 pp.