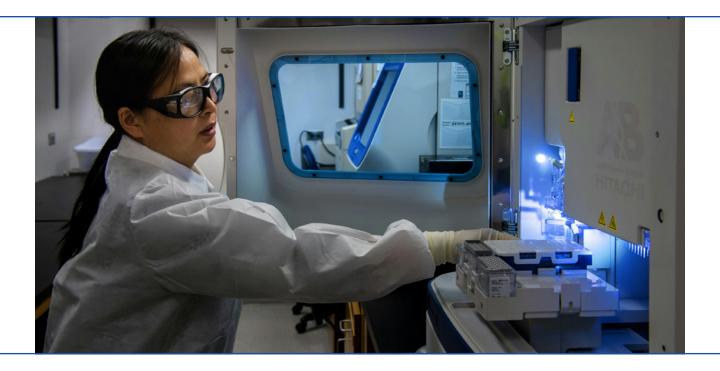


Al Pioneers:

How APEC Economies are Seizing the Al Opportunity







The use of artificial intelligence (AI) has the potential to deliver extraordinary productivity and economic gains, revolutionizing business models across different sectors and helping governments scale and streamline service delivery. Economies that take meaningful steps to support the development and broad adoption of AI stand to attract massive investment and gain a considerable competitive edge.

This brief examines how a wide range of economies are driving broad-based economic growth and advancing AI development across three key areas: infrastructure; skilling and deployment; and supportive policy and investment environments. By showcasing noteworthy examples and establishing benchmarks for AI opportunity leadership, this brief aims to provide policymakers at various stages of their AI journey with practical insights for harnessing and developing this transformative technology.

Al's Role in Economic Transformation

In assessing the progress that economies have made on unlocking Al's potential, it is important to recognize that Al is far more than a chatbot. While generative Al has garnered significant public attention, it represents only a fraction of the broader economic transformation that Al is poised to catalyze. In fact, McKinsey estimates that generative Al constitutes less than a third of Al's total economic potential, which they project could reach \$25 trillion annually.

Crucially, AI has the potential to support productivity gains across a wide range of tasks, firms, and sectors, particularly in large and labor-intensive sectors such as healthcare, manufacturing, services, the public sector, and traditional industries that have benefited less from digitalization than information and communication technology (ICT) and financial services sectors to date. AI can also generate massive opportunities in scientific fields, including materials science, fusion energy, physics, neuroscience, and chemistry – as recognized by the recent Nobel Prize awarded to Google Deep-Mind researchers for predicting protein structures.

Achieving these potential productivity gains is not automatic or guaranteed, but instead hinges on widespread adoption and organizational adaptation. Our review of history suggests that the competition for AI will be won not by the economies that invent new technologies first, but by the economies that deploy them best.



Strategies for Harnessing Al's Economic Potential

One year ago, Google published an <u>AI Opportunity Agenda</u> outlining steps governments, companies, and civil society can take in partnership to promote the adoption and accessibility of AI, along with a paper on <u>AI and the Opportunity for Shared Prosperity</u>. Our subsequent <u>AI Sprinters</u> report explored how emerging markets at all stages of development can harness their unique strengths to leverage AI, even in the face of greater resource constraints. These reports highlighted three key areas where governments can work with the private sector to ensure the benefits of AI are shared widely:

- Investing in Al Infrastructure: The private sector, and in some cases governments, have a critical role to play in investing in R&D and Al infrastructure, including cloud infrastructure, compute capacity, and data, to ensure that researchers, technologists, and businesses have access to the tools needed to research, build, and deploy AI.
- Developing AI Skills and Deploying AI Across the Economy: For AI to lift economic growth, it must be diffused and adopted not just by a few innovative companies, but across all sectors of the economy. This will require equipping all workers and students with fundamental AI skills, including in traditional industries, small businesses, and in governments and the public sector. It will also require making process and organizational changes to help industries integrate AI into everyday operations and improve productivity.
- Spurring Al-Driven Innovation and Competitiveness: To fully realize the potential of AI, policymakers must create a policy environment that fosters innovation and avoids overly restrictive measures that could stifle growth and hinder adoption in crucial sectors.

Today, over <u>70 economies</u> have adopted AI strategies and policies that outline different approaches to creating a vibrant AI ecosystem. This diverse range of strategies is a positive development, reflecting a broad recognition of how central AI is expected to become to economic growth and competitiveness. While there is no one-size-fits-all solution on AI, this brief highlights a series of best practices that can provide foundational guidance to any economy focused on AI development.

The Emergence of AI Pioneers

While many economies are still in the early stages of translating AI strategies into action, others are emerging as AI Pioneers, moving beyond policy blueprints to make tangible investments in AI development and adoption. Given the rapid pace at which AI is improving and the growing number of use cases, governments that act now to adopt and promote the diffusion of AI will be in a significantly better position to reap AI's economic potential, drive higher economic output and attract inward investment.

With hundreds of billions of dollars being deployed on AI investment by the private sector, the development and execution of national AI strategies is a critical way for governments to attract major new investments in AI infrastructure and AI readiness. Google is on track to spend nearly \$50 billion in capital expenditures in 2024, with a significant amount of investment in technical infrastructure, subsea cables, and data centers to support AI priorities. These physical infrastructure investments are linked to new investments in AI skilling and workforce preparedness, including Google's \$120 million AI Opportunity Fund to ensure that workers, educators, small businesses, and traditional industries are prepared to take advantage of AI.

This brief examines the steps that different economies are taking to harness Al's economic potential, and identifies a series of foundational practices that economies can take to drive leadership and competitiveness on this critical technology.



I. Economies Leading in Al Infrastructure

Economies have historically excelled when they support technological change and harness it to improve living standards. This includes developing the infrastructure needed for technologies to be widely accessible. To support a thriving AI ecosystem, economies need to have in place not just the physical infrastructure of high-speed internet and data centers, which together form the backbone of AI development and deployment, but also complementary elements like accessible data systems, open data policies, and mechanisms for research collaboration.

- **Cloud First Policies.** Cloud computing provides an essential foundation that businesses and governments need to fully harness the power of Al. Its vast computational resources, scalable data storage, management, and analysis capabilities are crucial for developing and deploying AI applications. In order to maximize the benefits of AI, governments and organizations should adopt a "cloud first policy" and prioritize cloudbased IT infrastructure and services over on-premise ones. For example, Thailand has a strategic partnership in which Google Cloud will contribute technology and policy expertise to support Thailand's Go Cloud First policy direction. This partnership aims to modernize Thailand's government services and public sector delivery through AI technologies, beginning with public transportation, e-government services and big data usage.
- Attracting investment in new data centers and cloud regions. Many economies have helped to clear a path for investment in data centers. For example, Google recently broke ground on a \$2 billion data center and cloud region in Malaysia, as well as a \$1 billion data center and cloud region in Thailand, which are estimated to contribute more than \$7 billion to these economies by 2030. And in Mexico, which has 166 data centers and is expected to host 73 new data centers by 2029, the government is offering various incentives, such as tax exemptions and renewable energy incentives, to attract domestic and foreign investors.

- Partnerships on subsea and terrestrial cables. Subsea and terrestrial cables are the backbone of the modern Internet, and are essential to the growth and resilience of modern economies. Through supportive actions and partnerships, Google has recently announced a number of significant cables through the Pacific Connect initiative, which creates new US-APAC connectivity. Our Africa Connect initiative now includes both Umoja, the first ever fiber optic route to directly connect Africa with Australia and Equiano, our private subsea cable that connects Africa with Europe.
- **Energy solutions.** Al infrastructure requires significant amounts of power for training and operation, so it is important for governments and industry to work together to unlock electricity infrastructure capacity, which can advance economic growth and competitiveness while enabling achievement of decarbonization goals. Regional, transparent, and competitive wholesale electricity markets like those that exist in Chile can help reduce costs, increase reliability, and enable interconnection of new clean energy resources in these economies. Markets like Japan, Chinese Taipei, and Southeast Asia can replicate these models to unlock growth. Further, investing in development of new transmission in these and other markets can unlock access to growth.
- Fostering secure and resilient AI infrastructure. Governments and businesses have a responsibility to work together to safeguard AI systems from cyberattacks, and to ensure that those who protect and defend critical infrastructure have best-in-class AI tools to help carry out their mission. Singapore, Japan and Australia have taken the lead to establish partnerships between AI companies, security experts, and governments to combat threats and improve security globally, including through initiatives like the Coalition for Secure AI.



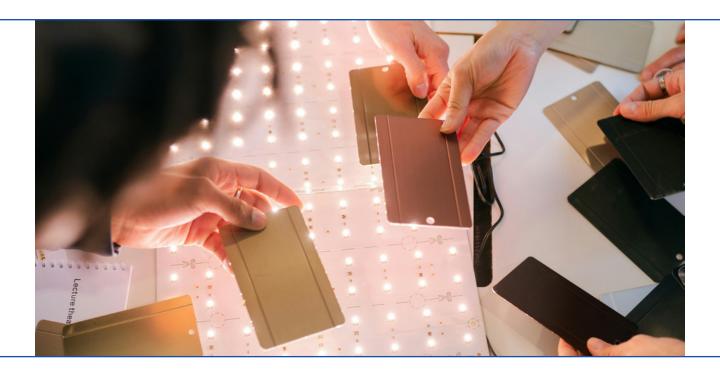
II. Economies Leading on Al Skilling and Al Deployment

Building an Al-ready workforce calls for a collaborative, society-wide effort involving government, the private sector, and educational institutions aimed at building three levels of Al fluency: Al Learners – ensuring that all workers and students have fundamental Al skills; Al Implementers – helping governments, traditional industries, and small businesses use and adapt Al tools at work; and Al Innovators – building deep technical expertise to develop Al technology and shape how it evolves. Economies have taken several major steps to meet these needs over the past year:

- Driving government adoption of AI. One of
 the most important steps that governments
 can take to spur AI adoption is by setting a
 positive example on AI skilling and adoption,
 including by ensuring that all public sector
 workers have the skills they need on AI, and
 deploying AI across a wide variety of public
 sector use cases. Singapore has been a clear
 leader in integrating AI into the public sector
 across multiple agencies and use cases,
 including using it to monitor disturbances in its
 urban rail systems and support job searches
 and matching.
- Integrating Al into education. Many governments have created guidelines for school systems to use AI and build AI literacy and critical thinking on AI, while scaling up personalized learning initiatives. In 2023, Australian Education Ministers approved the Australian Framework for Generative AI in Schools that provides guidance on understanding, using, and responding to generative AI in school-based education. India's Ministry of Electronics and Information Technology is drafting AI content to be incorporated into school curriculum for classes 6-12, aligning it with India's 2020 National Education Policy. In addition, Korea has combined traditional elementary and middle school textbooks with intelligent tutoring systems, conversational AI, and speech recognition.

- Developing certified credentials for AI skills. As the pace of technological change accelerates, it will become increasingly important for people to gain skills guickly and have those skills recognized through credentials. Through the Career Certificates program, Google is working globally to boost on-demand training for in-demand tech skills, including working with governments and more than 550 universities across Latin America to offer a continuously updated portfolio of learning resources to ensure students are ready to seize the opportunities created by new technologies. Economies are also supporting the development of new AI skilling consortia that bring together the private sector with labor and workforce experts.
- Preparing SMEs to use AI. Governments are setting up platforms and programs to enable SMEs to test AI use cases and build Al talent. In Singapore, the Al Makerspace platform provides access to resources for Al experimentation such as white labeled Al solutions, curated datasets, and supercomputing resources. In Korea, a public program called "Valuebuy" provides information, and education, and expands distribution channels to online platforms for SMEs interested in adopting digital and AI tools. Australia has committed \$12 million to incentivize AI practitioners to engage with regional businesses to develop AI solutions for regional problems and established AI Adopt Centres that offer SMEs low-interest loans and grants to support Al-driven transformation. Chile's national Ruta <u>Digital program</u> provides AI-skilling courses to smaller businesses.





III. Economies Leading on Policy Frameworks to Spur Innovation and Competitiveness

Developing a supportive policy environment is one of the most important steps that governments can take to drive innovation and investment around AI.

The broader goal of AI legislation should be to drive responsible innovation, mitigate risks, build public confidence in AI technology, and enable economies to fully harness the economic, scientific, and societal benefits of AI. At the same time, policymakers should guard against enacting regulations that risk stifling innovation by creating barriers to entry for startups, slowing down research and development, and ultimately hindering the potential for AI to address critical challenges in areas like healthcare and climate change.

Risk-based approaches to regulating AI. Many jurisdictions are taking a risk-based approach, recognizing that not all AI uses pose the same risks, and that regulations should be calibrated to the level of risk that specific AI applications could pose, as well as the opportunity costs of not using Al. For example, the US, UK, Singapore, Japan, and Chinese Taipei have all pioneered smart AI policy approaches that address risks while maximizing opportunity, including through the US NIST Risk Management Framework, the UK's 'Pro-innovation approach to AI regulation,' and Singapore's Model AI Governance Framework. By comparison, other economies, like the EU, have articulated risk-based frameworks but then deviated from that approach in certain ways, such as by broadly regulating AI at the model level. There is a risk that overbroad or misaligned regulation could hinder the development and deployment of beneficial Al systems - with some companies recently delaying product launches in the EU due to regulatory uncertainty.



- Codes of conduct and guidelines. A growing number of economies have published codes of conduct and principles and standards to help promote responsible AI use in supply chains and commercial ecosystems. Such codes provide guidance to AI developers while remaining flexible as the technology continues to evolve quickly. For example, Singapore has created a new Model Governance Framework for Generative AI that provides practical suggestions for model developers and policymakers to govern AI systems, while Singapore's Infocomm Media Development Authority (IMDA) has developed a tool Al Verify that enables businesses to review their conformity with emerging AI governance principles. Japan has played a leading role in driving action on AI safety through development of the G7 Hiroshima Process International Code of Conduct for Organizations Developing Advanced AI Systems.
- Fair use and text & data mining (TDM) exceptions: Several economies, including the US, Japan, and Singapore have recognized the importance of copyright laws that allow for researchers and innovators to use copyright-protected material under certain circumstances - commonly referred to as limitations and exceptions - without permission from the copyright holder. For example, Japan's "non-enjoyment" statute recognizes that it must be permissible to use a work when the person's purpose is not to personally enjoy the work, but simply for use in data analysis. Singapore's Copyright Act similarly recognizes that copies made in the course of computational data analysis are permitted.
- Competitiveness Assessments. Some
 economies are actively evaluating whether
 their regulatory frameworks are calibrated to
 harness opportunity and investment related
 to AI, with the recent <u>European Commission-sponsored Draghi Report</u> providing a
 crucial reminder of how policies that hinder

- innovation can stifle economic growth and competitiveness. As the Draghi Report recommends: "A fixed period of at least six months should be devoted to systematically assessing and stress-testing all existing regulation by sector of economic activity." Several economies conduct various kinds of regulatory impact assessments, including Australia's Office of Impact Analysis and the US's Office of Information and Regulatory Affairs.
- PAI sandboxes. Al regulatory sandboxes provide controlled environments for companies and researchers to experiment with new Al technologies, learn in real-time, and refine both Al applications and policies. Singapore and Korea have already proposed Al regulatory sandboxes to enable businesses to experiment with new products and services and regulators to consider different regulatory frameworks. Governments can also catalyze Al innovation through secure partnerships, incentives, and safe harbors for companies to develop and test programs for Al harms and explore remedies.
- Promotion of international cooperation. Several APEC economies are founding members of the Global Partnership on Artificial Intelligence (GPAI), through which they work to promote collaboration on the responsible use and development of AI. Economies in Africa and Latin America have also promoted regional AI strategies and commitments; the Association of Southeast Asian Nations (ASEAN) has recently published a Guide on AI Governance and Ethics. And several recent digital trade agreements - such as the UK-Singapore Digital Economy Agreement, Korea-Singapore Digital Partnership Agreement, and UK-New Zealand Free Trade Agreement - include commitments to drive research cooperation, support risk-based approaches to AI, and collaborate on safe and unbiased use of Al.





Conclusion: Driving Investment Through Smart Approaches to Infrastructure, Workforce, and Policy

Al has already begun to support inclusive economic growth and transform industries across the Asia-Pacific region and in the Americas.

The policy brief has examined a series of steps that governments can take – and have taken – to support AI infrastructure, workforce preparedness, and innovation and adoption.

 To reap the full benefits of AI innovation, governments should create a supportive environment for public and private-sector investment in AI infrastructure, including cloud infrastructure, subsea cables, compute capacity, and data.

- These investments in AI infrastructure should be paired with smart public-private approaches to build the workforce of the future, and initiatives to deploy AI in the public sector and across traditional industries and small businesses.
- Finally, governments should ensure that their regulatory and legal frameworks help spur innovation and Al-driven competitiveness, rather than inhibiting these goals.

Increasingly, governments that lead on these three areas have also been successful in <u>attracting Al</u>
<u>investment</u>. As companies invest in Al and work with the public sector to scale up these investments, the presence of a supportive environment on infrastructure, skilling, and adoption, and innovation are key determinants of where investments will flow in the years to come.

