Seizing the initiative

How governments can accelerate AI adoption and innovation

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1.
Introduction

Artificial Intelligence (AI) is today a fundamental part of technological development. Its influence will continue to grow. The implications of this shift across industries and economies are profound.

The prevailing view is that AI development should be fostered – but how? Governments are, very broadly, adopting two different approaches: regulatory frameworks and incentive-driven initiatives. The first approach focuses on establishing governance structures to manage the risks, ethical considerations and societal impact of AI. The second aims to accelerate AI adoption and innovation through strategic support and investment.

Our recent publication, "AI regulation: new world, new rules"[1], examines regulations worldwide, asking, and attempting to answer questions such as: Are they binding or non-binding? What topics do they address? What approaches are adopted by different jurisdictions?

What is clear, however, is that some form of regulation is essential. It helps to ensure responsible AI development, to mitigate risks, and to foster trust in AI systems. However, it is equally essential to stimulate AI growth. How should governments do this?

We believe that successful AI ecosystems rely on several fundamental enablers. Along with regulation, they include access to high-quality data, robust digital and computational infrastructure, and investment in research, development and talent.

Supporting all of these enablers there needs to be an environment that fosters collaboration and innovation. This environment encompasses funding mechanisms for AI startups, public-private partnerships (PPPs) and collaborative ecosystems that bring together industry, government and academia.

Why do these enablers matter? That is what this paper aims to explain. It focuses on identifying and analysing best practices incentivising AI development – and innovation-driven economic growth – for the benefit of policymakers, industry leaders and stakeholders.

Let's start by defining those enablers of successful AI development in a little more detail.

Successful AI ecosystems rely on several fundamental enablers. Along with regulation, they include access to high-quality data, robust digital and computational infrastructure, and investment in research, development and talent.

1 AI regulation: new world, new rules

2.
What are the key levers of AI?

Effective AI ecosystems result when governments, industry, academia, and civil society work together to create an environment where AI can be developed, deployed and integrated responsibly into economies and societies.

This, however, can only happen when certain fundamental enablers are in place. Here we refer to these enablers as levers, in the sense of strategies, initiatives or capabilities that can be used to drive AI performance or growth.

These levers, we suggest, provide the structural, technical and human input needed to foster AI-driven innovation while ensuring ethical, secure, and sustainable implementation. Without them, even the most ambitious AI strategies risk falling short.

To identify these key levers, we have analysed several national AI strategies, each shaped by unique national priorities and objectives. While these strategies vary, the levers for AI development are often similar.

Building on these insights, this paper focuses on the levers that governments and entities can use to develop, sustain and expand AI ecosystems. They are:

- Infrastructure
- Data
- Research and development (R&D)
- Human capabilities
- Governance and policy

But AI development also thrives on strategic partnerships between governments, private sector entities, research institutions and civil society. This is why, along with an overview of each lever, the following sections also include a look at the strong collaborative environment necessary to support all of these levers.

Effective AI ecosystems result when governments, industry, academia, and civil society work together to create an environment where AI can be developed, deployed and integrated responsibly into economies and societies.

Figure 1: Key AI levers [Source: Axon Consulting]

2.1. Infrastructure

AI systems require immense computational power to process large datasets, train machine learning models, and deploy real-time AI applications across industries. That in turn requires robust digital infrastructure. Without it, AI speed, accessibility and scalability will be affected.

A well-developed AI infrastructure includes high-performance computing (HPC), cloud services, scalable data storage, connectivity networks and, of course, data centres tailored to AI requirements[2].

However, as AI-driven workloads continue to expand, there's another consideration that will need to be addressed. How sustainable and energy-efficient is the AI infrastructure used to manage them?

2 This topic is explored in our paper
The Transformative Impact of AI on Data Centres

2.2. Data

No data? No AI. AI systems rely on large volumes of high-quality, diverse and structured data to learn patterns, make predictions and provide insights. However, issues with data availability, interoperability, security and governance could undermine AI's effectiveness.

Ensuring responsible data access and management is therefore crucial for AI development – and is often expected, particularly in regulated industries such as healthcare, finance and national security, where data privacy and compliance with international standards are usually required.

However, AI systems are not always guaranteed to be ethical, unbiased, and widely applicable; certain challenges still need to be addressed. They include data bias (where AI models might be trained on flawed data), transparency, and data sovereignty (data that is subject to the laws of the nation where it is collected).

Open data initiatives and trusted data-sharing frameworks are also important: they enable businesses and researchers to collaborate on AI solutions while ensuring data protection.

2.3. Research and development (R&D)

Research and development (R&D) is essential for maintaining national competitiveness, developing cutting-edge AI applications, and ensuring AI safety and accountability.

Research efforts can also contribute to building trustworthy AI systems. Relevant areas here include explainable AI (XAI – a set of techniques that help humans understand how AI systems make decisions), bias mitigation and AI security.

With this in mind, governments and organisations must prioritise both fundamental AI research – which explores new machine learning models, ethical AI principles, and algorithmic efficiency – and applied AI research, which focuses on deploying AI solutions in real-world scenarios.

Collaboration between academia, industry and government is also important; public-private partnerships are a key driver of AI research funding and commercialisation.

2.4. Human capabilities

AI expertise is needed across multiple disciplines – from data science and engineering to ethics, cybersecurity and policymaking. Therefore developing a skilled AI workforce is vital to ensuring that AI systems are designed, implemented and governed effectively.

There is one problem, however: a talent shortage. Addressing this requires a multidisciplinary approach: professionals from various sectors need to gain AI literacy to integrate AI into their fields. AI solutions also need to be inclusive and beneficial to all sectors of society. This should be reflected in AI education and workforce development.

In short, we need to prepare workers for an AI-driven economy. To do this, AI education programmes, technical training, and reskilling initiatives are key.

2.5. Governance and policy

A well-designed AI policy and regulatory environment is essential; it can foster innovation while ensuring safety, legal certainty and ethical deployment.

However, AI is evolving quickly. Can governance frameworks keep up? They need to be adaptive, responsive and enforceable to accelerate the transition from research to real-world application – while maintaining public trust.

Flexibility in policy instruments is also important. This will allow AI to evolve responsibly without stifling innovation, an important consideration in particular for SMEs trying to scale AI-driven solutions but held back by regulation.

Helpful approaches here can include policy experimentation. Regulatory sandboxes, for example, provide controlled environments where AI systems and business models can be tested before full-scale implementation. And of course ongoing oversight and assessment can help to ensure that policies remain effective.

2.6.
Collaborative environment

While not a lever in itself, collaboration underpins the levers we have mentioned: infrastructure, data, R&D, human capabilities, and governance and policy. That is because AI development is inherently multidisciplinary and cross-sectoral.

Alignment between governments, industry, academia and civil society is needed to create an effective and sustainable AI ecosystem. Without strong collaboration, AI initiatives could be undermined by fragmentation or inefficiency – or they could simply fail to align with societal and economic needs.

Collaboration fosters partnerships (such as public private partnerships), knowledge-sharing, and coordinated investment. This in turn enables AI research to transition into real-world applications and supports the development of AI-ready workforces. It also ensures that regulatory frameworks remain adaptable to technological change.

3.
But what initiatives can incentivise AI development?

What can governments and entities do to support the levers we have examined?

Policy design and regulatory development are covered in a separate Axon white paper[3]. In this section, therefore, we look at the four practical levers that can translate AI strategies into tangible outcomes, namely:

- Infrastructure
- Data
- Research and development
- Human capabilities

Again, the collaborative environment is not a lever but often underpins initiatives involving these four levers, as we shall see.

3 AI regulation: new world, new rules

Figure 2 below highlights the countries we have identified[4] as having introduced initiatives for each of the addressed levers.

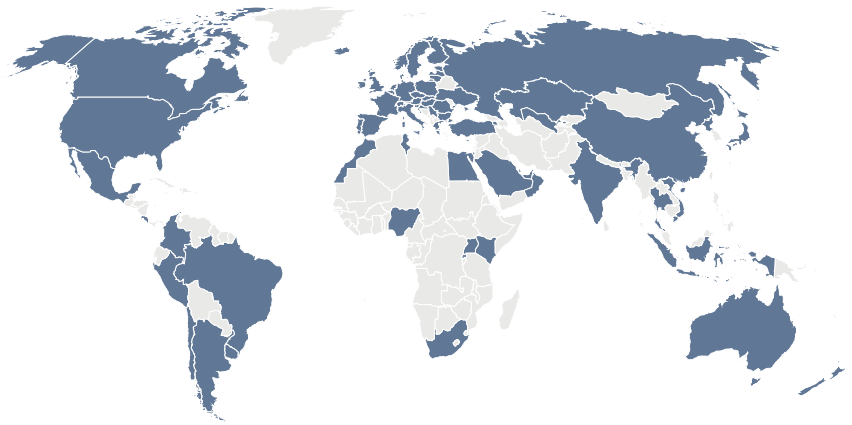

Figure 2. Countries identified with AI development initiatives [Source: Axon Consulting & OECD[5]]

Indeed, many countries are implementing initiatives for AI development. This paper does not therefore aim to present an exhaustive selection of examples. It does, however, focus on some relevant governmental initiatives, with special reference to funding, strategic partnerships, national plans and dedicated programmes.

4 The map may not be exhaustive, as some countries may have initiatives in place that were not identified in our research

5 National AI Policies and Strategies

3.1. Infrastructure

US

On the second day of his new term in office, President Donald Trump announced Stargate, a joint venture involving SoftBank, OpenAI, Oracle, and MGX, with participation from NVIDIA and Microsoft. This is not, strictly speaking, a public initiative but it is far-reaching and therefore relevant. This project aims to build up to 20 large AI data centres across the US, with an initial investment of $100 billion and plans to grow investment to $500 billion by 2029.

China

China recently established the National AI Industry Investment Fund[6] with a capital scale of 60.06 billion yuan (about $8.21 billion). This initiative is a joint venture between state-backed Guozhi Investment (Shanghai) Private Equity Fund Management and the China Integrated Circuit Industry Investment Fund (CICF) Phase III. The fund includes general equity investment and asset management, but further details remain limited.

UK

In January 2025, the UK launched the AI Opportunities Action Plan[7], outlining strategic investments to strengthen AI foundations. A core focus of the plan is infrastructure, with a detailed roadmap for development over the next six months.

Governments worldwide are unveiling ambitious plans and programmes to accelerate AI development. Many of these initiatives emphasise infrastructure as a foundational element.

6 AI industry investment fund
7 AI Opportunities Action Plan

European Union

The EU introduced the European High-Performance Computing Joint Undertaking (EuroHPC) in 2018[8]. The EuroHPC Joint Undertaking is jointly funded by its members (EU members and other countries along with representatives from three participating private partners) with a budget of around €7 billion for the period 2021-2027. This initiative aims to establish the region's first AI factories, enhancing AI-optimised supercomputing. A further boost for AI funding came at the AI Action Summit in Paris in February 2025, where the EU announced InvestAI, a €200 billion investment programme. This includes €20 billion earmarked for the construction of four AI gigafactories to advance AI model training[9].

Brazil

Brazil introduced the AI for the Good of All plan[10] in July 2024. It allocates approximately $4 billion to AI development, with over $850 million specifically dedicated to AI infrastructure.

Qatar

Qatar announced a $2.4 billion incentive package to enhance its AI capabilities at the Qatar Economic Forum in May 2024[11]. Service provider Ooredoo has already outlined plans to borrow $550 million to expand its regional data centres by 120 MW over the next five years, nearly doubling the region's AI computing capacity[12].

Saudi Arabia

Beyond national investment plans, governments are actively pursuing strategic partnerships with the private sector to accelerate AI infrastructure development. A key example is Saudi Arabia's Project Transcendence, backed by the Public Investment Fund (PIF) in collaboration with Google. The initiative will focus on AI infrastructure, data centres and startup investments while nurturing local talent and attracting global players[13].

8 AI Factories
9 EU InvestAI
10 IA para o Bem de Todos
11 Qatar Artificial Intelligence
12 Qatar's Ooredoo wades into Gulf's AI data centre rivalry
13 Saudi Arabia Aims High with $100 Billion AI Project to Rival UAE's Tech Hub

Israel

Another strategic partnership with the private sector is Israel's Project Nimbus[14]. Announced in April 2021, this is a $1.2 billion partnership with Google and Amazon designed to equip the Israeli government and military with AI and machine learning capabilities to support public operations.

Japan

AI infrastructure is not always developed through public-private partnerships. Some governments are opting for fully state-led initiatives. Japan, for example, launched the AI Bridging Cloud Infrastructure (ABCI)[15] in 2018 through its National Institute of Advanced Industrial Science and Technology. Described as the world's first large-scale open AI computing infrastructure, ABCI was updated to version 3.0 in January 2025. This project is designed to accelerate AI research, development and practical applications across various industries, demonstrating a state-driven approach to AI infrastructure expansion.

3.2. Data

As we have said, data is crucial to the development of AI systems. Many governments have created centralised data repositories dedicated to supporting AI research and development, allowing access and sharing to researchers, developers and users.

UK

In January 2025, the United Kingdom launched the National Data Library (NDL) through its AI Opportunities Action Plan, aiming to provide researchers with faster access to high-quality public-sector data[9].

US

In the United States, Harvard's Library Innovation Lab introduced the Institutional Data Initiative in December 2024, collaborating with libraries, museums, and government to expand access to public domain data for AI model training[16].

14 Project Nimbus
15 ABCI
16 Harvard's Library Innovation Lab

European Union

The European Union's Common European Data Spaces initiative, launched in February 2020, aggregates data across multiple sectors, including health, agriculture, and energy, making large datasets available for AI[17].

Saudi Arabia

Since 2024, Saudi Arabia, through the Saudi Data and AI Authority (SDAIA), has been actively working on the National Data Bank (NDB)[18], a data ecosystem designed to facilitate data sharing and enhance national data quality.

South Korea

In South Korea the Open Government Data Platform was formally established in 2013. This platform provides the public with data created, acquired and managed by public institutions in a single location. This information can also support private sector AI innovation[19].

India

The India Urban Data Exchange (IUDX), launched in February 2021, facilitates secure, authenticated data exchange among urban stakeholders including city departments, government agencies, and private sector entities, supporting the development of smart cities[20].

17 A European strategy for data

18 National Data Platform

19 Enabling Data-Driven Innovation - Learning from Korea’s Data Policies and Practices for Harnessing AI

20 India urban data exchange (IUDX)

Data guidelines and best practices: US and Singapore

However, access to and sharing of data are not the only factors driving AI development. Researchers and developers are increasingly concerned about the efficient use and management of data. To address this, governments and regulatory authorities are establishing voluntary data frameworks that provide structured guidelines and best practices to ensure secure and responsible data sharing and utilisation.

A clear example of this can be seen in the United States, where the US Department of Commerce published the document "Generative Artificial Intelligence and Open Data: Guidelines and Best Practices" in January 2025, offering actionable recommendations for publishing open data optimised for generative AI systems[21].

Similarly, Singapore's Infocomm Media Development Authority (IMDA) released the Trusted Data Sharing Framework in June 2019, aiming to establish comprehensive guidelines for organisations to create trusted data-sharing partnerships[22].

21 Generative Artificial Intelligence and Open Data: Guidelines and Best Practices
22 Trusted Data Sharing Framework

3.3.
Research and development

Once infrastructure and data access frameworks are in place, the next critical step in incentivising AI development is fostering R&D. A related key initiative is the establishment of centres of excellence to promote AI research, collaboration, and innovation. A number of relevant examples of both R&D and centres of excellence are already available.

US

The US Networking and Information Technology Research and Development (NITRD) Programme allocates $3.3 billion specifically for AI research, covering responsible AI development, human-AI collaboration, safety, security, and AI training datasets[23].

Centres of excellence are also a US focus. The US National AI Institutes Programme, led by the National Science Foundation (NSF), serves as the country's largest AI research ecosystem, fostering public-private partnerships[24].

EU

The initiatives Horizon Europe and Digital Europe collectively aim to mobilize €20 billion in annual AI investments from private entities and member states by the end of the decade, with over €1 billion per year directed toward AI research[25].

The EU's AI and Robotics Excellence Centres meanwhile, focus on scientific and technological challenges in Trustworthy AI[26], with key institutions like ELLIS[27] (European Laboratory for Learning and Intelligent Systems) and ELSA[28](European Lighthouse for Safe and Secure AI) playing a central role[29].

23 The Networking & Information Technology R&D Program and the National Artificial Intelligence Initiative Office Supplement to the President's FY2025 Budget
24 US National AI Institutes Program
25 European research development and deployment of AI
26 Networks of Excellence: A community of AI & Robotics researchers
27 European Lab for Learning & Intelligent Systems
28 ELSA – European Lighthouse on Secure and Safe AI
29 Networks of Excellence: A community of AI & Robotics researchers

Singapore

Under the Smart Nation 2.0 initiative launched in 2024, Singapore plans to invest $120 million in AI for Science, focusing on AI-driven advancements in scientific research[30].

China

China has made significant investments in R&D. Based on available 2018 data, its R&D spending ranged between $1.7 billion and $5.7 billion[31], which leads us to assume that current spending may be even higher given the rapid advancement of AI.
This assumption is further reinforced by the 2024 AI Plus Initiative launched, officially described as promoting "the in-depth integration of AI and the real economy by deepening the research and application of AI technology"[32].

Italy

Governments are also establishing funding mechanisms specifically for AI startups. Italy's Fund for the Development of Artificial Intelligence, Blockchain, and Internet of Things Technologies and Applications provides tax incentives to companies and research centres engaged in digital innovation[33].

Australia

Australia's CSIRO Innovation Fund has raised over $1 billion since 2017 to support deep-tech startups commercialising publicly funded research[34].

Saudi Arabia

In Saudi Arabia, the Saudi Data and AI Authority (SDAIA)-KAUST Centre of Excellence plays a key role in fostering AI research and innovation through specialised academies and curricula, in partnership with King Abdullah University of Science and Technology (KAUST) and King Saud University[35].

30 Smart Nation 2.0 Report
31 Chinese Public AI R&D Spending: Provisional Findings
32 China to launch AI Plus initiative
33 MISE fund for the development of AI technologies and applications
34 Introducing Main Sequence
35 SDAIA-KAUST Center of Excellence

3.4.
Human capabilities

While centres of excellence in particular play a crucial role in AI talent development, governments are implementing other initiatives to strengthen AI expertise. These include targeted programmes, academic partnerships and talent hubs.

UAE

One key approach involves the establishment of dedicated AI universities and academic programmes. The UAE has taken a leading role in this area, with initiatives at UAE University and the Mohamed bin Zayed University of AI – the world's first graduate-level AI university[36].

Singapore

Singapore's AI Accelerated Master's Programme, developed in collaboration with local universities, aims to train the next generation of AI researchers. To further enhance expertise, the government has also introduced an AI Visiting Professorship initiative, designed to attract world-class AI researchers and foster international collaborations[37].

Saudi Arabia

Beyond academic institutions, several countries are implementing large-scale training programmes in collaboration with industry leaders. In Saudi Arabia, SDAIA and multinational corporation and technology company NVIDIA partnered in December 2024 to launch the Professional Generative AI Training Programme[38], which trains specialists in large language models and multi-modal AI applications, providing professional certifications. Another programme, the AI Training Programme[39], a collaboration between the Ministry of Communications and Information Technology and the National eLearning Centre, offers AI education for a broad audience, from students to professionals.

36 The Economic Impact of Artificial Intelligence in the UAE
37 AI initiatives launched to uplift Singapore's economic potential
38 Professional Generative AI Training Program
39 National eLearning Center (NeLC)

Spain

Talent hubs and government-backed programmes are also playing a critical role in attracting and retaining AI professionals. Spain's SpAIn Talent Hub[40] is a national initiative designed to develop AI expertise by offering scholarships, research grants, career opportunities, and startup incentives, encouraging both local and international professionals to work in Spain.

Australia

Australia's Next Generation AI Graduates Programme[41] aims to address the country's growing demand for skilled AI professionals by providing government-funded training initiatives, with a particular focus on supporting regional businesses and startups.

40 SpAIn Talent Hub

41 Grant funding to bring AI and emerging technology graduate students into regions

4.
Conclusions

Governments are no longer just regulating AI. They are shaping its development. National AI initiatives are acting as a catalyst for economic growth and technological leadership.

We feel such AI initiatives should be supported by the following main levers:

- Infrastructure
- Data
- R&D
- Human capabilities
- Governance and policy

To succeed, however, these initiatives need a collaborative ecosystem, one that engages all stakeholders in AI development. Public-private partnerships, cross-sector collaboration, and academic contributions are critical to ensuring that AI innovation is not only effective but also inclusive and widely supported.

But governments must not lose sight of regulatory considerations. Issues such as data privacy, security and ethical AI development must be addressed. A balance between innovation and responsibility will ensure that AI's transformative impact aligns with societal values and promotes long-term economic sustainability.

The challenge for all countries, then, is to successfully integrate investment, collaboration and regulation.

But can we really harness AI's full potential while mitigating its risks? It may not be easy but the social and economic rewards for getting it right are, potentially, vast.

The challenge for all countries, then, is to successfully integrate investment, collaboration and regulation.

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Axon Partners Group

Axon Partners Group is an international firm founded in 2006 that provides investment and advisory services to a broad client base in the ICT and digital space in more than 70 countries across the world.

Axon's emerging technologies practice is at the core of our work and a growing priority for clients. We focus on strategy, policy, and market intelligence around a broad spectrum of next-generation technologies, engaging both private and governmental stakeholders. By partnering closely with decision-makers, Axon helps them anticipate trends, address critical challenges, and develop actionable roadmaps to harness the full potential of emerging technologies.

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