Technology and Innovation Report 2025

Chapter IV

Designing national policies for AI

National competitiveness increasingly relies on science, technology and innovation (STI) and knowledge-intensive services. Developing countries therefore need to design strategies and industrial policies, taking into account the role of knowledge-intensive services and the uncertainties around research and development (R&D). They should also consider the diffusion, direction and impact of frontier technologies in the economy to adapt catch-up strategies accordingly.

To date, most AI policies have come from developed countries. By the end of 2023, about two thirds of developed countries had a national AI strategy, while only six out of the 89 national AI strategies were from least developed countries (LDCs). AI policies implemented by major economies can have significant spillovers, influencing the policy options of other countries.

Developing countries should quickly set and implement AI strategies that align with their national development goals and agendas. While it may be more immediately feasible to support AI adoption for particular sectoral needs, developing countries should also make long-term strategic plans to steer their own AI development; otherwise, as latecomers, they may be left with few options.

This chapter focuses on a new wave of industrial policies for AI and frontier technologies to strengthen national capacities and drive inclusive, innovation-led growth. It highlights good practices and lessons learned, with an emphasis on infrastructure, data and skills.

United Nations

Key policy takeaways

- **New industrial policies** – Accelerated digitalization and the rise of AI call for new industrial policies. As value in the global economy shifts toward knowledge-intensive activities, decision makers need to support the adoption and development of new technologies, as well as the creation, dissemination and absorption of productive knowledge.

- **Coordination** – National strategies should coordinate across domains, including STI, industry, education, infrastructure and trade. Moreover, AI policies should go beyond incentives such as tax deductions and include regulations, such as on consumer protection, digital platforms and data protection, along with governance and enforcement to orient the direction of technological change.

Policies should address the three leverage points:

- **Infrastructure** – It is vital to ensure equitable access to enablers such as electricity and the Internet that facilitate AI adoption and reduce inequalities. This can be achieved by fostering a conducive business environment with incentives for private-sector investment. Distributed networks and computing power can also enable AI development, but it is important to ensure interoperability and harmonization between infrastructures and systems.

- **Data** – Open data and data-sharing enhance data integration, storage, access and collaboration. AI adoption and development rely on good practices in data collection, with interoperability and accessibility across the innovation ecosystem. Privacy, accountability and intellectual property aspects should also be addressed, to foster innovation while safeguarding human rights.

- **Skills** – Population-wide AI literacy promotes widespread AI adoption and can be achieved by integrating science, technology, engineering and mathematics (STEM) and AI subjects, from early education to continuous learning. Partnerships between academia and the private sector can help build AI talent to meet particular industry needs and drive AI development.

A. AI as part of industrial and innovation policies

AI policies concern the development and adoption of AI to **improve productivity and living standards**

AI policies can be seen as part of industrial and innovation policies. They foster the development of AI algorithms and applications to build new activities in the digital domain. At the same time, they encourage AI adoption to improve businesses, diversify the economy and improve productivity and living standards. These dual goals — development and adoption — can guide policymakers in integrating frontier technologies into existing industries.

Around one third of the world's population lacks Internet access (ITU, 2022), creating a digital divide that slows digital literacy and hinders full participation in AI use and development. Developing countries with weak digital infrastructure may not perceive AI as a national priority and simply react to rapid AI proliferation as it happens. Instead, they need to plan proactive AI policies.

AI policies can promote structural transformation and help seize new opportunities

Some are concerned that greater regulation in developing countries might stifle AI innovation (Mwenda et al., 2024). However, industrial policies can foster innovation by coordinating other policy areas to create supportive environments (Välilä, 2008).

Effective AI policies can also address public concerns about data protection and privacy, and raise awareness about AI's risks and opportunities, to build trust and promote adoption (Agrawal et al., 2019).

Traditionally, industrial policies have focused more narrowly on established industries and emphasized structural shifts, such as transitioning from agriculture to manufacturing or shifting within sectors to higher-productivity activities. A broader definition should encompass any government intervention aimed at improving the business environment or restructuring economic activity toward sectors, technologies or tasks that have better growth or societal welfare prospects (Warwick, 2013). From this perspective, structural change is an innovation-driven transformation in how a country, industry or market operates.

Efforts to transform sectors and economies should support technological learning and skill upgrading, prioritize supportive infrastructure, anticipate future needs and build capabilities that foster positive spillovers. This is more difficult near the technological frontier, which demands more knowledge and skills, and where there is greater uncertainty, with higher risk of failure or unintended consequences.

B. The revival of industrial policy

Traditionally, industrial policies respond to market failures. These failures can arise from multiple factors, for example, information asymmetries, conflicting interests or excessive market power, that lead to an inefficient allocation of resources across the economy and can hinder development.

Governments may also decide that certain goods and services can be best delivered by public provision as natural monopolies. The economic rationales typically associated with industrial policies are outlined in box IV.1.

Box IV.1
Rationales for industrial policies

Markets, left to their own dynamics, are unlikely to drive balanced structural change and the associated infrastructural investments. Therefore, Governments can intervene to explicitly target the structural transformation of economic activity in pursuit of public goals. Commonly discussed rationales for industrial policies can be classified under three broad categories:

- ***Externalities*** – Economic activities can affect societies in ways not reflected in company accounts. Pollution is a classic example of a negative externality, damaging the environment but not considered as a cost by businesses. Innovation, on the other hand, produces positive externalities in the form of learning and knowledge, from which inventors may gain only a small part of the overall value, reducing their incentives to innovate.

- ***Coordination failures*** – The emergence of new activities is often related to the existence of complementary assets. Producers' profits typically depend on economic activities by others who create complementary knowledge, competences and skills. AI technology also requires complementary activities on a sufficient scale to support a successful digital transition, in the absence of which governments may need to step in to offer coordination and support.

- ***Activity-specific public inputs*** – Private production relies on public goods such as regulations, education and infrastructure. Horizontal policies are aimed at providing such goods universally but may not do so sufficiently for particular needs. Frontier technologies, for example, require funding for infrastructure, STEM education and digital skill development, along with coordination among various ministries, to leverage synergies across interventions.

Source: Juhász et al., 2024; Pisano and Shih, 2009; UNCTAD, 2024a; 2024b.

Over recent decades, industrial policies have to some extent been set aside, as Governments have liberalized economies and exposed them more to market forces. At present, industrial policy is moving back to centre stage, for example, to foster productive transformation, to protect the economy against external shocks, to guarantee the availability of key products and inputs, or to defend national enterprises from foreign competition (Gereffi, 2020).

The global financial crisis of 2008/09, for example, and the COVID-19 pandemic, prompted Governments to support and direct national industrial development. Industrial policy has returned explicitly to the agenda of advanced economies, particularly in the United States (UNCTAD, 2024a), and with a focus on high-technology sectors. However, at the global level, this can limit positive spillovers, reducing the growth of public knowledge that contributes to the development of human capital.

Industrial policies on the rise

Developed countries account for two thirds of industrial policies; **LDCs only 1.3 per cent**

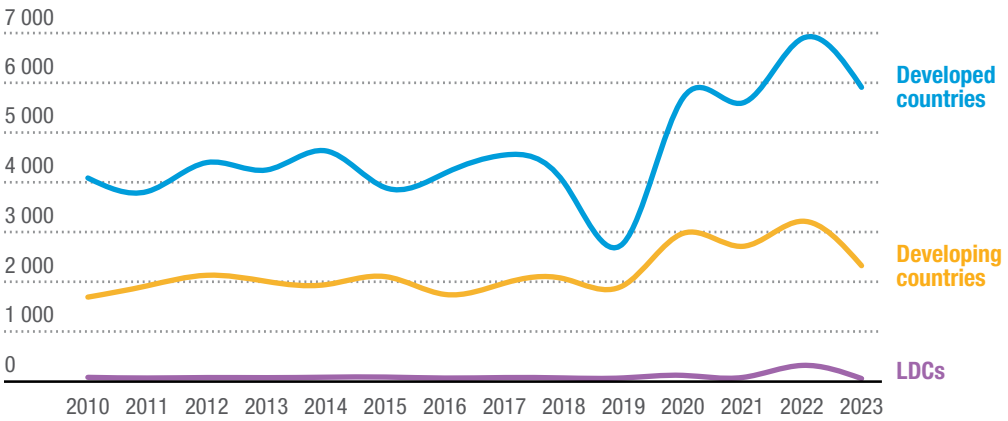
According to data from Global Trade Alert, the number of new policy interventions remained fairly constant between 2010 and 2019, then increased sharply after the pandemic and peaked in 2022 (figure IV.1).[1] Around two thirds were from developed countries and only around 1.3 per cent were from LDCs.[2] These interventions influence the treatment of foreign versus domestic commercial interests, affecting trade in goods and services, investment and labour migration.

Because they are mostly linked to sectors and products, these interventions provide a proxy for the broad definition of industrial policies used in this report. New interventions do not necessarily substitute for existing interventions, and the number of policies therefore tends to increase, creating a complex environment in which less advanced countries or small- and medium-enterprises (SMEs) with more limited resources find it more difficult to overcome barriers or identify opportunities (Evenett, 2019). Some countries have greater institutional capacity than others to design and implement industrial policies, an imbalance that could further widen gaps between developed and developing countries.

A changing mix of policy interventions

Over the past decade, there has also been a significant change in the types of interventions (table IV.1). The emphasis has shifted from measures to protect domestic industries, such as import tariffs and quotas and anti-dumping measures, to more direct support for productive sectors through financial grants, State loans and capital injections or production subsidies. Interventions have also become much more diversified.

Figure IV.1
Developed countries drive most new policy interventions
(Number of interventions)



Source: UNCTAD calculations, based on data from Global Trade Alert.
Note: The developing countries grouping does not include LDCs.

[1] The Global Trade Alert data set provides data on actions and acts in the economic playing field of Governments that can induce changes in international commercial flows (goods, services, investment or labour force migration), introducing market distortions or altering the relative treatment of domestic commercial interests.

[2] For a list of the top 10 countries in terms of policy interventions, comparing the periods 2010–2011 and 2022–2023, see annex IV. In 2010–2011, the United States introduced the highest number of policy interventions, followed closely by Brazil, with China in third place, displaying a lower number of interventions. In 2022–2023, the United States ranked first and China matched the United States in terms of policy number of interventions; Brazil decreased the overall number of policies.

Table IV.1
A shift from trade protection to direct support for productive sectors
(Most frequent types of interventions, percentage)

2010–2011		2022–2023	
Intervention type		**Intervention type**	
Import tariff	22.4	**Financial grant**	13.6
Anti-dumping	10.9	**Import tariff**	12.9
Price stabilization	10.7	**State loan**	9.3
State loan	9.7	**Controls on commercial transactions and investment instruments**	7.7
Trade finance	8.8	**Export ban**	5.9
Import tariff quota	7.8	**Capital injection and equity stakes**	3.6
Financial grant	6.9	**Trade finance**	3.6
Local content incentive	4.7	**State aid, unspecified**	3.5
Export tax	2.0	**Import ban**	3.5
Anti-subsidy	1.4	**Production subsidy**	3.0
Share of top 10 types of interventions	**85.2**	**Share of top 10 types of interventions**	**66.6**

Source: UNCTAD calculations, based on data from Global Trade Alert.

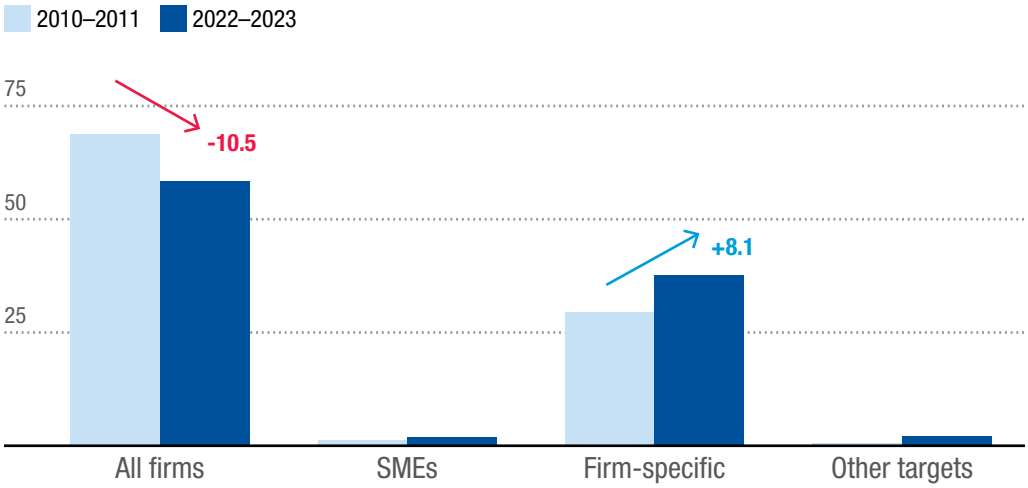
Industrial policies have been **shifting towards direct interventions in productive sectors**

In 2022–2023, the types of interventions differed by country grouping (see annex IV), as follows:

- ***Developed countries*** – Aimed more at controlling commercial transactions and investment instruments, or at limiting or prohibiting imports.
- ***Developing countries*** – Introduced more targeted financial subsidies for production or consumption, as well as tariff measures.
- ***Least developed countries*** – Offered more support for exports or applied taxes on imports to match local taxes and made much less use of subsidies than developed or other developing countries.

Policy interventions may target sectors or particular types of firms such as SMEs, or be confined to certain locations (figure IV.2). Over the last decade, interventions have become more targeted. Governments seem to have aimed at picking winners or favoured incumbent firms and established markets rather than targeting failures in emerging ones.

Figure IV.2
Interventions have become more targeted toward specific firms
(Types of firms targeted by policy measures, percentage)



Source: UNCTAD calculations, based on data from Global Trade Alert.

C. Policies at the technological frontier

Innovation and value creation have been shifting towards **knowledge-intensive services**

In recent decades, the rise of information and communication technologies (ICTs) has revolutionized telecommunications, reducing costs and improving reliability, while enabling advanced information management. This, coupled with falling transport costs and further trade and financial liberalization, along with more stringent intellectual property regimes, has favoured the emergence of global value chains (GVCs).

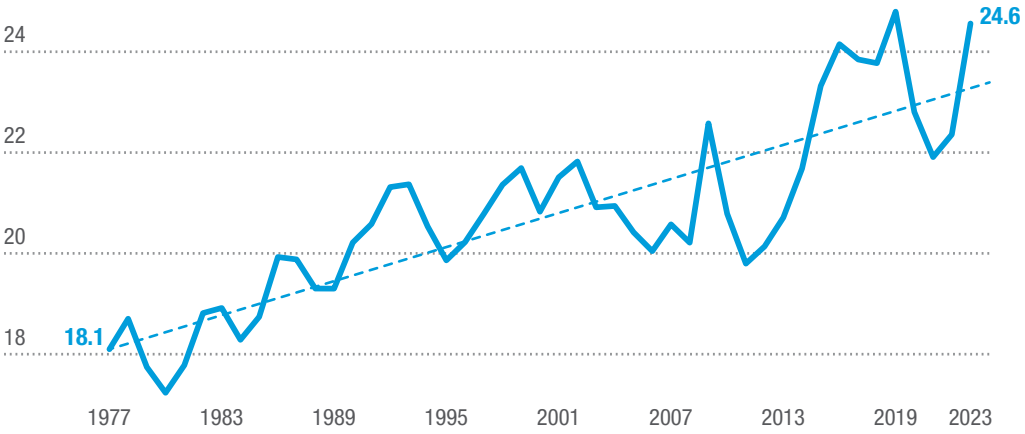
Participating in GVCs has been viewed as a driver of economic growth, offering firms opportunities for learning and upgrading. Yet a country's benefits from GVCs may be limited if these only offer a country low value added activities that do not encourage skill-building or moving up the value chain (Pietrobelli, 2021; UNCTAD, 2013).

Moreover, the low-cost labour comparative advantages of low-income economies has been undermined by capital-based technological change (Rodrik, 2016). In addition, the increasing globalization of the world economy and the diffusion of ICTs have swung the balance toward knowledge economies – based less on physical capital and more on intangible capital (Foray, 2004).[3]

Innovation and value creation have increasingly been taking place in the knowledge-intensive service sectors. Since the 1970s, this has been accompanied by a rise in the share of service exports (figure IV.3). In recent years, the rapid diffusion of the Internet and ICTs has fuelled the emergence of digital platforms and the transition to digital economies based on the dematerialization of production and data monetization (UNCTAD, 2019).

[3] Intangible capital can be classified under three main categories, namely, digitalized information (i.e. software and databases), innovative property (e.g. R&D, design and related property rights) and economic competences (e.g. branding and business models), which are increasingly determining firms' and countries' competitiveness (Corrado et al., 2022).

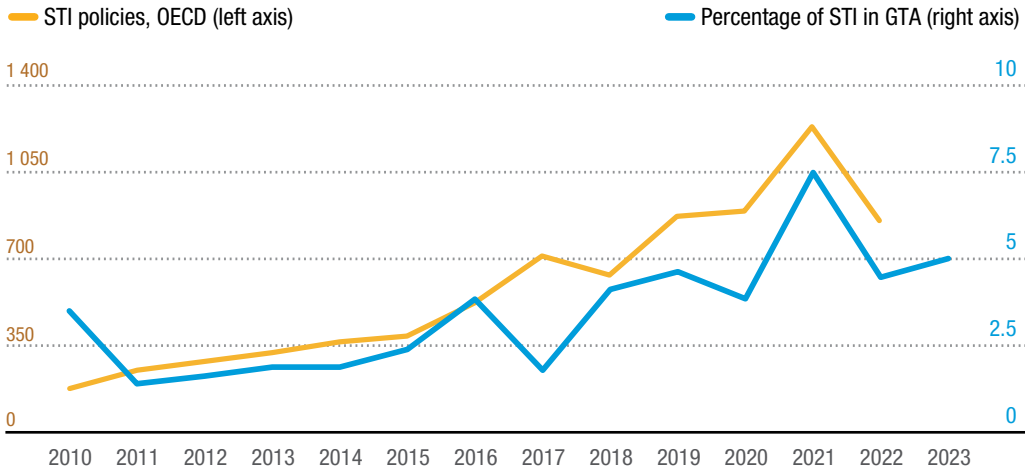
Figure IV.3
The share of services exports is increasing in total world trade exports
(Percentage)



Source: UNCTAD calculations, based on data from the World Bank.

Since 2010, industrial policies have seen an increasing share of interventions linked to STI-related aspects (figure IV.4). Moreover, in most advanced economies, there has been a general increase in R&D expenditure as a percentage of GDP. This has been largely driven by the private sector, but some countries have also greatly expanded public R&D allocations, such as China (Filippetti and Vezzani, 2022). In most developing countries, however, R&D figures remain too low.

Figure IV.4
Industrial policies increasingly focus on STI-related interventions
(Number and share of STI-related policy instruments)



Source: UNCTAD calculations, based on data from Global Trade Alert and the OECD STIP compass.[4]

[4] To identify Global Trade Allert policy interventions related to STI, the keywords used were (* = wildcard): innov*, patent*, copyri*, trademark*, knowled*, techn* (+ tech with exclusion rule), scienc*, scientif*, r&d, research*, intell*, intang*, publica*, ipr*.

STI policies, particularly for frontier technologies, introduce additional rationales for intervention beyond those for traditional industrial policies. These stem from two key sources of uncertainty, namely, one related to the results of R&D and one related to the diffusion and socioeconomic impact of new technologies (box IV.2). Given the uncertain outcomes and long-term horizons at the technological frontier, Governments need to learn partly by trial and error.

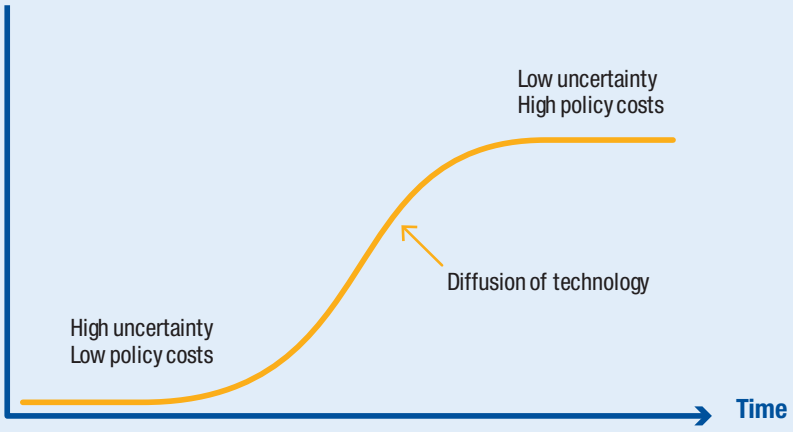
Box IV.2
Key issues for policies at the technological frontier

Uncertainty and cumulativeness

R&D and frontier technology development are highly uncertain and long-term endeavours. Transforming scientific knowledge into innovative products and services is expensive and risky, often leading to failure. At the early stages, frontier technologies can involve multiple technical solutions and business models, of which only a few survive. Moreover, science and technology are complex and cumulative, so staying ahead requires continuous investment. Leading technological firms rely heavily on their R&D but also on skilled actors outside their boundaries.

The timing dilemma

Governments may wish to support emerging technologies with public goods, but this involves difficult choices. It may be easier and cheaper to intervene early, but at this stage, the best bets might not yet be evident and the need to intervene might not be apparent. However, by the time dominant technologies have emerged and diffused in the economy, the corrections needed may be more costly and require more time to enact. Governments therefore need an anticipatory approach to policies at the technological frontier that balances uncertainty and costs and relies on strategic planning.



Sources: UNCTAD; Collingridge, 1982; OECD, 2024.

Science and technology include basic and applied research, as well as experimental or incremental development, and can be performed by universities and research institutions or by firms. Innovation is, however, predominantly performed by firms, and is related to production processes, new goods and services, marketing strategies and overall business models. However, firms do not operate in silos, and their innovative capacities also rely on their industrial and institutional contexts (Morrison et al., 2008).

Project grants to fund basic research are often provided through higher education or research institutions. Grants for business R&D and innovation are usually for particular challenges or to help the outputs of science and new technologies become marketable products. Both are typically provided through competitive processes that favour the emergence of new ideas and strengthen a country's innovation potential.

Interactions between academia, research institutes, industry and Government lead to policy actions that are better tailored to the needs and potential of the innovation ecosystem. With regard to meeting societal needs, the engagement of civil society helps direct technology and innovation, and can point out potential unintended consequences.

Directing frontier technologies requires an **anticipatory approach**

D. Policies for AI

AI technology has been theorized and developed since the middle of the last century, but has only recently entered everyday life and the policy realm (Haenlein and Kaplan, 2019). In 2017, Canada became the first country to officially issue a national AI strategy. Since then, AI has attracted significant attention from policymakers, with at least 1,900 new policy instruments (OECD, 2024a), and 89 national strategies (Maslej et al., 2024). Despite this rapid rise, AI policy is still a relatively new field of action, with profound uncertainties about what is needed and what works and what does not.

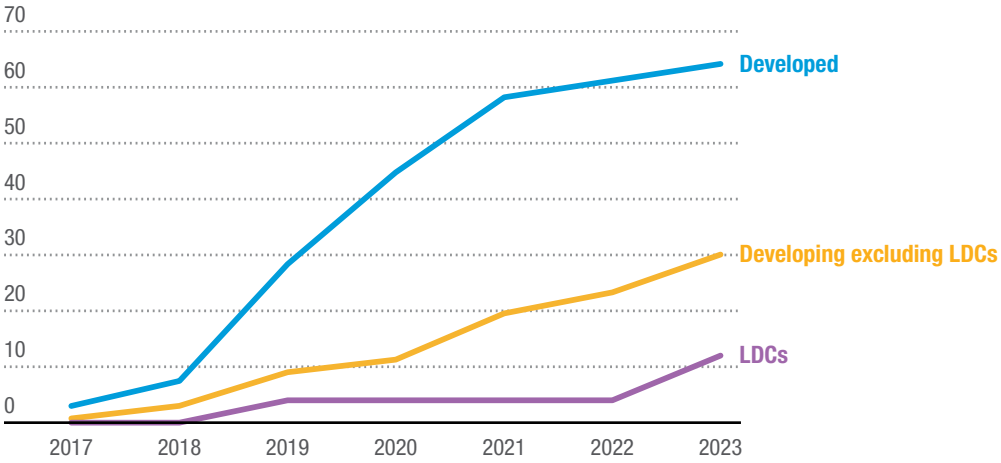
With the integration of AI into an increasing number of activities (see chapter II), Governments need to respond as a matter of both public concern and economic development. Increasing public awareness and concern about issues such as labour protection, human rights, unethical use, personal autonomy, data privacy and bias and discrimination have amplified attention paid to AI.

While uncertainty and risks of failure are significant, inaction could result in even greater costs. Traditional policy and regulatory models struggle to match the speed, autonomy and opacity of AI systems, posing challenges for Governments, businesses and the international community (United Nations, AI Advisory Body, 2024). Policies for frontier technologies and AI need to be flexible and regularly updated (UNCTAD, 2023).

To date, most AI policies have been produced by developed countries. At the end of 2023, about two thirds of developed countries had a national AI strategy. Only 6 of the 89 national AI strategies were from LDCs (figure IV.5). Bangladesh and Sierra Leone took the lead in 2019 and were joined by four other LDCs in 2023, an uptick that may signal the beginning of greater LDCs participation in AI policymaking discourse, although these six countries form only around one eighth of LDCs. LDCs and developing countries need to move quickly to align AI adoption and development with their national development goals and agendas. Following the path set by others may not fulfil their needs and priorities.

Policies for AI and frontier technologies need to be **flexible and regularly updated**

Figure IV.5
Most AI policies have been produced by developed countries
(Proportion of countries with a national AI strategy, by country grouping; percentage)



Source: UNCTAD calculation based on Maslej et al., 2024.

Developed countries focus more on **support for AI research, computing and related infrastructures**

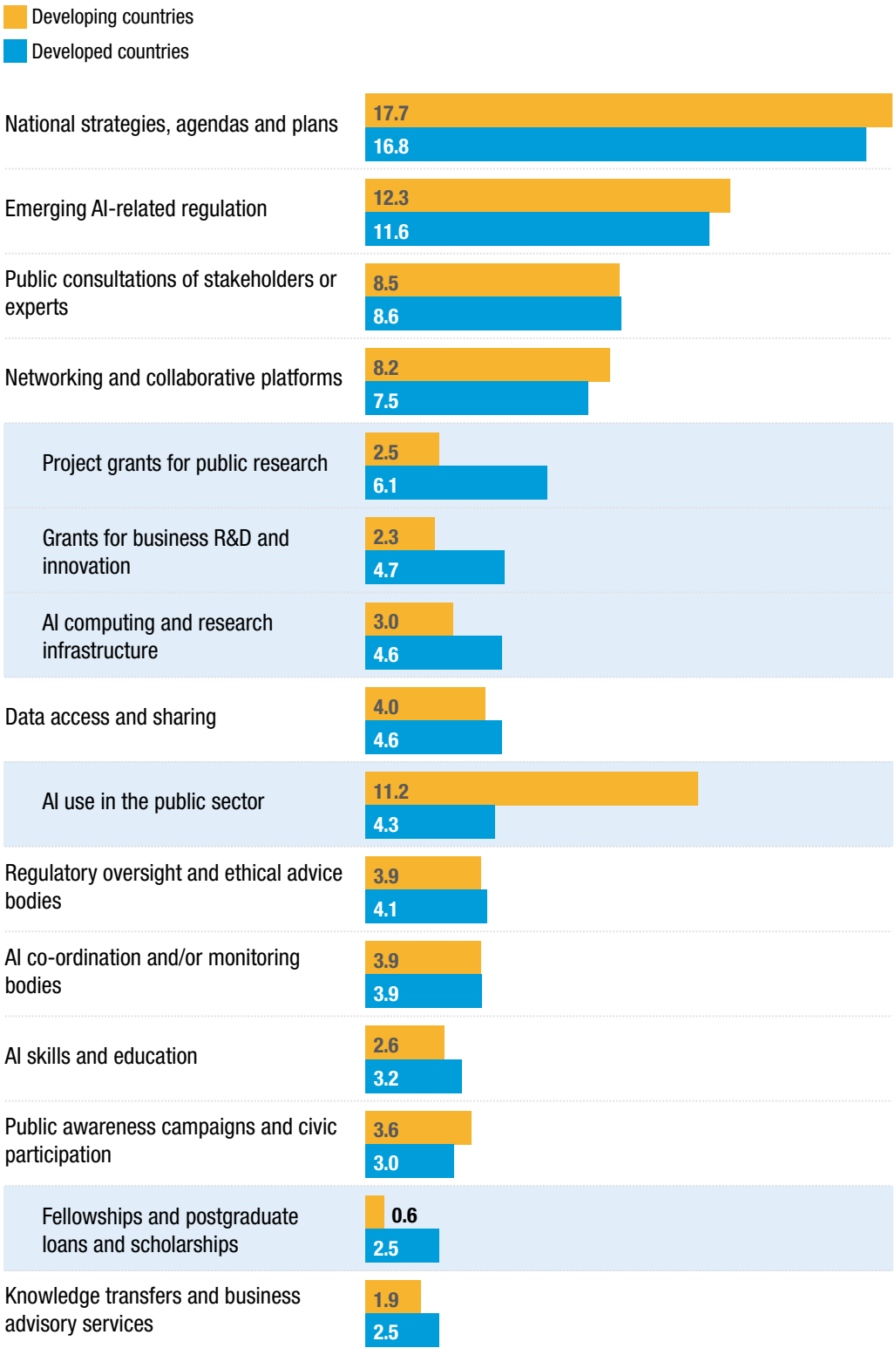
Figure IV.6 shows the most common policy instruments. More than one third are related to national strategies and agendas, AI-related regulations or public consultations. This includes gathering information on technological trajectories, addressing social concerns and anticipating possible opportunities and downsides. Although around one third of developing countries have strategies and plans, these may not go beyond the declarative stage if they are not complemented by sufficient resources and instruments for implementation.

Policy instruments also support early-stage science and technology efforts, including networking and collaboration, public awareness campaigns and outreach activities to engage civil society. It is important to connect diverse actors in the AI innovation ecosystem, enabling idea exchanges, resource-sharing and collaboration, in order to identify gaps, promote best practices, prevent duplication and ensure efficient resource use.

To support the development and diffusion of AI, developed countries are more likely to use financial instruments, such as competitive grants for public research and for business R&D and innovation, as well as student fellowships, along with policies to support the development and uptake of AI through computing and research infrastructures. A greater proportion of instruments directly funding STI and AI infrastructure can be related to the larger budgets dedicated to R&D in developed countries.

In contrast, developing countries are more likely to target the use of AI in the public sector. Incorporating AI into e-government practices can expedite government processes, help overcome limited resources or bureaucratic backlogs and help learn about AI through its use (United Nations, 2022). However, this should not be at the cost of direct and practical interventions to support STI related to AI and create a supportive environment for business innovation that turns declarations into reality.

Figure IV.6
National strategies, agendas and plans are the most common AI policy instrument
(Most-used AI policy instruments, developed and developing countries; percentage)



Source: UNCTAD calculations, based on data from the OECD AI Policy Observatory.
Note: The data are from OECD member States and only cover a few developing countries. Instruments for which developed and developing countries showing differences of 1 percentage point or more are highlighted.

Low-income countries risk being **exposed to the outcomes of choices made elsewhere**

The rise of digital technologies has made timely information and research results more easily accessible, helping diffuse new ideas and enabling a more participatory approach. In figure IV.6, this is reflected in the number of instruments targeting networking and collaborative platforms or public awareness campaigns to reach civil society. These platforms can also help address gaps in the AI ecosystem, helping to share best practices and reduce the duplication of efforts.

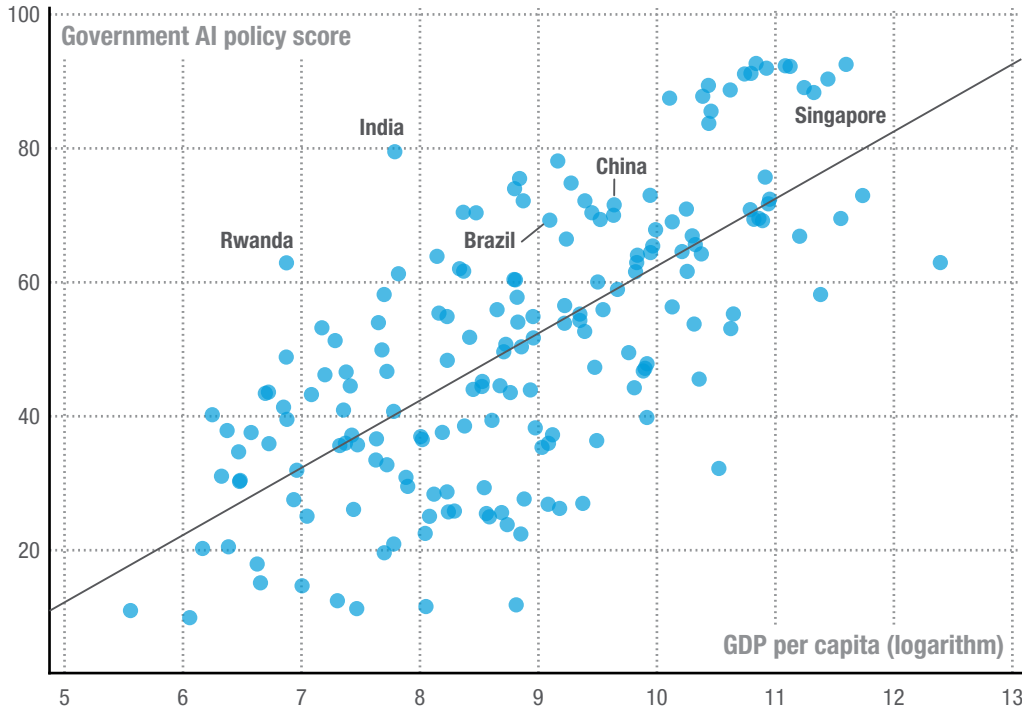
Typically, the countries more prepared for AI governance are developed countries with higher per capita GDP (figure IV.7). Readiness rises with GDP per capita and less advanced countries are in general unprepared to capitalize on AI opportunities and deal with risks, leaving them exposed to technological paths and regulations set by others.

However, some countries at the same levels of income are achieving more. For example, Rwanda, which issued a national AI strategy in 2023, has a much higher AI governance score than other countries with similar GDP per capita. Other "overperforming" developing countries include Brazil, China, India and Singapore, which have policies and strategies that could offer useful lessons for other countries.

Policies for adopting and developing AI

Adopting – Policies targeting AI adoption should support the uptake and diffusion of AI products and solutions in the economy and provide upskilling and reskilling training to the workforce exposed to AI. By upgrading existing activities or enabling new ones, the diffusion of AI could move an economy towards the technological frontier.

Figure IV.7
Countries with higher GDP per capita are more prepared for AI governance



Source: UNCTAD calculations, based on data on governance and ethics scores from Oxford Insights (Maslej et al., 2024), and on GDP per capita in 2022 from the World Bank Development Indicators database.
Note: The index includes metrics related to data protection and privacy laws, cybersecurity measures, regulatory quality, ethical principles and accountability.

Many developing countries, however, are still in the policy design phase, partly because they lack AI ecosystems that can provide the necessary expertise on bottlenecks, opportunities and the measures that favour AI uptake. While developing countries may prefer to initially grasp only the low-hanging fruit of AI adoption, this could limit their capacity to catch up. In the long term, their opportunities for learning through imitation are likely to be hindered by the rapid evolution of technology.

Developing – Policies targeting AI development should expand the capabilities required to generate new knowledge, and create new prototypes, systems and applications. These could include networking and distributing computing power across a country. Developed countries have done so in order to keep pushing the technological frontiers.

The two approaches are not, however, mutually exclusive and countries need to strike a balance between them. Developing countries may find it less challenging to support adoption by responding to particular sectoral needs, while taking a targeted approach to trigger positive dynamics and improved innovative capabilities. Yet they also need to make long-term strategic plans to support AI development; otherwise, as latecomers, they may end up with few options.

AI policies should **strategically target both adoption and development**

E. Case studies of AI-related policies

This section discusses overarching approaches and strategies of the three main global markets: China, the European Union and the United States, then presents instruments that address bottlenecks at the three leverage points of infrastructure, data and skills (table IV.2).

Table IV.2
Examples of AI policies for adoption and development

	Adoption (supporting the uptake and diffusion of AI)	**Development** (cultivating the capacity to generate new AI)
Overarching approaches	Measures for the Administration of Generative Artificial Intelligence Services (China) AI Act (European Union) CHIPS [Creating Helpful Incentives to Produce Semiconductors] and Science Act (United States)	
Infrastructure	Digital inclusion and connectivity (Brazil) e-Agriculture (Côte d'Ivoire)	High-performance computing infrastructure (Japan) K-Chips Act (the Republic of Korea)
Data	Data Observatory (Chile) Mobility Data Space (Germany) Ethical Guidelines for Application of AI in Biomedical Research and Healthcare (India)	Sandbox on privacy by design and by default in AI projects (Colombia) Computational data analysis provision (Singapore)
Skills	Digital Workforce Competitiveness Act (Philippines) National Plan for Digital Skills (Spain)	National Junior High School Computing Curriculum (Ghana) AI Research Scheme (Nigeria)

Source: UNCTAD.

Setting overarching approaches and strategies

National AI strategies address coordination failures and weaknesses in the innovation system

For the digital economy, there are three main regulatory approaches (UNCTAD, 2021). One option, as favoured in China, is direct intervention in support of national political goals using strict regulations. A second, as in the European Union, is strong regulations aimed at protecting fundamental rights and values. A third approach, favoured in the United States, involves a light regulatory framework. Recently, the development of AI and its wide-ranging societal and economic effects have influenced country strategies, with emerging similarities in approaches.

The first step of a national AI strategy is to identify and address coordination failures and weaknesses in the innovation system. Governments can, for example, support applied research through project grants for AI-related business activities. Pilot AI use cases in particular sectors and knowledge and technology transfer mechanisms can contribute to accelerate the adoption of AI. Countries can consider a multistep approach, as in China, first incentivizing the private sector to adopt, adapt and develop AI, and subsequently supervising and regulating the AI industry.

China set a long-term plan, then gradually introduced **regulations matching AI evolution**

Governments need to promote good practices and enforce rules and standards, while revising regulations and policies to adapt to changing circumstances.[5] For example, the European Union provides a coherent framework integrating new legislation as it emerges, to address issues such as consumer protection, and regulating platforms to counterbalance concentration and ensure data protection.

Policy formulation and implementation are interactive and iterative processes that require continuous evaluation, and expectations need to be aligned with feasibility. Failures should be accepted, as they are with regard to new ventures in the private sector, but evaluation mechanisms should be put in place to improve design and implementation (Rodrik, 2004). Currently, only about 10 per cent of the AI policies surveyed by OECD have been evaluated, based on data from the AI Policy Observatory.

China

The Government of China has taken an increasingly active role in AI. In 2017, it set out a long-term strategic plan to transform China by 2030 from an AI contributor to a primary AI innovator (China, Ministry of Science and Technology, 2017). The plan is:

- ***Technology-led*** – deploying forward-looking R&D in key frontier domains and achieving transformational and disruptive breakthroughs.
- ***Systemic*** – formulating targeted strategies for different technologies and industries.
- ***Market-oriented*** – fostering commercialization of AI and creating competitive advantages in related technologies.
- ***Open*** – advocating open-source approaches to enable industry, academia and research collaborations.

China is now formulating industry standards and expanding regulatory oversight, and has recently moved to a more direct supervision of AI, introducing some of the world's first binding national regulations, defining requirements for how algorithms are built and deployed and establishing the information that developers must disclose to the Government and the public.

In 2023, the Cyberspace Administration introduced Interim Measures for the Administration of Generative Artificial Intelligence Services, for regulating research, development and the use of GenAI (Cyberspace Administration of China, 2023).

[5] For example, Brazil required Meta to suspend a new privacy policy that authorized the use of personal data to train AI systems since it was in violation of the General Data Protection Law (Brazil, National Data Protection Authority, 2024).

The measures impose various obligations on GenAI providers to ensure that models, contents and services comply with national requirements and uphold "core socialist values" and national security. They also aim to ensure the transparency of GenAI services and the accuracy and reliability of generated content, to prevent discrimination and respect intellectual property and individual rights. In this last aspect, the measures echo earlier provisions targeting deepfakes and fake news. In 2024, the Government launched a National Data Bureau to coordinate and support the development of foundational data systems, and to integrate, share, develop and apply data resources.

China relies on a series of technical and administrative tools, such as disclosure requirements, model auditing mechanisms and technical performance standards, as well as measures to ensure that public bodies are responsive to technological development. Focusing on particular emerging issues and technologies reduces the burden of generalization but demands a high level of responsiveness to technological advances and strong coordination among public bodies.

European Union

In 2024, the European Union passed the AI Act, which defines rules according to the associated level of risk, namely, unacceptable, high, limited or minimal (European Parliament and Council of the European Union, 2024; O'Shaughnessy and Sheehan, 2023). Most applications, such as video games or spam filters, fall in the minimal risk category, and companies are only advised to adopt voluntary codes of conduct. The Act allows high-risk AI systems but says that these should include complete, clear and accessible instructions, which should be stored in an open database maintained by the European Commission in collaboration with member states.

The Act bans uses that present unacceptable risks, such as cognitive behavioural manipulation, social scoring, biometric identification and categorization, as well as remote biometric identification systems such as facial recognition. This is known as a risk-based approach.

The AI Act builds on previous legislation such as the General Data Protection Regulation of 2016, which guarantees privacy and respect for human rights (European Parliament and Council of the European Union, 2016). The Digital Service Act of 2022 is aimed at establishing a level playing field, to promote innovation and competitiveness in information services, from websites to digital platforms, and stop large providers from imposing unfair conditions that damage other businesses or limit consumer choice.

The European Union has also revised its industrial strategy to address external dependences on critical technologies. Strategic areas related to the AI value chain are critical raw materials, semiconductors, quantum technologies and cloud computing. In these areas, the European Union is building industrial, research and trade policies, fostering co-investment across member states and bringing together stakeholders in industrial alliances (European Commission, 2021). In 2023, to strengthen competitiveness and resilience in semiconductor technologies and applications, the European Union passed the European Chips Act, aiming to mobilize more than €43 billion of public and private investments and setting out measures to prepare for, anticipate and respond to possible supply chain disruptions, while strengthening its technological leadership. The European Union has also allocated funds for AI research and innovation. The European Research Executive Agency manages more than 1,000 research projects, with pioneering projects in AI and quantum technologies (European Commission, 2024).

The European Union is coupling its regulatory approach with **stronger support for industry and research**

United States

In 2022, the United States Congress passed the CHIPS [Creating Helpful Incentives to Produce Semiconductors] and Science Act to boost scientific research and advanced semiconductor manufacturing capacity. The act was motivated by increasing dependency in chips manufacturing and the fact that federal R&D spending had neared its lowest point in 60 years,[6] and targets frontier technologies, including AI. Of the $250 billion budgeted, 80 per cent are allocated to research activities and the rest to tax credits for chip manufacturers.

The United States CHIPS and Science Act exemplifies **key aspects of policies for emerging technologies**

The Act exemplifies key aspects of policies for emerging technologies. It adopts an anticipatory approach, supporting technologies that could shape future industries. It addresses coordination failures, and leverages complementarities through a supply chain approach, supporting activities from hardware production to computing infrastructure, research, and skill development.

New talent will be trained through a national network for microelectronics education, as well as cybersecurity workforce development programmes. To retain talent, an AI scholarship programme has been set up for students who committed to a period of government service. The Act also promotes safe and trustworthy AI systems and the collection of best practices for artificial intelligence and data science. Finally, it envisages public–private partnerships that would establish virtual testbeds to examine potential vulnerabilities to failure, malfunction or cyberattack (Zhang et al., 2022).

AI policies of major economies influence policy options for others **and could hinder catch-up efforts**

The Blueprint for an AI Bill of Rights noted that AI and automated decision systems should not advance at the cost of civil rights, democratic values or foundational American principles, and set out principles to guide the design, use and deployment of automated systems to protect the public (United States, 2022). Action is also being taken by individual states. In California, for example, an AI bill in 2024, required firms to commit to model testing and the disclosure of safety protocols and made compulsory a series of requirements that were previously only voluntary. This could represent a major shift in the way emerging and potentially disruptive technologies are dealt with in the United States (The Guardian, 2024; The Washington Post, 2024).

Figure IV.8 summarizes the main elements of AI policies deployed by China, the European Union and the United States. All are taking a cautious approach to regulating AI development, alongside substantial public investments across the AI supply chain, from semiconductors to data centres, and in research and development, to foster the emergence of new industries. Moreover, they aim for the inclusive integration of AI into both economies and societies, to benefit a wide range of stakeholders. These commonalities highlight key elements to consider in both national and global AI policy strategies.

AI policies in major economies can create significant spillover effects, shaping the policy choices of other countries. As leading countries set higher benchmarks, particularly in boosting competition and prioritizing R&D, not all countries are equally positioned to keep up. Many may struggle to match increasing R&D budgets, and the focus on future technologies can deepen disparities, widening the gaps between advanced economies and those working to catch up. This highlights the challenges faced by smaller or less advanced countries in keeping pace with global innovation leaders.

[6] The share of imported microchips in the United States increased from 63 per cent in the 1990s to about 88 per cent in 2021; in the same period, with respect to R&D as a share of GDP, the United States fell from the fourth position globally to the ninth (United States, Senate Committee on Commerce, Science and Transportation, 2022).

Figure IV.8
Overarching policy approaches of China, the European Union and the United States

Despite traditional differences, China, EU, and the United States show increasingly commonalities

	China	European Union	United States
Regulatory framework aligned with social values	**New Gen AI regulation** Alignment with socialist values, well-being and national security	**Artificial Intelligence Act** Rules based on AI risk to protect privacy and human rights	**AI Bill of Rights** Civil rights, democratic values and American principles
Industrial strategies targeting specific technologies and sectors	Long-term strategy to become leader in AI, tailored to industry specificities	Build capabilities in AI-related technologies, industrial alliances and co-investment in EU	Target semiconductors and frontier technologies to shape the future industry
Focus on STI	Technology-led approach based on forward-looking R&D and open-source models to foster collaboration and networking	Additional support to pioneering research projects in AI and quantum technologies	Substantial public funding to R&D in frontier technologies

Source: UNCTAD.

Strengthening infrastructure to power AI

AI infrastructure can be classified under the two broad categories of digital connectivity and computing power. Relatively few policies aiming at improving digital infrastructure can be deemed AI-specific and, particularly when targeting connectivity, are often within the portfolio of the ministry of telecommunications or of infrastructure.

Gaps in digital infrastructure and inclusion are likely to be replicated in AI uptake (Bentley et al., 2024). Developing countries that lack universal digital access need to install and enhance national ICT and energy infrastructure and establish new forms of connectivity to reach underserved areas.

Working directly with communities, industrial representatives and individuals can help pinpoint specific business or geographical issues and the need for partnerships with private actors.

Improvements in wireless technologies and devices can facilitate small-scale AI adoption, but scaling up is much more demanding. Without adequate computing power and digital skills, connectivity alone risks turning an economy into a data exporter and missing opportunities to generate local benefits. The rise of cloud computing is a response to the increasing dependence of AI on data and computing power. When enhancing infrastructure systems, countries should prioritize connectivity, interoperability and standardization across systems, sectors, actors, users and providers, including across regional and national boundaries (table IV.3).

Gaps in digital connectivity and computing power can lead to unequal distribution of AI benefits across places

Table IV.3
Examples of policies to strengthen digital infrastructure

Brazil Digital Inclusion and Connectivity	Côte d'Ivoire e-Agriculture	Japan High Performance Computing Infrastructure	Republic of Korea K-Chips Act
Promote AI adoption by improving digital connectivity and involving public and private actors	Facilitate AI adoption in specific fields and sectors with targeted infrastructure development	Support AI development by strengthening national computing capacity	Foster the development of hardware components necessary to AI development
Key Actions	*Key Actions*	*Key Actions*	*Key Actions*
• Reinforce backbone ICT infrastructure and 4G/5G networks • Upgrade connectivity for all basic public schools and health care units • Involve private actors in the investment plan	• Develop large-scale digital platforms • Adopt sustainable digital services for e-agriculture • Integrate both physical infrastructure and digital services	• Connect existing supercomputer with major universities and national laboratories • Strengthen high-speed network across the country to distribute computing power • Encourage participation and innovation and in computing-intense sectors	• Supporting facility investments in semiconductor and strategic technologies • Streamline regulation and standardization in microchips • Focus on SMEs

Source: UNCTAD.

Brazil – In 2023, the New Growth Acceleration Programme planned a $5.7 billion investment to foster the transition to a digital economy through public–private partnerships for digital infrastructure; the federal Government would contribute about 44 per cent of the overall budget, State owned companies, 20 per cent, and private companies, 36 per cent. The plan is to expand 4G networks across the country, deploy new 5G networks and reinforce infrastructure with fibre-optic cables, such as the 587 km-long cables that will connect the capitals of two northern states, Amapá and Paraná, on opposite sides of the Amazon delta. This connectivity upgrade is aimed at reaching all public schools and healthcare units, contributing to the modernization of the public sector (Brazil, Federal Government, 2024).

Côte d'Ivoire – Targeted infrastructure can support the adoption of AI in particular sectors. For example, the e-Agriculture project is aimed at increasing the use of digital technologies and improving farm productivity and access to markets. This is being pursued by improving Internet coverage and adoption, fostering the use of large-scale digital platforms, rehabilitating rural access roads and adopting sustainable digital services to diffuse e-agriculture. Focusing on both physical infrastructure and digital services, the project represents a value-chain approach that can respond to community needs (World Bank, 2024).

Japan – The High Performance Computing Infrastructure project strengthens national computing capacity for AI development. The project uses an existing supercomputer and connects major universities and national laboratories via a high-speed network (Research Organization for Information Science and Technology, 2024). By decentralizing access and networking institutions the project increases computing power availability and supports innovation in computing-intense sectors, increasing the number of new actors in the AI ecosystem. Decentralized organizational systems and distributed networks are crucial aspects of the digital revolution and a cornerstone of advanced AI ecosystems.

Republic of Korea – The K-Chips Act increases tax credits for investments in semiconductor enterprises and other national strategic technologies, with a focus on SMEs (Pan, 2023). The policy supports the development and production of essential hardware components of the AI value chain by streamlining regulation and standardization in the field of microchips, to provide a common and clear playing field for business development.

Building data for responsible AI

Data is a key production factor in the knowledge economy. Many countries already had data policies in place before the advent of AI, but will need to update them, while others still lack national data frameworks. Data policies should ensure that databases are interoperable and available across the economy, with privacy protection for both inputs and outputs, relying on consent and taking account of possible biases (UNCTAD, 2024c).

AI systems add concerns related to ownership, while also raising questions of intellectual property or fairness and accountability when generating data and decisions. Supporting AI development may require rethinking intellectual property provisions and creating mechanisms to facilitate public–private collaboration. Such efforts should promote AI innovation while safeguarding human rights and addressing potential vulnerabilities and malfunctions.

Policies should also respond to the international and transboundary nature of AI. Using cloud computing available from international markets can reduce costs, but it is important to avoid increasing data and information dependency and stifling the future development of a domestic service market.

Countries need to consider all levels of the data value chain. Policies should clearly define which types of data can be made publicly available, and how they should be handled, and favour standards for data and metadata. Countries can also collect and provide open data,[7] either through AI-specific programmes or through open-data initiatives and hubs, to streamline data integration, storage, access and collaboration.[8] This could improve transparency, promote innovation and encourage public engagement in the adoption and development of AI.

Countries can support open data **to facilitate access, data integration and collaboration**

Governments can also rely on industrial players to leverage existing strengths by supporting platforms for data exchange and aggregation and for data monetization and the development of AI for particular uses. Different types of data have their own requirements. In particular, for data on humans, or AI applications making decisions for humans, there should be higher standards for privacy and responsibility, and accountability in case of errors. Policies and standards can be developed through public consultations and open forums, to incorporate the views and concerns of different stakeholders, increase accountability and transparency and foster trust (table IV.4).

Data can have broad social value because they are non-rival, namely, the use of a data set does not preclude its availability for other uses. However, the strong market power of large digital corporations may limit the capacity of developing countries to maximize benefits (UNCTAD, 2021). UNCTAD, in a recent study, analysed the relationships between data and sustainable development (UNCTAD, 2024d). Chapter V discusses the implications and challenges for data at the international level.

[7] Open data refers to data that is openly accessible, exploitable, editable and shared by anyone for any purpose.

[8] An open-data hub integrates disparate data into a single new system homogenizing data and thereby guaranteeing compatibility, to allow for real-time processing from different entry points. A hub can also integrate tools with which to process data or develop applications; for example, the GitHub open data hub provides open-source AI tools for running large and distributed AI workloads.

Table IV.4
Examples of policies to build data

Chile	Germany	India	Colombia	Singapore
Data Observatory	Mobility Data Space	Ethical Guidelines for AI in Biomedical Research and Healthcare	Sandbox on privacy by design and by default in AI projects	Computational Data Analysis Provision
Facilitate AI adoption by supporting data availability	Apply AI systems to specific industries through sectoral data marketplace	Ensure privacy, safety and security in data and algorithmic decisions	Support AI solutions that respect personal information and rights	Revise copyright law to support AI development with data accessibility and security
Key Actions	*Key Actions*	*Key Actions*	*Key Actions*	*Key Actions*
• Open data platforms leveraging public-private-academia collaborations • Provide data-based services and analyses across fields	• Launch a market-based platform to exchange data for the mobility sector • Incentivize participation with financial remuneration	• Prioritize human data privacy and security • Set processes to ensure representativeness and accountability in development and deployment of AI in health	• Create a secure environment for the experimentation of AI • Promote public-private collaboration to foster mutual learning	• Introduce exceptions and favor computational data analysis and machine learning • Implement safeguards to protect the commercial interests of copyright owners

Source: UNCTAD.

Chile – The Ministry of Science, Technology, Knowledge and Innovation, and the Ministry of Economy, Development and Tourism have set up the Data Observatory (Data Observatory, 2024), a public–private–academia collaboration that seeks to maximize the benefits from data for science, research and productive development. As a multi-stakeholder organization, the Observatory leverages the competences and resources of a variety of actors for developing STI and data-based services and analyses in different fields, from natural science to urban planning. It uses open-data platforms that facilitate the participation of small providers and supports projects and initiatives related to data analysis for social impact.

Germany – The Federal Ministry of Digital Affairs and Transport has launched Mobility Data Space, which brings together automobile companies, organizations and institutions that wish to monetize their data, seek data exchanges that bring mutual benefits or need data for innovative AI mobility solutions (Mobility Data Space, 2024). A market-based platform, it incentivizes participation by offering the potential for financial remuneration – representing a model that leverages existing industrial strengths to support the diffusion of AI (for a presentation on the rationales and design principles, see acatech, 2024).

India – The Council of Medical Research has issued Ethical Guidelines for Application of Artificial Intelligence in Biomedical Research and Healthcare, to direct AI adoption and development involving humans or their data (INDIAai, 2023). These recognize the importance of processes for safety and minimizing risk to prevent unintended or deliberate misuses that can harm patients. Data sets used by AI should avoid biases by adequately representing the population and guaranteeing the highest privacy and security standards for patient data.

Colombia – The Data Protection Authority has created a Sandbox on Privacy by Design and by Default in Artificial Intelligence Projects (Ibero-American Data Protection Network, 2021). This is an experimental space where AI companies can collaborate on solutions that respect personal information and rights, by design and in compliance with national data-processing regulations. The Authority accompanies the process and gathers information about possible regulatory adaptations, to keep pace with technological advances, thereby also making the sandbox a tool for policy learning.

Singapore – In the Copyright Act 2021, Singapore redesigned the copyright regime to take account of how copyrighted works are created, distributed, accessed and used (Singapore, The law revision commission, 2021). The Act is aimed at making available large and diverse data sets for algorithmic training. The Act introduces an exception to the current regime that permits the copying of copyrighted works for the purpose of computational data analysis such as text and data mining and the training of machine-learning algorithms. It also introduces conditions and safeguards to protect the commercial interests of copyright owners (Singapore, Intellectual Property Office, 2022).

Reskilling and upskilling for AI

AI has the potential to transform many industries in the near future, reshaping labour markets, altering tasks and changing required skill sets. Demand is increasing for skilled workers who can adopt and develop AI, including technical expertise in data science and AI skills for particular business operations.

Countries need population-wide digital literacy, to ensure that everyone can take advantage of AI for work and personal life, and to have highly trained individuals who can develop AI systems and adapt them to particular needs. This should start with the inclusion of STEM and AI subjects at multiple levels within the national education system, from early education to adult learning. Introducing foundational data science and AI-related subjects in the early phases of education can help develop technology-savvy generations ready for AI-based businesses.

Governments can also introduce or encourage programmes for retraining upskilled or displaced workers, with particular attention paid to women, who are underrepresented in both STEM and AI (Green and Lamby, 2023), and to older workers with low levels of digital skills, who are less likely to engage in such training (OECD, 2023). Policymakers can address concerns about diversity and inclusivity by empowering all demographic groups with the necessary skill sets to benefit or contribute to AI. By partnering with private institutions, Governments can also target particular sectors or industries.

Philippines – In 2023, the National Economic and Development Authority published the Digital Workforce Competitiveness Act. The legislation puts human development at the forefront, aiming for equitable access and the provision of digital skills and competences that meet global quality standards to accelerate innovation and entrepreneurship. The Act targets particular digital skills, such as data analytics and AI or engineering and cloud computing, through upskilling, reskilling and training programmes, offering a variety of incentives to foster digital careers (Philippines, National Economic and Development Authority, 2023). The Act takes an anticipatory approach, envisaging the mapping of digital skills and technologies as the basis for formulating a road map that considers the evolution of jobs and skills. It also establishes an inter-agency council, including different state departments and agencies, which raises awareness about digital upskilling opportunities and coordinates actions, leverages complementarities, rationalizes policy interventions and provides a single-entry point for training, certification and scholarships.

Spain – The National Plan for Digital Skills provides a list of actions and objectives to address gender bias in digital technologies (Spain, Ministry for Economic Affairs and Digital Transformation, 2021) and to increase the readiness of girls and women for AI (Jākobsone, 2021; La Moncloa, 2021). To direct girls toward these disciplines, it introduces STEM subjects in primary education and includes programmes aimed at orienting women towards digital professions. The plan involves an analysis of the strengths and weaknesses of, opportunities for and threats to women's participation in digital and technology careers (Spain, Government, 2021).

Ghana – To enable the younger generation to keep pace with a continuously evolving field, the Government has introduced coding and programming to the national education system and begun to train educators in how to teach them (Ghana, Ministry of Education, 2021). Moreover, subjects go beyond coding skills, to cover the fundamentals of how AI works, and concepts related to human, animal, robot and artificial intelligences, as well as weak and strong AI. The programme is gender responsive and is aligned with other initiatives such as the Girls-in-ICT programme (Ghana, Ministry of Communication, Digital Technology and Innovations, 2024), which has provisions similar to the National Plan for Digital Skills in Spain.

Table IV.5
Examples of policies to reskill and upskill

Philippines Digital Workforce Competitiveness Act	Spain National Plan for Digital Skills	Ghana National Junior High School Computing Curriculum	Nigeria AI Research Scheme
Equip the workforce and public with digital literacy to adapt to AI and digital transformation	Address gender bias in digital technologies and enhance women's readiness in AI	Empower the population with the specific skills needed for AI development	Develop AI ecosystem by fostering collaboration and supporting new actors in the AI industry
Key Actions	*Key Actions*	*Key Actions*	*Key Actions*
• Provide upskilling, reskilling, and training programs in digital skills • Encourage digital careers and map digital skills to guide workforce development • Create an interagency council to coordinate actions and promote digital upskilling	• Introduce STEM subjects in primary education • Assess the current state of women's participation in tech careers • Create targeted programs to guide women into digital professions	• Institutionalize coding and programming and train educators • Expand curriculum to equip the youth with essential AI and coding skills • Align the program with other initiatives targeting female participation in ICT	• Focus on consortia that combine high-skilled researchers with businesses to target country's priority areas • Offer scholarships to build skills in digital economy fields (e.g. data science, AI, cybersecurity, cloud computing)

Source: UNCTAD.

Nigeria – To foster the development of the AI ecosystem, the Federal Ministry of Communications, Innovation and Digital Economy launched the Nigeria Artificial Intelligence Research Scheme, aimed at providing financial support and facilitating knowledge-sharing and collaboration among individuals and organizations, to nurture new actors in the AI industry (Nigeria, National Information Technology Development Agency, 2024). The scheme provides scholarships to develop skills related to the digital economy, such as data science, AI and cloud computing. By fostering partnerships between high-skill AI researchers and businesses, the scheme is part of a broader strategy to build the workforce of the future.[9]

F. A whole-of-government approach to AI policy

The resurgence of industrial and STI policies, coupled with the rapid advancement of AI, has placed AI policies at the forefront of policymaking. AI policies are crucial in driving structural transformation, boosting productivity and tackling social, ethical and environmental challenges. As the global economy transits towards services and digitalization, Governments should adapt industrial and STI policies, to support the adoption and development of new technologies, as well as the dissemination and absorption of knowledge.

Adapting to changing global conditions and harnessing frontier technologies requires swift and purpose-driven policy interventions. However, setting AI policies is not easy. When Governments need to provide public goods for these technologies, they have broad decision-making authority, but this is tempered by uncertainty regarding the trajectories and outcomes of policy decisions. Nevertheless, an anticipatory approach can help avoid the need to make corrections after most opportunities have passed.

The unique characteristics of data-driven AI highlight the need for policy changes, with robust data governance, including regulations and standards for data-sharing and privacy protection. Additionally, the ability of AI to generate new data and concerns about deepfakes and misinformation require frameworks that regulate AI not only as a product but also within decision-making processes, ensuring transparency, explainability, ethics and accountability. However, considering the high level of concentration of AI markets, enforcement and regulation can be challenging for smaller economies. In this respect, chapter V discusses AI policy efforts at the international level, offering suggestions of how the international community can support inclusive AI development that benefits all.

AI is a pervasive technology that requires a whole-of-government approach, to align AI strategies with policies across sectors, including industry, education, infrastructure and trade. Doing so requires enhanced coordination, to leverage synergies among action plans. AI policies should go beyond incentives such as tax deductions, and incorporate regulation, governance and enforcement, to direct technological change and provide collective solutions to the major challenges of this century. Collaboration among stakeholders is essential to maximize societal benefits. To ensure effective adoption and development, successful AI strategies should also focus on the key leverage points of infrastructure, data and skills.

Governments must adapt policies to **support new technologies and the dissemination of knowledge**

[9] Nigeria launched the 3 *Million Technical Talent* programme to fund the training of selected fellows in 12 technical skills. The first phase of the programme is aimed at training 30,000 students and will then be scaled up.

Annex IV

Policy interventions

This annex provides information on industrial policies derived from Global Trade Alert.[10]

Table 1
Top 10 countries with highest number of policy interventions, 2010–2011 and 2022–2023

2010–2011		2022–2023		Change in ranking
Implementing jurisdiction	**Number of interventions**	**Implementing jurisdiction**	**Number of interventions**	**2022–2023 compared with 2010–2011**
United States	1 399	**United States**	1 562	No change in rank
Brazil	1 194	**China**	1 552	↑
China	553	**Brazil**	843	↓
Germany	433	**Australia**	797	↑↑
United Kingdom	364	**Italy**	712	↑
India	305	**Germany**	685	↓
Italy	273	**Canada**	599	↑↑
Spain	237	**India**	558	↓
Argentina	224	**Russian Federation**	543	↑↑
Poland	216	**France**	485	↑

Source: UNCTAD calculations, based on data from Global Trade Alert.
Note: Two arrows indicate a move in the ranking of 10 positions or more.

[10] For information on the data and methodology, see https://www.globaltradealert.org/data_extraction.

Table 2
Distribution of new policy interventions by main category, 2022– 2023
(Percentage)

MAST taxonomy	Developed countries	Developing countries	LDCs	All countries
C4 Import monitoring, surveillance and automatic licencing measures	0.00	0.04	0.27	0.02
Capital control measures	**11.75**	0.18	0.00	8.09
D1 Antidumping	2.50	1.97	1.88	2.33
D2 Countervailing measures	0.55	0.04	0.00	0.38
D31 General (multilateral) safeguards	0.00	0.09	0.27	0.03
D32 Special agricultural safeguards	0.84	0.00	0.00	0.58
E1 Non-automatic import-licencing procedures (excluding sanitary and phytosanitary measures)	0.05	2.47	0.54	0.77
E2 Quotas	**1.33**	0.67	0.54	1.12
E3 Prohibitions	**4.56**	1.21	2.69	3.53
E6 Tariff-rate quotas	**3.09**	2.94	0.54	2.99
F7 Internal taxes and charges levied on imports	0.40	**3.52**	**4.30**	1.40
Foreign direct investment measures	1.99	1.30	1.08	1.77
G Finance measures	0.05	0.40	2.96	0.21
I1 Local content measures	2.23	**5.11**	0.54	3.05
Instrument unclear	1.42	0.29	0.00	1.06
Subsidies	37.58	**47.78**	19.09	40.23
M1 Market access restrictions	0.30	0.16	0.27	0.26
M2 Domestic price preferences	0.01	0.16	0.00	0.05
M3 Offsets	2.03	1.01	0.27	1.69
M5 Conduct of procurement	1.37	0.09	0.00	0.96
Migration measures	0.13	0.47	0.00	0.23
N Intellectual property	0.02	0.00	0.00	0.01
P3 Export licences, quotas, prohibitions and others (excluding sanitary and phytosanitary measures)	8.72	5.32	7.53	7.69
P4 Export price-control measures	1.63	3.25	0.81	2.10
P6 Export-support measures	4.42	3.07	**34.41**	4.62
P9 Export measures not elsewhere specified	2.28	0.99	**8.87**	2.03
Tariff measures	10.75	**17.47**	13.17	12.79
Total	**100.00**	**100.00**	**100.00**	**100.00**

Source: UNCTAD calculations, based on data from Global Trade Alert.
Notes: The Multi-Agency Support Team was established by UNCTAD in 2006 to develop a taxonomy of non-tariff measures; the resulting taxonomy took the MAST acronym. The categorization of policy interventions uses the international classification of non-tariff measures with the addition of other categories to classify other types of interventions (e.g. tariff measures and capital control measures). For information on the classification, see https://unctad.org/publication/international-classification-non-tariff-measures-2019-version.

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