T15P03 / AI Governance and Regulation: Emerging Approaches through a Comparative Lens

Topic : T15 / SCIENCE AND TECHNOLOGY POLICY

Chair : Gleb Papyshev (The Hong Kong University of Science and Technology)

Second Chair : Keith Jin Deng Chan (The Hong Kong University of Science and Technology)

Third Chair : Sara Migliorini (University of Macau)

GENERAL OBJECTIVES, RESEARCH QUESTIONS AND SCIENTIFIC RELEVANCE

Objectives

As artificial intelligence (AI) becomes increasingly integral to various sectors of the global economy, the imperative to establish effective governance and regulatory frameworks has never been more pressing. Governments around the world are striving to navigate the complex landscape of AI regulation, balancing the promotion of innovation with the protection from potential risks while maintaining ethical integrity. This panel aims to provide a comprehensive analysis of diverse approaches to AI governance and regulation, with a focus on strategies adopted by emerging economies.

Research Question

How do emerging economies navigate the balance between innovation and regulation in AI governance, and what role do regulatory frameworks from major jurisdictions (EU, US, China) play in shaping their approaches?

Literature Review

Recent scholarship has revealed a complex landscape of AI governance dominated by three distinct regulatory approaches. These approaches reflect fundamentally different philosophies: China's state-driven development model, the US's market-driven approach, and the EU's rights-driven framework (Bradford, 2023). This panel is interested in how these jurisdictions compete not only for technological dominance but also for regulatory supremacy, seeking to project their models globally (Smuha, 2021).

The concept of regulatory influence is particularly evident in what has been termed the "Brussels Effect," whereby the EU's market power enables it to set de facto global standards (Bradford, 2012, 2020). In the realm of digital governance, this phenomenon is exemplified by the GDPR's impact on global data protection standards (Mahieu et al., 2021). However, AI's rapid evolution and geopolitical significance complicate the establishment of uniform global standards (Almada & Radu, 2024). Parallel to this, research identifies an emerging "Beijing Effect," where China's regulatory framework, emphasizing pro-growth and developmental priorities, particularly influences emerging economies (Erie & Streinz, 2021; Migliorini, 2024).

This panel aims to address a critical gap in current discussions of AI governance by bringing together experts studying how emerging economies develop hybrid regulatory models(Chan et al., 2024; Migliorini & Neuwirth, 2023; Papyshev & Yarime, 2023). While most academic discussions on AI governance focus on the EU, US, and China’s approaches, our panel will be especially interested in examining how other countries navigate between these established frameworks while developing context-specific approaches.

Scientific Relevance

This panel will adopt a comparative analysis approach, examining case studies from various emerging economies to understand their unique regulatory challenges and opportunities. This panel will contribute to the academic discussions by shedding light on the under-explored area of AI regulation in emerging economies. It aims to generate comprehensive insights into the dynamic interplay between national priorities and international standards, ultimately informing policymakers and stakeholders engaged in crafting effective AI governance frameworks.

Through interdisciplinary dialogue, this panel aspires to enhance our understanding of the multifaceted landscape of AI governance and its implications for global cooperation and innovation.

CALL FOR PAPERS

We invite scholars, policymakers, and practitioners to submit papers that explore the diverse approaches to

AI governance and regulation from various perspectives. Submissions may focus on a single jurisdiction, offer comparative analyses across multiple countries, or examine the impact of international initiatives on national frameworks. We welcome a broad range of methodologies, including legal analysis, qualitative studies, computational social science approaches, and economics-based research. Contributions should aim to uncover the unique challenges and opportunities different jurisdictions face in developing their AI regulatory frameworks, with particular interest in strategies adopted by emerging economies and the influence of international frameworks on national governance strategies.

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Session 1

Thursday, July 3rd 10:15 to 12:15 (D7)

AI Regulation in Brazil: Ideas in Motion

Rodrigo Brandao de Andrade e Silva (NIC.br)

Bruno Fonseca (Universidade de São Paulo)

Beatriz Segur (Universidade de São Paulo)

The presentation of the AI Act by the European Commission in April 2021 amplified global discussions on Artificial Intelligence (AI) regulation, influencing various countries and territories. In Brazil, this event brought renewed attention to Bill (PL) 21, under consideration in the Chamber of Deputies since 2020 and approved in September 2021. The launch of OpenAI's ChatGPT in November 2022 and legislative initiatives in the Federal Senate, such as PL 2338 introduced in 2023, further deepened public discourse on AI regulation. This growing focus prompts key questions: since AI regulation debates began in the Brazilian National Congress, which ideas have lost relevance, and which have gained traction? Among those gaining momentum, what notable changes have emerged?

To explore these questions, we analyzed PL 21/2020 and PL 2338/2023, alongside other AI-related bills in the National Congress. We also reviewed public statements from stakeholders across sectors. Our findings indicate that the debate around AI regulation in Brazil has significantly expanded and fragmented. The number of AI-related bills in Congress increased from just two in 2019 to 51 by April 2024, reflecting heightened legislative activity. Amid this proliferation, two central themes dominated discussions in 2023: determining the competent authority for AI oversight and its institutional structure, and regulating audiovisual content to safeguard against AI-driven misconduct.

This dual focus underscores the evolving priorities within Brazil's AI regulatory landscape. However, the simultaneous expansion and fragmentation of the debate present challenges, including inconsistencies between legislative proposals and a lack of cohesive frameworks. The increasing complexity of AI technologies and their potential societal impact further amplify the need for a unified regulatory approach.

Given this scenario, we argue that strategic actions are necessary to guide responsible AI development and use in Brazil. Specifically, the creation of a joint commission comprising deputies and senators, coupled with greater involvement from the Executive Branch, would foster more coordinated discussions. Such measures could streamline efforts, address fragmented priorities, and ensure the development of balanced policies that promote innovation while safeguarding ethical standards and societal interests.

In conclusion, as AI continues to influence economic and social dynamics, Brazil's ability to regulate the technology responsibly will depend on its capacity to harmonize diverse perspectives, address critical issues like oversight and accountability, and establish a robust institutional framework. This coordinated approach is essential for navigating the complexities of AI and ensuring its benefits are equitably distributed across society.

(Virtual) Estimating GHG Emissions from Cloud Computing: Sources of Inaccuracy, Opportunities and Challenges in Location-based and Use-based Approaches

Ian Varela Soares (Hong Kong University of Science and Technology)

Masaru Yarime (The Hong Kong University of Science and Technology)

Allocating cloud computing greenhouse gas (GHG) emissions is essential for distributing responsibility for climate damages and informing strategies to reduce data center energy consumption and Scope 2 emissions. However, few studies investigated the practical usability of common GHG accounting frameworks for estimating cloud emissions at the national level. This study characterizes four sources of inaccuracies in estimating cloud-related GHG emissions and proposes three targeted interventions to address accounting risks. This work identifies estimation risks for Scopes 2 and 3 emissions when scaling organizational emission inventories of cloud consumers (carbon importers) and cloud hosts (carbon exporters) to national emission inventories. Current practices, which assign emissions based solely on the physical location of the emitting source, e.g., data centers, fail to account for the geographical separation between cloud operation and use. This may lead to an underestimation of total cloud-related GHG emissions and a disproportionate allocation of these emissions to carbon exporters. To mitigate these risks, this study introduces a use-based emissions attribution model, which allocates emissions based on cloud service consumption patterns and operational activities. The study also outlines three specific policy interventions to implement this approach: (i) stricter emission accounting rules, (ii) eco-labeling, and (iii) carbon border adjustment.

Towards Green and Sustainable AI: A Comparative Study of the EU and China's AI Energy Consumption Frameworks

Wayne Wang (University of Hong Kong & Fundação Getulio Vargas)

As artificial intelligence (AI) systems expand in scale and complexity, their energy-intensive processes raise pressing concerns about environmental sustainability and the need for effective regulation. This paper investigates how the European Union (EU) and China—two major regulatory powerhouses—are shaping global AI governance frameworks with particular attention to energy consumption controls. Drawing on a comparative legal and policy analysis, the study illustrates how the EU's rights-driven regulatory ethos (exemplified by proposed AI legislation and climate-oriented directives) and China's state-led, pro-growth model each impose distinct obligations and incentives to curb AI-related energy usage.

By examining legislative instruments, policy guidelines, and emerging industry standards, the research underscores how "Green AI" strategies can be more systematically integrated into regulatory frameworks, thereby mitigating the ecological impact of AI while promoting innovation. Case studies highlight the influence of the "Brussels Effect," wherein the EU's stringent rules set de facto global norms, and the parallel "Beijing Effect," as China's regulatory priorities shape approaches in emerging economies that value rapid technological development. Key findings reveal persistent gaps in harmonizing definitions of sustainable AI, enforcing energy efficiency benchmarks, and establishing globally interoperable standards.

The paper concludes by proposing policy pathways for reducing AI's environmental footprint—ranging from mandatory energy-consumption disclosures and robust enforcement regimes to expanded regulatory sandboxes that foster responsible AI research. Such measures not only address the ecological challenges posed by AI, but also offer strategic advantages for emerging economies seeking to balance innovation with sustainability. By synthesizing comparative insights, this paper contributes to the broader discourse on AI governance and underscores the critical role of energy consumption regulation in shaping a more equitable and environmentally responsible global AI ecosystem.

Legal Liability for Unavoidable AI Harm Should Depend on Explainability

Gleb Papyshev (The Hong Kong University of Science and Technology)

Keith Jin Deng Chan (The Hong Kong University of Science and Technology)

Sara Migliorini (University of Macau)

Despite significant advancements in AI, unavoidable risks, such as specification gaming and hallucinations, remain as inherent features of these systems. Current regulatory frameworks, including initiatives like the EU AI Act, focus on risk prevention but fail to adequately address liability for harms caused by these unavoidable risks. To address this gap, we developed a game-theoretic model that examines the optimal liability framework for AI developers. Our model proposes a dynamic liability regime that incentivizes developers to invest in explainability practices. Under this framework, liability exposure decreases as developers demonstrate higher levels of explainability, thereby creating a direct economic incentive for improving interpretability. The regime links liability to explainability benchmarking, allowing courts to evaluate whether harm was truly unavoidable or attributable to deficiencies in the system design. The framework we advocate for is flexible and adaptive, relying on industry-driven benchmarking standards to ensure that liability rules evolve alongside technological advancements.

(Virtual) Democratic AI Governance, Authoritarian AI Governance? Comparing Artificial Intelligence Strategies in Vietnam, Thailand, and Indonesia

Martin Haenig (City University of Hong Kong)

With artificial intelligence (AI) becoming increasingly central to global economic and political landscapes, the governance of AI has emerged as a critical area of focus in virtually all countries. Current literature frequently dichotomizes AI governance into authoritarian and democratic models, with Beijing and Brussels serving as respective archetypes. These two regulatory models are often presumed to influence other nations based on a regime-type logic: authoritarian states are said to emulate China's developmental, state-driven framework, while democracies are drawn to the EU's rights-based approach. However, such assumptions require further empirical scrutiny.

Southeast Asia (SEA) is a vital region for studying these issues due to its significant political diversity, encompassing various regime types from democratic to authoritarian, and its growing geopolitical and economic importance as the world's third-largest population and fifth-largest economy. Despite this, the region remains underrepresented in comparative research, offering a unique opportunity to explore how diverse political contexts shape AI regulatory strategies.

My research investigates the factors shaping AI governance strategies in three SEA nations – Vietnam, Thailand, and Indonesia – which vary in political regime type, as indicated by their V-Dem scores. These cases offer compelling insights into how emerging economies navigate AI regulation, innovation, and international influences. The study seeks to answer three key questions: (1) Which factors drive the AI governance pathways in these countries? (2) To what extent does regime type influence their adoption of governance frameworks? (3) Are there discernible processes of regulatory diffusion or alignment with Chinese or European models?

Methodologically, the study employs a comparative mixed-method case study approach, integrating qualitative analysis with support from computational text analysis. The synergy between numerical insights and qualitative interpretations promises a holistic analysis of AI governance frameworks. Relevant national-level policy documents, strategies, and AI initiatives will be examined to identify key patterns and themes.

This research aligns closely with the panel's overarching question on how emerging economies balance innovation and regulation in AI governance. By examining the interplay between local political contexts and global regulatory influences, the study contributes to understanding whether and how international frameworks from the EU and China shape governance choices in Southeast Asia. The findings will offer valuable insights for policymakers and scholars engaged in crafting and analyzing AI governance in politically diverse contexts.

Through this study, I aim to bridge critical gaps in the comparative politics and international relations literature on AI governance. The experiences of these three SEA countries highlight the complexities of regulatory diffusion and adaptation in a rapidly evolving technological landscape, challenging oversimplified regime-based categorizations and contributing to the broader discourse on global AI governance frameworks.