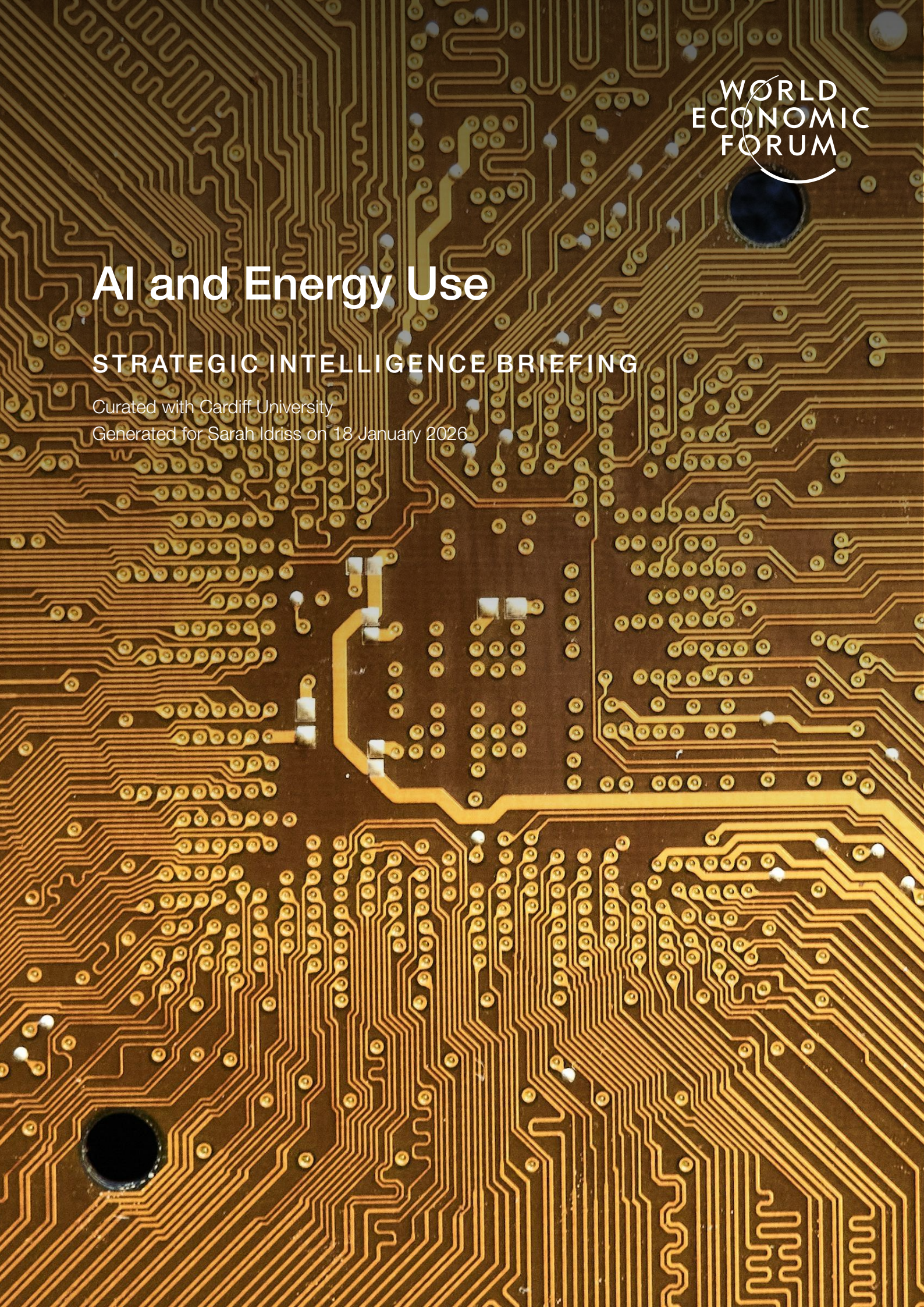


WORLD ECONOMIC FORUM

AI and Energy Use

STRATEGIC INTELLIGENCE BRIEFING

Curated with Cardiff University

Generated for Sarah Idriss on 18 January 2026

Contents

Executive summary

Explore the interactive version online

Companies that lead in AI adoption are already outperforming peers by 15% in revenue, a gap expected to more than double by 2026. Industries like telecommunications, energy and manufacturing are seeing 10–60% electricity savings with AI, with potential for even more optimization. However, energy systems are also being pushed to transform as AI's use expands worldwide.

This Transformation Map presents eight possible scenarios for AI's impact on the global energy industry. It aims to equip industry leaders with timely, strategic insights to evaluate and evolve their AI adoption plans. By aligning with the latest innovations in AI scaling and energy use, it enables smarter decisions across the value chain that strengthen competitiveness and resilience.

The briefing is based on the views of a wide range of experts from the World Economic Forum's Expert Network and is curated in partnership with Jean-Paul Skeete, Lecturer at Cardiff University. The content does not necessarily reflect the views of the Forum.

The key issues shaping and influencing AI and Energy Use are as follows:

Energy Demand Explosion
An uncoordinated response to AI growth would lead to inefficient energy systems

Power Transformation
AI can be both a participant and manager in energy systems

AI-Accelerated Transition
AI and energy infrastructure can evolve together

Efficiency Revolution
AI innovation could fuel energy demand while boosting efficiency

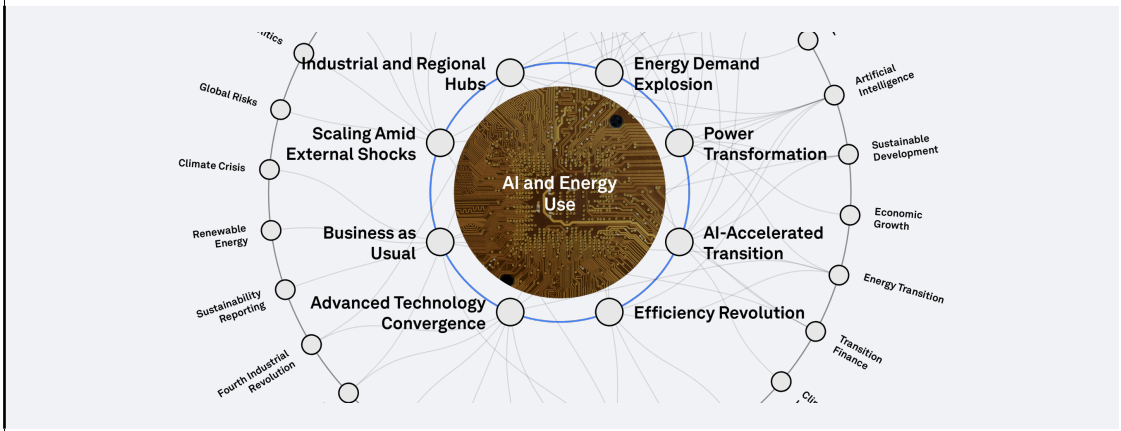
Advanced Technology Convergence
AI alongside other technologies such as quantum computing could reshape energy infrastructure

Business as Usual
A world where energy systems remain reactive to demand

Scaling Amid External Shocks
A future where external disruptions shape AI development

Industrial and Regional Hubs
Dedicated AI hubs allow for innovation and coordination

Below is an excerpt from the transformation map for AI and Energy Use, with key issues shown at the centre and related topics around the perimeter. You can find the full map later in this briefing.



In the following sections, we give a comprehensive summary of the latest **Insights and Trends** shaping the topic, a look at potential **Forecasts and Scenarios** based on current and emerging trends, and an overview of the **Strategic Context**.

1 Insights and trends

A synthesis of the most recent expert analysis.

1.1 Current perspectives

GlobalData

Home | AI in power - Future Power Technology Magazine | Issue 168 | January 2026

17 January 2026

Issue 168 of Future Power Technology Magazine features advancements in AI within the power sector, emphasizing smarter generation, transmission, and distribution. Key highlights include the launch of Nextpower Arabia to accelerate utility-scale solar projects, an exploration of evolving winter hydropower management, and an interview with Kine Årdal, CDIO of Scatec, discussing her impact across oil, gas, renewables, and digitalization.

Harvard Business Review

Why People Create AI ”Workslop”–and How to Stop It

16 January 2026

Workslop, defined as low-effort, AI-generated work that appears polished but ultimately burdens recipients, is becoming a significant issue in workplaces. It fosters confusion, mistrust, and diminished team morale, with reports of serious consequences, including employee resignation and feelings of devaluation. This phenomenon results from unclear AI directives from management and overwhelmed employees who feel unsafe admitting uncertainties. Research indicates that 41% of full-time workers recall receiving workslop, with over half admitting to producing it. Addressing this issue requires leaders to clarify AI usage mandates and support their teams effectively.

Oliver Wyman

How Consumers Use AI To Achieve Financial Goals

15 January 2026

Consumers express willingness to use AI for financial decisions but hesitate to rely on it for their most significant challenges. A survey of 1,000 US consumers revealed that while enthusiasm exists, concerns about trust and reliability remain high. Currently, only 21% of consumers utilize AI for financial help, preferring traditional resources like advisors and personal networks. Companies must link AI tools to clear use cases, build trust in AI outputs by ensuring transparency, and address consumer fears to unlock broader adoption. Overall, the desire for effective AI solutions in finance exists but requires significant development.

World Economic Forum

Redefining leadership: Why we need dialogue more than ever in a changing world

16 January 2026

In a rapidly changing world marked by AI advancements, geopolitical uncertainty, and climate challenges, dialogue and collaboration have become essential for effective leadership. The World Economic Forum’s 2026 Annual Meeting emphasizes ”The Spirit of Dialogue” as critical for bridging divides and fostering trust among nations, sectors, and generations. Two perspectives highlight this approach: one advocates for Africa’s role in a cooperative, people-centered AI initiative, prioritizing development over dominance; the other illustrates the successful synergy between human intuition and AI in chess, underscoring the potential of combined strategies to tackle complex global issues.

Kellogg School of Management

Can a New GPT Accelerate Human–AI Collaboration in Science?

16 January 2026

Researchers from Kellogg's Center for Science of Science and Innovation developed SciSciGPT, an AI model designed to enhance scientific research efficiency. SciSciGPT outperformed human researchers in tasks ranging from statistical analysis to data visualization and could answer complex questions in minutes. The model consists of a large language model (LLM), five specialized AI agents for workflow management, data processing, analysis, and evaluation, and access to a comprehensive science database (SciSciNet). In pilot studies, SciSciGPT demonstrated superior effectiveness, clarity, and depth of analysis compared to human researchers, emphasizing its role as an augmentation rather than a replacement for human creativity in research.

The Innovator

Interview Of The Week: Henry Markram On Brain-Based AGI

15 January 2026

Henry Markram, a neuroscience professor at EPFL, has revolutionized brain research through initiatives like the Brain Mind Institute and the Blue Brain Project, aimed at simulating the brain. He founded the Human Brain Project, a €1 billion European Commission initiative to advance neuroscience and computing. In 2025, Markram and his wife launched the Open Brain Institute to freely share their 18-million-line software for building digital brains. Additionally, he co-founded INAIT, developing a digital brain operating system and launching iAM in fintech and robotics, in partnership with Microsoft. Markram's work focuses on leveraging 40 years of research to create brain-based artificial general intelligence (AGI).

Project Syndicate

The AI Takeover of All Media Is Coming

16 January 2026

AI is rapidly transforming the media landscape, impacting industries such as filmmaking, fiction writing, commercial photography, radio, music, and particularly journalism. This shift poses significant social and economic challenges that require careful and humane management. The consequences of AI's integration into content creation are expected to be dual-edged, featuring both innovation and disruption.

World Economic Forum

Critical minerals: Why innovation begins beneath the Earth's surface

16 January 2026

Securing an escalating supply of critical minerals is essential to achieve net zero emissions by 2050, as demand for these minerals–used in clean energy technologies–is projected to surge more than 3.4 times by 2040. The mining industry must collaborate with governments and technology leaders to mine these resources responsibly. Innovations in AI and advanced processing can increase efficiency and reduce environmental impact in mineral production. As reliance on critical minerals grows, so do expectations for environmental stewardship and social impact, making trust paramount in the minerals economy.

World Economic Forum

Why effective AI governance is becoming a growth strategy, not a constraint

16 January 2026

Effective AI governance is crucial for driving sustainable growth by enhancing customer confidence, regulatory compliance, and long-term competitiveness. Early integration of governance prevents risks like siloed data and inefficient processes, allowing AI initiatives to scale responsibly. The three pillars of effective AI governance–Responsible, Ethical, and Trustworthy AI–focus on minimizing harm, reflecting stakeholder values, and ensuring reliable, bias-free systems. Organizations can achieve business value alongside social responsibility by clarifying accountability, promoting fairness, and fostering transparency. Establishing governance frameworks, such as dedicated review boards and strategic blueprints, enhances operational effectiveness and innovation.

World Economic Forum

How can we design social robots in the most ethical and equitable way?

16 January 2026

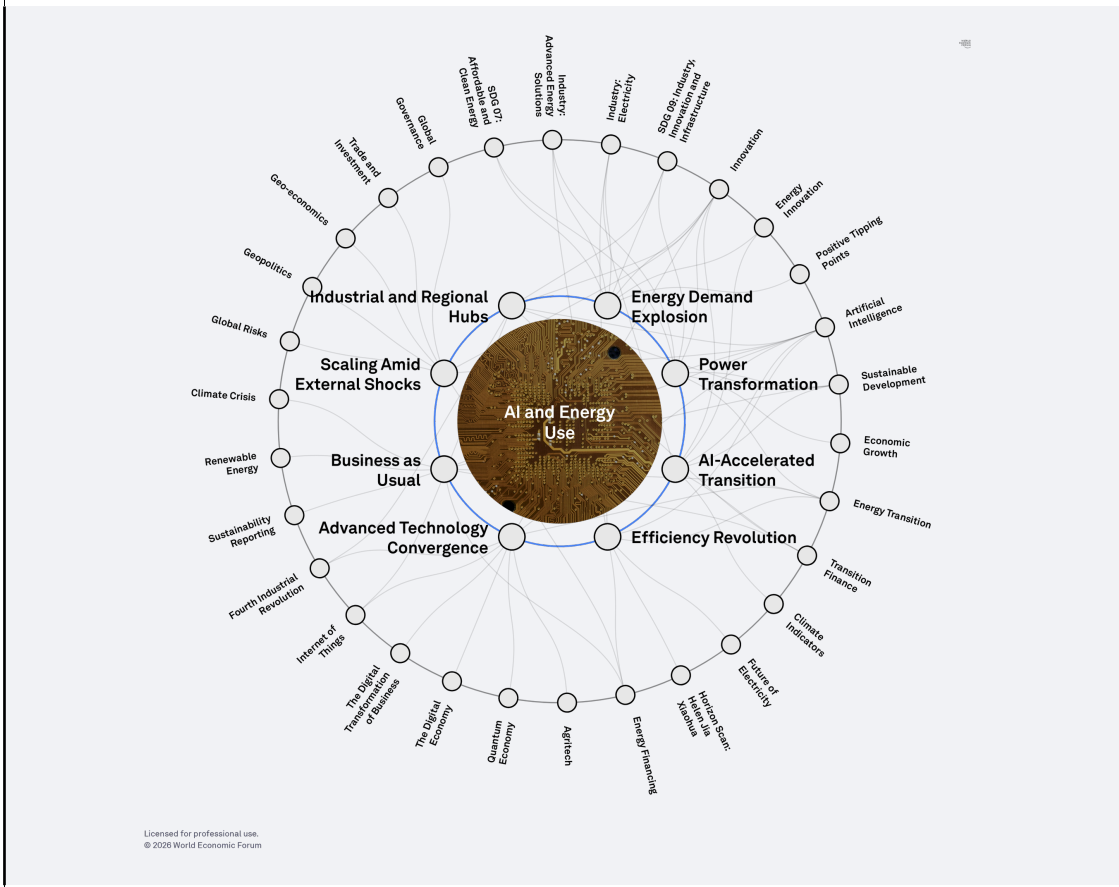
The design of social robots must prioritize ethical considerations and public acceptance as they become integral to various sectors like healthcare and education. A survey conducted in Dubai revealed that people prefer anthropomorphic robots over highly human-like designs, with acceptance varying by context and cultural background. Key priorities for effective robot design include incorporating local social norms, allowing for public feedback to refine designs, and establishing regulatory frameworks that promote innovation while ensuring accountability. Ongoing discussions address the preservation of human identity and the necessity of governance to manage biases and uphold public trust in these technologies.

2 Strategic context

The key issues shaping AI and Energy Use.

The following key issues represent the most strategic trends shaping the topic of AI and Energy Use. These key issues are also influenced by the other topics depicted on the outer ring of the transformation map.

FIGURE 1 **Transformation map for AI and Energy Use**



2.1 Energy Demand Explosion

An uncoordinated response to AI growth would lead to inefficient energy systems

In this scenario, AI becomes widely accessible, driving rapid adoption across industries. User-friendly platforms and lower computing costs embed AI into daily operations, increasing demand beyond traditional infrastructure capacity. Data centres expand quickly, focusing on speed and user proximity over energy efficiency. Though some energy upgrades and advanced cooling are implemented, growing model sizes and workloads lead to rising energy use. AI-optimized energy systems exist but are inconsistently adopted and rarely integrated into broader energy planning. Energy planners would face growing pressure to accommodate large, unpredictable computing loads and respond by increasing consumer prices. In areas

without modernized grids or sufficient clean energy capacity, new deployments would strain local infrastructure.

Energy planners' readiness varies, but nuclear power is seen as a long-term baseload solution for growing AI demand. In the near-term, planners need real-time AI consumption data and contingency options like demand shaping or infrastructure upgrades to avoid local strain. Coordination between the digital and energy sectors is crucial. Smart grid and demand response efforts in this scenario remain limited and voluntary, with reactive coordination between data centres and utilities. Policies lag behind growth, with uneven reporting and weak enforcement. Energy planning and AI strategy remain siloed, hindering long-term infrastructure optimization. As AI advances, new computing and infrastructure types are likely to emerge, offering faster or specialized performance. These innovations would increase energy management complexity, as operators adapt to new hardware and continuous use. Innovation on generative AI would continue piecemeal, with no dominant architecture. Until the ecosystem stabilizes, computing infrastructure will evolve rapidly. If enacted too early, policies risk being overly rigid and misaligned; interim strategies should focus on flexibility and real-time monitoring until scalable solutions emerge. Without aligned planning across the energy and digital sectors, the pace of technical progress creates additional stress on already constrained systems. While AI delivers growing value, the supporting infrastructure faces challenges in keeping that growth efficient, reliable and sustainable.

Related topics: SDG 07: Affordable and Clean Energy, Industry: Advanced Energy Solutions, Industry: Electricity, SDG 09: Industry, Innovation and Infrastructure, Innovation, Energy Innovation, Positive Tipping Points

2.2 Power Transformation

AI can be both a participant and manager in energy systems

In this scenario, energy systems transform as AI integration advances. Utilities use AI for forecasting, load balancing, outage prevention and managing distributed energy resources. AI moves beyond pilots to become core to grid operations, enabling faster decisions and improved coordination. Smart grids evolve to use real-time data from generation, transmission, storage and end-use devices. AI processes this data to maintain stability, cut costs and lower emissions. Distributed energy resources like solar, electric vehicles and batteries are managed collectively rather than individually for optimal coordination.

Smart grids are key to sustainable AI-era energy. By optimizing distributed assets collectively, they shift from reactive control to AI-driven orchestration, enhancing grid stability, efficiency and emissions reduction. Data centres can shift from being passive consumers of electricity to becoming more active grid participants. As AI workloads grow more energy-intensive, integrating data centres as active grid participants, providing flexibility, storage and demand response, will be critical to strengthening grid resilience and enabling smarter energy use. AI-optimized facilities can adjust loads by price, grid status and emissions, reducing peak energy use and enhancing market flexibility. Supportive policies would update rules, planning and incentives, driving AI-powered grid investment and integrated energy-digital planning. Regulators, utilities and tech providers could collaborate to match rules with capabilities. In this scenario, these efforts would drive new investment in AI-enhanced grid technologies, while also supporting a more integrated approach to planning across energy and digital infrastructure. Data centres would participate directly in energy markets, making power systems more adaptive, resilient and sustainable.

Related topics: Artificial Intelligence, SDG 07: Affordable and Clean Energy, Sustainable Development, Economic Growth, Industry: Advanced Energy Solutions, SDG 09: Industry, Innovation and Infrastructure, Energy Transition, Innovation

2.3 AI-Accelerated Transition

AI and energy infrastructure can evolve together

In this scenario, AI infrastructure growth aligns with strong clean energy adoption, driven by investors, regulations and climate goals. Data centres would prioritize energy resilience and access to renewable energy, using on-site renewables, power purchase agreements and storage. Solar, wind, geothermal and advanced technologies like small modular reactors would support this transition. AI-optimized energy systems let data centres adjust power use in tandem with renewables' availability, matching supply and price. These systems could coordinate real-time computing and energy dispatch, reducing reliance on fossil

fuel-based power plants that only operate during periods of peak electricity demand,. This flexibility benefits regional grids as intermittent generation grows. Ensuring AI-optimized systems are interoperable, transparent and widely adopted will be key. Openness and shared standards are essential to building hybrid infrastructure that supports collective energy resilience, not just isolated benefits.

In this scenario, energy market participation grows as smart grids and utility coordination improve. Data centres provide load flexibility and grid balancing. Demand response becomes standard at high-capacity sites, supported by shared platforms and transparent pricing. Policies evolve alongside infrastructure, with governments, industry and utilities collaborating on standards to promote cleaner, efficient operations and sustainable, low-carbon investments. As AI use grows, infrastructure balances performance with environmental impact through design and resource advances. Operators treat energy not as a constraint but as a strategic variable to optimize AI and sustainability goals. Leading firms already optimize when, where and how they consume power to meet sustainability and performance goals; scaling this beyond large data centres will require stronger policy signals and market incentives to drive industry-wide adoption.

Related topics: Innovation, Energy Innovation, Sustainable Development, Transition Finance, Climate Indicators, Industry: Electricity, Artificial Intelligence

2.4 Efficiency Revolution

AI innovation could fuel energy demand while boosting efficiency

In this scenario, AI drives innovation while managing its energy impact. As adoption grows, energy performance, scalability and cost become key priorities spurring investment in AI-optimized systems. Intelligent workload scheduling, real-time power control and adaptive cooling improve efficiency in model training, inference and maintenance. Generative AI developers could refine their models, with significant efficiency gains. Due to pressures stemming from the high costs of advanced computations, platforms are motivated to optimize, often achieving energy efficiency naturally without external mandates. Data centres can adopt autonomous energy management, using AI for monitoring, proactive maintenance and load adjustment. Energy optimization tools could spread beyond large data centres, making dynamic strategies more common. In power systems, AI enhances forecasting, demand response and system balancing, enabling near real-time coordination between large data facilities and utilities to cut peak loads and create value.

In this scenario, decentralized AI models emerge as companies adopt compact architectures to reduce reliance on energy-intensive central infrastructure. Embedding intelligence in devices like smartphones and industrial machinery cuts latency, transmission loads and energy use. Early evidence shows deployment choices are shaped by geographical infrastructure limits, costs, regulations and application needs. Firms like Sony are already exploring specially tailored chips that can run AI models on individual devices, but handling complex data loads remains uncertain. A hybrid approach, using computing power from both consumer devices and data centres, is likely, with efficiency depending on evolving architectures that balance capability with performance, latency and energy use. Beyond data centres, in this scenario AI boosts efficiency in HVAC and manufacturing, supporting decarbonization and performance gains. Interest grows in alternatives like space-based computing infrastructure. New policies could offer incentives and reporting to encourage energy-efficient deployments. As systems mature, AI would be both a demand driver and an efficiency tool. Organizations investing in efficient infrastructure would lower their costs, gain flexibility and enable AI growth while keeping energy use manageable.

Related topics: Future of Electricity, Horizon Scan: Helen Jia Xiaohua, Artificial Intelligence, Industry: Electricity, Industry: Advanced Energy Solutions, Energy Transition, Energy Financing

2.5 Advanced Technology Convergence

AI alongside other technologies such as quantum computing could reshape energy infrastructure

This scenario explores a future in which advanced computing technologies, including AI, edge computing and quantum converge, reshaping energy and digital infrastructure. AI models run on individual consumer devices are already enabling real-time, low-latency operations in energy, mobility and telecommunications, reducing cloud dependency and improving efficiency. These systems are deployed alongside classical computing infrastructure and require careful integration with both digital workflows and physical support systems. While technologies like quantum computing remain in their infancy, their growth means that today's

infrastructure demands are unlikely to remain static. Like AI, these other advanced technologies are highly fluid, and long-term infrastructure assumptions should remain adaptable.

Systems like quantum computers require continuous power, cryogenic cooling and specialized environments. AI can play a central role in managing these environments, stabilizing hardware, scheduling workloads across cloud, edge and quantum systems, and optimizing energy use in real-time. Infrastructure planning must consider thermal loads, spatial demands and energy resilience. In this scenario, quantum-enhanced tools and other unforeseen innovations could hold significant long-term promise for optimization, but much remains speculative. Distinguishing between future potential and near-term feasibility is essential, and progress should be guided by a cautious, evidence-driven approach. Governments are responding through pilot investments, regional research hubs and updates to facility standards. However, challenges remain in scaling responsibly, from lifecycle measurement gaps to uneven regional readiness. This convergence signals a shift: energy and computing systems must evolve together, and be coordinated, adaptive and sustainably designed. The long-term potential lies not only in increased performance, but in the ability to more efficiently and effectively coordinate complex systems.

Related topics: Agritech, Quantum Economy, The Digital Economy, Artificial Intelligence, The Digital Transformation of Business, Internet of Things, Fourth Industrial Revolution, Innovation, Energy Transition

2.6 Business as Usual

A world where energy systems remain reactive to demand

In this scenario, organizations expand AI use in data analytics and automation, with data centre capacity rising through enterprise and cloud growth. New facilities are added mainly to meet predictable demand, with limited reinvention. Energy efficiency advances gradually via established practices like improved server utilization, airflow management and upgraded cooling, typically during routine refresh cycles. While there are some measurable gains and energy efficiency savings, they are typically just enough to match rising workload demands. AI-optimized energy systems emerge within large-scale data centres, yet adoption remains siloed and limited across the wider industry.

Energy efficiency strategies are highly context dependent. Geography matters: in the United Kingdom, for example, cool ambient temperatures enable natural cooling most of the year, reducing reliance on energy-intensive systems–but also limit the potential uses of solar power. Best practices that work in one region may have limited impact on another, so a one-size-fits-all approach risks overlooking critical regional differences. Most new data centres are sited near existing grids for cost and convenience, with limited renewable integration and variable carbon intensity. Without strong performance data, clean energy use risks staying aspirational rather than integral to site design. In this scenario, alignment between digital infrastructure and smart grids remains limited. Policy progress is slow, focusing more on AI governance than energy use, and binding standards are rare. Infrastructure investment follows demand with minimal coordination between the energy and technology sectors. Digital infrastructure would continue to be far from uniform, spanning public and private cloud and edge computing cases, while AI developers operate their own data centres. Each of these models has distinct energy demands, scale and planning requirements. With AI infrastructure evolving rapidly and no dominant strategy emerging, aligning digital expansion with energy planning would remain difficult, especially as both sectors transformed in parallel.

Related topics: Artificial Intelligence, Sustainable Development, Sustainability Reporting, Energy Financing, Renewable Energy, Energy Transition, Climate Crisis, Transition Finance

2.7 Scaling Amid External Shocks

A future where external disruptions shape AI development

In this scenario, global trade tensions, resource constraints and regional politics disrupt AI development, slowing data centre growth. Supply constraints raise costs, delaying projects, especially in import-reliant countries. AI adoption becomes uneven, favouring nations with domestic manufacturing or strong trade deals. Some governments reserve computing resources for strategic sectors. Data centre construction slows in several regions as sourcing constraints delay buildouts and increase costs. The slowdown in data centre construction would not be uniform. Geopolitics and foreign investment can offset supply chain and sourcing challenges, as seen in US President Donald Trump's May 2025 Middle East visit, which secured multibillion-dollar AI deals including large-scale data centre partnerships and major chip supply agreements.

Energy infrastructure could face fossil fuel price fluctuations and delays in renewable projects. Regions with strong energy systems could reliably ensure power for AI, while others would face uncertainty in energy supplies, thereby limiting uptime and planning. Smart grid progress would be uneven, with AI improving efficiency locally but with limited broad applications. Policies could vary across regions, with some boosting domestic energy use and others merely maintaining present systems; coordination and long-term planning would remain weak. Cross-sector stakeholder coordination would be limited, and long-term strategies deprioritized amid short-term pressures.

In this scenario, innovation continues in targeted, resource-conscious ways. Leaner AI scaling grows as optimization and advanced architectures like DeepSeek's Mixture of Experts deliver similar performance with less computation. Scaling time is now included in the scaling hypothesis (i.e. that making models bigger and feeding them more data generally makes them smarter and more capable, while bigger models and larger datasets means higher energy consumption), with methods evolving towards a dominant paradigm. Recent advances in Chinese models have highlighted the potential for more energy-efficient, sustainable AI. As AI infrastructure grows, progress could be uneven and shaped by local constraints rather than global alignment. In this uncertain future outlook, the pace and direction of AI development depend heavily on the ability to manage risk, navigate disruption and quickly adapt.

Related topics: Global Risks, Geopolitics, Innovation, Geo-economics, Trade and Investment, Global Governance, Energy Financing, Artificial Intelligence

2.8 Industrial and Regional Hubs

Dedicated AI hubs allow for innovation and coordination

This scenario envisions dedicated AI hubs where governments, utilities and other partners co-locate data centres, power, water and fibre infrastructure in resource-rich areas. Designed for scale and efficiency, these hubs deploy AI-optimized energy systems across facilities, enabling load balancing, cooling management and real-time responses. Shared services enhance resilience and reduce costs. The integrated hub model is especially strategic for regions aiming to leapfrog legacy constraints. These hubs serve as living labs for regulatory, workforce and governance innovation, potentially transforming AI infrastructure into a tool of industrial policy rather than just digital growth. Smart grids and demand response are built into these hubs from the start. Stakeholders collaborate so computing facilities can support real-time grid balancing. Digital twins, forecasting and market platforms help operators respond to system needs.

Shared infrastructure and coordinated planning offer practical benefits. Competing firms in clusters can collaborate using shared data governance for secure information exchange, optimizing energy use, emissions and performance. Common platforms support load balancing, cooling and planning, with agreements building trust. These efforts boost innovation, showing the value of coordinated digital-energy strategies. Shared platforms and interoperable systems build trust, enabling scalable planning and innovation. Aligning energy and digital policies around these standards is vital. In this scenario, policy frameworks would evolve to support hubs with faster permitting, funding and workforce programmes that boost investment and achieve climate goals. These hubs could unite stakeholders like researchers and clean energy developers around emerging standards. As co-location grows, infrastructure planning would shift, guided by lessons on siting and energy integration. Adoption would vary by region, but linking computing growth with regional coordination would allow AI infrastructure planning to focus on resource availability, resilience and economic impact.

Related topics: Innovation, Transition Finance, Sustainable Development, Internet of Things, SDG 09: Industry, Innovation and Infrastructure, Artificial Intelligence, Fourth Industrial Revolution

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About Strategic Intelligence

Our approach

In today's world, it can be difficult to keep up with the latest trends or to make sense of the countless transformations taking place. How can you decipher the potential impact of rapidly unfolding changes when you're flooded with information - some of it misleading or unreliable? How do you continuously adapt your vision and strategy within a fast-evolving global context? We need new tools to help us make better strategic decisions in an increasingly complex and uncertain environment.

This live briefing on AI and Energy Use, harnesses the World Economic Forum's Strategic Intelligence platform to bring you the very latest knowledge, data and context from our 300+ high quality knowledge sources. Its aim is to help you understand the global forces at play in relation to AI and Energy Use and make more informed decisions in the future.

Each day, our Strategic Intelligence platform aggregates, distills and synthesizes thousands of articles from around the world. We blend the best of human curation with the power of machine learning to surface high-quality content on over two hundred global issues to our one million users globally. Our hand-picked network of content partners from around the world means that we automatically exclude much of the noisy clickbait, fake news, and poor quality content that plague the Internet at large. We work with hundreds of think tanks, universities, research institutions and independent publishers in all major regions of the world to provide a truly global perspective and we are confident that our data are well positioned when it comes to the intrinsic biases inherent to open text analysis on uncurated content from the Internet. For further context on our approach, you may be interested to read Strategic trend forecasting: anticipating the future with artificial intelligence and These Are The 3 Ways Knowledge Can Provide Strategic Advantage.

↓ A leading expert presenting a transformation map at our Davos Annual Meeting

Overview of methodology

Our Transformation Maps are dynamic knowledge visualisations. They help users to explore and make sense of the complex and interlinked forces that are transforming economies, industries and global issues. The maps present insights written by experts along with machine-curated content. Together, this allows users to visualise and understand more than 250 topics and the connections and inter-dependencies between them, helping in turn to support more informed decision-making by leaders.

The maps harness the Forum network's collective intelligence as well as the knowledge and insights generated through our activities, communities and events. And because the Transformation Maps are interlinked, they provide a single place for users to understand each topic from multiple perspectives. Each of the maps has a feed with the latest research and analysis drawn from leading research institutions and media outlets around the world.

At the centre of each map is the topic itself. This is surrounded by its "key issues", the forces which are driving transformation in relation to the topic. Surrounding the key issues are the related topics which are also affected by them. By surfacing these connections, the map facilitates exploration of the topic and the landscape within which it sits.

The framework extends beyond mapping current trends by incorporating forecasts and scenarios to project potential future states of the system. Forecasts are based on observable patterns, while scenarios explore broader possibilities, including low-probability but high-impact events. These elements contextualize key issues and related topics within potential future trajectories, enhancing strategic thinking and decision-making.

Harnessing collective intelligence from the Forum network and leading research institutions, the maps synthesize diverse insights into a cohesive view. By integrating these insights with the latest research and analysis, the framework provides a comprehensive understanding of how transformations unfold and interrelate, empowering users to navigate the evolving landscape effectively.

Scenarios

In-line with best practice on the use of artificial intelligence in products and systems, in this section we provide full transparency on how artificial intelligence is used in our scenario generation automation.

In complex and fast-moving environments, it is difficult to maintain a clear view of what may change next, and which uncertainties deserve attention. Scenario planning helps by offering a structured way to explore alternative futures, test assumptions and clarify decisions under uncertainty.

We generate scenario packs using artificial intelligence within a defined methodology and on which we have been guided by our Global Strategic Foresight Community. The process follows the same broad logic used in scenario workshops: move from issue framing, to key uncertainties, to a 2×2 matrix, and then to four distinct scenario narratives. In an automated setting, each step includes validation to avoid weak axes and indistinct scenarios.

Each scenario pack included in our briefings includes a 2×2 scenario matrix defined by two critical uncertainties (axes), four scenario narratives and a *throughline* that connects each scenario back to the matrix.

Our process is as follows:

1. Topic framing and inputs. First, we ground our scenario design in our high-quality, expert curated content. Our topic summaries, key issues and related knowledge are used to anchor scenarios in the topic space.

2. Abstraction of underlying forces. Topic issues are often technical and uneven in granularity. Our AI agents abstract them into a small set of cross-cutting forces and tensions that can support scenario work across domains. This creates a conceptual frame that is usable for uncertainty and axis generation.

3. Identification of drivers and uncertainties. From that conceptual frame, an AI agent identifies drivers that could shape outcomes and that carry genuine uncertainty. Drivers are defined with directional poles so that they can support different regime logics rather than incremental variation.

4. Axis generation and validation. An AI agent then proposes multiple candidate axes of uncertainty and

another agent then evaluates them against criteria commonly used in facilitated scenario work: strength of the tension between poles, relevance to the topic and its drivers, and decision utility, meaning whether different positions would change strategic choices. Candidate axes are then combined into matrix pairs and tested for distinctiveness. This step is designed to avoid quadrant ”collapse”, where scenarios converge in practice despite different labels. Candidate pairs that do not yield clearly differentiated quadrants are rejected and alternatives are tried.

5. Quadrant blueprints using STEEPLE. Once an axis pair is selected, our AI develops a structured blueprint for each quadrant. Blueprints define the internal logic of that world and describe how the system behaves across STEEPLE domains (Social, Technological, Economic, Environmental, Political, Legal and Ethical), with attention focused on the domains that are most consequential for that quadrant. This stage is designed to establish coherence and contrast before narrative writing begins.

6. Grounding and counter-grounds. Our AI then builds an evidence set from the Strategic Intelligence knowledge base, drawing on our curated network of trusted content partners. Evidence is used to strengthen and challenge the emerging interpretation of each quadrant. In practice, our AI compiles supporting evidence for key mechanisms implied by the blueprint, as well as counter-evidence and constraints that suggest limits, failure modes or alternative dynamics. This step functions as a stress test. It identifies claims that are too thin, overly linear, or inconsistent with available knowledge, and it provides material used to refine the narrative direction before writing begins.

7. Narrative development within a constrained world. Once a narrative direction has been selected for a quadrant, our AI produces the scenario narrative within a constrained ”world”, mirroring workshop practice where participants explore a defined quadrant logic and then build out a coherent future state. At this stage, our models are instructed to remain consistent with the quadrant blueprint, incorporate supporting evidence where it adds credibility and specificity, reflect counter-evidence as tensions, constraints, trade-offs or contested dynamics, and describe a plausible future state rather than a transition story, prediction or recommendation. The result is a scenario that remains anchored to a defined structure while allowing creative exploration of how that structure could plausibly play out. Our AI also generates a short throughline for each scenario explaining how it expresses its position on the axes, as well as a matrix summary describing the uncertainty space and what differentiates the four futures.

8. Quality checks and transparency. Finally, an AI agent performs quality checks intended to prevent common failure modes in automated scenario generation: axes that lack meaningful tension or strategic relevance, quadrant ”collapse” where scenarios become minor variations of the same future, internally inconsistent causal logic across STEEPLE domains, and narratives that drift away from the quadrant blueprint. Intermediate artefacts (candidate axes, evaluations, quadrant blueprints, and grounding materials) are retained so results can be reviewed, compared over time, and improved.

We welcome feedback on our approach as we continue to refine and evolve our use of artificial intelligence in strategic foresight.

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