Artificial Intelligence

STRATEGIC INTELLIGENCE BRIEFING

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Contents

Executive summary

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Artificial Intelligence is full of paradoxes. It is a powerful tool with impressive capabilities, yet it remains limited in many areas. While it holds the promise of enhancing human well-being, it also raises concerns about widening social inequalities and shifting job markets. Its underlying mechanisms are highly technical, but the broader public can–and should–grasp its core principles and the societal questions it poses. As AI's influence continues to grow, it will be essential to engage diverse voices and expertise to ensure the technology supports human potential and contributes to positive, inclusive outcomes.

This briefing was written using AI tools and was reviewed by the World Economic Forum's artificial intelligence experts. The content does not necessarily reflect the views of the Forum.

The key issues shaping and influencing Artificial Intelligence are as follows:

Ethical and Trustworthy AI
Ensuring AI systems are fair and transparent, preventing bias and harm

AI and Workforce Transformation
AI is disrupting labour markets, automating tasks and requiring major workforce reskilling

AI and Misinformation
AI-generated deepfakes and disinformation are undermining trust in media, democratic processes and public discourse

AI's Impact on Geopolitics
Nations are leveraging AI's military applications, fuelling an arms race and raising security dilemmas

AI Governance and Regulation
Policymakers worldwide are crafting rules for AI, balancing innovation with safety, ethics and accountability

Environmental Impact of AI
The industry's growing energy and resource demands have significant carbon, water and ecological consequences

Rise of Foundation Models
Large AI models trained on broad datasets are transforming industries globally

Generative AI Goes Mainstream
AI models that generate text and media are transforming creativity while raising new challenges

Below is an excerpt from the transformation map for Artificial Intelligence, with key issues shown at the centre and related topics around the perimeter. You can find the full map later in this briefing.
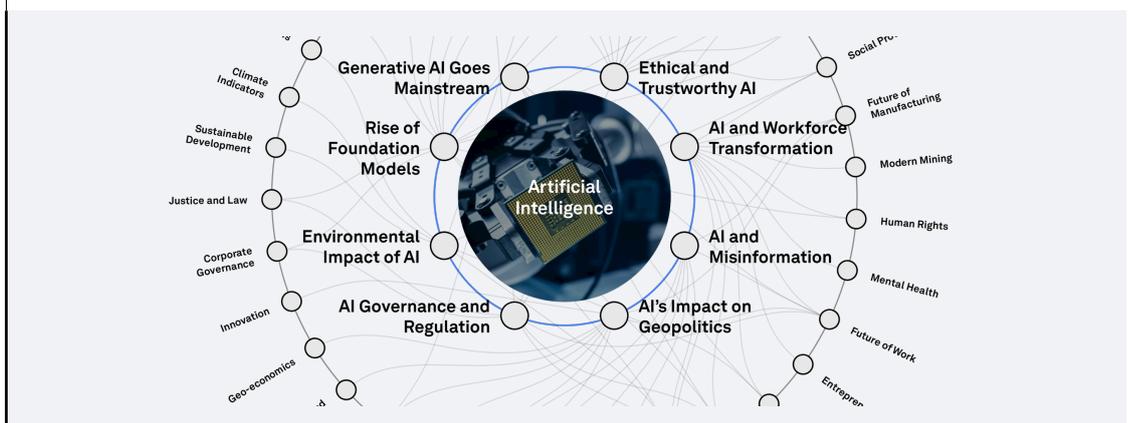
In the following sections, we give a comprehensive summary of the latest **Insights and Trends** shaping the topic, a look at potential **Forecasts and Scenarios** based on current and emerging trends, and an overview of the **Strategic Context**.

(1) Insights and trends

A synthesis of the most recent expert analysis.

– The integration of AI in various sectors is reshaping industries and governance, with significant advancements in healthcare, education, and workforce transformation, highlighting both opportunities and challenges such as biases and skills gaps.

– AI's impact on geopolitics is profound, particularly in the strategic rivalry between the United States and China, as both nations pursue artificial general intelligence, influencing global power dynamics and military competition.

– The rise of foundation models and generative AI is driving innovation in fields like healthcare and industrial applications, though challenges remain in data quality, infrastructure, and the need for comprehensive evaluation frameworks.

– AI governance and regulation are evolving to address privacy, bias, and transparency concerns, with proactive measures being taken by governments and oversight bodies to ensure accountability and secure AI operations.

Ethical and Trustworthy AI

The ongoing discourse surrounding ethical and trustworthy AI underscores the enduring issue of biases within AI systems, which are divided into input, system, and application biases. These biases present **ethical dilemmas**, including injustice and diminished accountability. Although there are initiatives aimed at reducing these biases, some persist unresolved. In the healthcare sector, IT governance is pivotal in upholding ethical standards and accountability during AI implementation, with a focus on **patient privacy** and adherence to regulations. Effective IT governance practices involve pre-deployment activities, **algorithmic validation**, and post-deployment monitoring to detect potential biases and ensure the generalizability of models. Developing comprehensive data governance frameworks is crucial for managing data privacy and ethical usage, ensuring that AI systems comply with regulatory standards and align with organizational values.

AI and Workforce Transformation

In examining the intersection of AI and workforce transformation, it becomes clear that while **AI offers significant opportunities** for automating tasks and enhancing decision-making, it also raises concerns about exacerbating social inequalities and undermining democratic institutions. The contrast between industries rich in data and those lacking it is stark; data-rich sectors are more prone to AI-driven disruption, whereas data-poor industries face challenges in digitization and adaptation. The dual impact of AI on employment is notable, with forecasts suggesting the displacement of **92 million jobs** alongside the creation of 170 million new roles by 2030, thereby emphasizing the critical issue of the skills gap. In the military domain, the focus on AI literacy is crucial for the responsible and effective deployment of AI technologies, highlighting the necessity for internal expertise in assessing these advancements.

AI's Impact on Geopolitics

The evolving landscape of artificial intelligence (AI) is exerting a profound influence on **geopolitical relations**, notably between the United States and China. Both nations are fervently pursuing **artificial general intelligence** (AGI), which is intensifying their strategic rivalry and could potentially alter the global power balance and military competition. In the realm of **cybersecurity**, AI is transforming offensive capabilities and reducing the barriers to asymmetric warfare, enabling smaller states and non-state actors to exert influence beyond conventional means. Strategic vulnerabilities are emerging, particularly in AI laboratories that depend on Chinese hardware, raising concerns about espionage and sabotage risks. The race to achieve

AGI is prioritized as a national security concern by both the U.S. and Chinese governments, with substantial investments being directed towards securing economic and military supremacy.

AI Governance and Regulation

In the realm of **AI governance** and regulation, recent advancements reveal a proactive approach by state and local governments in leveraging AI technologies to improve public services, while simultaneously tackling issues related to **privacy, bias, and transparency**. Oversight bodies, such as the AI Safety Institute, play a pivotal role in high-risk areas to ensure accountability and transparency, with Explainable AI (XAI) being essential for elucidating system decisions. As security threats in **autonomous systems** grow, governance frameworks like Zero-Trust Foundation Models are becoming increasingly necessary to secure AI operations. Furthermore, there is a pressing need for updated standardization efforts by organizations like ITU, IEEE, and 3GPP to accommodate the rapidly evolving landscape of autonomous networks. The adoption of the 'science fiction science' method is also being explored to anticipate the social and behavioral impacts of future technologies, underscoring the importance of robust methodologies in AI governance.

Rise of Foundation Models

Foundation models, including GPT-4 and OpenAI's o3, are making notable strides in healthcare and education by improving **health literacy** and empowering patients. These models are being deployed in practical settings, such as rural and isolated areas, to aid in symptom assessment and triage when professional care is not readily available. Furthermore, large language models like GPT-4, Google's Med-PaLM, and Anthropic's Claude are being leveraged to condense medical literature and create educational content for patients, showcasing their utility in healthcare. Despite their potential, there is an absence of clinical frameworks to assess the safety and suitability of these tools, underscoring the necessity for structured evaluation methods. The introduction of the **RECAP model** offers a framework for the responsible use of AI in patient-facing applications, emphasizing relevance, evidence-based content, clarity, adaptability, and precision.

Generative AI Goes Mainstream

The **industrial sector** in Germany is increasingly exploring the potential of **generative AI**, as highlighted by a study from Strategy&. This study identifies key challenges faced by mid-sized companies, including insufficient IT infrastructure, a scarcity of high-quality data, and a shortage of AI specialists. **Siemens** is positioning itself as a leader in this domain by working on the development of the first industrial foundation model for generative AI, with applications anticipated by the year's end. Additionally, the role of generative AI in advancing

scientific discoveries is gaining attention, emphasizing the importance of interdisciplinary collaboration to address the AI-training gap.

Companies making the news

In recent company news, Microsoft has unveiled its Dragon Copilot, an AI-driven healthcare tool aimed at **boosting efficiency** in medical environments by automating the note-taking process during clinical consultations. This initiative underscores Microsoft's commitment to integrating AI into healthcare, with a particular focus on optimizing administrative tasks to streamline operations and enhance the accuracy of documentation.

The recent unveiling of **OpenAI's GPT-5** model marks a **significant advancement** in AI capabilities, particularly in novel mathematics and complex medical inquiries. Despite these advancements, the model exhibits limitations, such as challenges in counting specific letters within words, generating precise maps, and executing basic arithmetic operations. Furthermore, OpenAI's CEO, Sam Altman, has highlighted the environmental implications of generative AI, emphasizing that the current trajectory of data center expansion is unsustainable without breakthroughs in **nuclear fusion technology**. This acknowledgment underscores the growing concerns regarding the resource-intensive nature of AI technologies.

Achieving a **significant milestone**, DeepMind's reasoning model has demonstrated exceptional capabilities by scoring high enough to secure a **gold medal** at the International Mathematical Olympiad. This achievement highlights DeepMind's advancements in developing AI models with sophisticated reasoning abilities, reinforcing its standing within the **AI research community**.

Dario Amodei, **CEO of Anthropic**, has raised alarms regarding AI's potential impact on the job market, suggesting that it could lead to the **elimination of up to 50%** of entry-level white-collar positions within the next one to four years. This assertion underscores the broader discourse on AI's transformative role in the workforce and its capacity to disrupt established employment structures.

In a move reflecting the **growing integration** of AI in the creative sector, Runway is contemplating a rebranding of its AI Film Festival. This development highlights a broader industry trend where AI is increasingly perceived as a **fundamental tool** in filmmaking, rather than a novel or distinct entity.

Broader trends

More broadly, **artificial intelligence** (AI) is driving transformative changes across various sectors, reshaping global governance and industry practices. A recent study by the Humanitarian Leadership Academy and Data Friendly Space reveals a significant gap between the individual use

of AI tools by humanitarian workers and the organizational readiness to govern such use effectively. While **93% of workers** utilize AI tools, only **8% of organizations** report widespread AI integration, highlighting a disconnect that agile governance could address. Additionally, 64% of respondents cite insufficient organizational AI training, with 73% identifying it as a crucial need for the next 12-24 months. This underscores the urgency for agile governance to facilitate rapid adaptation and training in AI use within humanitarian contexts.

In addition to **transforming various sectors**, AI technologies are prompting innovative strategies to address environmental challenges and combat misinformation. The imperative for multilateral solutions to mitigate **AI-driven misinformation** risks is clear, as AI plays a pivotal role in bolstering national resilience and optimizing supply chain management. This empowers governments to convert data into actionable insights, thereby enhancing decision-making processes. The **economic potential** of responsible AI is substantial, with forecasts suggesting significant financial gains for consumer industries, while also tackling the energy demands associated with AI technologies.

AI is making strides in **enhancing accessibility** by developing tools that prioritize inclusivity and support for individuals with disabilities. In 2024, a collaboration between **Be My Eyes** and OpenAI led to the creation of **smart glasses** equipped with AI pattern recognition, offering live audio descriptions for users who are blind or have low vision. Similarly, Sesame Enable has introduced technology that enables hands-free operation of mobile phones through AI gesture recognition, providing a valuable solution for individuals with limited mobility or paralysis.

In the **Global South**, the integration of AI into the workforce is significantly transforming job landscapes and service delivery. For instance, in Ethiopia, AI tools are empowering health extension workers to provide care with **greater efficiency** and precision, enabling them to undertake tasks that once demanded extensive training. This advancement is enhancing the accessibility and affordability of essential services, effectively addressing delivery gaps and credential bottlenecks, and **reshaping the future** of work in these regions.

AI is increasingly integral to modern mining operations, particularly in the exploration and extraction of **critical battery metals** essential for the **clean energy transition**. Companies like **KoBold Metals** are leveraging AI to significantly improve the efficiency of locating and extracting these vital resources. Additionally, AI is being harnessed to drive innovation in the design and discovery of new materials for solar panels, advanced electrolyzers for hydrogen production, and state-of-the-art battery storage systems.
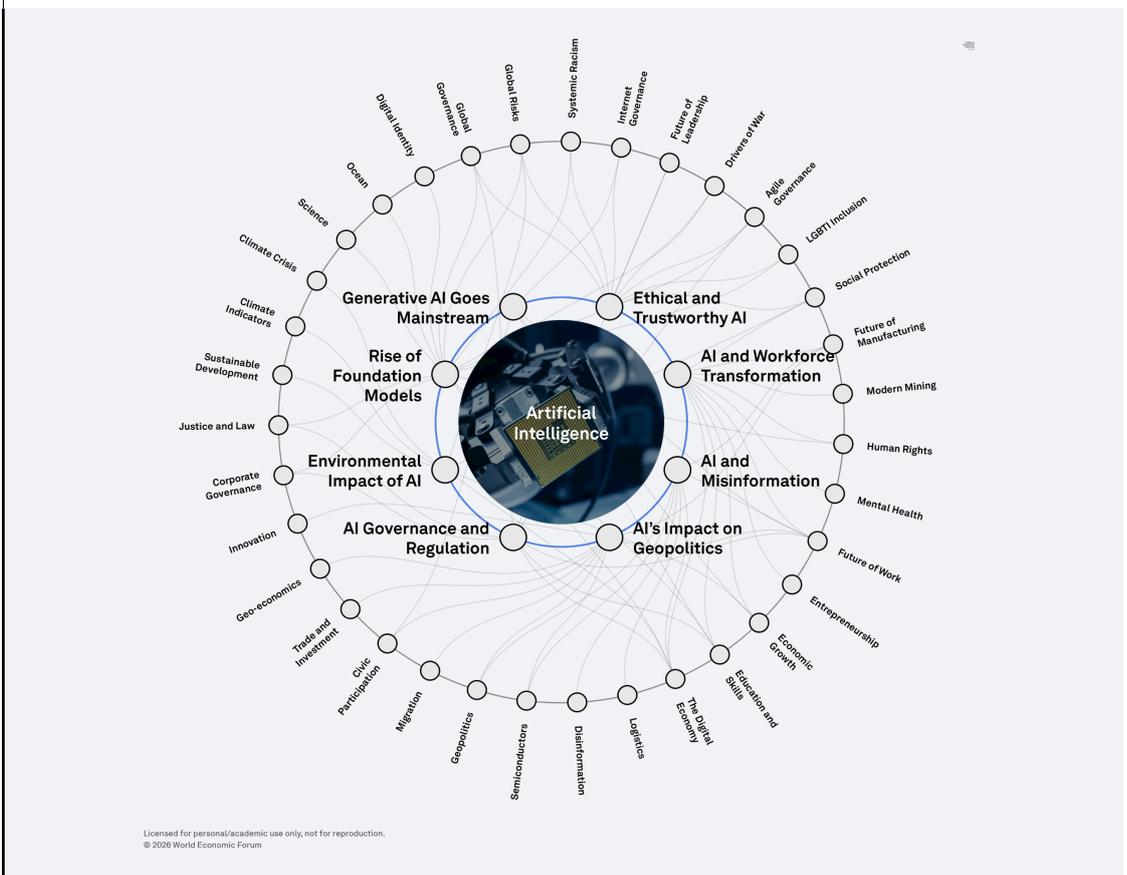
(2) Strategic context

The key issues shaping Artificial Intelligence.

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

FIGURE 1

Transformation map for Artificial Intelligence

2.1 Ethical and Trustworthy AI

Ensuring AI systems are fair and transparent, preventing bias and harm

As AI systems permeate society, ensuring they align with human values and ethical principles has become paramount. One major concern is bias: AI algorithms can unintentionally perpetuate or even exacerbate discrimination if trained on skewed data. There have been cases of facial recognition systems misidentifying people of colour at higher rates, or AI hiring tools that unfairly ranked male candidates above female ones. Even generative AI models have demonstrated bias – for instance, a test of an image-generation model found prompts for high-paying jobs mostly yielded pictures of light-skinned men, while prompts about criminals produced images of darker-skinned men. Such outcomes mirror existing social inequalities and risk

entrenching harmful biases, prompting warnings that AI could "take us backward" on equality if these issues aren't addressed. Beyond bias, ethical AI involves ensuring transparency (so that decisions can be explained), protecting privacy (AI systems often ingest personal data) and maintaining human agency (people should ultimately remain in control of critical decisions, rather than deferring blindly to algorithms). Recent work has also emphasized the importance of cultural and contextual awareness in how AI systems are trained and deployed, particularly in non-Western and underrepresented communities.

Trustworthy AI is also about safety and accountability. As AI takes on roles in high-stakes domains like healthcare, transportation or law enforcement, there is a moral imperative to prevent harm. This means rigorously testing AI for errors and instituting fail-safes – for example, an autonomous vehicle's AI must be proven safe to trust with lives. It also raises the question: who is responsible when an AI system makes a harmful mistake? Policymakers and companies are grappling with how to assign accountability and legal liability in such cases. Efforts to promote ethical AI have multiplied since 2020: international bodies like the OECD and UNESCO have issued AI ethics guidelines, and several governments and public agencies now require impact assessments or fairness audits for AI deployments, particularly in high-risk settings. AI developers are embedding ethical checkpoints in their design process, and some are voluntarily implementing AI "red teams" to probe systems for bias or misuse. In frontier model development, red-teaming and third-party audits are becoming essential components of responsible release strategies, particularly for generative and foundation models. Ultimately, building AI that is fair, transparent and aligned with human values is seen as crucial to securing public trust and ensuring that AI benefits society without undermining fundamental rights or social justice.

Related topics: Global Governance, Global Risks, Systemic Racism, Internet Governance, Future of Leadership, Drivers of War, Agile Governance, LGBTI Inclusion, Social Protection

2.2 AI and Workforce Transformation

AI is disrupting labour markets, automating tasks and requiring major workforce reskilling

AI's impact on work is profound and far-reaching, driving a major transformation of labour markets. As intelligent systems become capable of performing tasks once done by humans – from drafting documents and analysing data to customer support – many traditional roles are evolving or may disappear. Studies suggest that hundreds of millions of workers could see their jobs changed or even replaced by generative AI automation in the coming years. White-collar occupations that involve routine writing, processing or decision-making are seen as particularly exposed. At the same time, AI is also creating demand for new skills and jobs: companies need AI specialists, data engineers, prompt designers and workers who can train, manage and augment AI systems, as well as manage AI safety, governance and ethical deployment. History shows that technology-driven revolutions often eventually create more jobs than they displace, and AI could follow this pattern. In fact, most jobs are expected to be only partially automated by AI rather than completely replaced, meaning human workers will still be needed in the loop – just with different responsibilities.

This workforce transformation presents both challenges and opportunities. Workers in many fields will need to adapt by learning new skills that complement AI – for example, gaining expertise in overseeing AI outputs, or focusing on interpersonal and creative tasks that machines cannot easily replicate. Employers and governments are increasingly emphasizing reskilling and upskilling programs to help the workforce transition. There is also a growing emphasis on "human-AI collaboration" in the workplace: rather than AI replacing humans, the emerging model is one of AI tools enhancing human productivity. Still, the transition could be disruptive in the short term, potentially widening inequality between those with AI-related skills and those without. Policies such as education reform, lifelong learning incentives and social safety nets may be required to ensure that the benefits of AI-driven productivity are shared broadly and that workers can successfully navigate the changes brought by AI.

Related topics: Future of Manufacturing, Modern Mining, Human Rights, Social Protection, Mental Health, Future of Work, Entrepreneurship, Economic Growth, Education and Skills, The Digital Economy

2.3 AI and Misinformation

AI-generated deepfakes and disinformation are undermining trust in media, democratic processes and public discourse

AI's power to generate realistic text, images, audio and video has sparked alarm about a new wave of

misinformation. Artificial intelligence can produce fake news articles, fraudulent social media posts and "deepfake" images or videos that are difficult to distinguish from real content. This raises the stakes for information integrity in democracies and conflict zones alike. The World Economic Forum warned in 2024 that misinformation is the "most severe short-term risk" globally and that AI is already amplifying manipulated content in ways that could destabilize societies. Recent examples underscore the threat: in 2023, elections in Slovakia were marred by allegations of fraud after an AI-generated audio clip went viral that purportedly showed a politician discussing rigging the election. Such AI-generated deception can spread rapidly online, increasing confusion and distrust among the public.

The challenge of countering AI-driven misinformation is significant. Detection tools are being developed to flag AI-generated images and videos, but sophisticated fakes continue to outpace these defences. Social media platforms and governments are starting to respond – for instance, some jurisdictions now require that AI-generated political content be labelled, and companies are working on watermarking systems to authenticate real imagery. Nonetheless, digital forgeries are likely to become more prevalent as generative AI technology advances. Beyond outright falsehoods, the sheer volume of AI-generated text ("filler" content or spam) can pollute the information ecosystem, making it harder for people to find reliable information. In the long run, the prevalence of believable fake content could fuel public cynicism, undermining trust in legitimate news and institutions. Combating AI-empowered misinformation will require a combination of technological solutions, updated regulations and public education to ensure that the benefits of AI in media do not come at the cost of truth and social cohesion.

Related topics: Future of Work, The Digital Economy, Logistics, Disinformation, Semiconductors, Future of Manufacturing, Geopolitics

2.4 | AI's Impact on Geopolitics

Nations are leveraging AI's military applications, fuelling an arms race and raising security dilemmas

AI is increasingly viewed as a strategic asset in national security, spurring an AI arms race among major powers. Governments are investing heavily in military AI for intelligence analysis, cybersecurity, autonomous drones and decision-support systems. In the United States and China, in particular, competition for AI supremacy has intensified. By 2025, officials warned that China's rapid AI advancements had narrowed the US lead to mere months – an "AI Sputnik moment" evoking Cold War anxiety. Geopolitically, AI capabilities are seen as a game-changer that could tilt the balance of economic and military power. This has led to export controls (for example, restrictions on advanced AI chips) and efforts to build domestic AI ecosystems for defence. Other countries are also racing to acquire AI technology, raising the stakes in global alliances and rivalries.

On the battlefield, AI is already changing how wars are fought. In Ukraine, for instance, both sides have deployed AI-guided drones and targeting systems that operate with minimal human control. Militaries worldwide are developing autonomous weapons that can identify and engage targets, as well as AI tools to coordinate swarms of drones or rapidly analyse reconnaissance data. These innovations promise increased speed and efficiency in combat but also introduce new risks – such as the possibility of accidents or unintended escalation if AI systems misinterpret signals. There is growing concern over lethal autonomous weapons that could make life-or-death decisions without human oversight. Internationally, discussions on regulating military AI have begun in early 2023, over 60 countries endorsed a non-binding call for the responsible use of AI in warfare. However, no binding global treaty exists yet, and consensus is difficult as nations weigh the strategic advantages of AI. The dual civilian and military nature of many AI technologies further complicates control efforts. AI's integration into warfare and geopolitics thus presents a paradox – it could enhance security for those who master it, but also heightens global security dilemmas, making the quest for arms control and cooperative governance ever more pressing.

Related topics: Migration, Semiconductors, Future of Work, Civic Participation, Trade and Investment, Future of Manufacturing, Geopolitics, Geo-economics, Innovation

2.5 | AI Governance and Regulation

Policymakers worldwide are crafting rules for AI, balancing innovation with safety, ethics and accountability

The rapid growth of AI has prompted governments worldwide to develop new frameworks and regulations. The European Union has led the way with its Artificial Intelligence Act, approved in August 2024, as the

world's first comprehensive AI law. This landmark legislation takes a risk-based approach – banning certain high-risk AI practices outright and imposing strict requirements (like transparency and human oversight) on AI systems deemed risky. The EU's move is expected to influence standards beyond Europe's borders, shaping global norms for AI governance. In the United States, while no single federal AI law exists yet, authorities have issued guidance such as the AI Bill of Rights blueprint and the NIST AI Risk Management Framework, and have pressed AI developers to self-regulate. Several other countries are formalizing national strategies. The United Kingdom has taken a regulator-led approach, with domain-specific bodies responsible for oversight of AI in areas like healthcare, finance and online safety. Canada is advancing the Artificial Intelligence and Data Act (AIDA), while Brazil, South Korea and India are each pursuing frameworks that blend innovation incentives with risk-based safeguards. China introduced some of the earliest AI rules, requiring algorithmic transparency and even mandating that AI-generated content be clearly labelled as such. Recent Chinese regulations on "deep synthesis" (deepfakes) demand conspicuous labels on AI-generated media, and draft rules on generative AI even require training data and outputs to be "true and accurate" – a high bar that reflects authorities' focus on controlling misinformation and bias.

International coordination on AI governance is still in early stages. The Hiroshima AI Process, launched under Japan's G7 presidency in 2023, has established a shared framework for guiding the development of advanced AI systems, including the "International Code of Conduct for Organizations Developing Advanced AI Systems." The UN Secretary-General in 2023 supported the idea of an international AI watchdog agency, analogous to the IAEA for nuclear technology. Multilateral forums like the G7 and OECD are also working on common AI principles and codes of conduct. Dedicated AI safety and security institutes have been launched in countries like the United Kingdom, Singapore and Japan to evaluate and test frontier models, signalling a growing focus on technical assurance and risk monitoring. Industry and civil society are involved as well – major tech companies have convened to pledge adherence to ethical AI practices, and organizations worldwide are calling for AI systems to uphold human rights and accountability. Several leading developers have created internal safety boards, released public model reports and partnered with external evaluation groups such as the Frontier Model Forum, METR and ARC Evals to assess risks and inform responsible deployment. Balancing innovation with safety is a central challenge: policymakers aim to protect the public from AI's harms (such as discriminatory algorithms or unsafe autonomous systems) without stifling beneficial AI research and applications. As AI becomes more pervasive, the establishment of clear rules and oversight mechanisms is increasingly seen as essential to ensure this transformative technology develops in line with societal values and norms.

Related topics: Corporate Governance, Global Governance, Future of Work, Justice and Law, Future of Leadership, Agile Governance, Education and Skills, The Digital Economy

2.6 Environmental Impact of AI

The industry's growing energy and resource demands have significant carbon, water and ecological consequences

The environmental footprint of AI has become a significant concern as the technology's scale grows. Training and deploying advanced AI models require vast computing power, which translates into heavy electricity usage and carbon emissions. AI's increased energy demand for data centres could add 0.4 to 1.6 gigatonnes of carbon dioxide equivalent to the world's atmosphere annually by 2035 This demand is only expected to rise; by 2026, data centres' increasing electricity consumption could make these facilities one of the top five energy users globally. Unless energy sources shift, that means a surge in greenhouse gas emissions attributable to AI workloads.

Beyond carbon emissions, AI development has other environmental impacts. Running large server farms generates substantial heat, necessitating massive water use for cooling – which in turn can deplete local water supplies and affect ecosystems. The production of specialized hardware (like GPUs and AI chips) involves mining rare minerals and manufacturing processes with their own carbon and waste footprints. As AI models quickly become obsolete in the race for higher performance, the e-waste from discarded hardware is another growing issue. These factors have led to calls for "Green AI" practices that prioritize efficiency. Researchers are exploring techniques to reduce energy consumption (one study showed optimizing model training could cut energy use by up to 75%) and to develop algorithms that require less data and computation. Tech companies are also investing in renewable energy for data centres and improving their cooling technologies. Ensuring that the AI revolution is environmentally sustainable has become a key consideration for the industry and policymakers alike – recognizing that the long-term benefits of AI should not come at the cost of the planet's health.

Related topics: The Digital Economy, Climate Indicators, Economic Growth, Climate Crisis, Sustainable

2.7 | Rise of Foundation Models

Large AI models trained on broad datasets are transforming industries globally

Foundation models are large-scale AI systems trained on extensive and diverse data, enabling them to perform a wide range of content creation tasks and modalities. The concept rose to prominence around 2021, marking a shift from narrow AI to systems capable of generalization across domains. Unlike earlier models built for specific tasks, foundation models can be adapted for language understanding, code generation, image processing and more. Leading examples include OpenAI's GPT series (from GPT-3 with 175 billion parameters in 2020 to GPT-4, with up to 1.76 trillion parameters across pathways, released in March 2023), Google DeepMind's Gemini and Anthropic's Claude models. These models underpin today's generative AI boom, allowing organizations to build applications using pre-trained systems rather than developing models from scratch. Their capabilities are accelerating AI adoption in healthcare, law, finance and education, industries usually known as late adopters. A growing open-source ecosystem–featuring Meta's LLaMA models (LLaMA 4, released in April 2025, ranges from 1 billion to 2 trillion parameters) and collaborative efforts like BLOOM–is democratizing access beyond major tech firms.

However, the concentration of capabilities in a few well-resourced players raises concerns about power asymmetry, data governance and compute access. Training and deploying foundation models remain resource-intensive, limiting participation to those with significant infrastructure. Additionally, risks such as model bias, data opacity and environmental impact persist, leading to increased calls for transparency, open science practices and regulatory oversight. Still, foundation models have become the cornerstone of modern AI, enabling rapid development of fine-tuned or domain-specific systems for a wide range of societal and industrial challenges.

Related topics: Science, Systemic Racism, Agile Governance, Drivers of War, The Digital Economy, Human Rights, Justice and Law, Corporate Governance, Global Risks, Global Governance, Education and Skills, Ocean, LGBTI Inclusion, Digital Identity

2.8 | Generative AI Goes Mainstream

AI models that generate text and media are transforming creativity while raising new challenges

Generative AI refers to algorithms that can create novel content – from writing human-like text to producing images, music or even software code – based on their training data. While AI has steadily advanced for years, generative AI exploded into public awareness in 2022-2023 through user-friendly tools. Notably, OpenAI's chatbot ChatGPT reached 100 million users just two months after its launch, a record adoption rate. Everyday people and businesses alike are experimenting with applications such as AI assistants that draft emails and reports, art generators and coding aids. These models' ability to have conversations or produce creative work on demand has generated both excitement and debate about their role in society.

The economic and social impact of generative AI is potentially massive. A September 2024 white paper by the World Economic Forum estimated that generative AI technologies could add trillions of dollars to the global economy in coming years. Productivity gains are expected as AI handles routine drafting, data analysis and customer service inquiries, allowing workers to focus on higher-value tasks. Entire industries, from media and marketing to law and software development, are being reshaped by generative AI's capabilities. New services are emerging that use these models to personalize education, accelerate scientific research and assist creative design. Yet the rise of generative AI also presents new challenges. These systems sometimes produce incorrect or fabricated information ("AI hallucinations"), raising reliability concerns. They can also reflect biases present in training data or create harmful content if misused. Questions of copyright and intellectual property have arisen as AI models remix existing data to generate outputs. In response, policymakers and AI developers are seeking guardrails – from better model transparency to content labelling – to ensure generative AI is used responsibly. Even as generative AI opens exciting opportunities for innovation and efficiency, it demands careful oversight to manage its risks.

Related topics: Economic Growth, Internet Governance, Civic Participation, Future of Work, Education and Skills

③ Further exploration

Explore the latest World Economic Forum reports related to Artificial Intelligence.
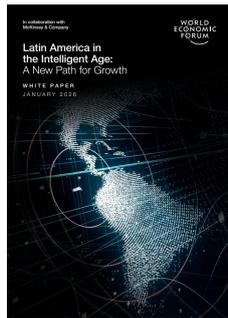
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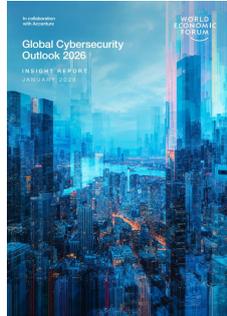

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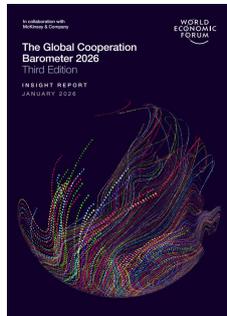Proof over Promise: Insights on Real-World AI Adoption from 2025 MINDS Organizations

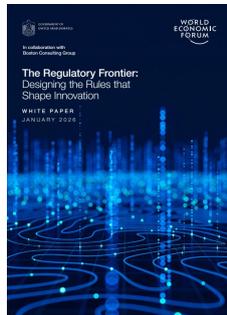**16 January 2026**

Chief Economists' Outlook: January 2026

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08 January 2026

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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 Artificial Intelligence, 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 Artificial Intelligence 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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