

CONSULTATION PAPER ON AI REGULATION

Emerging Approaches Across the World

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Document for Consultation

This consultation paper has been developed through:

- i) Literature review on AI regulation in different parts of the world.
- ii) A discussion on “The impact of AI on democracy, human rights and the rule of law” with parliamentarians from around the world at the Inter-Parliamentary Union’s (IPU) Assembly in Geneva, 23-27 March 2024.
- iii) Capacity building workshop co-designed and co-facilitated by UNESCO on 25 March 2024 at the IPU in Geneva and three webinars on the subject that were organized by IPU, UNESCO, and the Internet Governance Forum (IGF) for parliamentarians to inform the development of the discussion paper.

The paper is now available for open public consultation in English until 19 September 2024.

UNESCO encourages stakeholders, including parliamentarians, legal experts, AI governance experts and the public, to review and provide feedback on the different regulatory approaches for AI.

Share your comments and feedback through the form [here](#).

A revised version will be presented at the IPU Assembly in Geneva, 13-17 October 2024, in the context of the finalization of the IPU resolution on “The impact of AI on democracy, human rights and the rule of law”.

The draft consultation paper has been prepared by Juan David Gutiérrez, PhD, Associate Professor, University of Los Andes, Colombia.

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Executive Summary

- Since 2016, over thirty countries have passed laws explicitly mentioning AI, and in 2024, the discussion about AI bills in legislative bodies has increased globally. This policy brief aims to inform legislators about the different regulatory approaches to artificial intelligence (AI) being considered worldwide by legislative bodies.
- The brief explains nine emerging regulatory approaches, each illustrated with specific cases worldwide. The order in which the nine AI regulatory approaches are presented is deliberately structured to guide readers from less interventionist, light-touch regulatory measures to more coercive, demanding approaches. These regulatory approaches are not mutually exclusive and AI bills often combine two or more approaches:
 - 1. Principles-Based Approach:** Offer stakeholders a set of fundamental propositions (principles) that provide guidance for developing and using AI systems through ethical, responsible, human-centric, and human-rights-abiding processes.



2. **Standards-Based Approach:** Delegate (totally or partially) the state's regulatory powers to organizations that produce technical standards that will guide the interpretation and implementation of mandatory rules.
3. **Agile and Experimentalist Approach:** Generate flexible regulatory schemes, such as regulatory sandboxes and other testbeds, that allow organizations to test new business models, methods, infrastructure, and tools under more flexible regulatory conditions and with the oversight and accompaniment of public authorities.
4. **Facilitating and Enabling Approach:** Facilitate and enable an environment that encourages all stakeholders involved in the AI lifecycle to develop and use responsible, ethical, and human rights-compliant AI systems.
5. **Adapting Existing Laws Approach:** Amend sector-specific rules (e.g., health, finance, education, justice) and transversal rules (e.g., criminal codes, public procurement, data protection laws, labor laws) to make incremental improvements to the existing regulatory framework.
6. **Access to Information and Transparency Mandates Approach:** Require the deployment of transparency instruments that enable the public to access basic information about AI systems.
7. **Risk-Based Approach:** Establish obligations and requirements in accordance with an assessment of the risks associated with the deployment and use of certain AI tools in specific contexts.
8. **Rights-Based Approach:** Establish obligations or requirements to protect individuals' rights and freedoms



9. Liability Approach: Assign responsibility and sanctions to problematic uses of AI systems.

- The policy brief suggests parliamentarians how they can address three key questions before adopting AI regulations:
 - 1. Why regulate?** Determine whether regulation is needed to address public problems, fundamental and collective rights, or desirable futures.
 - 2. When to regulate?** Reach a consensus on why regulation is needed, map available regulatory instruments, compare them with other policy instruments, and assess the feasibility of adopting the former.
 - 3. How to regulate?** Identify a combination of AI regulatory approaches that are tailored to specific contexts.



1. Introduction


This policy brief discusses the emerging approaches to regulating the value chains of artificial intelligence (AI) systems worldwide. Its objective is to inform parliamentarians about the different regulatory approaches to AI being considered worldwide.¹ In this policy brief, “regulatory approaches” refers to the strategies, methods, and tools used by legislative or regulatory bodies to achieve policy objectives through regulation.

The policy brief has four main sections. This introductory section establishes the scope of the policy brief and presents definitions of key terms such as AI systems, automated decision-making (ADM) systems, and regulation. The second section overviews the global landscape of AI legislation. The third section discusses the global AI governance frameworks, describes nine different regulatory approaches emerging worldwide, and illustrates each regulatory approach with specific cases. The final section concludes with recommendations for policymakers.

In this policy brief, AI systems are computational systems that “process data and information in a way that resembles intelligent behaviour, and typically includes aspects of reasoning, learning, perception, prediction, planning or control.”² This is a working definition based on the United Nations Educational, Scientific and Cultural Organization’s (UNESCO)

¹ The paper informed the Inter-Parliamentary Union’s (IPU) Assembly in Geneva, 23-27 March 2024. This includes: i) preparatory debate on the future resolution “The impact of AI on democracy, human rights and the rule of law” and ii) capacity building workshop co-designed and co-facilitated by UNESCO on 25 March 2024 at the IPU in Geneva. The current version of this paper includes the feedback from IPU’s meetings and considers three webinars on the subject that were organized by IPU, UNESCO, and the Internet Governance Forum (IGF) for parliamentarians in the development of the discussion paper.

² UNESCO, ‘Recommendation on the Ethics of Artificial Intelligence’ (The United Nations Educational, Scientific and Cultural Organization (UNESCO) 2022) 10.



‘Recommendation on the Ethics of Artificial Intelligence’, but is it pertinent to mention that there are myriad definitions of AI systems proposed by the academic literature, other international organizations, and AI laws and bills. This point is important because the definition of “AI system” will determine the law’s scope; in other words, it will define which computational systems and processes associated with these technologies are the object of limits, obligations, and rights.

Furthermore, AI regulation may address any stage of the life cycle of an AI system. The OECD Recommendation on Artificial Intelligence adopted in May 2019 (amended in 2023, 2024) defines “AI system cycle” in the following terms:

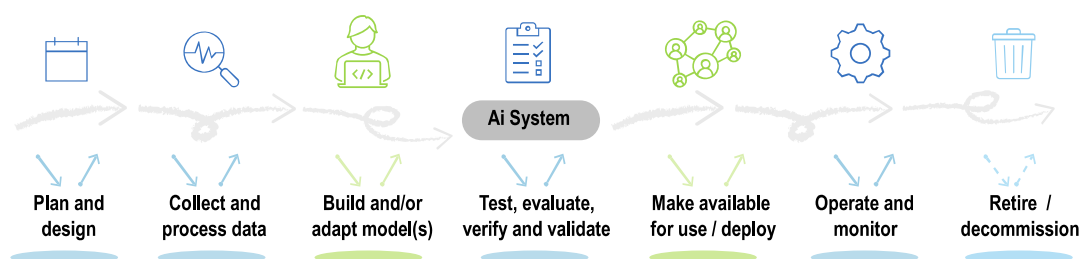
*“AI system lifecycle: An AI system lifecycle typically involves several phases that include to: plan and design; collect and process data; build model(s) and/or adapt existing model(s) to specific tasks; test, evaluate, verify and validate; make available for use/deploy; operate and monitor; and retire/decommission. These phases often take place in an iterative manner and are not necessarily sequential. The decision to retire an AI system from operation may occur at any point during the operation and monitoring phase.”*³

³ OECD, ‘Recommendation of the Council on Artificial Intelligence’ (Organisation for Economic Co-operation and Development (OECD) 2019) OECD/LEGAL/0449 <<https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449>>.

Figure 1 illustrates the AI system lifecycle as described by the OECD

Recommendation:

Figure 1 – Stages of AI system’s life cycle



Source: May⁴

While these stages appear to be linear, in practice, “phases often take place in an iterative manner and are not necessarily sequential”; for example, “[t]he decision to retire an AI system from operation may occur at any point during the operation and monitoring phase.”⁵

Additionally, regulation may address any stage of the supply chains of AI systems.⁶ The AI value chains may be traced back to the extraction of non-renewable resources that are needed to build key hardware, such as the manufacture of computer chips and microprocessors, and other stages include a complex web of activities and adjacent markets that include financial services, cloud computing services, data collection and processing, computer coding, AI research,

⁴ Richard May, ‘Artificial Intelligence, Data and Competition’ (Organisation for Economic Co-operation and Development (OECD) 2024) 18 16 <<https://www.oecd.org/competition/artificial-intelligence-data-and-competition.htm>>.

⁵ OECD, ‘Recommendation of the Council on Artificial Intelligence’ (n 3).

⁶ For a description of what is distinctive of AI supply chains in comparison with other technologies and examples of different kinds of AI supply chains, see Ian Brown, ‘Allocating Accountability in AI Supply Chains: A UK-Centred Regulatory Perspective’ (Ada Lovelace Institute 2023) <<https://www.adalovelaceinstitute.org/wp-content/uploads/2023/06/Allocating-accountability-in-AI-supply-chains-June-2023.pdf>>.



digital platforms, dismantling e-waste, among others.⁷ This is important because the impacts associated with AI systems are not limited to the use of specific technological artifacts but also to the processes, resources, and people required to produce them. In this sense, Kate Crawford argues that AI “is both embodied and material, made from natural resources, fuel, human labor, infrastructures, logistics, histories, and classifications”.⁸ The latter involves global value chains, not just a handful of countries that supply frontier technologies.

In sum, understanding how AI’s supply chains work is pertinent for policymakers to determine “how to assign relevant, distinct responsibilities to the appropriate actor in each supply chain [and to] recognise that not all actors in supply chains will be equally resourced.”⁹


Another concept that is pertinent to mention is Automated Decision Making (ADM) systems, which refers to “[a]ny technology that either assists or replaces the judgment of human decision-makers. These systems draw from fields like statistics, linguistics and computer science, and use techniques such as rules-based systems, regression, predictive analytics, machine learning, deep learning, and neural nets.”¹⁰ This term includes AI systems and rules-based algorithms that may be adopted by private and public bodies to automate or semi-automate

⁷ May (n 4); Kate Crawford, *The Atlas of AI* (Yale University Press 2021); Brown (n 6); Ana Valdivia, ‘(De)Coding AI’ <https://twitter.com/ana_valdi/status/1747200486392950785> accessed 20 March 2024.

⁸ Crawford (n 7) 8.

⁹ Brown (n 6) 2.

¹⁰ Canada’s Directive on Automated Decision-Making 2023.



decision-making processes.¹¹ While most laws and bills worldwide focus on AI systems, some mandatory rules and proposals aim at regulating the broader category of ADM systems.¹²


Furthermore, in this policy brief, we understand "regulation" in a narrow sense as a “specific set of commands” consisting of “a binding set of rules to be applied by a body devoted to this purpose.”¹³ The policy brief will address the mandatory rules proposed and issued by public bodies that may affect the activities of those who participate in any stage of an AI system’s life cycle. The rules are not limited to prohibitions or limits but include enabling and facilitative approaches to developing or adopting AI systems. Since this policy brief aims to inform parliamentarians, we will focus on AI bills discussed and AI laws promulgated by legislative bodies. Therefore, the policy brief does not engage with rules that may emerge from regulatory agencies of the Executive authorities or rulings issued by the Judicial authorities.¹⁴ Furthermore, it will focus on regulations that specifically target AI systems or substantially address AI systems and it will not consider bills or laws that merely mention AI incidentally or marginally.

¹¹ Juan David Gutiérrez and Sarah Muñoz-Cadena, ‘Algorithmic Transparency of Automated Decision-Making Systems: A Case Study of the Colombian Government’ (2023); Juan David Gutiérrez and Sarah Muñoz-Cadena, ‘Adopción de sistemas de decisión automatizada en el sector público: Cartografía de 113 sistemas en Colombia’ (2023) 10 GIGAPP Estudios Working Papers 365.

¹² This is the case of Canada’s “Directive on Automated Decision-Making” and Chile’s proposed “General Instruction on Algorithmic Transparency” (see José Pablo Lapostol, Romina Garrido and María Paz Hermosilla, ‘Algorithmic Transparency from the South: Examining the State of Algorithmic Transparency in Chile’s Public Administration Algorithms’ (ACM 2023) <<https://doi.org/10.1145/3593013.3593991>>.).

¹³ Robert Baldwin, Martin Cave and Martin Lodge, *Understanding Regulation [Electronic Resource] : Theory, Strategy, and Practice*. (2nd ed. / Robert Baldwin, Martin Cave, Martin Lodge., Oxford University Press 2012) 3.

¹⁴ For example, the “Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence” issued by the US president in October 30, 2023. For example, see the recent ruling issued by Colombia’s Constitutional Court (T-323/2024) that established rules and principles for using AI systems, particularly generative AI tools, by the judiciary. UNESCO, ‘AI in the Courtroom: Colombian Constitutional Court’s Landmark Ruling Cites UNESCO’s AI Tools’ (2024) <<https://www.unesco.org/en/articles/ai-courtroom-colombian-constitutional-courts-landmark-ruling-cites-unescos-ai-tools>> accessed 16 August 2024.



States may have diverse roles regarding AI technologies besides promulgating regulations, as illustrated by Figure 2.

Figure 2 – Roles of the States regarding AI systems

Regulator

- Legislators and regulators establish mandatory rules that are applicable to all stages of the AI life cycle.

Supervisor

- Judicial and governmental authorities enforce AI and related legal frameworks.

Developer

- Public bodies internally develop AI systems that will contribute to fulfil their objectives.

Buyer

- Public bodies acquire hardware & licenses of proprietary AI systems to fulfil their objectives.

Deployer

- Public bodies deploy AI systems that contribute to fulfil their objectives.

End user

- Public officials use AI systems to carry out their activities.

Facilitator

- Public bodies create an environment that encourages the development & use of AI systems for example, by providing or facilitating access to key infrastructure and resources and increasing digital literacy (not just among public officials but also of the general population).

Enabler


- Public bodies foster the development and use of AI systems through hands-on approaches, for example, by investing or funding research projects and participating in public-private partnerships for the development of capabilities, infrastructure or technologies.

Source: Berryhill et al.¹⁵, Gutiérrez¹⁶ and Ubaldi et al.¹⁷

¹⁵ Jamie Berryhill and others, 'Hello, World: Artificial Intelligence and Its Use in the Public Sector' 184 <<https://www.oecd-ilibrary.org/content/paper/726fd39d-en>>.

¹⁶ Juan David Gutiérrez, 'Inteligencia Artificial y Regulación' (México, 23 November 2023) <<https://www.youtube.com/live/fdT5UjnirK8?si=pLOMJINI8iYAMgz2&t=7798>> accessed 20 March 2024.

¹⁷ Barbara Ubaldi and others, 'State of the Art in the Use of Emerging Technologies in the Public Sector' <<https://www.oecd-ilibrary.org/content/paper/932780bc-en>>.



This policy brief acknowledges that policymakers should consider all the roles mentioned above and that most roles are interdependent (e.g., the capacity of the State to deploy AI systems depends on its capability of developing or buying AI systems). Still, this policy brief will focus on the regulatory role because legislative bodies are central to producing regulatory frameworks. Furthermore, legislative bodies are an adequate forum for discussing, creating, and delimitating obligations and rights of people and organizations through mandatory rules.


2. Global landscape of AI regulation

Some activities associated with AI systems are already regulated, even if most jurisdictions do not have specific regulations for AI systems. This point is important to mention from the outset because any initiatives to regulate should first involve understanding how current regulations may already address some of the challenges associated with AI systems.

In many countries, the activities and processes across the AI systems' life cycle are subject to transversal regulations. These cross-cutting laws are associated with diverse issues such as personal data protection and privacy, consumer protection, economic competition, intellectual property rights, public procurement, access to information and transparency, and liability rules.

Moreover, while regulating activities associated with different stages of the AI systems' life cycle can influence market dynamics and how suppliers and consumers behave in these markets, economic regulation—such as competition law—is not the only pertinent regulatory instrument for governing AI. The development and use of AI systems may significantly and





negatively affect human rights.¹⁸ Therefore, international human rights laws and standards must form the basis for governing AI. One of the nine AI regulatory approaches described in this policy brief, the “rights-based approach”, aims at placing human rights in the center and focuses on enhancing such rights. However, other AI regulatory approaches may also contribute to safeguarding human rights by ensuring that AI systems are developed and used responsibly.

Legislative bodies have increasingly shown interest in regulating AI, although it has been on their agenda for some time. According to a recent report published by Stanford University's Institute for Human-Centered AI, from 2016 to 2023, 32 countries have passed 148 laws that refer to AI in different degrees to "artificial intelligence".¹⁹ The same report stated that in 2023, the term was mentioned in hearings and sessions of legislative bodies of 48 countries.²⁰ Furthermore, on 13 July 2024, the AI Act (Regulation EU 2024/1689) was published in the Official Journal of the European Union (EU).²¹

In 2023 and 2024, AI bills increased globally due to the submission of projects by parliamentarians, governments, and citizens (see Table 1 for a list of sources that track AI-related

¹⁸ For an analysis of human rights risks associated with generative AI systems see, OHCHR, ‘Taxonomy of Human Rights Risks Connected to Generative AI - Supplement to B-Tech’s Foundational Paper on the Responsible Development and Deployment of Generative AI’ (United Nations Human Rights Office of the High Commissioner (OHCHR) 2023) <<https://www.ohchr.org/sites/default/files/documents/issues/business/b-tech/taxonomy-GenAI-Human-Rights-Harms.pdf>>.

¹⁹ Nestor Maslej and others, ‘The AI Index 2024 Annual Report’ (AI Index Steering Committee, Institute for Human-Centered AI, Stanford University 2024) 376 <https://aiindex.stanford.edu/wp-content/uploads/2024/04/HAI_2024_AI-Index-Report.pdf>.

²⁰ *ibid* 386.

²¹ “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 Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act) Text with EEA relevance”. The text of the AI Act published by the EU’s Official Journal is available here: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024R1689&qid=1721145089347>



legislation and policies). Moreover, these projects are not limited to Global North countries. In Latin America, AI bills are being discussed in the national legislative bodies of Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, Mexico, Panama, Peru, and Uruguay.²² In this region, there are countries where more than one bill is being discussed. For example, the Colombian Congress studies at least six AI bills and several additional bills incorporating AI-related articles.²³

Moreover, after the first Regional Summit of Parliamentarians on Artificial Intelligence that was held on 13-14 June 2024 in Buenos Aires, Argentina, over 30 American parliamentarians issued a joint statement that underscored “the need for a solid and enabling legislative and regulatory framework”, recognised “the importance of a multistakeholder and whole-of-government approach to artificial intelligence legislative-making”, and called for interoperability, a human-centric approach to AI governance, and agile governance of AI.²⁴

In Africa, at least six countries are attempting to pass or have announced plans to pass AI bills: Egypt, Ghana, Kenya, Nigeria, Uganda, and Zimbabwe.²⁵ Furthermore, the African Union

²² Juan David Gutiérrez, ‘Regulación Sobre IA’ (*Blog Foro Administración, Gestión y Política Pública*, 2024) <<https://forogpp.com/inteligencia-artificial/regulacion-sobre-ia/>>; Franco Giandana, ‘Radiografía Normativa: ¿Dónde, Qué y Cómo Se Está Regulando La Inteligencia Artificial En América Latina?’ (Access Now 2024) <<https://www.accessnow.org/publication/regulacion-inteligencia-artificial-en-america-latina/>>.

²³ Gutiérrez, ‘Regulación Sobre IA’ (n 23).

²⁴ UNESCO, ‘Paving the Way: UNESCO Informs AI Regulation in Latin America’ (UNESCO, 2024) <<https://www.unesco.org/en/articles/paving-way-unesco-informs-ai-regulation-latin-america>> accessed 16 August 2024; IGF, ‘Regional Summit of Parliamentarians on Artificial Intelligence and the Latin American Agenda’ (*Internet Governance Forum*, 2024) <<https://www.intgovforum.org/en/content/regional-summit-of-parliamentarians-on-artificial-intelligence-and-the-latin-american>> accessed 16 August 2024.

²⁵ Dorcas Tsebee and Oloyede Ridwan, ‘State of AI Regulation in Africa Trends and Developments’ (Tech Hive Advisory and Center for Law & Innovation 2024) 18–19 <<https://www.techhiveadvisory.africa/report/state-of-ai-regulation-in-africa-trends-and-developments>>.



Development Agency recently published a blueprint of AI regulation for African countries²⁶ and the African Union Commission has developed a continental strategy on AI.²⁷

To follow the rapidly evolving global landscape of AI regulation, there are different AI regulation trackers and websites that may be consulted, such as the ones listed in Table 1:

Table 1 – AI regulation observatories

Name of tracker	Description of the source	Hyperlink
“Artificial Intelligence (AI) Policy Tracker” (American Action Forum)	The repository publishes information about federal AI bills in the United States of America.	https://www.americanactionforum.org/list-of-proposed-ai-bills-table/
“Artificial Intelligence Legislation Tracker” (Brennan Center for Justice)	The repository publishes information about federal AI bills and data protection bills that significantly impact AI providers in the United States of America.	https://www.brennancenter.org/our-work/research-reports/artificial-intelligence-legislation-tracker
“Global AI Law and Policy Tracker” (International Association of)	The website publishes global information on AI policies and laws.	https://iapp.org/resources/article/global-ai-legislation-tracker/

²⁶ AUDA-NEPAD, ‘White Paper: Regulation and Responsible Adoption of AI for Africa Towards Achievement of AU Agenda 2063’ (African Union Development Agency (AUDA-NEPAD) 2023) <<https://onedrive.live.com/?authkey=%21AKJcwcXnXERGANKQ&id=14DDAD979C3656DF%2145404&cid=14DDAD979C3656DF>>.

²⁷ The Continental AI Strategy of the African Union (AU) aims at “building the capabilities of AU Member States in AI skills, research and development, data availability, infrastructure, governance and private sector-led innovation, as well as ensuring regional and international cooperation and coordination on this fast-moving and disruptive technology.” African Union, ‘Multistakeholder Consultative Sessions on the Development of a Continental Strategy on Artificial Intelligence (AI) | African Union’ (19 April 2024) <<https://au.int/en/newsevents/20240419/multistakeholder-consultative-sessions-development-continental-strategy>> accessed 11 June 2024.



Privacy Professionals)		
OECD AI Policy Observatory	The OECD.AI website provides information on AI policies around the world and includes other resources such as the OECD AI Incidents Monitor and the OECD Catalogue of Tools & Metrics for Trustworthy AI.	https://oecd.ai/en/
“Policy Tracker” (Tech Policy Press)	The repository includes information of AI laws, executive orders and litigation of different jurisdictions but specializes in North America.	https://www.techpolicy.press/tracker/
“Regulating Artificial Intelligence – Activity Tracker” (Digital Policy Alert)	The website publishes global information on diverse AI regulations, policies, and frameworks.	https://digitalpolicyalert.org/threads/regulating-artificial-intelligence
“Regulación sobre IA” (Foro GPP)	The website presents information of AI regulations in different jurisdictions but specializes in Latin America.	https://forogpp.com/inteligencia-artificial/regulacion-sobre-ia/
“Tracking international legislation relevant to AI at work” (Institute for the Future of Work)	The website compiles legislation related to the deployment of AI systems in the workplace.	https://www.ifow.org/publications/legislation-tracker

3. Emerging AI regulatory approaches

Below are the guiding questions for this section. Please provide your answers or comments in the [survey form](#).

- Description of the regulatory approaches: Are each of the nine regulatory approaches described clearly, or is clarification required for one or more cases?
- Overlaps among regulatory approaches: Are there any overlaps between the proposed regulatory approaches?
- Additional types of AI regulation approaches: Do the nine AI regulation approaches capture all ways in which AI is regulated? Which ones may be missing?
- Examples illustrating the regulatory approaches: Are there additional examples of AI bills and laws that could be included to illustrate one or more of the nine regulatory approaches?

Global AI governance frameworks comprise diverse stakeholders and institutional arrangements that define how AI systems are developed and used. These frameworks transcend regulations and national governments; they include other binding (e.g., treaties, contracts) and non-binding instruments (e.g., guidelines, standards) and a variety of actors, including international, national, and subnational stakeholders such as businesses, multilateral organizations, academia, and civil society organizations.

UNESCO's "Recommendations on the Ethics of AI" is an example of a global standard that aims to ensure that AI governance promotes responsible, ethical, and human rights-abiding AI

²⁸ Ravit Dotan, 'How to Keep Track of AI Laws' (Ravit Dotan, 26 February 2024) <<https://www.ravitdotan.com/post/how-to-keep-track-of-ai-laws>> accessed 20 March 2024.



system development and adoption.²⁹ The Recommendation is a standard-setting instrument adopted by 193 Member States in November 2021. It is meant to be applied voluntarily by Member States through policy and regulatory instruments that apply its principles. Furthermore, it recommends that Member States engage with all stakeholders to ensure its implementation.³⁰ UNESCO's Recommendation has effectively influenced the development of policy and regulatory instruments, and its principles may be traced in some AI bills currently being discussed or prepared. According to the findings reported in the Global Index on Responsible AI 2024, which assessed the conditions and actions taken in 138 countries for advancing responsible AI, "the work of UNESCO constitutes the main mechanism for building country-level capacity in responsible AI."³¹

Moreover, the United Nations (UN) General Assembly has recently adopted two key resolutions that contribute to the construction of AI global governance: the resolution A/RES/78/311 of 21 March 2024 on Seizing the opportunities of safe, secure and trustworthy artificial intelligence systems for sustainable development and the resolution A/RES/78/265 of 1

²⁹ Adams et al. (2024) define responsible AI as "the design, development, deployment and governance of AI in a way that respects and protects all human rights and upholds the principles of AI ethics through every stage of the AI lifecycle and value chain. It requires all actors involved in the national AI ecosystem to take responsibility for the human, social and environmental impacts of their decisions". Rachel Adams and others, 'Global Index on Responsible AI 2024' (Global Center on AI Governance 2024) 9 <<https://coral-trista-52.tiiny.site>>.

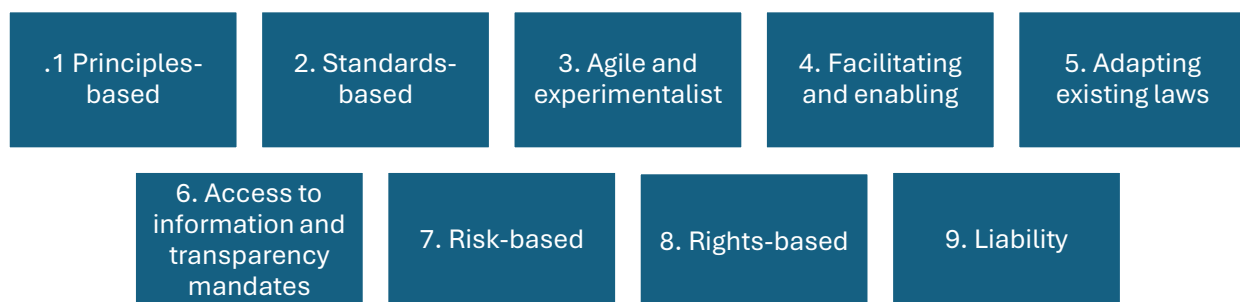
³⁰ UNESCO, 'Recommendation on the Ethics of Artificial Intelligence' (n 2). A similar objective, but for digital platforms and freedom of expression, is pursued by UNESCO's "Guidelines for the Governance of Digital Platforms", which "outline a set of duties, responsibilities and roles for States, digital platforms, intergovernmental organizations, civil society, media, academia, the technical community and other stakeholders to enable the environment where freedom of expression and information are in the core of digital platforms governance processes." UNESCO, 'Guidelines for the Governance of Digital Platforms: Safeguarding Freedom of Expression and Access to Information through a Multistakeholder Approach' (The United Nations Educational, Scientific and Cultural Organization (UNESCO) 2023).

³¹ The report also stated: "Most countries scored highly in the International Cooperation thematic area, citing their adoption of the UNESCO Recommendation on Ethics in AI, and their commitment to supporting its implementation tools. This shows the significance of UNESCO's work in strengthening the capacity of countries around the world to advance AI ethics and responsible AI." See Adams and others (n 30) 35.

July 2024 on “Enhancing international cooperation on capacity-building of artificial intelligence”.³²


This section describes nine regulatory approaches (Figure 3) influenced by AI governance frameworks at different levels: international, national, and subnational. Although the section describes diverse forms of AI regulation, it is key to remember that regulations are not produced and implemented in a vacuum but that different stakeholders and institutional arrangements contribute to modelling them. The order in which the nine AI regulatory approaches are presented is deliberately structured to guide readers from less interventionist, light-touch regulatory measures to more coercive, demanding approaches. This progression is designed to illustrate a spectrum of regulatory intensity, starting with approaches that offer greater flexibility and minimal interference and gradually moving toward those that impose stricter controls and obligations. Hence, the approaches are not listed in order of importance or desirability.

Figure 3 – Taxonomy of AI regulatory approaches



Source: Elaborated by the author

³² UN General Assembly resolution A/RES/78/265 is available here: <https://documents.un.org/doc/undoc/gen/n24/087/83/pdf/n2408783.pdf> and resolution A/RES/78/311 is available here: <https://documents.un.org/doc/undoc/gen/n24/197/26/pdf/n2419726.pdf>.



It is important to note that different approaches can be combined when regulating AI. Most AI regulations use a combination of several approaches. This is because different pieces of regulation may follow different approaches or because a single regulatory instrument adopts various strategies to address diverse challenges. Hence, this section discusses nine distinct regulatory approaches for AI, but it is critical to understand that these approaches are not mutually exclusive and can be used in various combinations.

3.1 Principles-based Approach

The principles-based regulatory approach offers stakeholders a set of fundamental propositions (principles) that provide guidance for developing and using AI systems through ethical, responsible, human-centric, and human-rights-abiding processes. UNESCO’s “Recommendations on the Ethics of AI” (Box No. 1) and the OECD’s “Recommendation of the Council on Artificial Intelligence”³³ are examples of international instruments promoting AI principles relevant to all stakeholders.³⁴

³³ Recommendation of the Council on Artificial Intelligence 2019.

³⁴ See Algorithm Watch’s “AI Ethics Guidelines Global Inventory” for basic information on 167 AI guidelines, available here: <https://inventory.algorithmwatch.org/>



Box No. 1 - UNESCO's AI Values and Principles

Values:


- Respect, protection, and promotion of human rights, and fundamental freedoms and human dignity.
- Environment and ecosystem flourishing.
- Ensuring diversity and inclusiveness.
- Living in peaceful, just, and interconnected societies.

Principles:

- Proportionality and Do No Harm.
- Safety and security.
- Fairness and non-discrimination.
- Sustainability.
- Right to Privacy, and Data Protection.
- Human oversight and determination.
- Transparency and explainability.
- Responsibility and accountability.
- Awareness and literacy.
- Multi-stakeholder and adaptive governance and collaboration.

The AI laws and AI bills of different countries explicitly and implicitly reproduce the principles enshrined in UNESCO's instruments. This is the case of Peru's Law No. 31814 of 2023 ("Law promoting the use of artificial intelligence in favor of the economic and social development of the country")³⁵; Brazil's Bill No. 2238 / 2023 "for the use of Artificial Intelligence", which establishes ten fundamentals (article 2) and twelve principles (article 3) for the development and implementation of AI systems; Colombia's Bill No. 059 / 2023 – Senate ("establishes public policy guidelines for the development, use, and implementation of artificial intelligence"), which was

³⁵ The Peruvian law enshrines principles such as "risk-based security standards", "multi-stakeholder approach", "ethical development for responsible artificial intelligence", and "privacy".



approved in the first of four legislative debates in the National Congress³⁶; and, Costa Rica's Bill "Law for the Regulation of Artificial Intelligence" (File No. 23771 / 2023).³⁷

AI regulations solely based on principles do not impose specific obligations or limitations on public bodies, private organizations, or people, nor do they have consequences for non-compliance. It is up to the law's subjects to judge how they adjust their behavior following principles.

However, the principles-based approach may be combined with other regulatory approaches that create specific obligations and rights. The principles aim to orient how mandatory rules should be interpreted and enforced in these cases. For example, the United Kingdom's "pro-innovation to AI regulation" proposal, published in March 2023 and currently under public consultation, adopts a principles-based approach where regulators must consider these principles to implement existing rules.³⁸


3.2 Standards-based Approach

The standards-based approach delegates (totally or partially) the state's regulatory powers to standard-setting bodies that may be public, private, or hybrid organizations. Under this approach, regulation explicitly acknowledges that standard-setting organizations produce technical

³⁶ The Colombian Bill incorporates principles such as "inclusive growth", "sustainable development and wellbeing", "human-centered values and equity", "transparency and explainability", "security" and "responsibility".

³⁷ The Costa Rican Bill includes principles such as "equity", "responsibility", "transparency", "privacy and data protection", and "security".

³⁸ "48. Existing regulators will be expected to implement the framework underpinned by five values focused cross-sectoral principles: - Safety, security and robustness - Appropriate transparency and explainability - Fairness - Accountability and governance - Contestability and redress." The white paper "[A pro-innovation approach to AI regulation](https://www.gov.uk/government/publications/ai-regulation-a-pro-innovation-approach)" presented on March 2023 to the Parliament by the UK's Secretary of State for Science, Innovation and Technology is available here: <https://www.gov.uk/government/publications/ai-regulation-a-pro-innovation-approach>




standards that guide the implementation of mandatory rules. This approach enables professional and industry organizations to directly or indirectly participate in developing technical standards governing the processes and activities associated with the AI system's life cycle.

Recital 121 of the EU's AI Act, for example, states that “Standardisation should play a key role to provide technical solutions to providers to ensure compliance with this Regulation, in line with the state of the art, to promote innovation as well as competitiveness and growth in the single market.” Furthermore, the same recital encourages a “balanced representation of interests involving all relevant stakeholders in the development of standards, in particular SMEs, consumer organisations and environmental and social stakeholders.”

In line with recital 121, article 40 of the EU's AI Act, establishes that high-risk AI systems or general-purpose AI models that comply with “harmonised standards ... shall be presumed to be in conformity” with regulatory requirements such as establishing a risk management system; using high-quality data sets for training, validation, and testing; preparing technical documentation and keeping it updated; ensuring traceability through automatic recording of events (logs); designing systems that are sufficiently transparent to ensure that deployers can understand and use them correctly; developing systems that allow for effective human oversight; and, designing systems with an adequate level of accuracy, robustness, and cybersecurity.³⁹

³⁹ For a report on the role of AI standards in the EU's AI Act, see Mark McFadden and others, ‘Harmonising Artificial Intelligence: The Role of Standards in the EU AI Regulation’ (Oxford Information Labs 2021) <<https://oxcaigg.oii.ox.ac.uk/wp-content/uploads/sites/11/2021/12/Harmonising-AI-OXIL.pdf>>.



The AI Standards Hub has identified nearly 300 AI-relevant standards that address myriad areas such as accountability, accuracy and performance, AI procurement, bias and discrimination, data (collection, management, processing, protection, quality, sharing), documentation, explainability and transparency, formal verification, human rights, human centered-design, human-computer interaction, interoperability, organizational governance, privacy, project management, risk management, robustness, safety, security and resilience, skills and readiness, stakeholder engagement and communication and sustainability, system architecture, system lifecycle, and system quality.⁴⁰

3.3 Agile and Experimentalist Approach

Agile approaches have been implemented to generate flexible regulatory schemes in diverse economic sectors such as telecommunications and finance and for transversal legislations such as data protection and privacy laws and public procurement.⁴¹ The main objective of “regulatory sandboxes” is to create spaces for public and private organizations to test new business models, methods, infrastructure, and tools under more flexible regulatory conditions and with the

⁴⁰ AI Standards Hub, ‘Standards Database’ (AI Standards Hub 2024) <<https://aistandardshub.org/ai-standards-search/>>.

⁴¹ “Agile emerged from the field of software development and is a style of working that embraces change and brings fast, tangible value to stakeholders through iterative product development”. Nelly Stratieva, ‘An Agile Approach to the EU AI Act Ecosystem’ (2024) 1 Journal of AI Law and Regulation 102 <<https://doi.org/10.21552/aire/2024/1/12>>.




oversight and accompaniment of public authorities.⁴² More recently, the approach is also being explored for AI regulation.⁴³

This is the case of the EU's AI Act that establishes a framework for the creation of AI regulatory sandboxes, which consist, according to article 3(44 bg), of a “means a concrete and controlled framework set up by a competent authority which offers providers or prospective providers of AI systems the possibility to develop, train, validate and test, where appropriate in real world conditions, an innovative AI system, pursuant to a sandbox plan for a limited time under regulatory supervision.” Under article 57 of the EU's AI Act, each Member State should ensure that its national competent authorities establish AI regulatory sandboxes at the national, regional, or local level. The providers and prospective providers that meet the eligibility and selection criteria to participate in AI regulatory sandboxes may access, during a limited period, regulatory exceptions and guidance on fulfilling the requirements and obligations set out by the AI Act.

⁴² The five objectives that article 57 (9) of the EU's AI Act establishes for AI regulatory sandboxes are: “9. The establishment of AI regulatory sandboxes shall aim to contribute to the following objectives: “(a) improving legal certainty to achieve regulatory compliance with this Regulation or, where relevant, other applicable Union and national law; (b) supporting the sharing of best practices through cooperation with the authorities involved in the AI regulatory sandbox; (c) fostering innovation and competitiveness and facilitating the development of an AI ecosystem; (d) contributing to evidence-based regulatory learning; (e) facilitating and accelerating access to the Union market for AI systems, in particular when provided by SMEs, including start-ups.”

⁴³ For lessons on regulatory sandboxes in the fintech industry see OECD, ‘Regulatory Sandboxes in Artificial Intelligence’ (OECD Publishing 2023) 356 <<https://doi.org/10.1787/8f80a0e6-en>>.



The United Kingdom’s “pro-innovation to AI regulation” proposal also includes the development of sandboxes and testbeds.⁴⁴ The white paper proposes three main objectives for these agile schemes:

- “Support innovators to get novel products and services to market faster, so they can start generating economic and social benefits.”
- “Test how the regulatory framework is operating in practice and illuminate unnecessary barriers to innovation that need to be addressed.”
- “Identify emerging technology and market trends to which our regulatory framework may need to adapt.”

Finally, the Brazilian AI bill (No. 2238 / 2023) includes regulatory sandboxes to promote innovation. Articles 38 – 42 authorize competent authorities to create these “experimental regulatory environments” and regulate the creation and implementation process.

3.4 Facilitating and Enabling Approach

Regulatory instruments can aim to facilitate and enable an environment that encourages the development and use of responsible, ethical, and human rights-compliant AI systems by the private and public sectors. Creating and fostering such conditions regarding AI are key roles of the States (Figure 2). AI laws and bills can include provisions that aim to contribute to building capabilities associated with human capital, technology, infrastructure, and institutional contexts.

⁴⁴ Department for Science, Innovation and Technology, ‘A Pro-Innovation Approach to AI Regulation’ (2023) Command Paper 815 <<https://www.gov.uk/government/publications/ai-regulation-a-pro-innovation-approach/white-paper>>.



In this vein, for example, UNESCO developed the Readiness Assessment Methodology (RAM) that aims at helping “countries understand where they stand on the scale of preparedness to implement AI ethically and responsibly for all their citizens, in so doing highlighting what institutional and regulatory changes are needed”.⁴⁵ For that purpose, the RAM helps countries identify strengths and gaps on five dimensions: 1) legal, 2) social and cultural, 3) scientific and educational, 4) economic, and 5) technological and infrastructural.

In the United States (US), for example, several bills aim at creating enabling conditions for the development and use of AI systems:

- The “AI Leadership Training Act” proposes to enhance AI literacy among federal leaders and employees by mandating that “the director of the Office of Personnel Management (OPM) to create and periodically refresh an AI training program, promoting responsible and ethical AI usage within the federal government.”⁴⁶
- The “CREATE AI Act” propose to establish the “National Artificial Intelligence Research Resource (NAIRR), a national research infrastructure to improve AI researchers’ and students’ access to essential resources.”⁴⁷
- The “Jobs of the Future Act” proposes to support a research initiative to understand the potential impact of AI on industries and jobs.⁴⁸

⁴⁵ UNESCO, ‘Readiness Assessment Methodology: A Tool of the Recommendation on the Ethics of Artificial Intelligence’ (United Nations Educational, Scientific and Cultural Organization (UNESCO) 2023) 5 <<https://doi.org/10.54678/YHAA4429>>.

⁴⁶ Maslej and others (n 20) 371.

⁴⁷ Nestor Maslej and others, ‘The AI Index 2023 Annual Report’ (AI Index Steering Committee, Institute for Human-Centered AI, Stanford University 2023) 373 <https://aiindex.stanford.edu/wp-content/uploads/2023/04/HAI_AI-Index-Report_2023.pdf>.

⁴⁸ Maslej and others (n 20) 371.



There are examples of AI bills that endorse a preparedness approach in Latin America, such as the following:

- Article 2 of Peru’s Law No. 31814 of 2023 establishes that “It is in the national interest to promote digital talent in the use of emerging and new technologies for social and economic welfare, as well as to encourage the development and use of artificial intelligence to improve public services, education and learning, health, justice, citizen security, digital security, economy, inclusion, social programs, national security and defense, as well as for all other economic and social activities at national level.”
- Article 15 of Panama’s AI Preliminary Draft Law No. 14 / 2023 (“Regulating artificial intelligence in the Republic”) establishes that “The State shall encourage research and innovation in the field of artificial intelligence; promote the creation of artificial intelligence research and development centers in the country and encourage investment in artificial intelligence-related companies and projects.”
- Article 5 of Colombia’s bill No. 091 / 2023 – Senate (“By which the duty of information for the responsible use of Artificial Intelligence in Colombia is established”), establishes that the “National Government will incentivize and strengthen the formulation of educational programs and the creation of university-based research groups that research and develop artificial intelligence.” Furthermore, article 6 of the bill establishes that the National Government will “design and implement training sessions on the use of Artificial Intelligence, with the objective of preparing citizens and developing capabilities to adapt to emerging technologies.”




3.5 Adapting Existing Laws Approach

Some jurisdictions have preferred adapting sector-specific rules (e.g., health, finance, education, justice) and transversal rules (e.g., criminal codes, public procurement, data protection laws, labor laws) instead of issuing AI bills. One potential benefit of this approach is that it allows legislators to discuss and make incremental improvements to the regulatory framework based on what they learn about the implications of AI technologies.

With regards to transversal rules that are pertinent for developing and using AI systems, for example, article 22 of the European Union's General Data Protection Regime (GDPR) establishes that "The data subject shall have the right not to be subject to a decision based solely on automated processing, including profiling, which produces legal effects concerning him or her or similarly significantly affects him or her."

Another example of adapting transversal rules is Colombia's Bill No. 225 / 2024 – Senate, which would modify the Criminal Code to increase the penalties for the crime of impersonation when AI systems (e.g., through the creation of deepfakes). Moreover, in Argentina, a bill proposes to amend three articles of Law No. 25,467 of 2021 ("Law of science, technology and innovation") to set out principles and values for the "ethical operation" of AI systems, establish the obligation to register AI systems, empowering the competent authority to stop the developing of AI systems when it violates the principles and values, and allowing anyone threatened or harmed by such systems to report it.

Finally, African scholars have proposed amendments to their data protection and intellectual property laws to address new challenges posed by the deployment of AI systems. For



example, Buleani Jili argued governments should “pursue legislative instruments that can establish accountability for the use of surveillance systems. This may mean elaborating on existing laws to include AI and other emerging technologies or crafting a new framework tailored to meet some of the challenges of digital surveillance systems.”⁴⁹ Similarly, Nkem Itanyi proposed to reform intellectual property laws to ensure equitable attribution and compensation for artists. For that purpose, she recommended to “legally designate AI developers as authors capable of licensing materials”, shortening copyright terms, requiring the introduction of watermarks for synthetic media, among others.

3.6 Access to Information and Transparency Mandates

Approach

Algorithmic transparency is among the most common AI principles in ethical frameworks and AI bills worldwide.⁵⁰ Compliance with this principle entails the deployment of transparency instruments that enable the population to access basic information about AI systems adopted by public and private sector organizations. The scope of the disclosed information may include diverse aspects of an AI system’s life cycle (Figure 1), including how the model was developed, what data was used to train it, how the system works, the system’s performance, what are the

⁴⁹ Bulelani Jili, ‘Kenya Must Update Its Regulatory Frameworks to Keep Pace with AI | TechPolicy.Press’ (*Tech Policy Press*, 2 October 2023) <<https://techpolicy.press/kenya-must-update-its-regulatory-frameworks-to-keep-pace-with-ai>> accessed 17 June 2024.

⁵⁰ Matías Valderrama, María Paz Hermosilla and Romina Garrido, ‘State of the Evidence: Algorithmic Transparency’ (Open Government Partnership and GobLab (Universidad Adolfo Ibáñez) 2023) <<https://www.opengovpartnership.org/documents/state-of-the-evidence-algorithmic-transparency/>>.



implications of the system for the procedures its supports, how can people contest decisions made with the input of the system, among others.⁵¹


Few countries have already adopted algorithmic transparency obligations for public bodies through regulation. In France, for example, article 6 of Law N° 2016-1321 (“for a Digital Republic”) orders that public bodies must publish “the rules defining the main algorithmic processes used in the exercise of their functions when they are the basis for individual decisions.”⁵² In Colombia, the ethical framework of AI published by the national government in 2021 was complemented with a decree that establishes that public bodies must “Promote the use of open portals of State data during the implementation and management of artificial intelligence projects” (Decree 1263 of 2023).⁵³

Moreover, article 50 of the EU’s AI Act establishes transparency obligations for providers of AI Systems, such as ensuring “that AI systems intended to interact directly with natural persons are designed and developed in such a way that the natural persons concerned are informed that they are interacting with an AI system” and “that the outputs of the AI system are marked in a machine-readable format and detectable as artificially generated or manipulated”. The article also creates obligations for users that deploy an AI system “that generates or manipulates image, audio or video content constituting a deep fake, shall disclose that the content has been artificially generated or manipulated” or “that generates or manipulates text which is published with the

⁵¹ Juan David Gutiérrez and Michelle Castellanos-Sánchez, ‘Transparencia Algorítmica y Estado Abierto En Colombia’ (2023) 25 Reflexión Política 6; GPAI, ‘Algorithmic Transparency: A State-of-the-Art Report’ (Global Partnership on Artificial Intelligence (GPAI) 2024) <<https://gpai.ai/projects/responsible-ai/algorithmic-transparency-in-the-public-sector/algorithmic-transparency-in-the-public-sector.pdf>>.

⁵² GPAI (n 52).

⁵³ Gutiérrez and Castellanos-Sánchez (n 52).




purpose of informing the public on matters of public interest shall disclose that the text has been artificially generated or manipulated.”

Finally, several AI bills in Latin America include obligations for private organizations and public bodies regarding the disclosure of information about their AI systems:

- Article 18 of Brazil’s AI bill (No. 2238 / 2023) proposes that developers and deployers of AI systems must establish governance structures and internal processes that include, among others, “transparency measures regarding the use of systems in interaction with natural persons, which includes the use of human-machine interfaces that are sufficiently clear and informative” and “transparency regarding the governance measures adopted in the development and use of the artificial intelligence system by the organisation.” Furthermore, article 43 of the bill establishes that the public body in charge of enforcing the law “is responsible for creating and maintaining a high-risk artificial intelligence database, accessible to the public, which public impact assessment documents, with due regard for commercial and industrial secrets, under the terms of the regulations.”
- Article 3 of Colombia’s bill No. 091 / 2023 – Senate proposes a “duty of information” according to which “the legal or natural persons carrying out any kind of economic or academic activity through the use or intermediation of a Generative Artificial Intelligence, shall have the duty to inform which Artificial Intelligence was used and specify what it was used for, such information must always be visible and available and be accessible and identifiable.”



- Article 30 of Colombia’s Bill No. 059 / 2023—Senate establishes that the Ministry of Science, Technology and Innovation would manage a national registry of AI systems.
- Article 10 of Chile’s bill “regulating artificial intelligence systems, robotics, and related technologies in their various fields of application”, establishes that “Regardless of risk, developers, providers and users of AI systems intended to interact with people shall ensure that they are designed and developed in such a way that people are informed that they are interacting with an AI system. Similarly, irrespective of risk, developers, providers and users of AI systems that generate or manipulate image, sound or video content that is a striking resemblance to existing persons, objects, places or other entities or events, and that may mislead a person into believing that it is authentic or truthful, shall take steps to ensure that those accessing such content are aware that it has been artificially generated or manipulated by an AI system.” Moreover, article 13 establishes that the National Commission of AI must create a public registry that includes “1. Applications for authorizations for the development, distribution, marketing and use of AI systems, stating expressly whether they were authorized or rejected. 2. Serious incidents and malfunctions reported by developers, suppliers and users, and the decision taken.”
- Article 11 of Panama’s AI Preliminary Draft Law No. 14 / 2023 establishes that “Undertakings and organizations using artificial intelligence systems shall inform the persons concerned about the use made of their personal data and about the



criteria used to make automated decisions. Individuals have the right to request information on the use of artificial intelligence systems and on the criteria used to make automated decisions.”

3.7 Risks-based Approach


Risk-based approaches aim at “prioritizing regulatory actions in accordance with an assessment of the risks that parties will present to the regulatory body’s achieving its objectives.”⁵⁴ This regulatory approach has been implemented in different sectors, including environmental, taxes, food safety, natural disasters, and consumer protection.⁵⁵

The AI risk-based approach focuses on preventing problems and controlling risks associated with developing and using AI systems and, therefore, aims at tailoring the obligations or requirements of the regulation based on the level of risk posed by different types of AI systems.⁵⁶ The approach prioritizes objectives, differentiates risk types, and selects interventions based on risk levels. An example of a current regulation with a risk-based approach is Canada’s Directive on Automate Decision-Making, adopted in March 2021 and amended in April 2023. Article 4.1 states that the Directive aims at ensuring “that automated decision systems are deployed in a manner that reduces risks to clients, federal institutions and Canadian society, and leads to more efficient, accurate, consistent and interpretable decisions made pursuant to Canadian law.” The Directive creates general obligations to all Canadian public bodies and officials

⁵⁴ Baldwin, Cave and Lodge (n 13) 281.

⁵⁵ Martin Lodge and Kai Wegrich, *Managing Regulation : Regulatory Analysis, Politics and Policy* (Palgrave Macmillan 2012).

⁵⁶ For a database that documents over 700 risks associated with AI systems, see the “AI Risk Repository”: <https://airisk.mit.edu/>




that use ADM systems to make administrative decisions⁵⁷ and specific obligations based on four impact levels (I – little or no impact, II – moderate impacts, III – high impacts, IV – very high impacts), related to transparency obligations and quality assurance.

Another prominent example of this regulatory approach is the EU’s AI Act, which establishes obligations based on different levels of risks: unacceptable, high, systemic, limited, and minimal. According to article 3 (1a) “risk” is understood as “the combination of the probability of an occurrence of harm and the severity of that harm”. The AI practices that fall under the “unacceptable risk” category are prohibited (see the list of banned AI practices in article 5). An example of such practice is the “use of ‘real-time’ remote biometric identification systems in publicly accessible spaces for the purpose of law enforcement”, unless it is strictly necessary to follow objectives associated with certain criminal investigations and prevention of specific threats. Moreover, the AI systems that fall under the “high-risk” category must comply with specific duties related to risk management systems, data governance, technical documentation, record-keeping, transparency, human oversight, accuracy, robustness, and cybersecurity (Chapter 2 of Title III), and providers of high-risk AI systems must also comply with a set of requirements (Chapter 3 of Title III).

Similar to the European Union’s AI Act, legislative bodies from countries worldwide are also discussing AI bills that have a risk-based approach. In Latin America, for example, there are AI bills in Brazil, Chile, Colombia, and Ecuador that embrace the “unacceptable” and “high” risk

⁵⁷ Such as “Completing and releasing the final results of an Algorithmic Impact Assessment prior to the production of any automated decision system” (article 6.1.1) and “Developing processes to monitor the outcomes of the automated decision system to safeguard against unintentional outcomes and to verify compliance with institutional and program legislation, as well as this directive, on a scheduled basis” (article 6.3.2).



categories, fully or partially adopt the list of AI systems that fall under this category, and include some of the obligations for higher risk AI systems ⁵⁸.

3.8 Rights-based Approach

The rights-based approach aims at ensuring that AI regulations protect individuals' rights and freedoms, emphasizing human rights. This approach assumes that market failures⁵⁹ are not the only rationales for regulating but that regulations are justified to protect rights, promote distributional justice, and further social objectives.⁶⁰ The rights-based approach establishes mandatory rules to guarantee the respect, protection, and promotion of rights, including human rights and other economic or social rights, along the AI system's life cycle.


For example, Margaret Mitchell proposes a framework that identifies different stakeholder groups that could be negatively impacted in each stage of the AI system's life cycle (data creators, data subjects, AI developers, AI deployers, AI users, and AI-affected people), the human rights that could be affected in each case, and then the corresponding “regulatory artifacts” that could be necessary to protect each right.⁶¹ Similarly, John Cantius Mubangizi proposes a human rights-based approach for African countries “to empower rights-holders (individuals or social groups that have particular entitlements in relation to duty-bearers) to claim

⁵⁸ Juan David Gutiérrez, ‘¿Cómo regular los sistemas de inteligencia artificial?’ (*ELESPECTADOR.COM*, 24 December 2023) <<https://www.elspectador.com/ciencia/como-regular-los-sistemas-de-inteligencia-artificial/>> accessed 20 March 2024; Giandana (n 23).

⁵⁹ Market failures refer to situations in which markets do not efficiently allocate resources. These failures are associated with information asymmetry, market power, public goods, and externalities. Joseph E Stiglitz, *La Economía Del Sector Público* (3rd edn, Antoni Bosch 2000).

⁶⁰ Baldwin, Cave and Lodge (n 13).

⁶¹ Margaret Mitchell, ‘The Pillars of a Rights-Based Approach to AI Development | TechPolicy.Press’ (*Tech Policy Press*, 5 December 2023) <<https://techpolicy.press/the-pillars-of-a-rights-based-approach-to-ai-development>> accessed 21 March 2024.



and exercise their rights and to strengthen the capacity of duty-bearers (state or non-state actors) who are obliged to respect, protect, promote, and fulfill human rights.”

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One of the prominent examples of an AI rights-based approach is the GDPR’s rules related to treating personal data with ADM systems. The obligations are not subject to a certain level of risk but are universally imposed whenever these systems are used to treat personal data. Civil society organizations, such as Access Now, contested that the EU’s AI Act should have had a rights-based rather than a risk-based approach. The thrust of the argument was that human rights “are non-negotiable and they must be respected regardless of a risk level associated with external factors.”⁶³

Finally, the Brazilian bill No. 2238 / 2023 enshrines rights for persons affected by AI systems (articles 5 and 6), rights associated with “information and understanding of the decisions made by artificial intelligence systems” (articles 7 and 8), rights to “challenge decisions and request human intervention” (articles 9 and 11), and the “right to non-discrimination and the correction of direct discriminatory biases, indirect, illegal or abusive” (article 12).

⁶² John Cantius Mubangizi, ‘A Human Rights-Based Approach To The Use And Regulation Of Artificial Intelligence – An African Perspective’ [2022] Journal of Southwest Jiaotong University 558 <<https://api.semanticscholar.org/CorpusID:252235351>>.

⁶³ Fanny Hidvegi, Daniel Leufer and Estelle Massé, ‘The EU Should Regulate AI on the Basis of Rights, Not Risks’ (*Access Now*, 17 February 2021) <<https://www.accessnow.org/eu-regulation-ai-risk-based-approach/>> accessed 21 March 2024.




3.9 Liability Approach

The liability approach consists of assigning responsibility and sanctions to problematic uses of AI systems. The approach aims at imposing mandatory standards of conduct backed by criminal, administrative or civil liabilities. In this regulatory approach, “[t]he force of law is used to prohibit certain forms of conduct, to demand some positive actions, or to lay down conditions for entry into a sector.”⁶⁴

For example, the EU’s AI Act established penalties applicable to infringements of the regulation (articles 99 – 101). The non-compliance concerning the AI Act’s prohibitions “shall be subject to administrative fines of up to 35 000 000 EUR or, if the offender is an undertaking, up to 7 % of its total worldwide annual turnover for the preceding financial year, whichever is higher” (article 99). Moreover, the lack of compliance with other obligations established for providers, authorized representatives, importers, distributors and deployers can be punished with “administrative fines of up to 15 000 000 EUR or, if the offender is an undertaking, up to 3 % of its total worldwide annual turnover for the preceding financial year, whichever is higher” (article 99). Additionally, the European Parliament is considering proposals for new provisions on the civil liability related with harms caused when AI systems have been deployed.

Similarly, article 27 of the Brazilian bill No. 2238 / 2023 establishes new provisions on civil liability in cases in which a developer or user of an AI system causes patrimonial, moral individual or collective harms. Moreover, article 36 of the Brazilian AI bill proposes to punish the

⁶⁴ Baldwin, Cave and Lodge (n 13) 106.



infringements with administrative sanctions such as a fine of up to “R\$50,000,000.00 (fifty million reais) per infraction, and, in the case of a legal entity governed by private law, up to 2% (two per cent) of its turnover or that of its group or conglomerate in Brazil in its last financial year, excluding taxes”. The same article also includes as administrative sanctions the “prohibition or restriction from participating in the regulatory sandbox regime provided for in this Law, for up to five years”; “partial or total, temporary or definitive suspension of the development, supply or operation of the artificial intelligence system”; and, “a ban on processing certain databases.”


4. Key considerations for parliamentarians

The guiding questions are indicated under each sub-section. Please provide comments [here](#).

This section offers guidance for parliamentarians interested in exploring AI regulatory instruments. For that purpose, the document provides criteria and input for answering three questions: Why regulate? When to regulate? How to regulate?

4.1 Why regulate?

Guiding question: What are the most prominent examples of justifications for regulating within the three main reasons provided in the policy brief (addressing public problems, human rights or achieve desirable futures)? Are there additional justifications for regulating that should be included?



This question is pertinent beyond AI regulation, and multiple approaches can be considered to answer it. Here, we will offer different reasons why regulation may be justified under specific conditions, but it is important to remember that the questions' answers should be context-specific. Hence, deciding whether regulation should be issued depends on institutional, legal, political, economic, social, and cultural factors.

Figure 4 lists three main reasons (that are not mutually exclusive) why regulation could be necessary.


Figure 4 – Justifications for Regulation



Source: Elaborated by the author based on DNP& and OECD 'Guía Metodológica de Análisis de Impacto Normativo' (Departamento Nacional de Planeación (DNP) - la Organización para la Cooperación y Desarrollo Económicos (OCDE) 2016). and Weiner & Vining *Policy Analysis : Concepts and Practice* (6th edn, Routledge 2017).

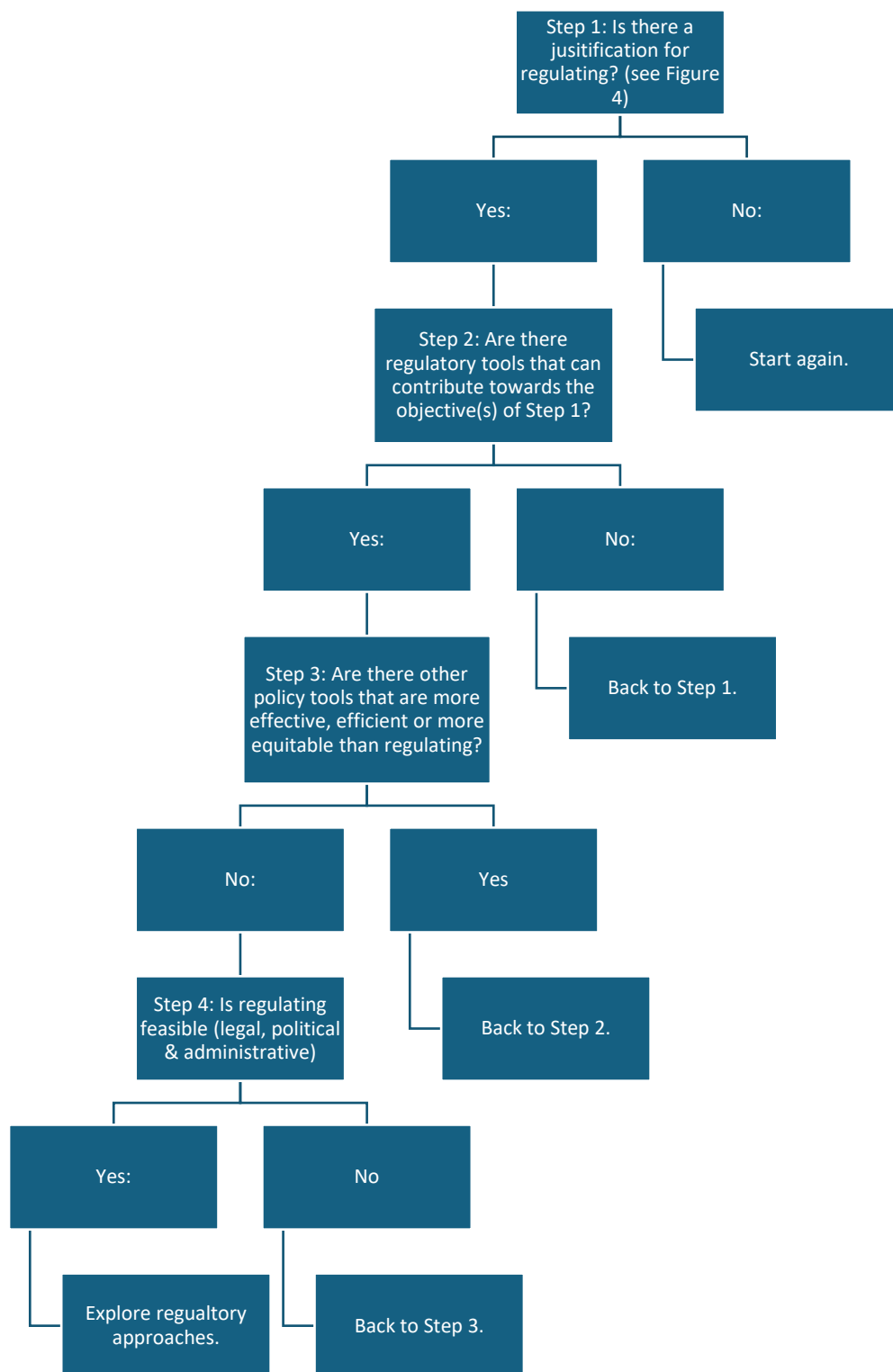
4.2 When to regulate?

Guiding question: Are there additional steps or activities to consider when deciding whether regulation is pertinent and feasible? How to adopt participative and multi-stakeholder strategies for deciding when to regulate?



As with the previous query, the question of when to regulate can be addressed through different lenses, and the answers should be context-specific. This decision requires assessing whether there is consensus on why regulation is needed, mapping and comparing regulatory instruments with other policy instruments and assessing the feasibility of adopting the former. Figure 5 proposes a flow chart with four steps that can help to identify when regulation could and should be adopted.

Figure 5 – Decision tree for deciding to regulate



Source: Elaborated by the author

4.3 How to regulate?

Guiding question: Are there additional recommendations that parliamentarians should consider?

Once the questions on why and how to regulate have been addressed, it will be pertinent to identify a combination of AI regulatory approaches that are tailored to specific contexts. For that purpose, policymakers could consider the following recommendations for their regulatory processes:

- 1. Human rights and digital divides.** AI systems are powerful tools that may generate great benefits and impose significant negative externalities, including social, economic, and environmental externalities. Furthermore, these tools' diverse positive and negative impacts are not necessarily spread homogeneously among the population. In fact, due to digital divides within countries, the development and use of specific AI systems may likely produce enormous returns for a few powerful people and simultaneously generate significant adverse effects for the general population and marginalized populations. Consequently, regardless of the regulatory approach policymakers select, the regulatory processes should always consider protecting human rights. In this vein, legislators should discuss and explore regulatory instruments that aim to address public problems and challenges associated with human rights and digital divides, such as the following:
 - a. Gender and racial-based discrimination may be caused, for example, by AI systems deployed for human talent recruitment that reproduce, reinforce, and exacerbate societal biases.



- b. Gender-based violence, for example, through the creation and distribution of sexually explicit deepfakes.
 - c. Dissemination of misinformation, particularly regarding democratic, electoral, and political processes, facilitated by the creation of generative AI media.
 - d. Mass surveillance with AI-based biometric recognition systems can infringe data protection and privacy laws and facilitate ethnic persecution and discrimination.
 - e. Lack of accountability concerning the use of ADM systems in public and private organizations.
 - f. Barriers to accessing and using AI systems, particularly for low-income families and people with disabilities.
 - g. Proliferation of lethal autonomous weapons systems.
 - h. Environmental impact and sustainability.
 - i. Access to data.
 - j. Linguistic diversity.
 - k. Capacity building/literacy
- 2. Agile regulation.** The rapid evolution of AI systems and other emerging digital technologies requires considering flexible regulatory arrangements, mainly when the risks are not high and when human rights are not at stake. Sandboxes and testbeds should be part of the “agile” regulatory toolbox available to policymakers to accommodate the fast pace of technological innovation. Parliamentarians can learn from sandboxing experiences in other countries where these schemes have been established for



information and communication technologies (ICT) and fintech, among others.⁶⁵ This is the case of the regulatory sandbox for data protection and AI projects set by Colombia's data protection agency (*Superintendencia de Industria y Comercio*) between 2020 and 2022⁶⁶ and the regulatory sandbox project recently started by Brazil's data protection agency (*Autoridade Nacional de Proteção de Dados*).⁶⁷ Furthermore, there are lessons to extract from the regulatory sandboxes for fintech in Brazil, Colombia, Indonesia, Kenya, Mexico, Morocco, Nigeria, Philippines, Rwanda, Singapore, Thailand, and India, among others.⁶⁸

3. Participatory and inclusive legislative processes. AI regulatory processes should be open for inclusive deliberation and consider diverse voices from the private sector, civil society organizations, public officials, and groups of individuals and communities that may be affected by AI. Legislative bodies should effectively include different perspectives in their processes rather than drafting regulations solely with the support of “experts”.


4. Explore regulatory instruments that respond to specific policy challenges through evidence-based processes. Since AI is an umbrella term for technologies with diverse functions and varied consequences, no single policy intervention or regulatory instrument can address all of them. A one-size-fits-all regulation that applies indiscriminately to AI

⁶⁵ World Bank, 'Global Experiences from Regulatory Sandboxes' (World Bank 2020) Fintech Note 8 <<https://documents1.worldbank.org/curated/en/912001605241080935/pdf/Global-Experiences-from-Regulatory-Sandboxes.pdf>>.

⁶⁶ The Colombian data protection agency published all the relevant documents of its regulatory sandbox here: <https://www.sic.gov.co/sandbox-microsite>

⁶⁷ The Brazilian data protection agency published information about the launch of its regulatory sandbox here: <https://www.gov.br/anpd/pt-br/assuntos/noticias/anpds-call-for-contributions-to-the-regulatory-sandbox-for-artificial-intelligence-and-data-protection-in-brazil-is-now-open>

⁶⁸ World Bank (n 65); OECD, 'Regulatory Sandboxes in Artificial Intelligence' (n 44).



tools may be counterproductive. On the other hand, broad and lax regulation could generate a sense of false security without the regulation being able to prevent or solve problems. Therefore, regulators should aim to identify, diagnose, and address specific problems and challenges associated with using different AI systems and legislate on that basis.

5. Best practices. Identify best practices from other jurisdictions, not just substantive but process-related, such as strengthening multi-stakeholder participation in regulatory processes. For example, UNESCO published a guide titled “Multistakeholder AI development: 10 building blocks for inclusive policy design” that offers policymakers guidance on creating and implementing AI public policy inclusively by engaging with multiple stakeholders.⁶⁹ The call for identifying “best practices” is not that policymakers should engage in isomorphic mimicry, meaning transplanting foreign policies and procedures but lacking the institutional context that supports them. Regulation should not result from transplanting foreign standards without considering local contexts and needs. Instead, the best practices could include:

- a. Identifying specific problems and challenges associated with developing and using AI systems and diagnosing them (as explained in section 4.1 of this policy brief).⁷⁰

⁶⁹ UNESCO and i4Policy, ‘Multistakeholder AI Development: 10 Building Blocks for Inclusive Policy Design’ (United Nations Educational, Scientific and Cultural Organization (UNESCO), Innovation for Policy Foundation (i4Policy) 2022) <<https://unesdoc.unesco.org/ark:/48223/pf0000382570>>.

⁷⁰ UNESCO, ‘Ethical Impact Assessment: A Tool of the Recommendation on the Ethics of Artificial Intelligence’ (The United Nations Educational, Scientific and Cultural Organization (UNESCO) 2023) <<https://unesdoc.unesco.org/ark:/48223/pf0000386276>>.



- b. Identifying the institutional capacities that States should build to foster enabling environments for AI development and use and enforcing laws.⁷¹
- c. Understanding the life cycles of the technologies that will be regulated (as explained in section 1 of this policy brief).⁷²
- d. Considering diverse regulatory tools ranging from persuasion to coercion (as explained in section 3 of this policy brief).⁷³
- e. Minding implementation challenges and considering context-specific solutions.⁷⁴
- f. Monitoring the results and impacts of regulations and being open to new regulatory iterations through agile approaches (as explained in section 3.3 of this policy brief).⁷⁵
- g. Creating and strengthening multi-stakeholder venues for AI regulation deliberation that can provide inputs for legislative processes.⁷⁶

⁷¹ UNESCO, 'Readiness Assessment Methodology: A Tool of the Recommendation on the Ethics of Artificial Intelligence' (n 46).

⁷² Gabriela Denis and others, 'Responsible Use of AI for Public Policy: Project Formulation Manual' (2021st edn, Banco Interamericano de Desarrollo 2021) <<https://publications.iadb.org/es/node/30874>>.

⁷³ Ada Lovelace Institute, AI Now Institute, and Open Government Partnership, 'Algorithmic Accountability for the Public Sector. Learning from the First Wave of Policy Implementation' <<https://www.opengovpartnership.org/documents/algorithmic-accountability-public-sector/>>.

⁷⁴ OECD, 'Governing with Artificial Intelligence: Are Governments Ready?' <<https://doi.org/10.1787/26324bc2-en>>.

⁷⁵ Stratieva (n 42); UNESCO and i4Policy (n 69).

⁷⁶ UNESCO and i4Policy (n 69).



Conclusions

This policy brief aims to contribute to the ongoing global discussion about whether and how to regulate the development and use of AI systems. It introduces key concepts of AI regulation, presents a global landscape of AI regulation, and explains nine emerging regulatory approaches to AI. Building on these points, the policy brief offers considerations for legislators who wish to explore the relevance and scope of AI regulatory projects. The paper helps to advance conversations at the national level on how to translate global standards into governance approaches.

The policy brief does not endorse a specific AI regulatory approach. Instead, it explains nine emerging regulatory approaches and provides specific cases from different countries to illustrate each approach. These nine AI regulatory approaches are not exclusive and can be combined in one or more pieces of legislation: 1) Principles-Based Approach; 2) Standards-Based Approach; 3) Agile and Experimentalist Approach; 4) Facilitating and Enabling Approach; 5) Adapting Existing Laws Approach; 6) Access to Information and Transparency Mandates Approach; 7) Risk-Based Approach; 8) Rights-Based Approach; and 9) Liability Approach.

Finally, the policy brief recommends that policymakers craft context-specific rules to address their nations' specific needs and challenges. The paper invites parliamentarians to consider challenges such as human rights and digital divides, as well as environmental and sustainability issues. It also advocates for the embrace of participatory and evidence-based regulatory processes for their AI regulations.



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