



Understanding the strategic implications of the AI revolution



The current AI revolution is often described as a software breakthrough, a productivity revolution, or as the arrival of a new generation of intelligent systems. Yet framing it primarily through the lens of technology risks obscures the deeper transformation underway.



A better way to understand the AI transition is through three interconnected pillars:



The **first** concerns the physical foundations of AI – energy, water, land, minerals, chips and infrastructure.



The **second** concerns sovereignty and governance – how countries balance openness, regulation, resilience and strategic autonomy.



The **third** concerns geopolitics and inclusion – whether AI deepens global inequality or creates pathways for broader participation and development.

Together, these three dimensions form the strategic triangle that will shape the next phase of the global economy.

1. The physical AI economy: energy, water, land and industrial capacity



Large-scale AI systems require enormous computational power.

That computational power depends on data centres, semiconductors, cooling systems, fibre connectivity and stable electricity systems. The result is that AI increasingly resembles an industrial system rather than merely a software layer.

The World Economic Forum's work on AI and resource systems highlights that the future AI economy rests on a tightly interconnected resource backbone involving energy, water, land and critical minerals. The acceleration of AI adoption is already contributing to a surge in electricity demand from hyperscale data centres, while simultaneously increasing demand for cooling water, transmission infrastructure and semiconductor supply chains.

This creates a new form of strategic geography. Countries that combine abundant clean energy, stable political environments, strong connectivity and institutional trust may emerge as preferred hosts for AI infrastructure. This gives certain regions structural advantages.

At the same time, the AI transition risks intensifying pressure on already fragile environmental systems. Data centres require substantial water resources for cooling. Semiconductor manufacturing depends on ultra-pure water and mineral-intensive supply chains. Expanded electricity demand could slow climate transitions if powered by fossil fuels rather than renewables.



This creates a profound paradox. AI is increasingly presented as an essential tool for solving climate, agricultural and resource-efficiency challenges, yet its own expansion may significantly increase pressure on energy systems, water basins and land use unless carefully governed.

The strategic implication is clear: future competitiveness in AI will not depend solely on software capability or access to talent. It will increasingly depend on the ability to build resilient, low-carbon, resource-efficient infrastructure systems capable of supporting large-scale computation sustainably.

This changes the meaning of industrial policy. Energy policy, grid modernization, permitting, water management and semiconductor access are no longer separate from digital strategy. They are becoming central components of national AI competitiveness.



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2. Sovereignty, regulation and the new balance between openness and control

The second dimension of the AI transition concerns sovereignty.

AI systems increasingly shape critical functions within economies and societies – communications, finance, healthcare, logistics, public administration, education and security. As a result, governments are becoming increasingly concerned not only about who develops AI, but who controls the infrastructure, data and governance systems underpinning it.

The strategic tension is evident everywhere. Countries recognize the enormous benefits that come from open innovation, cross-border research collaboration and shared digital ecosystems. Yet they also recognize the risks associated with excessive dependency on foreign platforms, compute infrastructure or externally governed datasets.



The challenge therefore is not whether to be open or closed. Rather, it is how to define strategic interdependence. Very few countries can realistically achieve full-stack sovereignty across all these layers. Even major powers remain interdependent. The United States depends on global semiconductor manufacturing networks. Europe depends heavily on foreign cloud infrastructure. China depends on external energy and technology flows despite major domestic capability development.

The countries that succeed in AI may not necessarily be those that move fastest initially, but those capable of building trusted systems that balance innovation, public legitimacy and resilience over time.



The strategic question therefore becomes: which capabilities must remain sovereign, which can be shared through trusted alliances, and which benefit from openness?

This is producing a more nuanced global landscape.

The World Economic Forum's "GovTech Compass" provides an important insight in this regard: the long-term success of digital systems depends not only on efficiency but on legitimacy, trust, inclusion and accountability.

The report repeatedly emphasizes that digital systems fail when they prioritize technical deployment over citizen trust, institutional legitimacy and public value.

This may become one of the defining governance questions of the next decade.

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3. Geopolitics, inclusion and the risk of a new global divide

The third pillar concerns geopolitics and inclusion.

Historically, major technological revolutions have simultaneously created extraordinary wealth and widened inequality. The AI transition risks doing both at unprecedented speed.

The current concentration of AI capabilities is striking. Advanced semiconductor manufacturing is concentrated in a small number of countries. Frontier models are dominated by a limited group of companies. Cloud infrastructure and hyperscale compute are highly centralized. Investment flows remain heavily skewed toward the United States, China and a few advanced economies. This creates a real risk that AI becomes a system through which existing economic and geopolitical asymmetries deepen further.

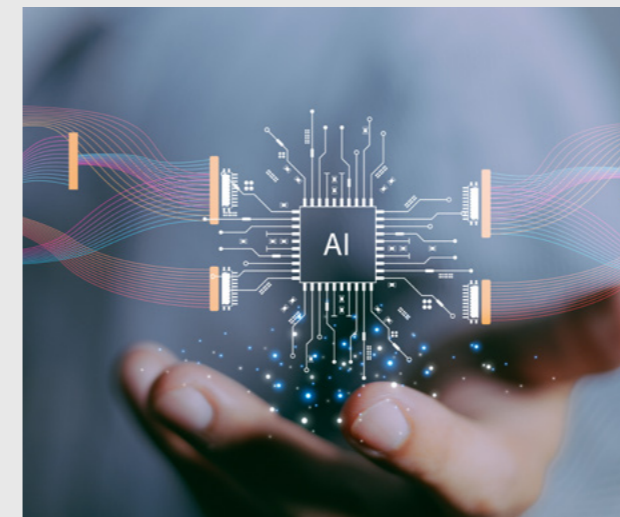
Emerging markets face particular challenges. Many countries still struggle with inconsistent electricity access, weak digital infrastructure, limited compute capacity, insufficient datasets, fragmented regulatory systems and shortages of advanced digital skills.

The World Bank and IFC handbook on AI investment in emerging markets offers an important counterpoint. It argues that emerging economies do not necessarily need to replicate the full technological trajectory of advanced economies in order to benefit from AI. Instead, countries can “leapfrog” by focusing on localized use cases, digital public infrastructure, sector-specific innovation and open-source ecosystems.

This distinction is critical.

The most successful emerging market AI strategies may not involve competing directly in frontier model development. Rather, they may focus on becoming highly capable adopters, adapters and orchestrators of AI in sectors where local advantage matters – agriculture, healthcare, logistics, education, climate adaptation, fintech and public administration.

Digital public infrastructure may become especially important in this context. Identity systems, interoperable payment rails, trusted registries and open data ecosystems can significantly lower the barriers for AI-enabled innovation. WEF’s GovTech Compass emphasizes that effective digital public infrastructure should remain citizen-centred, interoperable and governed in the public interest.



The geopolitical dimension therefore becomes broader than competition between great powers. The deeper question is whether emerging markets become active participants in shaping AI-enabled economic systems or merely consumers dependent on externally controlled infrastructure and platforms. That outcome will depend heavily on investment in connectivity, digital public infrastructure, energy systems, local language models, skills and institutional capability.

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Toward a New Strategic Framework

Taken together, these three pillars suggest that AI should not be viewed simply as a technology cycle. It represents the emergence of a new operating system for the global economy.



AI is fundamentally reshaping the relationship between digital systems and physical infrastructure. Energy, water, land, minerals and grids are becoming central determinants of digital competitiveness.



Sovereignty in the AI era will depend less on complete autonomy and more on intelligently managed interdependence — combining openness where beneficial with strategic control where necessary.



The defining geopolitical question may not be who develops the most powerful models, but who succeeds in diffusing AI capabilities broadly enough to create inclusive productivity growth rather than deepening structural inequality.

The most important AI investments over the next decade may not only be in frontier models or applications themselves. They may instead be in the enabling systems that allow societies to use AI productively, legitimately and inclusively: clean power systems, digital public infrastructure, trusted governance models, interoperable data ecosystems and human capability.

The AI transition is not merely a technology revolution. It is simultaneously an industrial, geopolitical, developmental and governance transformation.

And like previous industrial transitions, its long-term winners are unlikely to be determined solely by technological sophistication. They will be shaped by the ability to align infrastructure, institutions, legitimacy and inclusion into a coherent societal model capable of sustaining transformation over time.

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If you would like further detail about the findings, or more information how organisations can build resilience and navigate the strategic challenges emerging from the AI-driven transformation, please contact:



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With leadership experience spanning global business, multilateral institutions, and international development partnerships, he helps companies and organizations navigate an increasingly complex world shaped by climate change, nature loss, technological disruption, and geopolitical rebalancing.

Over the past two decades, Arne has worked across Europe, Africa, the Middle East, and global multilateral platforms, including senior leadership roles with Yara International ASA, the World Economic Forum, and Grow Africa. His work has focused on how food systems, energy, natural resources, trade, and technology are becoming central to economic security, political stability, and corporate competitiveness. Today, Arne advises companies, foundations, and international initiatives on how to reposition strategy and narrative in response to a rapidly shifting global landscape.

Alongside his advisory work, Arne serves as Chair of the Varda Foundation, which works on digital public infrastructure for agriculture and resilience, and advises global initiatives focused on AI-ready agriculture, food security, and international cooperation. His work frequently engages leaders across business, government, philanthropy, and civil society to shape collaborative responses to systemic global challenges.

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