



Economics of Artificial Intelligence Governance

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Artificial intelligence (AI)-related institutions are a key factor influencing the economic benefits of this innovations and how such benefits are distributed. This article examines the current stage of AI governance institutions and barriers hindering the widespread adoption of such institutions.

Artificial intelligence (AI) tools are bringing dramatic economic, social, political, and organizational transformations of an unprecedented scale in the global economy. A McKinsey study published in June 2023 identified 63 generative AI (GAI) use cases (targeted GAI applications to specific business challenges, which lead to measurable outcomes) across 16 business functions that could generate annual

economic benefits in the range of US\$2.6 trillion to US\$4.4 trillion. In addition to the use cases, McKinsey analyzed GAI's potential impact on the work activities required in some 850 occupations by modeling scenarios for more than 2,100 "detailed work activities" to measure GAI-led increases in productivity. The additional economic benefits of GAI are estimated at US\$6.1 trillion to US\$7.9 trillion annually.¹ More generally PwC's estimate puts the

contribution of all types of AI to the global economy at US\$15.7 trillion in 2030.²

The nature of governance systems plays a crucial role in realizing the economic benefits of AI and determining who stands to benefit from the development of this innovation. In general, interfirm, extrafirm, regional, national, and international governance systems are tightly linked to economic and social effects of an innovation.³

With AI's widespread diffusion in nearly all economic sectors such as health care, transportation, retail, finance, manufacturing, education, and public safety,

THE EU'S "RISK-BASED APPROACH" TO AI GOVERNANCE

8 December 2023 marked a historic occasion for AI regulation in Europe. Following three days of extensive final debates, the EU Parliament, Council, and Commission ultimately reached a provisional agreement on the EU AI Act, a landmark legislation governing the development and use of AI in Europe. It represents one of the world's initial comprehensive efforts to regulate AI usage. As of the end of December 2023, the EU AI Act was awaiting a formal adoption by both the Parliament and Council to become EU law.^{S1} The regulations will be universally applicable across all EU Member States.^{S2}

The Act adopts a specific, risk-oriented strategy for overseeing AI products.^{S1} Note that a risk-based approach involves comprehending the risks associated with various AI applications and establishing controls that prioritize potential harm. This method directs efforts according to the level of risk.^{S3} The risk levels are defined as follows:

- » *Minimal risk*: The majority of AI systems fall into the minimal risk category. Applications with minimal risk, such as AI-driven recommender systems or spam filters, will be exempt from obligations, benefiting from a free pass as they pose minimal or no risk to citizens' rights or safety.
- » *Limited risk(s)*: AI systems with limited risks will be subject to minimal transparency obligations, such as disclosing that their content was AI-generated, enabling users to make informed decisions about further use.
- » *High-risk*: AI systems categorized as high-risk must adhere to stringent requirements, including the implementation of risk-mitigation systems, ensuring high-quality data sets, maintaining activity logs, providing detailed documentation, offering clear user information,

incorporating human oversight, and achieving a high level of robustness, accuracy, and cybersecurity. Examples of high-risk AI systems include critical infrastructures in water, gas, and electricity; medical devices; systems determining access to education or recruitment; and those used in law enforcement, border control, administration of justice, and democratic processes. Biometric identification, categorization, and emotion recognition systems also fall under the high-risk category.

- » *Unacceptable risk*: Certain uses of artificial intelligence present deemed unacceptable risks, leading to a ban on their use in the EU. These include cognitive behavioral manipulation, predictive policing, emotion recognition in workplaces and educational institutions, and social scoring. Remote biometric identification systems, such as facial recognition, will also be prohibited, with limited exceptions.^{S2}

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a critical imperative arises for legal and normative frameworks ensuring the ethical development and responsible utilization of the innovation and bridging the gap between accountability and ethics in technological progress.⁴

AI governance is currently in a nascent stage. For instance, there are widespread concerns regarding AI systems, encompassing potential transparency deficiencies, biases in training data, intellectual property infringements, privacy violations, third-party risks, lack of security,⁵ job automation,

disinformation, and the emergence of autonomous intelligence.⁶

This article analyzes the current stage of AI governance. It also delves into barriers hindering the widespread adoption of AI governance institutions.

THE CURRENT STAGE OF AI GOVERNANCE

Regulative institutions and AI governance mechanisms

New AI-related regulative institutions are rapidly expanding. There are specific

regulations dealing with activities such as employment and as well as all-encompassing regulations that cover all aspects of AI use. As an example of specific regulations, the city of New York, in April 2023, established definitive guidelines for the implementation of an ordinance governing the use of automated employment decision tools (AEDTs) in the hiring and promotion practices of employers. The regulations, known as Local Law 144 of 2021 or "NYC 144," governing the use of AI-driven hiring tools, were released after

undergoing multiple rounds of public commentary and refinement. Employers were granted a period until 5 July 2023, to ascertain whether AEDTs were employed in making employment decisions. In the affirmative, they were required to initiate an independent bias audit, disseminate a summary of the results, notify applicants and employees of the tool's application and functionality, and communicate the option for affected individuals to request accommodation or an alternative selection process.⁷

Different jurisdictions, including China, the EU, Japan, the United Kingdom, and the United States, are in varying stages of developing broader regulatory frameworks to tackle AI governance issues. Except for the EU (see “[The EU's 'Risk-Based Approach' to AI Governance](#)”) and the Chinese government, states have primarily relied on “nudges and soft norms,” or inaction.⁸

Normative institutions as AI governance mechanisms

Normative frameworks and rules are often prescriptive rather than coercive in nature.⁹ A key role of normative institutions is to fill the regulatory vacuum, especially if there is the lack of well-developed regulatory agencies.¹⁰ Three categories of such institutions have been identified: 1) voluntary guidelines and codes of conduct; 2) standards; and 3) certification programs.¹¹

In the absence of legislation, industry-led self-regulation, such as codes of conduct or voluntary guidelines, can play a role in filling the legislative void and establishing common standards.¹² Throughout the history of successful industry regulation, especially in technology, collaboration with the commercial sector has been crucial, and this holds true for AI.¹³ Voluntary guidelines and codes of conduct function as essential governance mechanisms to encourage responsible AI development and use in certain countries (Table 1).

Standards serve as benchmarks for confirming compliance with regulatory requirements.¹¹ Currently, AI standards have not been adequately developed. Nonetheless, national governments and a number of standardization-related bodies are taking initiatives to develop AI standards. It is argued that such standards fall within the realm of soft law.¹⁴

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Certification programs demonstrate alignment of a company's AI processes with underlying standards to customers, industry partners, and regulators.¹¹ Certification thus stands as a valuable element within the broader spectrum of AI governance tools. AI certification regimes are most effective when they give prominence to lasting governance criteria, such as ethics training for AI developers.¹⁵

International AI governance initiatives

The global governance of AI is driven by two key factors.²³ First, AI generates externalities that transcend national borders, necessitating international cooperation for effective regulation. Second, the development of AI involves transnational actors, particularly multinational corporations.

Unsurprisingly, AI governance initiatives are being undertaken by various international organizations. For instance, In October 2023, United Nations Secretary-General António Guterres unveiled a 39-member advisory body to address global artificial intelligence governance issues. The diverse membership includes tech executives, government officials from Spain to Saudi Arabia, and academics representing countries such as the U.S., Russia, and Japan.²¹

In May 2023 in Japan, Group of Seven (G7) leaders initiated the “Hiroshima Process” for GAI challenges.¹³ The G7 countries decided to launch a working group on GAI. The group would focus on governance, copyright, transparency, and responses to foreign information manipulation such as disinformation.²² In December 2023, digital and technology ministers from the G7 reached

a historic milestone by unanimously endorsing the world's inaugural comprehensive international guidelines for generative artificial intelligence. These guidelines, applicable to both developers and users, aim to tackle issues such as misinformation. Forming a crucial component of the G7's Comprehensive Policy Framework, these principles stand alongside a voluntary code of conduct for AI developers, previously established by G7 leaders in October 2023. The imminent approval of these guidelines is anticipated during an upcoming virtual summit.²³

Likewise, at the Group of Twenty (G20) summit in New Delhi held in September 2023, Indian Prime Minister Narendra Modi called for a new framework for human-centric AI governance, while European Commission President Ursula von der Leyen proposed an AI risk monitoring body based on the Intergovernmental Panel on Climate Change.¹³

IMPEDIMENTS IN THE WIDESPREAD ADOPTION OF AI GOVERNANCE FRAMEWORKS

A number of barriers hinder the efforts to build AI governance institutions. Regarding, regulative institutions, countries possess the regulatory tools but grapple with difficult choices

TABLE 1. The development of AI-related normative institutions.

| Type of normative framework | Key actors involved | Initiatives taken |
|---|---|--|
| Voluntary guidelines and codes of conduct | The U.S. White House and relevant federal agencies | July 2023: secured voluntary commitments from seven prominent AI companies—Amazon, Anthropic, Google, Inflection, Meta, Microsoft, and OpenAI. These commitments aimed to advance the safe, secure, and transparent development of AI technology under the Biden-Harris Administration. ¹⁶ December 2023: Twenty-eight providers and payer organizations voluntarily pledged to follow federal guidelines promoting the responsible and ethical use of AI in health care. ¹⁷ |
| | The federal government of Canada | October 2023: unveiled voluntary Code of Practice concerning advanced GAI systems: recommends specific measures for organizations developing GAI systems, focusing on six core principles: accountability, safety, fairness and equity, transparency, human oversight and monitoring, and validity and robustness. |
| | The government of Japan | September 2023: put forth nonbinding guidelines for companies employing AI, with the intention of preventing undue restrictions while ensuring safety through transparent measures like disclosing training data ⁶ : requirement for AI platform developers to disclose algorithmic purposes and potential risks, and businesses engaged in AI training to disclose the data they utilize. |
| Standards | National Institute of Standards and Technology (NIST) in the United States | As outlined in the Executive Order issued by President Biden in October 2023, the NIST’s responsibilities include formulating guidelines for red-teaming, AI system evaluation and auditing, secure software development, and content authentication and provenance. ¹⁸ |
| | International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) | The ISO/IEC Joint Technical Committee 1 Subcommittee 42 (ISO/IEC JTC 1/SC 42), a collaborative committee between the ISO and the IEC, is tasked with standardization in the field of AI. ¹⁹ The ISO/IEC JTC 1/SC 42 has completed ISO 42001, contributing to testing AI systems. ¹⁸ |
| Certification programs | Responsible AI Institute (RAI Institute) | Facilitates responsible AI success for its members by offering independent and accredited AI Conformity Assessments and Responsible AI Leadership Certification: Certification signifies trust in the design, construction, and deployment of an AI system in accordance with the five Organization for Economic Cooperation and Development (OECD). Principles on Artificial Intelligence. This certification promotes the use of innovative and trustworthy AI systems that uphold human rights and democratic values. |

between overregulation that might spur innovation elsewhere or risking harm to their populations.⁸ Policy-making structures, often static and favoring stability, are inadequate for the uniqueness of AI. Governing AI effectively requires the same speed, adaptability, and self-correction as AI’s fast-paced, hyperevolutionary, and self-improving nature.¹³ Countries also grapple with the challenge of insufficient AI knowledge within governments and complex bureaucracies.

For instance, U.S. lawmakers openly acknowledge a limited understanding of AI intricacies, adding to the overall challenge.⁶

As to normative institutions, professions, trade associations, and industry bodies are tasked with the responsibility of monitoring their members’ conformity to both normative and coercive expectations.²⁴ For instance, a profession is subject to self-regulation through a code of ethics,²⁵ mandating members to uphold

standards of conduct that surpass legal requirements.²⁶ Such entities are lacking in the AI context. Despite the widespread endorsement of the goal of “ethical AI,” there is a lack of consensus on how to practically implement key governance objectives outlined in the numerous recent public and private recommendations and principles surrounding AI. Operationalizing these objectives is complicated by uncertainties, as there is no equivalent professional body of AI practitioners

with shared goals and fiduciary duties, unlike professions such as medicine, which serves as a model for principles-guided professions inspiring AI ethics recommendations.²⁷

Regarding the formation of AI governance institutions at the global level, it is challenging to set international standards due to the multitude of circumstances worldwide. Practices related to AI need to adapt to differences in regulations and cultural diversity. Unlike other issues such as climate change, where diverse paths may lead to the overarching goal (for example, reducing greenhouse gas emissions), AI requires a nuanced policy agenda. This agenda must not only spur innovation to address complex issues and prevent harmful proliferation but also strive for geopolitical advantage without inadvertently triggering a new arms race. Supervising and verifying AI proves more intricate than nuclear oversight 30 years ago, given that the private sector currently controls every aspect of AI. The continued dominance of major tech firms or the growing involvement of smaller players could complicate governance at the global level.¹³

In the absence of effective AI governance mechanisms, broader societal and economic benefits of AI cannot be effectively realized. National and organizational decisionmakers have recognized the need for an AI governance framework that can address the aforementioned issues effectively. However, while AI-related governance institutions are developing, they are currently in the nascent stage.

Keeping pace with and catching up to AI proves more challenging for regulators than with other past technologies, thereby posing challenges in the establishment of regulative institutions. Likewise, establishing normative institutions becomes more challenging due to the absence of a professional body of AI practitioners with shared goals and fiduciary duties. ■

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