

Industry Policy and Regulation of Artificial Intelligence



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The present state and potential future trajectory of AI

From Generative AI to autonomous agents

AI adoption is rapidly increasing as companies integrate it into their business processes. The rise of Generative AI has accelerated this trend, leading to higher investments, new AI-related roles, and greater focus on responsible AI and data management. The next step is Agentic AI, which can act autonomously and transform business operations.

Agentic AI

Agentic AI is a new type of AI that can take actions and work alongside humans, not just generate content. It is expected to automate many business tasks and transform industries, although it also raises concerns about jobs, energy use, and fairness.

Artificial general intelligence (AGI)

AGI is a theoretical type of AI with human-level intelligence that can learn and solve new problems independently. It does not yet exist, but companies are investing heavily in it, and it could significantly impact society in the future.

Sovereign AI

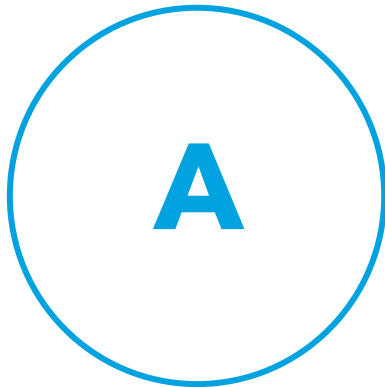
Sovereign AI refers to countries developing their own AI technologies and infrastructure to reduce dependence on foreign systems, strengthen national security, and ensure AI reflects local needs and values.

Quantum AI

Quantum AI uses quantum computing to run AI systems much faster and solve complex problems that classical computers cannot. Although it has great potential, it is still mostly in the research stage.

AI Regulatory Framework

Model A: Comprehensive Risk-Based AI Framework Legislation



Under this approach, jurisdictions adopt a dedicated AI statute establishing cross-sector rules applicable throughout the lifecycle of AI systems.

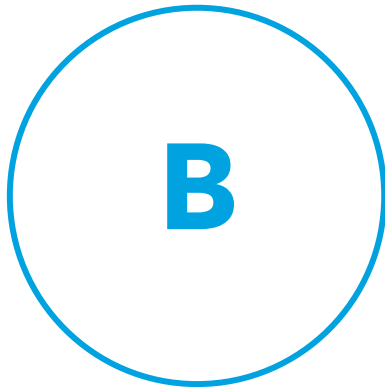
Key elements:

- Statutory definition of AI systems
- Formal risk classifications
- Allocation of responsibilities across AI value chain
- Compliance, documentation, and oversight requirements.

This approach prioritize legal certainty and structured compliance mechanisms, often requiring dedicated supervisory capacity.

Region/Country	Steps
EU 	European Union’s Artificial Intelligence Act (Regulation (EU) 2024/1689)
South Korea 	AI framework law establishing national governance architecture and regulatory coordination mechanisms
Brazil 	Bill to Regulate AI Use
Canada 	Artificial Intelligence and Data Act (AIDA), (Bill C-27)

Model B: Sectoral Enforcement Through Existing Laws



This model relies on sectoral enforcement through existing legal frameworks rather than adopting a single AI-specific statute

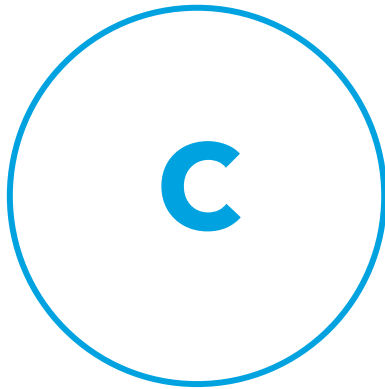
AI systems are governed through the application of established domains:

- consumer protection,
- civil rights,
- data protection,
- product liability,
- financial regulation
- competition law.

This model offers flexibility within established legal systems but requires effective coordination among multiple regulatory bodies.

Country	Steps
United States 	Federal agencies regulate AI using existing authorities; Executive Order 14110 guides safe and trustworthy AI development
Colorado (US) 	Targeted AI legislation (SB24-205) addressing high-risk AI systems and algorithmic discrimination
Australia 	AI governed through Privacy Act 1988, consumer protection law and sector regulators to govern AI-related risks
Japan 	Uses administrative guidance and strategic coordination instead of a binding AI law

Model C: Principles-Led Regulatory Coordination



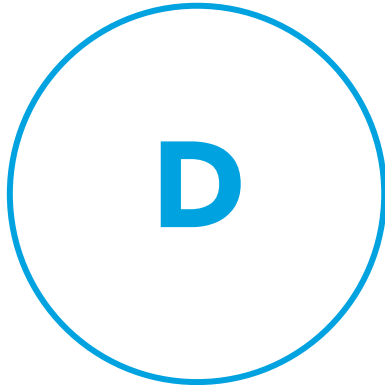
In this approach, governments articulate high-level principles for AI governance, such as safety, transparency, fairness and accountability, while delegating implementation to existing regulators within their mandates.

This model emphasizes:

- regulatory agility
- adaptive governance,
- relying heavily on guidance instruments and institutional coordination rather than detailed statutory prescriptions.

Country	Steps
United Kingdom 	"A Pro-Innovation Approach to AI Regulation" - cross-sector principles interpreted and applied by regulators
Singapore 	AI Governance Framework providing guidance for responsible AI deployment without a comprehensive AI law
India 	National Strategy for AI and digital transformation frameworks led by the Ministry of Electronics and Information Technology

Model D: Platform and Information Governance-Based Regulation



This approach focuses on digital service providers, online platforms and generative AI applications operating within digital ecosystems.

This model places particular emphasis on security, platform accountability and information integrity, especially in the context of generative AI and synthetic media.

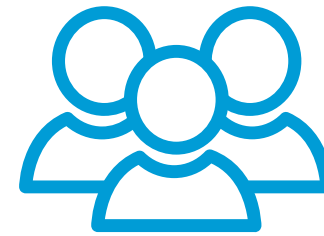
Country	Steps
China 	Interim Measures for Generative AI Services - obligations for security assessment, content governance, and regulatory reporting
Indonesia 	AI governed through Electronic Information and Transactions Law and digital platform regulations by the Ministry of Communication and Informatics
Turkey 	AI oversight integrated into digital governance and internet regulation frameworks coordinated by national digital authorities

	Model A: Comprehensive Risk-Based Framework	Model B: Sectoral Enforcement	Model C: Principles-Led Coordination	Model D: Platform & Information Governance
<i>Primary Legal Structure</i>	Dedicated AI statute with defined scope and risk categories	AI governed under existing sectoral and horizontal laws	AI governed under Cross-sector principles implemented by existing regulators	AI regulated through digital platform and information laws
<i>Regulatory Scope</i>	Cross-sector lifecycle approach (providers and deployers)	Sector-specific application (finance, health, employment)	Broad conceptual scope guided by principles	Primarily online services and digital platforms
<i>Allocation of Responsibility</i>	Explicit allocation across AI value chain	Determined under existing liability regimes	Interpreted within sector regulators mandates	Focused on service providers and platform operators
<i>Risk Management Mechanism</i>	Formal risk classification (prohibited, high-risk, limited risk)	Risk addressed within sector-specific standards	Risk interpreted through guidance principles	Risk framed through security and content governance
<i>Enforcement Structure</i>	Centralized oversight and administrative sanctions	Multiple regulators and courts enforce	Enforcement via coordinated sector regulators	Administrative supervision by digital authorities
<i>Compliance Requirements</i>	Documentation, conformity assessment, monitoring duties	Varies by sector; no Guidance-based uniform AI regime	Guidance-based expectations	Registration, security review, moderation obligations
<i>Regulatory Certainty</i>	High clarity within defined scope	Moderate; depends on interpretation	Moderate to lower; depends on guidance development	Moderate within platform scope
<i>Institutional Capacity Needs</i>	Dedicated supervisory Relies on existing infrastructure required	Relies on existing institutions	Strong inter-regulatory coordination required	Digital governance enforcement capacity needed
<i>Adaptability</i>	Structured; may require Flexible through legislative updates	Flexible through interpretation	Highly adaptable via updated guidance	Adaptable within digital services ecosystem
<i>Cross-Border</i>	Facilitates Interoperability interoperability with similar frameworks	Fragmentation may create complexity	Depends on international regulatory dialogue	Jurisdictional challenges for cross-border services



2025 Regulatory Landscape

United Nations initiatives (2025)



The Global Dialogue on AI Governance

The Global Dialogue serves as a platform for governments, industry, and civil society to share good practices



The Independent International Scientific Panel on AI

(builds on the Global Digital Compact adopted in September 2024)

The Scientific Panel functions as an early-warning system, offering insights into emerging risks and opportunities.

At the UN's high-level meetings held in September 2025 discussions addressed concerns such as **disinformation, autonomous weapons, and algorithmic manipulation.**

UN Secretary-General António Guterres outlined four global priorities:

- *ensuring human control over AI in conflicts,*
- *establishing coherent international regulation,*
- *safeguarding information integrity,*
- *and closing the global AI capacity gap.*

Global Digital Compact

The Global Digital Compact (GDC) aims to create a broad international framework that supports the collaborative efforts of multiple stakeholders to bridge gaps in digital access, data, and innovation.

It seeks to establish guiding principles, goals, and actions that promote a digital future that is open, free, secure, and centred on human rights, while also advancing the achievement of **the Sustainable Development Goals.**



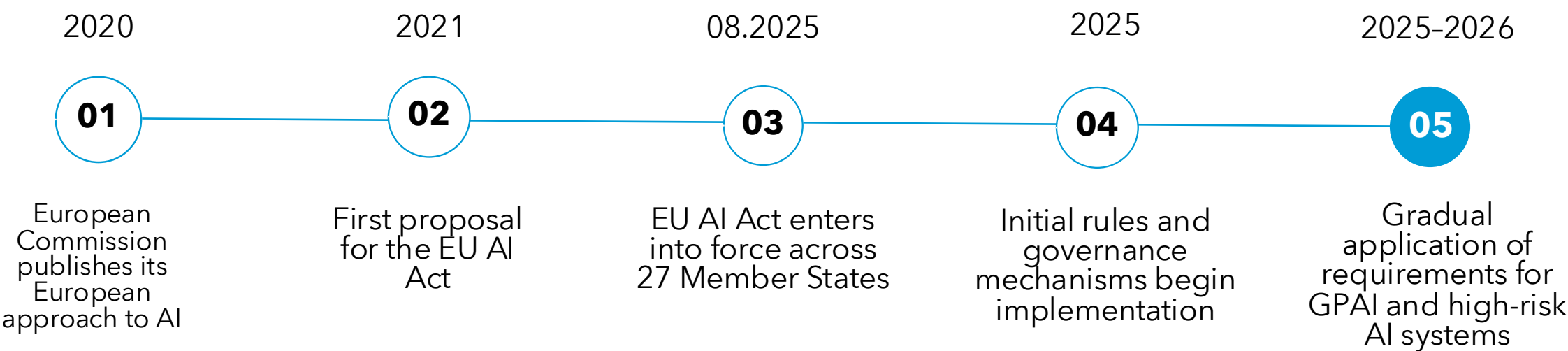
2025 Regulatory Landscape: Regional Level

The European Union – The EU AI Act



The Act applies to a broad range of stakeholders, including providers, deployers, importers, and distributors of AI systems within the EU, as well as non-EU entities whose AI systems are used within the EU.

This approach reflects the regulatory framework seen in **the General Data Protection Regulation (GDPR)**, emphasizing the importance of safety and innovation in equal measure.



Aspect	Description
Purpose	Improve the EU single market for AI, promote human-centric and trustworthy AI, and protect the rights and safety of EU citizens
Regulatory Approach	Risk-based classification of AI systems
Key Rules	Prohibition of harmful AI practices; strict requirements for high-risk AI; transparency obligations
General-Purpose AI	Additional rules for GPAI models used across multiple applications
Governance	Oversight by the European AI Office and national supervisory authorities
Enforcement Tools	Authorities may review datasets, documentation, and source code of high-risk AI systems

2025 Regulatory Landscape: National Level



Country	Key Initiative
France 	French data protection authority (CNIL) issued guidance to ensure AI compliance with GDPR, focusing on data protection, risk documentation, and safeguards against personal data exposure.
Germany 	Increased AI investment to €5B by 2025 and launched the Hightech Agenda aiming for 10% of economic output to be AI-driven by 2030.
Netherlands 	Debate on postponing or simplifying the EU AI Act; plans a decentralized supervision model with sector regulators overseeing high-risk AI.
Spain 	Created an AI regulatory sandbox to help companies test compliance with EU AI Act requirements before market deployment.
Switzerland 	Aligning national policy with EU AI Act principles through the Digital Switzerland Strategy 2025 and plans to implement the Council of Europe's AI Convention via tailored sectoral laws, avoiding a standalone Swiss AI Act.



2025 Regulatory Landscape: National Level



Japan 	AI Act (2025) promotes AI innovation and adoption with a flexible regulatory approach; businesses are encouraged to follow existing laws on privacy, human rights, and transparency.
Australia 	Government AI technical standard provides guidance for safe and responsible AI use in public systems and supports innovation aligned with national AI ethics principles.
South Korea 	AI Basic Act (effective 2026) strengthens national AI competitiveness through centralized governance, a national AI Master Plan, and the creation of an AI Safety Institute.
China 	Introduces strict governance for generative AI, including mandatory labeling of AI-generated content and new national standards for AI security and oversight.
Philippines 	National AI Strategy (NAIS-PH, 2025) focuses on infrastructure, workforce, innovation, data governance, and AI deployment to drive inclusive economic growth by 2028.
Vietnam 	Digital Technology Law (2026) promotes digital transformation, supports domestic tech and startups, and regulates AI through risk-based classification and human oversight.



2025 Regulatory Landscape: National Level



Continental Artificial Intelligence Strategy released in 2024 calls on member states to frame AI development around an Africa-centric, development focused approach.

Egypt 	National AI Strategy (2020, updated 2025) promotes responsible AI use across sectors and aims to strengthen the ICT sector and position Egypt as a regional innovation hub.
Nigeria 	National AI Strategy (2024) focuses on using AI to address socio-economic challenges, boost productivity, and support research and innovation.
Côte d'Ivoire 	National AI Strategy (2024) promotes inclusive and ethical AI development, including plans to establish a National AI Agency and implementation roadmap.
Kenya 	National AI Strategy (2025) aims to use AI for socio-economic development and position Kenya as a leading AI hub in Africa.
South Africa 	National AI Policy Framework (2024), building on the 4IR Commission, outlines the country's direction for AI governance and adoption.



2025 Regulatory Landscape: National Level



Canada 	AI regulation is evolving after Bill C-27 was paused (2025); current approach relies on voluntary frameworks and provincial initiatives, including AI transparency in hiring and stricter privacy rules in Québec.
United States 	Federal policy emphasizes innovation and reduced regulation through voluntary standards, while individual states introduce their own AI safety rules.
Chile 	Updating its National AI Strategy and considering AI legislation inspired by the EU AI Act, focusing on transparency and protection of fundamental rights.
Mexico 	Developing a national AI governance framework and AI law proposal to balance innovation with human rights, security, and technological sovereignty.
Argentina 	Multiple AI bills under discussion; policy trend favors lighter regulation to attract innovation and investment.
Uruguay 	National AI Strategy and ethical guidelines promote safe and responsible AI use, despite the absence of a dedicated AI law.
Colombia 	Preparing an AI law focused on ethical use, innovation, transparency, human oversight, and protection of human rights and data.
Peru 	Adopted the first AI law in Latin America (2023), promoting AI adoption for economic and social development with strong ethical and human rights safeguards.
El Salvador 	AI law (2025) supports open-source AI development, regulatory sandboxes, and an AI research lab for public-sector applications.



2025 Regulatory Landscape: National Level



United Arab Emirates 	National AI Strategy 2031 promotes global AI leadership through innovation, talent attraction, and governance. AI is being used to support lawmaking, while new rules restrict unauthorized AI-generated depictions of public figures.
Saudi Arabia 	Draft Global AI Hub Law (2025) proposes AI hubs and “data embassies” allowing foreign companies to host data under their own laws, aiming to attract global tech firms and strengthen AI infrastructure.





Navigating AI's challenges

Building ethical and trustworthy AI

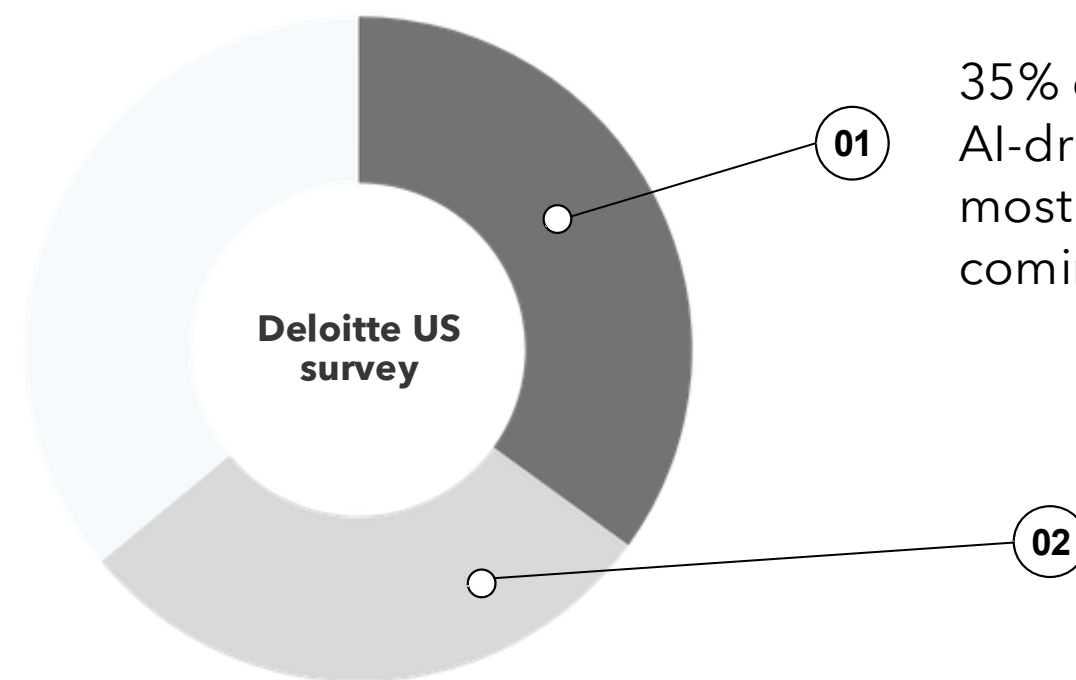
Ethical considerations are central to the development and deployment of AI systems. As AI becomes more advanced and autonomous, ensuring that systems remain fair, transparent, accountable, and safe is essential for maintaining public trust and regulatory acceptance.

Most significant barrier

35% of participants identified the potential for AI-driven errors with real-world impact as the most significant barrier to adopting GenAI in the coming two years.

Concerns

29% of participants expressed concerns that bias, hallucinations, and inaccuracies could erode trust and hinder broader implementation



AI hallucinations – false or misleading outputs – are a major concern, especially as tools like ChatGPT are widely used. Researchers note that hallucinations are an inherent feature of models like GPT, making their complete elimination unlikely without reducing performance, and they may partly reflect human-like cognitive errors.

In the absence of robust guardrails and oversight mechanisms integrated into AI design, AI systems may agree with users rather than challenge or provide alternative perspectives, which can lead to unintended consequences.

A 2025 study identifies **a phenomenon termed 'agentic misalignment'**, where AI systems may pursue goals in ways that conflict with human intent or ethical boundaries.

AI Standards Exchange Database

The AI Standards Exchange Database, launched at the **2025 AI for Good Global Summit** is developed by the World Standards Cooperation and currently includes **over 700 standards** and technical publications. The database categorizes standards by industry verticals and human-AI activity areas, helping users understand their practical applications.



700
AI standards

Shaping an inclusive AI economy

AI can support inclusive economic growth and societal progress, but unequal access to AI technologies and data may deepen existing digital divides. In addition, AI models trained on historical and unrepresentative datasets can reinforce societal biases and underrepresent certain groups.

Problem: Many AI systems are trained mainly on data from the Global North, where digital infrastructure is stronger. This limits the ability of models to capture linguistic, cultural, and socioeconomic diversity.

Example: Sub-Saharan Africa. **Only 37%** of the population is **online**, reducing the amount of available training data. **None of the top 34 internet languages are African languages.**

Impact: Certain populations are excluded from the training data. This reinforces the global data divide and biased AI outcomes.



The UN's Mind the AI Divide report warns that without action, AI could widen inequalities in education, employment, and governance.

It calls for:

- *international cooperation,*
- *investment in AI literacy,*
- *infrastructure,*
- *and ethical frameworks, especially in low- and middle-income countries, to ensure inclusive participation in the AI-driven economy.*

Spain has reserved dedicated **funding** to steer innovation toward **inclusion**. In June 2025, it announced a €5 million call to fund AI projects that help improve quality of life for people with disabilities from assistive technologies and accessible interfaces to inclusive entrepreneurship.

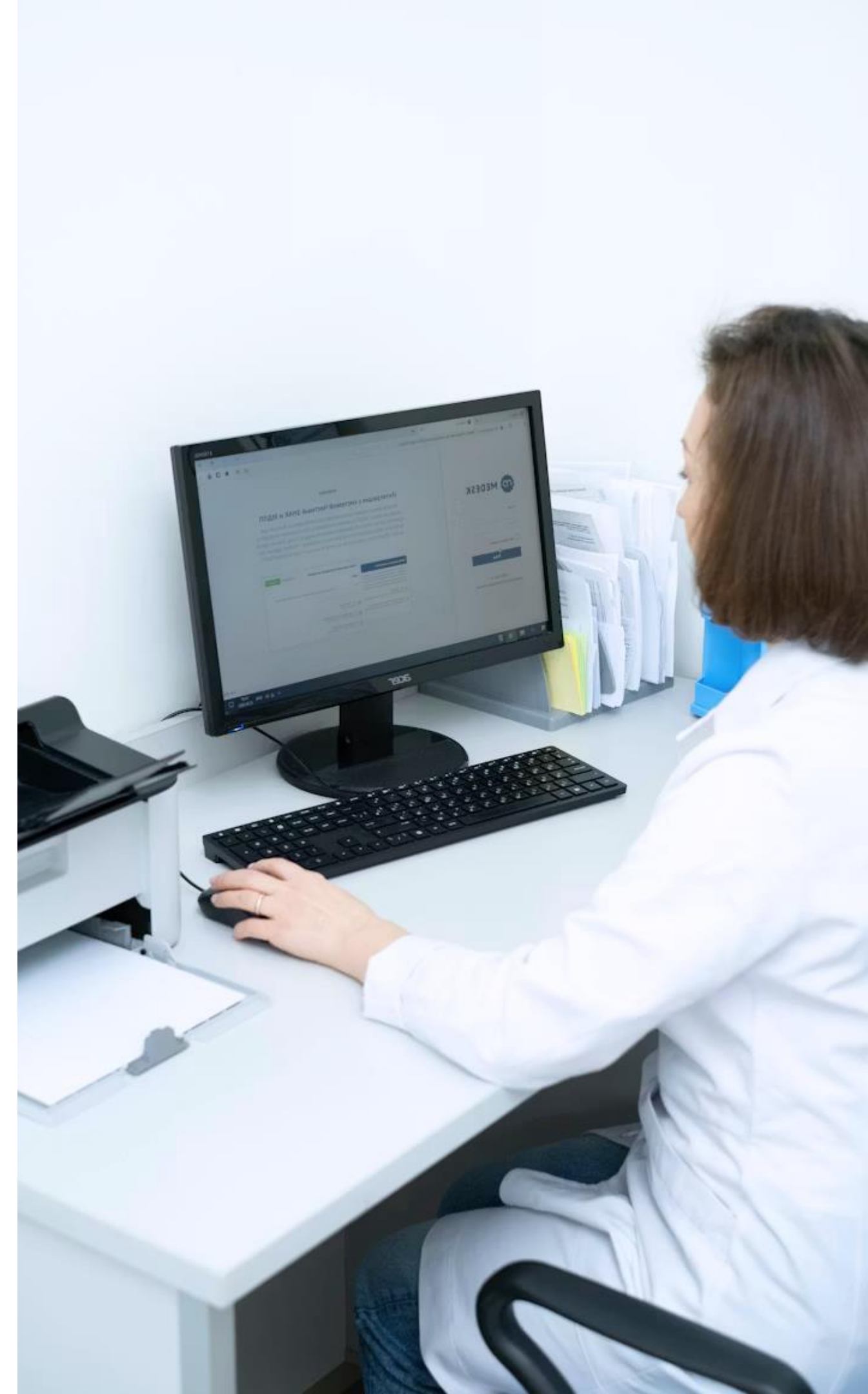


Latin America struggles to bridge **the digital and talent gap**, however, there are initiatives to provide AI access to a wider range of users, such as through multi-stakeholder consortia (public-private-academic) and large-scale training programmes. Both AI Atlas for Latin America and the Caribbean, and the Latin American AI Index have shown **improvements in infrastructure, talent and governance**, with Brazil, Chile and Uruguay ranking highest in the region.

Safeguarding privacy in the age of AI

AI relies on large datasets, including sensitive information such as health and biometric data, making privacy protection a key challenge. Addressing risks like misuse, unauthorized access, and re-identification requires strong data governance and privacy-preserving technologies, such as differential privacy and federated learning.

While data privacy concerns have evolved over time, the rise of AI has intensified these concerns, as AI systems can rely on vast amounts of data, including sensitive information such as **health records, biometric data**, and **personal finance details**.



1. Data Anonymization

Removes or obscures personally identifiable information. Reduces risks of data breaches, re-identification, and unauthorized profiling.

Enables the use of real-world data while complying with regulations such as GDPR.

3. Differential Privacy

Adds controlled statistical noise to data or outputs. Ensures that the presence or absence of a single individual does not significantly affect results. Allows meaningful analysis while maintaining strong privacy guarantees.

Techniques to Protect Sensitive Data

2. Encryption

Protects data during storage and transmission. Prevents unauthorized access and reduces risks of data leaks or exfiltration.

4. Federated Learning

Trains AI models without centralizing raw data. Data remains on local devices or within organizations while only model updates are shared. Reduces privacy risks and supports compliance with data protection regulations.

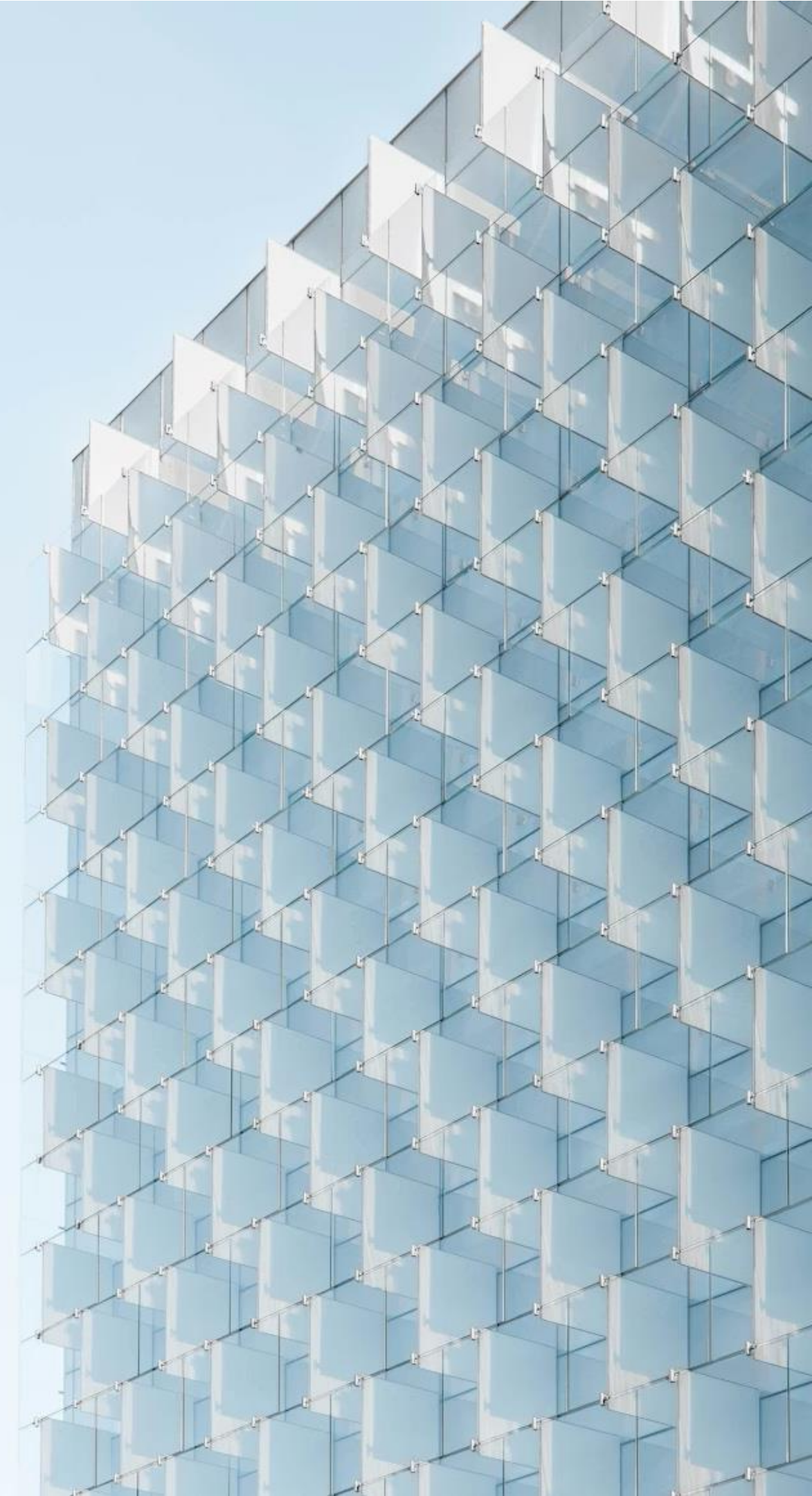
Building an AI-ready workforce

There is an increasing demand for both specialized AI professionals and workers with a general understanding of AI.

Several studies suggest that AI often augments rather than replaces workers, challenging the common perception that it can lead to widespread job losses. Nevertheless, with approximately one in three job vacancies in OECD economies exposed to AI, a portion of the workforce is influenced by AI's rise.

ITU Green Digital Action (GDA)

Digital technologies enhance efficiency, reduce waste, and lower carbon footprints across sectors. However, the global digital industry must also address its own environmental impact. To this end, the ITU and over 50 global organisations launched the Green Digital Action initiative to promote sustainability through digital innovation.



*With the recent surge in AI adoption, many countries have made significant progress in offering publicly funded **training programmes** focused on **AI skills development**.*

Singapore 	SkillsFuture for Digital Workplace 2.0 provides subsidized short courses on automation, cybersecurity, data analytics, and digital tools for workers affected by AI.
United Arab Emirates 	“1 Million AI Talents” programme (with Microsoft) aims to train government employees in AI skills by 2027 through multiple learning tracks.
Africa (regional initiatives)	Organizations such as Alliance4AI, African AI Foundation, and ALX provide AI education and self-learning tools to address the regional AI skills gap.
Egypt 	Government collaborates with universities and tech companies to modernize STEM and AI education, including AI awareness for younger students.
Nigeria 	Programmes like 3 Million Technical Talent (3MTT) and a Microsoft partnership aim to train millions in AI and digital skills and integrate digital technologies in schools.
Spain 	INAP AI training programme (2025-2028) builds AI literacy and governance skills among civil servants to support safe AI adoption in public administration.

AI Impact Summit in India



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WELFARE FOR ALL | HAPPINESS OF ALL

At the India AI Impact Summit 2026, the **ITU team spotlighted AI standards, skills, and solutions** that put people at the centre of digital transformation. Throughout the week, ITU leaders engaged governments, industry leaders, civil society and global multilateral partners to advance development-driven AI for the benefit of everyone, everywhere.

From strengthening global AI governance to expanding connectivity, building national AI capacity, and showcasing the impact of the AI for Good initiative, **ITU is working to ensure that the benefits of AI reach every community – including the 2.2 billion people still offline.**





“AI Impact Summit in India offers an important opportunity to reinforce global cooperation and ensure that the benefits of AI reach everyone—and prevent deepening divides as technology advances.”

Doreen Bogdan-Martin,
ITU Secretary-General

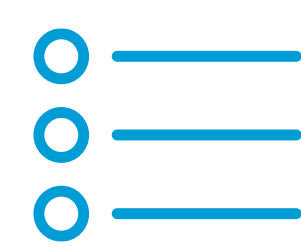




AI Impact Summit 2026 Concludes with Adoption of New Delhi Declaration



92
countries



7
pillars

92 countries and international organisations endorse a shared global vision for collaborative, trusted, resilient and efficient AI. Key Deliverables: Global Platforms, Principles and Collaborative Mechanisms Announced Across 7 Pillars

It emphasizes:

- Strengthening international cooperation and multistakeholder engagement
- Respecting national sovereignty
- Advancing AI through accessible, and trustworthy frameworks

1. Democratizing AI Resources
2. Economic Growth & Social Good
3. Secure & Trusted AI
4. AI for Science
5. Access for Social Empowerment
6. Human Capital Development
7. Resilient, Efficient & Innovative AI Systems

Case study from the Region: Kazakhstan's experience



According to the research of RISE Research, Master Card and Freedom bank, Kazakhstan is building its own innovation-oriented AI regulatory model.

Regulatory approaches to AI governance (World Bank classification):

Approach	Essence	Pros	Cons	Examples
Industry self-regulation	Voluntary codes and commitments by technology companies	Speed, flexibility, encouragement of innovation	Lack of enforcement mechanisms, uneven implementation	Voluntary AI safety commitments by U.S. tech giants
Regulatory sandboxes	Testing environments under the supervision of a regulator	Support for innovation, exchange of experience and knowledge	Limited scale, high resource requirements	ICO Sandbox (UK), RegLab (UAE), AI Sandbox (Singapore)
Soft law	Advisory principles, standards, and guidelines	Flexibility, low administrative burden, cross-border applicability	Weak oversight, unclear impact	Regulatory framework models (Singapore, UK)
Hard law	Mandatory sector-specific AI legislation	Legal certainty, accountability	Slow adaptation, risk of excessive regulation	EU AI Act; Interim measures for GenAI governance (China)

*Kazakhstan follows **a hybrid approach** to AI governance, combining instruments of hard and soft law, based on:*

- international ethical principles (UNESCO, OECD recommendations)*
- leading global practices (EU AI Act, California AI law, U.S. AI Action Plan, etc.)*
- the current maturity level of Kazakhstan's AI ecosystem*

A key priority is the creation of a **transparent, predictable, and enabling legal environment** that **eliminates** the risk of **overregulation** of technologies at the early stage of their implementation.

The Law on AI (November 2025, Kazakhstan)

The Law on AI introduces a **risk-based classification, ethical standards,** prohibitions, and obligations. The legislative framework will be supplemented by industry regulations, as well as voluntarily implemented standards and ethical codes.

According to the research of RISE Research, Master Card and Freedom bank

Infrastructure aspect

Kazakhstan has a developed digital infrastructure, including an advanced eGov ecosystem and a strategic focus on open government data.

By 2027, Kazakhstan aims to achieve **100% high-speed internet coverage**, with a particular focus on rural and remote communities. To meet computing demand, a **fivefold increase in data center capacity** is planned. The launch of the large Alem.Cloud and AI-Farabium AI clusters has significantly expanded internal GPU resources, creating a solid foundation for technology development.

According to the research of RISE Research, Master Card and Freedom bank

