

## REFRAMING THE RULE OF LAW INDEX IN THE AGE OF AI AND BIG DATA: IMPLICATIONS FOR GLOBAL STATE GOVERNANCE

### REFORMULANDO O ÍNDICE DO ESTADO DE DIREITO NA ERA DA IA E DO BIG DATA: IMPLICAÇÕES PARA A GOVERNANÇA GLOBAL DOS ESTADOS

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#### Abstract

Artificial intelligence (AI) and big data are rapidly transforming the architecture and operation of contemporary state governance. In this evolving context, the Rule of Law Index developed by the World Justice Project (WJP) has become a central global benchmark for assessing legal integrity and governance quality. Yet the rise of data-driven and algorithmic decision-making systems poses profound challenges to the foundational principles of the rule of law in the digital age. This article critically examines how AI reshapes core rule-of-law dimensions—transparency, accountability, procedural fairness, and the protection of fundamental rights. While AI-enabled governance promises greater efficiency, consistency, and predictive capacity, algorithmic opacity, embedded bias, and diffused responsibility risk undermining legal certainty and democratic legitimacy. To reconcile innovation with legality, the study advances an integrated legal-technological governance framework grounded in human-centred rule-of-law values. It further argues for a methodological recalibration of the Rule of Law Index to capture the structural impact of digital technologies on governance performance. Such an approach offers a normative foundation for institutional reform in Vietnam and other developing jurisdictions navigating accelerated digital transformation.

**Keywords:** Rule of Law Index. Artificial Intelligence. Big Data Governance. Algorithmic Accountability. Digital Rule of Law.

#### Resumo

A inteligência artificial (IA) e os grandes volumes de dados estão a transformar rapidamente a arquitetura e o funcionamento da governação estatal contemporânea. Neste contexto em evolução, o Índice do Estado de Direito desenvolvido pelo World Justice Project (WJP) tornou-se uma referência global central para avaliar a integridade jurídica e a qualidade da governação. No entanto, o surgimento de sistemas de tomada de decisão baseados em dados e algoritmos coloca desafios profundos aos princípios fundamentais do Estado de Direito na era digital. Este artigo examina criticamente como a IA remodela as dimensões centrais do Estado de Direito — transparência, responsabilidade, equidade processual e proteção dos direitos fundamentais. Embora a governança habilitada pela IA prometa maior eficiência, consistência e capacidade preditiva, a opacidade algorítmica, o viés incorporado e o risco de responsabilidade difusa podem comprometer a segurança jurídica e a legitimidade democrática. Para conciliar inovação e legalidade, o estudo propõe uma estrutura integrada de governança jurídico-tecnológica baseada em valores do Estado de Direito centrados no ser humano. Além disso, defende uma recalibração metodológica do Índice do Estado de Direito para captar o impacto estrutural das tecnologias digitais no desempenho da governança. Tal abordagem oferece uma base normativa para a reforma institucional no Vietname e em outras jurisdições em desenvolvimento que estão passando por uma transformação digital acelerada.

**Palavras-chave:** Índice do Estado de Direito. Inteligência Artificial. Governança de Big Data.



## 1 INTRODUCTION

The rapid proliferation of artificial intelligence (AI) and big data is fundamentally reconfiguring the architecture of governance on a global scale. Machine learning algorithms, automated decision-making systems, and vast data infrastructures promise unprecedented gains in administrative efficiency, institutional transparency, and regulatory predictability. Yet these transformative technologies simultaneously generate profound and novel challenges to the rule of law, the foundational principle that constrains public power and subjects all authority to legal control.<sup>1</sup>

The World Justice Project's Rule of Law Index has become a global benchmark for assessing governance.<sup>2</sup> However, in the digital age, core values such as transparency, accountability, procedural fairness, and human rights protection are at risk of being eroded by “algorithmic black boxes” and the concentration of data power. When AI can decide for humans, who will be held accountable for bias? When big data becomes a strategic asset, can individual privacy still be guaranteed?

For Vietnam, these issues are even more pressing as the country speeds up its digital transformation and deepens its integration into the global governance order. The Rule of Law Index reports show that despite overall progress, many sub-indices remain low, particularly in the areas of human rights and law enforcement. The lack of an appropriate legal framework to govern digital technology could exacerbate these gaps.<sup>3</sup>

This article not only analyzes the impact of AI and Big Data on the rule of law criteria, but also suggests approaches to harmoniously integrate technology and law.

Above all, it raises a central question: can developing countries such as Vietnam maintain and enhance rule-of-law standards in a governance environment increasingly shaped by data and algorithms?

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<sup>1</sup> ND Minh, ‘Rule of Law Principles in the System of Principles of the Rule of Law State’ (2019) (385) *State and Law J* 15–20.

<sup>2</sup> Justice Project, *Rule of Law Index 2024* <https://worldjusticeproject.org/> accessed 25 September 2025.

<sup>3</sup> NM Tuan, ‘Implementing the Rule of Law in Vietnam: Current Situation and Solutions’ (2022) (466) *Legislative Research J* 4–7.

To address this problem, the article is guided by four interrelated research questions:

(1) What structural pressures do artificial intelligence and Big Data impose on the effective functioning of legality, and why are these pressures insufficiently captured by existing rule-of-law indicators such as the World Justice Project Index?

(2) How can a Digital Rule of Law Index be conceptually structured to complement—rather than replace—classical rule-of-law measurement?

(3) When this framework is applied to Vietnam, where do the principal institutional and legal vulnerabilities emerge under conditions of accelerated digital transformation?

(4) What regulatory and governance implications follow for strengthening rule-of-law performance in developing jurisdictions?

Building on these questions, the article makes three principal contributions.

Conceptually, it develops the notion of the digital rule of law and a two-layer understanding of legality integrating institutional and infrastructural conditions.

Methodologically, it proposes the Digital Rule of Law Index (DRLI) as an analytical extension linking normative legal theory with rule-of-law measurement.

Practically, it formulates a reform-oriented governance roadmap for Vietnam that may also inform other digitally transforming states.

## 2 LITERATURE REVIEW

The relationship between artificial intelligence (AI), big data, and the rule of law has become an increasingly prominent subject of contemporary legal scholarship. Existing literature generally converges around two principal analytical orientations. The first emphasizes the governance-enhancing potential of AI and data-driven technologies, highlighting improvements in administrative efficiency, institutional transparency, and evidence-based policymaking (OECD 2019; UNESCO 2021). The second adopts a more critical perspective, underscoring risks associated with algorithmic opacity, systemic bias, and the possible erosion of fundamental rights, particularly privacy, equality before the law, and procedural fairness (Angwin et al. 2016; Jobin, Ienca, and Vayena 2019).

Within comparative regulatory discourse, scholarship focusing on the European Union and North America documents emerging legal frameworks designed to mitigate these risks. Instruments such as the European Union's Artificial Intelligence Act and Canada's Directive on Automated Decision-Making exemplify early attempts to institutionalize human-centred and rights-based governance models for AI deployment in the public sector (European Commission 2021; Government of Canada 2019). By contrast, literature addressing developing jurisdictions tends to foreground structural constraints, including limited institutional capacity and the complexities of internalizing transnational regulatory standards within domestic legal orders (Nguyen Duc Minh 2019; Dao Tri Uc 2022).

Notwithstanding these contributions, a significant analytical gap persists in the systematic examination of how AI and big data reshape the conceptual foundations and empirical measurement of the Rule of Law Index as a global indicator of governance quality. This article seeks to address that gap by analysing the multidimensional impact of digital technologies on the Index's core indicators, with particular attention to the Vietnamese legal and institutional context.

### **3 THEORETICAL FRAMEWORK: DIGITAL RULE OF LAW AND THE RECALIBRATION OF RULE-OF-LAW EVALUATION**

This study advances the concept of the digital rule of law to explain how legality operates in governance environments increasingly shaped by artificial intelligence, Big Data, and automated decision-making. Under these conditions, public authority is exercised not only through legal norms, institutions, and procedures, but also through data infrastructures and algorithmic systems that structure how the state collects information, evaluates risks, and produces decisions affecting individuals. The rule of law in the digital age therefore requires that algorithmic power be subjected to the same normative constraints traditionally imposed on public power, including transparency, accountability, procedural fairness, and the protection of fundamental rights. Rather than replacing the classical conception of legality, the digital rule of law redefines its operational meaning in contexts where governance is mediated by computation.

Artificial intelligence introduces structural pressures on legality along three closely connected dimensions. First, the visibility of public reasoning becomes fragile when decisions rely on opaque or complex models, weakening the possibility of meaningful understanding, contestation, and review. Second, the attribution of responsibility becomes diffused across designers, data providers, vendors, and officials, challenging accountability mechanisms that presuppose a clearly identifiable decision-maker. Third, procedural fairness and equality before the law are exposed to risks arising from biased datasets, proxy discrimination, and feedback loops embedded in predictive analytics. These transformations demonstrate that the effectiveness of the rule of law in digital governance depends not only on formal legal guarantees but also on whether technological infrastructures themselves comply with rule-of-law requirements.

To capture this transformation analytically, the article proposes a two-layer conception of the rule of law. The first layer concerns the institutional architecture of legality, constitutional limits on power, legality in administration, judicial independence, rights protection, and access to justice. The second layer concerns the infrastructural conditions under which digital governance operates, including explainability and traceability of automated decisions, lawful and secure data governance, prevention of algorithmic bias, independent auditability, and effective mechanisms for contestation and remedy. In AI-mediated governance, the infrastructural layer becomes a necessary precondition for the effective functioning of the institutional layer, since formal guarantees remain ineffective if algorithmic systems prevent explanation, accountability, or correction.

From this perspective, digital transformation should be understood not as a separate policy domain but as a cross-cutting structural factor capable of reshaping multiple dimensions of rule-of-law performance simultaneously. Transparency now depends on intelligible disclosure of automated decision processes; fundamental rights protection must extend to privacy, data protection, and safeguards against algorithmic discrimination and disproportionate surveillance; regulatory enforcement must remain reviewable and proportionate despite automation; and judicial or administrative decision-making must ensure that algorithmic assistance does not erode due process or institutional independence. Consequently, shifts in technological governance can influence rule-of-law outcomes even in the absence of formal legal change.

Building on this framework, the study formulates a set of normative conditions for recalibrating rule-of-law evaluation in the digital age. Automated public decisions must rest on clear legal authority and reviewable logic; transparency must be meaningful rather than symbolic; responsibility must remain legally attributable across the lifecycle of algorithmic systems; privacy, non-discrimination, and human dignity must be embedded within data and model governance; and individuals must retain accessible avenues to challenge and correct AI-influenced decisions. These conditions function as methodological complements to traditional rule-of-law indicators, enabling existing evaluation frameworks to capture whether classical guarantees of legality remain effective under algorithmic governance.

In this sense, recalibration does not imply replacing established rule-of-law indices, but rather extending them to incorporate the digital conditions that determine the real-world effectiveness of legality. The rule of law thus emerges not as a static institutional ideal, but as an adaptive normative structure capable of governing power in its evolving technological form.

#### **4 DIGITAL RULE OF LAW INDEX MODEL**

Contemporary rule-of-law assessment frameworks were designed for governance systems in which public authority operates primarily through legal norms, administrative procedures, and judicial institutions. The rapid integration of artificial intelligence, Big Data analytics, and automated decision-making fundamentally transforms these conditions by relocating decisive aspects of governance into data infrastructures and algorithmic systems. While classical rule-of-law principles remain normatively valid, they are no longer sufficient to determine whether legality functions effectively in algorithmically mediated governance. Opacity, diffused responsibility, and data-driven discrimination may undermine transparency, accountability, and procedural fairness even where formal legal guarantees persist.

To address this structural shift, this article proposes a Digital Rule of Law Index (DRLI) as a methodological extension—rather than a replacement—of existing rule-of-law measurement frameworks. The DRLI evaluates the digital conditions under which

institutional legality operates, thereby operationalizing the concept of infrastructural rule of law introduced in the theoretical framework.

The model is structured around four interrelated normative pillars.

First, algorithmic transparency and explainability, assessing whether automated public decision systems are intelligible, traceable, and open to scrutiny.

Second, digital accountability and auditability, evaluating whether legal responsibility remains attributable across the lifecycle of AI-assisted governance and whether independent oversight and corrective mechanisms exist.

Third, fundamental rights protection in data governance, examining safeguards for privacy, non-discrimination, proportionality, and limits on surveillance.

Fourth, contestability, remedy, and human oversight, determining whether individuals can effectively challenge automated decisions, obtain meaningful explanation, and access administrative or judicial redress.

Each pillar translates into measurable indicator clusters capable of doctrinal, institutional, or empirical assessment across jurisdictions. At an operational level, each pillar may be translated into indicative legal–institutional markers.

Algorithmic transparency may be reflected in duties of disclosure, explanation rights, and traceability of automated reasoning.

Digital accountability may be observed through audit mandates, liability attribution across the AI lifecycle, and the presence of independent supervisory bodies.

Rights protection in data governance may be indicated by data-protection impact assessment requirements, proportionality limits on surveillance, and enforceable privacy safeguards.

Contestability and human oversight may be identified through notification duties, accessible appeal mechanisms, and the availability of meaningful human review of automated decisions.

These markers do not constitute a quantitative scoring system, but provide a doctrinal and institutional basis for comparative evaluation of digital rule-of-law performance.

Collectively, these indicators function as a digital overlay interacting with traditional rule-of-law dimensions such as open government, constraints on public power, protection of fundamental rights, and access to justice. The DRLI therefore explains how

technological governance conditions may systematically influence rule-of-law performance without formal institutional change.

Analytically, the proposed model provides a bridge between normative legal theory and governance measurement, enables structured comparative evaluation of AI regulation, and offers a reform-oriented framework for digitally transforming states, including Vietnam. In this sense, the Digital Rule of Law Index reconceptualizes the rule of law as an adaptive evaluative structure capable of governing public power in the age of data and algorithms.

## 5 METHODOLOGY

This article employs a qualitative doctrinal legal research design, complemented by comparative analysis and case-based illustration. The doctrinal method is used to examine authoritative legal sources and governance instruments relevant to AI and Big Data, including the methodological architecture of the World Justice Project's Rule of Law Index and Vietnam's emerging legal framework on digital governance and data protection.

To ensure analytical coherence, the study uses the proposed Digital Rule of Law Index (DRLI) as a theoretical–analytical framework for structuring doctrinal assessment. In this sense, the DRLI is not applied as a statistical index; rather, it functions as an interpretive grid organizing the analysis around four pillars: (i) algorithmic transparency and explainability, (ii) digital accountability and auditability, (iii) rights protection in data governance, and (iv) contestability, remedy, and human oversight. The doctrinal analysis identifies how existing legal rules and institutional arrangements address—or fail to address—these four dimensions and how such gaps may affect the effective functioning of classical rule-of-law guarantees.

The comparative component examines selected regulatory approaches in the European Union, Canada, and the United States. These jurisdictions are chosen to represent different governance patterns: a risk-based comprehensive regulatory approach (EU), a public-sector administrative governance model emphasizing impact assessment and accountability (Canada), and a fragmented but practice-driven setting shaped by oversight and litigation (United States). Comparison is conducted through a common

DRLI-informed framework to identify converging standards, divergent regulatory techniques, and adaptation pathways relevant for Vietnam.

Finally, the article incorporates a focused case-based analysis of the COMPAS risk-assessment controversy as an illustrative example of how algorithmic governance can generate rule-of-law stress in practice—particularly regarding opacity, accountability gaps, discrimination risks, and limits on contestability. The case is used to clarify the interaction among the DRLI pillars and to support the article’s reform-oriented implications, rather than to generalize statistically.

## 6 RESULTS AND DISCUSSION

### 6.1 The concept of rule of law and rule of law index in modern governance

The rule of law has long been recognized as a core principle that ensures that all state power is limited and subject to legal control.<sup>4</sup> In globalization and technological revolution, the rule of law is no longer only an internal requirement of each country, but has become a standard for measuring the quality of state governance on an international scale.

The World Justice Project (WJP) has developed the Rule of Law Index as a quantitative tool to reflect the level of compliance of countries with the rule of law. The index is based on four universal principles: (1) governments and all organizations and individuals are bound by the law; (2) laws must be clear, public, stable and protect fundamental rights; (3) enacting and enforcing laws must be fair, effective, and accessible; and (4) the judiciary must be independent, impartial, and effective.<sup>5</sup>

From the four principles above, the WJP identifies nine component indicators: limited state power, absence of corruption, open government, fundamental rights, order and security, law enforcement, civil justice, criminal justice, and informal justice. Each

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<sup>4</sup> DT Uc, ‘Common Values, Characteristics and Specificities of the Socialist Rule of Law State of Vietnam’ (2022) (450+451) *State and Law J* 14–19.

<sup>5</sup> World Justice Project, *Rule of Law Index 2024* <https://worldjusticeproject.org/> accessed 25 September 2025.

indicator is further specified into many detailed criteria to assess the multidimensional status of the rule of law in each country.

In Vietnam, the Rule of Law Index report in recent years shows a multifaceted picture. Vietnam's total score in 2021 reached 0.49/1, ranking 88/139 countries, with the highest score belonging to the order and security index (0.77) but low in the indexes of human rights and law enforcement.<sup>6</sup> Although this result is indicative, it still reflects the significant challenges that Vietnam faces in strengthening the rule of law, especially in strong digital transformation today.

Table 1. Vietnam Overall Rule of Law according to Indicators in 2024

Indicator	Score	Global Average	Global Ranking (out of 142)
Constraints on Government Powers	0.47	0.54	95/142
Absence of Corruption	0.42	0.51	86/142
Open Government	0.44	0.52	97/142
Fundamental Rights	0.46	0.54	96/142
Order and Security	0.78	0.72	50/142
Regulatory Enforcement	0.46	0.54	92/142
Civil Justice	0.46	0.54	96/142
Criminal Justice	0.47	0.47	63/142

Source: <https://worldjusticeproject.org/rule-of-law-index/country/2024/Vietnam/>

Table 2. Vietnam Overall Rule of Law Score Over Time (2015-2024)

No.	Year	Average Score of All Indicators
1	2015	0.50
2	2016	0.51
3	2017–2018	0.50
4	2019	0.49
5	2020	0.49
6	2021	0.49
7	2022	0.49
8	2023	0.49
9	2024	0.50

Source: <https://worldjusticeproject.org/rule-of-law-index/country/2024/Vietnam/>

In the era of AI and big data, the criteria of the Rule of Law Index not only keep their value but also need to be expanded to assess state governance capacity in a high-tech environment. Issues such as algorithmic transparency, algorithmic accountability, or protection of personal data privacy are increasingly becoming essential aspects to maintain and improve a country's rule of law index.

<sup>6</sup> NM Tuan, 'Implementing the Rule of Law in Vietnam: Current Situation and Solutions' (2022) (466) *Legislative Research J* 4–7.

Understanding the structure and meaning of the Rule of Law Index is therefore an important premise for further analysis of the impact of AI and Big Data on the rule of law—an issue that will be presented in the next section. From the perspective of the Digital Rule of Law Index (DRLI) developed in the previous sections, these institutional indicators alone remain insufficient to capture how algorithmic governance conditions reshape the practical effectiveness of legality. The following analysis therefore applies the DRLI framework to Vietnam in order to identify structural digital-era vulnerabilities that may not be visible through conventional rule-of-law measurement.

## 6.2 AI and big data: opportunities and challenges for the rule of law

Artificial Intelligence (AI) and Big Data offer enormous potential to improve governance, but they also pose unprecedented challenges to the rule of law—the bedrock of modern governance. As automated decision-making systems become increasingly central to governance, the question of how to ensure compliance with the rule of law in a digital environment becomes more urgent than ever.

### 6.2.1 Opportunities from AI and big data for rule of law governance

AI and Big Data can help governments perform governance functions more effectively by:

- *Increased transparency*: Open data systems and real-time data analysis tools can provide citizens with more complete information about the activities of state agencies, enhancing social supervision.<sup>7</sup>
- *Improved regulatory enforcement*: AI-powered big data analytics helps authorities detect violations, predict crime trends, and manage risks.<sup>8</sup>

<sup>7</sup>OECD, ‘Recommendation on Agile Regulatory Governance to Harness Innovation’ (OECD Legal Instruments, 2021) <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0464> accessed 25 September 2025; OECD, *Enhancing Access to and Sharing of Data in the Age of AI: Companion Document* (OECD Publishing 2024) [https://www.oecd.org/en/publications/enhancing-access-to-and-sharing-of-data-in-the-age-of-artificial-intelligence\\_23a70dca-en.html](https://www.oecd.org/en/publications/enhancing-access-to-and-sharing-of-data-in-the-age-of-artificial-intelligence_23a70dca-en.html) accessed 25 September 2025.

<sup>8</sup>R Calo, AM Froomkin and I Kerr (eds), *Robot Law* (Edward Elgar 2016); OECD, ‘Recommendation on Agile Regulatory Governance to Harness Innovation’ (OECD Legal Instruments, 2021) <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0464> accessed 25 September 2025.

—*Promote procedural fairness*: Automated decision support systems can reduce human error and bias in case handling.<sup>9</sup>

These applications, if properly designed and monitored, could contribute to improving scores on the Rule of Law Index indicators, particularly transparency, law enforcement, and public order.<sup>10</sup>

### 6.2.2 Challenges to the rule of law criteria

However, AI and Big Data are also giving rise to potential risks that could erode core criteria of the rule of law.

In terms of transparency and accountability, *automated decision-making algorithms often operate as “black boxes” making it difficult to understand and monitor these processes*. When <sup>11</sup>an administrative or judicial decision is supported by AI, who is responsible if the outcome is erroneous? The principle of accountability, which is at the heart of the Rule of Law Index, is at risk of being seriously undermined.<sup>12</sup>

In terms of human rights and privacy, big data mining often requires the collection and processing of enormous volumes of personal data. This poses *risks of violating privacy and data protection, which are important elements of the fundamental rights criteria*. Using AI for social surveillance, such as facial recognition systems or behavioral analysis, also raises concerns about human freedom and dignity.

Regarding the criteria of procedural fairness and judicial independence, AI can be used in the legal and judicial processes (e.g., predicting sentences, assessing the risk of recidivism). However, *reliance on these systems can lead to bias from unrepresentative training data, violating the principle of due process*. In addition, the involvement of AI

<sup>9</sup>C Cath, S Wachter, B Mittelstadt, M Taddeo and L Floridi, ‘Artificial Intelligence and the “Good Society”’: The US, EU, and UK Approach’ (2018) 24(2) *Science and Engineering Ethics* 505.

<sup>10</sup>OECD, ‘Recommendation of the Council on Artificial Intelligence’ (OECD Legal Instruments, 2019) <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449> accessed 25 September 2025.

<sup>11</sup>T Zarsky, ‘The Trouble with Algorithmic Decisions: An Analytic Road Map to Examine Efficiency and Fairness in Automated and Opaque Decision Making’ (2016) 41(1) *Science, Technology & Human Values* 118 <https://doi.org/10.1177/0162243915605575>.

<sup>12</sup>M Scherer, ‘Artificial Intelligence and Legal Decision-Making: The Wide Open? Study on the Example of International Arbitration’ (2019) Queen Mary School of Law Legal Studies Research Paper No 318/2019 <https://ssrn.com/abstract=3392669> accessed 25 September 2025.

in the judicial process also raises judicial independence—a key criterion in the rule of law index.

### 6.2.3 *International experience and lessons for Vietnam*

Many countries around the world have quickly recognized the potential risks of artificial intelligence (AI) and big data on the rule of law, proactively building legal frameworks and monitoring mechanisms to effectively manage them.

In the European Union (EU), the AI Act is considered a pioneering global legislative initiative to regulate AI systems using a risk-based approach. The Act stipulates strict requirements for transparency, algorithmic explanation and accountability for “high-risk” AI systems such as facial recognition, social behavior analysis and judicial decision-making. Independent oversight mechanisms are also proposed to ensure that human rights are not violated during the deployment of AI.<sup>13</sup>

In the United States, although there is no unified legal framework like the EU, courts and regulators have shown caution about the use of AI in the justice system. A notable example is the controversy surrounding the COMPAS (Correctional Offender Management Profiling for Alternative Sanctions) tool. Research by ProPublica found COMPAS was biased against people of color, leading to unfair parole and sentencing decisions. The case has fueled a heated debate about the transparency of algorithms and the need for independent auditing mechanisms to detect and mitigate “algorithmic bias.”<sup>14</sup>

Canada is also leading the way with its Directive on Automated Decision-Making, which outlines governance principles for AI in the public sector. The Directive requires government agencies to conduct impact assessments before deploying automated systems and ensures feedback mechanisms for citizens to appeal AI decisions.<sup>15</sup>

<sup>13</sup> Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence and amending various regulations and directives (Artificial Intelligence Act) <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024R1689> accessed 25 September 2025.

<sup>14</sup> J Angwin, J Larson, S Mattu and L Kirchner, ‘Machine Bias: There’s Software Used Across the Country to Predict Future Criminals. And It’s Biased Against Blacks’ *ProPublica* (2016) <https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing> accessed 25 September 2025.

<sup>15</sup> Government of Canada, *Directive on Automated Decision-Making* (Treasury Board of Canada Secretariat 2019) <https://www.tbs-sct.canada.ca/pol/doc-eng.aspx?id=32592> accessed 25 September 2025.

For Vietnam, promoting digital transformation in state governance is an inevitable trend. However, if a comprehensive legal framework is not established soon, the risk of power imbalance between the State and citizens, increasing digital divide between social groups, and eroding rule of law criteria is real. This requires Vietnam not only to learn advanced models from the EU, the United States and Canada but also to localize technology governance principles under the political-legal context and institutional capacity in the country.

Taking early action will not only help Vietnam take advantage of the opportunities that AI and Big Data bring, but also strengthen the rule of law in deep international integration.

For Vietnam, accelerating digital transformation in state governance requires early identification of similar risks in order to take timely response measures. Without monitoring mechanisms and legal frameworks, the application of AI and Big Data can easily lead to power imbalances, widen the digital divide, and erode the rule of law criteria.

#### *6.2.4 DRLI-based diagnostic of Vietnam's digital rule-of-law vulnerabilities*

Applying the Digital Rule of Law Index to Vietnam reveals an uneven configuration of digital legality across its four normative pillars.

First, algorithmic transparency and explainability remain structurally limited. Existing legal frameworks provide only partial disclosure obligations and lack systematic requirements ensuring intelligible reasoning or traceability in AI-assisted public decision-making.

Second, digital accountability and auditability appear institutionally fragmented. While general administrative and judicial review mechanisms exist, dedicated procedures for independent algorithmic auditing, lifecycle liability attribution, and continuous supervisory oversight are still underdeveloped.

Third, rights protection in data governance shows comparatively stronger progress, particularly through recent developments in personal data protection law and the growing recognition of privacy and data-security safeguards within governance practice.

Fourth, contestability and meaningful human oversight remain the most fragile dimension. Individuals' ability to challenge automated decisions, obtain comprehensible explanations, and secure effective human review is not yet fully embedded within procedural law or administrative practice.

Taken together, these findings indicate that Vietnam's future rule-of-law performance in the digital era will depend less on formal institutional design alone and more on the alignment between technological governance infrastructures and enforceable normative guarantees. Without such alignment, improvements in conventional rule-of-law indicators may coexist with emerging forms of opaque or weakly accountable algorithmic power.

### **6.3 Orientation and solutions to improve the rule of law index in the digital age**

From a DRLI perspective, strengthening rule-of-law performance in the digital era requires reforms structured around four core dimensions of digital legality: algorithmic transparency, digital accountability, rights protection in data governance, and meaningful contestability with human oversight.

The orientations discussed below are therefore presented as institutionally grounded pathways for addressing the structural vulnerabilities identified in the DRLI-based diagnostic of Vietnam, transforming reform proposals into analytically derived implications of the digital rule-of-law framework.

#### *6.3.1 Legal institutionalisation of AI and data governance safeguards*

From a Digital Rule of Law Index (DRLI) perspective, strengthening legality in Vietnam's digital transformation requires embedding transparency, accountability, and fundamental-rights protection directly within the legal architecture governing artificial intelligence and data use. This entails three interrelated institutional measures: the development of a comprehensive AI regulatory framework capable of addressing high-risk automated decision systems; the effective implementation of the Law on Personal Data Protection 2025 as a rights-based safeguard for data governance; and the introduction of enforceable requirements for explainability, traceability, and

responsibility attribution in algorithmic decision-making. Collectively, these measures transform technological governance from a potential source of opacity into an institutional mechanism reinforcing rule-of-law guarantees.

### 6.3.2 *Institutional oversight and accountability in AI-mediated governance*

From DRLI perspective, effective rule-of-law protection in algorithmically mediated governance depends on the existence of independent, reviewable, and socially embedded oversight mechanisms capable of maintaining accountability across the lifecycle of AI deployment.<sup>16</sup> Strengthening Vietnam’s institutional architecture therefore requires three mutually reinforcing safeguards: the establishment of an independent supervisory authority empowered to evaluate, license, and audit high-risk AI systems, drawing on comparative models of data-protection oversight; the enhancement of judicial and constitutional review to ensure that AI-assisted decisions remain legally attributable, contestable, and consistent with fundamental rights<sup>17</sup>; and the facilitation of civil-society and media participation in monitoring technological governance through legally protected access to information and social-impact scrutiny.<sup>18</sup>

Taken together, these mechanisms form an integrated accountability structure that prevents the diffusion of responsibility inherent in automated decision-making while preserving the balance between state authority and individual rights under conditions of digital transformation.<sup>19</sup>

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<sup>16</sup>European Data Protection Supervisor (EDPS), *EDPS Guidelines on Generative AI: Embracing Opportunities, Protecting People* (2024) [https://www.edps.europa.eu/press-publications/press-news/press-releases/2024/edps-guidelines-generative-ai-embracing-opportunities-protecting-people\\_en](https://www.edps.europa.eu/press-publications/press-news/press-releases/2024/edps-guidelines-generative-ai-embracing-opportunities-protecting-people_en) accessed 25 September 2025.

<sup>17</sup> M Scherer, ‘Artificial Intelligence and Legal Decision-Making: The Wide Open? Study on the Example of International Arbitration’ (2019) Queen Mary School of Law Legal Studies Research Paper No 318/2019 <https://ssrn.com/abstract=3392669> accessed 25 September 2025.

<sup>18</sup> C Cath, S Wachter, B Mittelstadt, M Taddeo and L Floridi, ‘Artificial Intelligence and the “Good Society”’: The US, EU, and UK Approach’ (2018) 24(2) *Science and Engineering Ethics* 505.

<sup>19</sup> OECD, ‘Recommendation of the Council on Artificial Intelligence’ (OECD Legal Instruments, 2019) <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449> accessed 25 September 2025.

### 6.3.3 Technological capacity aligned with rule-of-law safeguards

From a DRLI perspective, the effectiveness of digital legality depends not only on formal regulation and institutional oversight but also on the technological capacity through which governance infrastructures are designed and operated. Strengthening rule-of-law resilience in Vietnam therefore requires the integration of legal reasoning, human-rights awareness, and ethical safeguards into the development and management of AI-driven systems.<sup>20</sup> This includes cultivating legally informed technological governance expertise, embedding transparency-enhancing digital infrastructures such as open-data architectures, and ensuring that AI deployment follows human-centred design principles capable of preventing bias, discrimination, and opaque decision-making.<sup>21</sup>

Such alignment transforms technological modernization from a potential source of unchecked algorithmic power into a structural condition supporting accountability, fairness, and the protection of fundamental rights within digital governance.<sup>22</sup>

### 6.3.4 Societal awareness and the cultural foundations of digital legality

Beyond institutional and technological reforms, the sustainability of the digital rule of law ultimately depends on the social internalization of legality in environments shaped by pervasive data processing and algorithmic influence. From a DRLI standpoint, strengthening public awareness of privacy, data protection, and procedural rights constitutes a foundational safeguard against the normalization of opaque or intrusive technological governance.<sup>23</sup> Legal education, civic participation, and media engagement

<sup>20</sup> A Jobin, M Ienca and E Vayena, 'The Global Landscape of AI Ethics Guidelines' (2019) 1(9) *Nature Machine Intelligence* 389 <https://doi.org/10.1038/s42256-019-0088-2>.

<sup>21</sup> OECD, *Open Government Data Report: Enhancing Policy Maturity for Sustainable Impact* (OECD Publishing 2018) [https://www.oecd.org/en/publications/2018/09/open-government-data-report\\_g1g94eac.html](https://www.oecd.org/en/publications/2018/09/open-government-data-report_g1g94eac.html) accessed 25 September 2025.

<sup>22</sup> OECD, 'Recommendation of the Council on Artificial Intelligence' (OECD Legal Instruments, 2019) <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449> accessed 25 September 2025.

<sup>23</sup> UNESCO, *Recommendation on the Ethics of Artificial Intelligence* (UNESCO 2021) <https://unesdoc.unesco.org/ark:/48223/pf0000381137> accessed 25 September 2025.

therefore function not merely as supportive measures but as constitutive elements of rule-of-law resilience in the digital age.<sup>24</sup>

By embedding technological literacy within rule-of-law consciousness, societies can maintain democratic accountability and human-rights protection even as governance becomes increasingly mediated by automated systems.

### 6.3.5 Comparative learning and contextual adaptation in digitally transforming states

Comparative regulatory experience provides an essential reference point for institutional adaptation, yet the DRLI framework underscores that effective digital legality cannot be achieved through mechanical transplantation of foreign governance models.<sup>25</sup> While instruments such as the European Union’s risk-based AI regulation and Canada’s administrative accountability mechanisms illustrate emerging global standards, their relevance for Vietnam lies primarily in the underlying normative logic of transparency, accountability, and rights protection rather than in specific institutional design.<sup>26</sup>

Accordingly, strengthening the rule of law in Vietnam’s digital transformation requires a process of contextualized legal adaptation that combines transnational learning with domestic constitutional structure, political-legal culture, and institutional capacity.<sup>27</sup> Such calibrated integration enables developing jurisdictions to enhance rule-of-law performance while preserving normative coherence and governance stability in the face of rapid technological change.

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<sup>24</sup>A Jobin, M Ienca and E Vayena, ‘The Global Landscape of AI Ethics Guidelines’ (2019) 1(9) *Nature Machine Intelligence* 389 <https://doi.org/10.1038/s42256-019-0088-2>.

<sup>25</sup> European Commission, ‘Proposal for a Regulation Laying Down Harmonized Rules on Artificial Intelligence (Artificial Intelligence Act)’ COM (2021) 206 final <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0206> accessed 25 September 2025.

<sup>26</sup> Government of Canada, *Directive on Automated Decision-Making* (2019) <https://www.canada.ca/en/government/system/digital-government/digital-government-innovations/responsible-use-ai/algorithmic-impact-assessment.html> accessed 25 September 2025.

<sup>27</sup> C Cath, S Wachter, B Mittelstadt, M Taddeo and L Floridi, ‘Artificial Intelligence and the “Good Society”’: The US, EU, and UK Approach’ (2018) 24(2) *Science and Engineering Ethics* 505.

## 7 CONCLUSION, LIMITATIONS AND FUTURE RESEARCH

This article has examined how the rise of artificial intelligence and Big Data reshapes the institutional and normative conditions under which the rule of law operates in contemporary governance. Moving beyond conventional rule-of-law measurement, the study introduced the concept of the digital rule of law and proposed the Digital Rule of Law Index (DRLI) as an analytical framework capable of capturing structural pressures that remain insufficiently visible within existing indicators such as the World Justice Project Index.

Applying the DRLI to Vietnam reveals a pattern of asymmetrical digital legality. While recent developments in data governance and privacy protection indicate meaningful institutional progress, significant gaps persist in algorithmic transparency, independent accountability and auditability, and the effective contestability of automated decision-making. These findings suggest that future improvements in rule-of-law performance will depend not only on formal institutional reform but also on the alignment between technological governance infrastructures and normative legal guarantees.

In this respect, the article makes three principal contributions. Conceptually, it advances a two-layer understanding of legality integrating institutional rule-of-law structures with digital governance conditions. Methodologically, it positions the DRLI as a doctrinal–analytical bridge linking legal theory with rule-of-law evaluation. Practically, it identifies reform pathways through which Vietnam may strengthen rule-of-law resilience in the digital age while offering insights relevant to other developing jurisdictions undergoing accelerated technological transformation.

Several limitations should nevertheless be acknowledged. The analysis remains primarily theoretical and doctrinal, without undertaking systematic empirical measurement or quantitative DRLI scoring. In addition, the comparative dimension is illustrative rather than exhaustive, focusing on selected regulatory experiences rather than a comprehensive cross-jurisdictional dataset.

Future research should therefore pursue three directions. First, the development of operational indicators and empirical methodologies capable of measuring DRLI performance across jurisdictions. Second, detailed sector-specific case studies examining how algorithmic governance affects legality in domains such as justice, public

administration, and digital surveillance. Third, broader comparative research across developing states to refine the relationship between digital transformation and rule-of-law resilience in diverse institutional contexts.

Through these avenues, the emerging paradigm of the digital rule of law may evolve from a conceptual framework into a measurable and policy-relevant foundation for governance in the age of intelligent systems.

## REFERENCES

1. J Angwin, J Larson, S Mattu and L Kirchner, ‘Machine Bias: There’s Software Used Across the Country to Predict Future Criminals. And It’s Biased Against Blacks’ *ProPublica* (2016) <https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing> accessed 25 September 2025.
2. R Calo, AM Froomkin and I Kerr (eds), *Robot Law* (Edward Elgar 2016).
3. C Cath, S Wachter, B Mittelstadt, M Taddeo and L Floridi, ‘Artificial Intelligence and the “Good Society”: The US, EU, and UK Approach’ (2018) 24 *Science and Engineering Ethics* 505 <https://doi.org/10.1007/s11948-017-9901-7>.
4. European Commission, ‘Proposal for a Regulation Laying Down Harmonized Rules on Artificial Intelligence (Artificial Intelligence Act)’ COM (2021) 206 final <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0206> accessed 25 September 2025.
5. European Data Protection Supervisor, *EDPS Guidelines on Generative AI: Embracing Opportunities, Protecting People* (2024) [https://www.edps.europa.eu/press-publications/press-news/press-releases/2024/edps-guidelines-generative-ai-embracing-opportunities-protecting-people\\_en](https://www.edps.europa.eu/press-publications/press-news/press-releases/2024/edps-guidelines-generative-ai-embracing-opportunities-protecting-people_en) accessed 25 September 2025.
6. Government of Canada, *Directive on Automated Decision-Making* (Treasury Board of Canada Secretariat 2019) <https://www.tbs-sct.canada.ca/pol/doc-eng.aspx?id=32592> accessed 25 September 2025.
7. A Jobin, M Ienca and E Vayena, ‘The Global Landscape of AI Ethics Guidelines’ (2019) 1(9) *Nature Machine Intelligence* 389 <https://doi.org/10.1038/s42256-019-0088-2>.
8. ND Minh, ‘Rule of Law Principles in the System of Principles of the Rule of Law State’ (2019) (385) *State and Law J* 15.
9. OECD, *Open Government Data Report: Enhancing Policy Maturity for Sustainable Impact* (OECD Publishing 2018)

[https://www.oecd.org/en/publications/2018/09/open-government-data-report\\_g1g94eac.html](https://www.oecd.org/en/publications/2018/09/open-government-data-report_g1g94eac.html) accessed 25 September 2025.

10. OECD, ‘Recommendation of the Council on Artificial Intelligence’ (OECD Legal Instruments 2019) <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449> accessed 25 September 2025.
11. OECD, ‘Recommendation on Agile Regulatory Governance to Harness Innovation’ (OECD Legal Instruments 2021) <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0464> accessed 25 September 2025.
12. OECD, *Enhancing Access to and Sharing of Data in the Age of AI: Companion Document* (OECD Publishing 2024) [https://www.oecd.org/en/publications/enhancing-access-to-and-sharing-of-data-in-the-age-of-artificial-intelligence\\_23a70dca-en.html](https://www.oecd.org/en/publications/enhancing-access-to-and-sharing-of-data-in-the-age-of-artificial-intelligence_23a70dca-en.html) accessed 25 September 2025.
13. Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence and amending various regulations and directives (Artificial Intelligence Act) <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024R1689> accessed 25 September 2025.
14. M Scherer, ‘Artificial Intelligence and Legal Decision-Making: The Wide Open? Study on the Example of International Arbitration’ (2019) Queen Mary School of Law Legal Studies Research Paper No 318/2019 <https://ssrn.com/abstract=3392669> accessed 25 September 2025.
15. NM Tuan, ‘Implementing the Rule of Law in Vietnam: Current Situation and Solutions’ (2022) (466) *Legislative Research J* 4.
16. DT Uc, ‘Common Values, Characteristics and Specificities of the Socialist Rule of Law State of Vietnam’ (2022) (450+451) *State and Law J* 14.
17. UNESCO, *Recommendation on the Ethics of Artificial Intelligence* (UNESCO 2021) <https://unesdoc.unesco.org/ark:/48223/pf0000381137> accessed 25 September 2025.
18. World Justice Project, *Rule of Law Index 2024* <https://worldjusticeproject.org/> accessed 25 September 2025.
19. T Zarsky, ‘The Trouble with Algorithmic Decisions: An Analytic Road Map to Examine Efficiency and Fairness in Automated and Opaque Decision Making’ (2016) 41(1) *Science, Technology & Human Values* 118 <https://doi.org/10.1177/0162243915605575>.

### Authors’ Contribution

All authors contributed equally to the development of this article.

### **Data availability**

All datasets relevant to this study's findings are fully available within the article.

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