



Article

AI Governance Models Across Borders

Article History:

Name of Author:

Judith Torres¹, Jared Roberts², Kevin Mason³ and Mason Roberts⁴

Affiliation: ¹Associate Professor, School of Retail Management, Cape Innovation Institute, South Africa

²Research Associate, School of Economics and Commerce, Nairobi Metropolitan University, Kenya

³Assistant Professor, School of Retail Management, Kyoto Central University, Japan

⁴Senior Research Fellow, Department of Commerce, Cape Innovation Institute, South Africa

Corresponding Author: Judith Torres

How to cite this article: Judith Torres, *et al.* AI Governance Models Across Borders. *J Community Med* 2020;(1);25-28.

©2020 the Author(s). This is an open access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>)

Abstract: Artificial Intelligence (AI) regulation has emerged as a critical legal and policy priority as countries race to balance innovation, ethics, and risk management. This article analyzes global AI governance frameworks across major jurisdictions—including the European Union, United States, United Kingdom, China, and select countries in Asia and Latin America—highlighting their distinct approaches to AI oversight. These range from the EU’s risk-tiered AI Act and China’s centralized regulatory controls to the sectoral, principle-based models seen in the US and UK. The article examines international coordination efforts such as the OECD AI Principles, UNESCO AI Ethics Recommendation, and the 2024 OECD-GPAI merger, identifying both opportunities and barriers to harmonized global AI governance. Key themes include regulatory fragmentation, data governance conflicts, and compliance burdens in cross-border deployments—particularly in sensitive sectors like healthcare. Through comparative tables, timelines, and visuals, this piece proposes pathways for adaptive, hybrid governance models that blend regional strengths while aligning on core global standards for fairness, transparency, and human rights.

Keywords: AI governance, AI regulation, EU AI Act, OECD AI Principles, UNESCO AI Ethics, risk-based regulation, cross-border AI compliance, data governance, regulatory fragmentation, AI harmonization, national AI strategies, ethical AI, AI policy frameworks, AI sandboxes,

INTRODUCTION

Artificial Intelligence (AI) is now a transformative force in society, economics, law, and international relations. However, as AI development and deployment expand globally, nations face the challenge of regulating AI in ways that both encourage innovation and safeguard public interests. Disparity in national priorities, cultural values, and regulatory philosophies has led to diverse governance models worldwide. This research article examines leading AI governance frameworks across borders, their principles, emerging global standards, cross-jurisdictional challenges, and pathways toward harmonized governance, with charts and images for clarity.

GLOBAL FRAMEWORKS AND INTERNATIONAL PRINCIPLES

International Non-Binding Initiatives

Efforts to establish shared global values for AI governance have materialized in several soft-law instruments:

- **OECD AI Principles (2019):** These non-binding guidelines encourage human-centric, transparent, fair, and accountable AI. While adopted widely, their enforcement relies on voluntary compliance^{[1][2]}.

- **UNESCO Recommendation on AI Ethics (2021):** A globally endorsed set of ethical guidelines, emphasizing human rights, transparency, and fairness, serving as a blueprint for ethical AI deployment worldwide^[1].
- **G7 Hiroshima AI Process (2023):** G7 and partner nations agreed on guiding principles for trustworthy and responsible AI including risk analysis and international cooperation^[1].
- **Council of Europe AI Convention (Draft):** A treaty under consideration that will obligate signatories to conduct human rights impact assessments and prohibit harmful AI if ratified^[1].

These frameworks provide a moral and operational compass but lack the direct enforceability of national statutes.

REGIONAL AND NATIONAL GOVERNANCE MODELS

European Union (EU): Comprehensive Risk-Based Regulation

- **AI Act (Effective August 2024; full enforcement by 2027):** The world's most comprehensive attempt at risk-based AI regulation, the EU AI Act classifies AI into four tiers:
 - **Unacceptable risk:** Banned (e.g., social scoring by governments).
 - **High risk:** Subject to conformity assessments, data governance, human oversight, and transparency (e.g., biometric ID, critical infrastructure).
 - **Limited risk:** Transparency requirements (e.g., AI chatbots).
 - **Minimal risk:** Most AI systems, lightly regulated^{[3][4][5]}.
- **Implementation:** Strict penalties for non-compliance; the Act incentivizes global firms to align with EU standards—the so-called "Brussels Effect"^{[3][4][5]}.
- **Coordination:** The EU's regulatory harmonization is designed to protect citizens but may raise compliance costs and questions about innovation pacing.

Chart: EU AI Act Risk Tiers and Examples

[image:1]

United States: Decentralized, Sectoral Approach

- **No Federal AI Law:** The US follows a sector-specific and largely decentralized model:
 - **Federal agencies** (FDA, FTC, NHTSA) regulate AI within their domains.
 - **States** enact their own rules, especially for areas like facial recognition and employment AI^{[3][6][3]}.
 - **Voluntary frameworks:** NIST's AI Risk Management Framework and the White House's "AI Bill of Rights" guide industry practices but are not binding^[3].
- **Fragmentation:** The lack of a comprehensive federal law enables innovation and specialization but creates regulatory gaps and compliance complexity for cross-state or international applications.

Image: US AI Regulatory Landscape (Federal vs. State)

[image:2]

United Kingdom: Pro-Innovation, Contextual Model

- **Flexible Regulatory Guidance:** The UK empowers sectoral regulators—such as the FCA and MHRA—to craft context-specific AI guidance.
- **Principles-Based Regulation:** Emphasis on safety, transparency, fairness, accountability, and contestability; use of regulatory sandboxes for controlled testing^{[3][7]}.
- **Pending Legislation:** As of 2025, the UK may introduce an AI Act influenced by the EU and US frameworks^[7].
- **Strengths & Weaknesses:** This model provides agility and rapid response to technological shifts but can lead to inconsistencies and coverage gaps for high-risk applications.

China: Centralized, State-Led Model

- **Comprehensive AI Regulation:** China employs a tightly coordinated approach, emphasizing:
 - Alignment with national priorities (economic development, social stability).
 - Algorithmic registration, technical audits, and strong data governance via the Personal Information Protection Law (PIPL) and Data Security Law.
 - Rapid government-led enforcement, sometimes at the expense of transparency or open ecosystem participation^{[3][8]}.

Other Regions

- **Canada:** Progress on the Artificial Intelligence and Data Act (AIDA) for "high-impact" AI, but as of 2025, still pending enactment^[2].

- **Japan, Singapore, South Korea:** Blend “soft law” guidance with sector-specific rules; Singapore's Model AI Governance Framework is internationally influential^{[9][6][10]}.
- **India, Brazil, and emerging economies:** Developing guidelines focused on innovation, inclusion, and ethics, moving toward more formal regulation^{[11][6]}.

Comparative Chart: Global AI Governance Models

Region	Model Type	Main Features/Approach	Enforcement
EU	Comprehensive, risk-based	Binding regulation via AI Act	Strict supervision, significant penalties
US	Decentralized, sectoral	Federal agencies, state laws, voluntary frameworks	Fragmented, sector-specific
UK	Principles-based, flexible	Guidance, sectoral regulators, sandboxes	Advised, not yet binding
China	State-led, coordinated	Rapid deployment, audits, national strategy	Direct, centralized control
Japan/Singapore	Hybrid, sector-focused	Soft law + targeted regulation	Mixed, sectoral
Canada	Pending (“high-impact” focus)	Proposed federal law	In progress (2025)

Cross-Border Governance Challenges

Key Barriers

- **Regulatory Fragmentation:** Diverse laws (GDPR, PIPL, HIPAA, etc.) create compliance burdens for firms operating internationally, especially in sensitive sectors like healthcare^[12].
- **Divergent Values:** Privacy vs. innovation, individual rights vs. state control, and different approaches to accountability reshape AI oversight regionally^{[12][13]}.
- **Bias and Fairness in Legal Tech:** AI trained on regional legal data may exhibit bias when deployed elsewhere; lack of interoperability impairs legal tech solutions' scalability^[13].
- **Data Governance:** Data localization requirements and conflicting privacy laws complicate cross-border AI services, raising the need for robust international frameworks^[5].

CASE EXAMPLE: AI IN HEALTHCARE

Healthcare AI faces especially acute cross-jurisdictional challenges. Differences in medical device certification, patient data protection (e.g., HIPAA vs. GDPR), and risk-based regulation make deployment and compliance difficult across borders^[12].

Emerging Pathways and Future Directions

International Coordination

- **OECD-GPAI Merger (2024):** The OECD and Global Partnership on AI united to harmonize efforts and expand participation by developing countries, strengthening the global pursuit of trustworthy AI governance^{[2][14]}.
- **Standardization Efforts:** Adoption of international technical standards (ISO/IEC), as well as ethical and risk management guidelines, is increasing as a means to foster global interoperability^{[12][11]}.

Chart: Timeline of Key Global AI Governance Milestones (2019–2025)

[image:3]

Adaptive, Hybrid Governance Models

- **Risk-tiered oversight:** Combining EU-style risk frameworks with US/Asia innovation accelerators and strategic alignment mechanisms may allow agility balanced with safety. Multi-stakeholder, adaptive governance is proposed by thought leaders to leverage regional strengths and minimize gaps^[15].
- **Regulatory Sandboxes:** Widely implemented in the UK, Singapore, and certain US/EU regions, these allow for safe, real-world testing of AI with regulatory feedback—accelerating policy learning and compliance readiness^{[3][7][9]}.

Toward Harmonization

Global consensus remains challenging—especially given geopolitical competition and commercial incentives. But gradual alignment on baseline principles (fairness, transparency, human rights, safety) is emerging—driven by market forces, the "Brussels Effect" of the EU, and ongoing international forums^{[3][14][21]}.

CONCLUSION

AI governance is rapidly evolving and remains highly fragmented across borders. Key models include:

- **The comprehensive, risk-based EU approach;**
- **Decentralized, sectoral regulation in the US;**
- **Flexible, principle-driven frameworks in the UK and parts of Asia;**
- **Centralized, directive-led models in China;** as well as a patchwork of emerging legislation elsewhere. While harmonization is limited by divergent legal, cultural, and economic priorities, ongoing international cooperation, technical standardization, and global partnerships are cultivating a future of more unified, ethical, and effective AI governance.

Figures and Illustrations

Figure 1: EU AI Act Risk Tiers and Examples

[image:1]

Figure 2: US AI Regulatory Landscape (Federal vs. State)

[image:2]

Figure 3: Timeline of Global AI Governance Milestones (2019–2025)

[image:3]

REFERENCES:

1. <https://verifywise.ai/global-ai-regulations-and-frameworks-a-country-by-country-guide-for-legal-policy-and-grc-teams/>
2. <https://www.oecd.org/en/about/news/speech-statements/2024/07/GPAI-and-OECD-unite-to-advance-coordinated-international-efforts-for-trustworthy-AI.html>
3. <https://gradientflow.com/ai-governance-global-cheat-sheet/>
4. <https://www.mindfoundry.ai/blog/ai-regulations-around-the-world>
5. <https://www.lawrbit.com/global/ai-and-global-data-privacy-laws/>
6. <https://www.whitecase.com/insight-our-thinking/ai-watch-global-regulatory-tracker-united-states>
7. <https://www.cimplifi.com/resources/the-updated-state-of-ai-regulations-for-2025/>
8. <https://www.sciencedirect.com/science/article/abs/pii/S0308596124001472>
9. https://actuaries.org/app/uploads/2025/05/AITF2024_G1_Comparison_Chart_Supporting_Document_DRAFT.pdf
10. <https://m.fairai.or.kr/research/papers/25312>
11. <https://afpr.in/ai-governance-in-india-navigating-ethical-and-regulatory-challenges/>
12. <https://www.censinet.com/perspectives/cross-jurisdictional-ai-governance-creating-unified-approaches-in-a-fragmented-regulatory-landscape>
13. <https://www.lawjournal.info/article/177/5-1-34-764.pdf>
14. <https://sciencebusiness.net/news/ai/two-global-ai-initiatives-merge-aim-involve-more-developing-countries-ai-policy-debate>
15. <https://arxiv.org/pdf/2504.00652.pdf>