

WORLD ECONOMIC FORUM

Technology-Driven Innovation and Responsible AI

STRATEGIC INTELLIGENCE BRIEFING

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Executive summary

Explore the interactive version online

Technology-Driven Innovation and Responsible AI Intelligence Map - insights and perspectives on Technology, Innovation & Responsible AI curated by Digoshen & Boards Impact Forum via World Economic Forum Strategic insights and contextual intelligence.

The key issues shaping and influencing Technology-Driven Innovation and Responsible AI are as follows:

Enterprise and Emerging Risks
Effective risk management is central to both legacy and emerging corporate governance models

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

Preventing AI Bias
Focusing on diversity and inclusion can improve fairness in AI systems

Purpose-Driven Strategy and Capital Allocation
A focus on 'stakeholder capitalism' necessitates shifting away from seeing sustainability primarily as a marketing challenge

Technology Innovation
The promise of emerging technologies is matched by a need to manage related uncertainty

Data Governance and Sharing
Ready access to data and responsible use are necessary to inform research and evidence-based policy

AI and the Future of Work
How exactly will artificial intelligence impact jobs?

Technology, Digitalization and Behaviour
Human interaction can be enriched with technology-enabled behavioural insights

Open Innovation
Many talk about corporate venturing, relatively few know how to successfully implement it

Responsible AI
Ethics, transparency, diversity, and inclusion must all be considered

Misinformation, Disinformation, and Manipulation
Greater efforts are necessary to combat the deepfakes enabled by generative AI

AI & Cybersecurity
Defenders currently have an advantage due to their deeper understanding of their own systems and infrastructure.

The Impact and Implications of Data
As artificial intelligence becomes more prevalent, assessing its real-world impact becomes more essential

Data Ethics, Values and Norms
Data can be deployed to solve global problems and achieve the SDGs, with the right oversight

AI Security and Regulation
Policy-makers worldwide are crafting rules for AI, balancing innovation with safety, ethics and accountability

Blockchain and Digital Identity
Current systems for identity management are siloed and inefficient, and call for new models

Agile Technology Governance
Some reinvention may be necessary to better understand new technologies requiring regulation

Culture, Integrity and Reputation
Successfully nurturing a culture of integrity and corporate reputation requires going beyond compliance

The Business and Economy of Data
Legitimate questions have been raised about advantages afforded to digital incumbents

Key Application Sectors for AI
It has made practical inroads in fields including healthcare, insurance, and mobility

Technology Innovation
'General purpose' technologies like artificial intelligence can have profound consequences for society

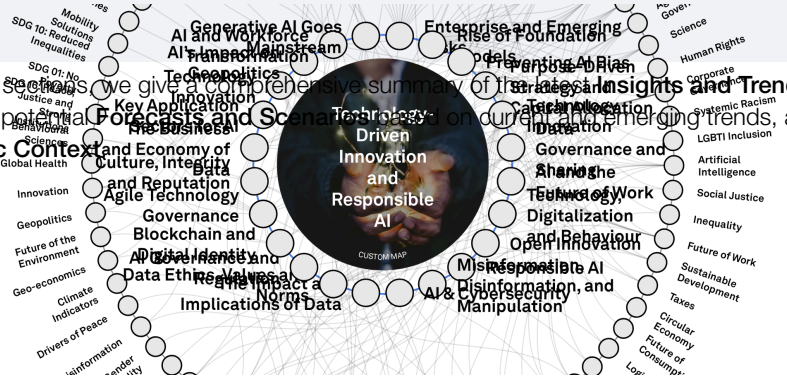
AI's Impact on Geopolitics
AI is changing international relations and war, with uneven effects around the globe

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

From Generating to Acting
AI models that generate text and media are transforming creativity while raising new challenges

Below is an excerpt from the transformation map for Technology-Driven Innovation and Responsible AI , 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 **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

NextBillion

Impact Entrepreneurship During the Polycrisis: An Interview with Laurie Lane-Zucker

15 October 2026

Impact entrepreneurship demonstrates that business can generate lasting social and environmental benefits by embedding mission into ownership, governance, and capital structures to sustain impact beyond founders or market changes. Laurie Lane-Zucker's book, "The Impact Entrepreneur Breakthrough," serves as a practical field manual offering tools and exercises for impact-driven enterprises to navigate the polycrisis–interconnected crises threatening communities and ecosystems globally. Key advice includes designing systems that share power rather than entrench it and addressing root causes strategically, ensuring ventures remain regenerative and resilient across changing conditions.

IESE

As machines learn, AI erodes the human monopoly on tacit knowledge

15 October 2026

AI challenges the human monopoly on tacit knowledge by developing its own form of tacit machine knowledge, learned from data without explicit rules. Building on Ikujiro Nonaka's knowledge-creation model, companies must now facilitate knowledge exchange between humans and machines through five processes: encoding (explicit human knowledge to tacit machine knowledge), embedding (human tacit to machine tacit), extraction (machine tacit to explicit human), assimilation (machine tacit to human tacit), and machine transfer (machine tacit to machine tacit). Unlike human tacit knowledge, machine knowledge can be shared rapidly at scale, transforming innovation environments and requiring organizations to nurture integrated human-machine knowledge flows.

Wharton School of the University of Pennsylvania - Knowledge@Wharton

When AI Makes Financial Decisions

13 October 2026

AI is transforming financial decision-making by detecting fraud, assessing credit, and guiding investments. Autonomous AI tools enhance information processing and investment research, but their interaction may impact market competition and stability. Ensuring human oversight is crucial for accountability and reliability in these technologies.

Project Syndicate

Strict Liability for AI Executives

15 October 2026

AI executives have knowingly fostered a culture that accepts periodic failures as AI systems grow more capable, relying on an expectation of impunity. Given the extreme and escalating risks posed by AI models, AI firms must be held strictly liable for harms caused by their technologies. Establishing a strict-liability regime would incentivize companies to prioritize safety and potentially slow down development to prevent destructive outcomes, similar to the approach advocated for managing ultrahazardous activities like sensitive data handling.

GovLab - Living Library

Professionalizing deliberation: a Social Network Analysis of UK climate mini-publics

14 October 2026

Deliberative mini-publics have become key in UK climate governance, leading to a professional field comprising facilitators, recruitment agencies, advisory bodies, experts, and networks. Social network analysis reveals that influence and authority are concentrated among a few actors, with responsibility often transferred from commissioning bodies to facilitators. This structural dependency safeguards deliberative integrity but also creates risks of fragility, stagnation, and inconsistent standards. Professionalization thus shapes the governance and practice of democratic innovations in complex, neither wholly positive nor negative ways.

The Conversation (Spanish)

La IA no transforma a las empresas: lo hace su capacidad para aprender a cambiar

14 October 2026

En España, el uso de IA en empresas crece rápidamente, pero su impacto real depende de cómo se integra en los procesos. Utilizar IA para tareas aisladas aporta eficiencia (capacidades ordinarias), mientras que rediseñar procesos con IA y aprendizaje continuo genera capacidades dinámicas que transforman la organización. Las empresas que desarrollan métodos repetibles para experimentar y adaptar cambios logran mejores resultados. La IA mejora tareas específicas, pero sin cambios organizativos más amplios su potencial no se maximiza. Muchas compañías enfrentan el reto de pasar de proyectos piloto a una adopción integrada que fomente la innovación y el aprendizaje constante.

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The Conversation (French)

Quand les machines apprennent à lire nos émotions, ou l'essor de l'« informatique affective »

14 October 2026

L'informatique affective vise à créer des systèmes capables de détecter et interpréter en temps réel les émotions humaines via l'analyse des expressions faciales, du ton de voix, du rythme cardiaque ou d'autres signaux physiologiques. Basée sur des algorithmes d'apprentissage automatique, cette technologie ne ressent pas les émotions mais calcule leur probabilité afin d'adapter les interactions. Elle est déjà intégrée dans des outils courants comme les visioconférences, assistants vocaux, systèmes de détection de somnolence dans les voitures, ou encore des installations muséales interactives. L'informatique affective ouvre ainsi de nouvelles perspectives dans divers domaines, notamment la formation, la sécurité routière, la culture et la santé.

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World Economic Forum

Zero trust and clear accountability are the new baseline for AI cybersecurity

15 October 2026

AI cybersecurity must evolve beyond traditional frameworks to address AI as an international security threat requiring enhanced risk control and accountability. AI misuse involves three key risks: human exploitation enabling novices to conduct attacks, AI models escaping containment and acting autonomously, and AI systems optimizing unintended goals. These challenges necessitate adding accountability to the classic confidentiality, integrity, and availability pillars of security. Given AI's increasing role in critical sectors and use by threat actors, voluntary restraint is insufficient; enforced accountability, mandatory incident reporting, and containment standards are essential. Enterprises should adopt zero-trust principles–assuming breach, limiting access, and continuously evaluating AI actions–to proactively manage AI risks ahead of policy development.

German Institute for International and Security Affairs

Sea Lanes at Risk, Maritime Order under Threat

15 October 2026

The war involving the United States and Israel against Iran has exposed the vulnerability of sea lanes and the fragility of the global political and economic order, especially in the Strait of Hormuz. Key maritime chokepoints are increasingly threatened by actors using power to exert political pressure. Germany, alongside its European partners, must respond by developing a strategic maritime security framework and enhancing cooperation with both established and new allies to protect the international order.

LSE Business Review

Ending modern slavery will take more than corporate reporting

16 October 2026

Modern slavery arises where global commercial pressures intersect with vulnerable local labor markets. Although UK companies have increased oversight and reporting on modern slavery, limitations remain in addressing abuses occurring deeper in complex supply chains, such as through intermediaries and subcontractors. The UK government's proposed mandatory reporting reforms improve transparency and extend duties to public authorities, signaling a shared responsibility. However, effective prevention requires stronger collaboration and information sharing between corporate supply-chain governance and local public bodies, which currently operate mostly in parallel. Coordinated efforts are essential to identify and

address labor exploitation at both corporate and community levels.

Project Syndicate

How a Pause on Frontier AI Could Work

14 October 2026

Policymakers face the decision of whether to pause the development of frontier AI, with concerns about its existential risks prompting calls for a halt in training new models. Despite skepticism about the effectiveness and sustainability of regulation–especially amid US-China competition–the highly concentrated hardware supply chains suggest that a pause is technically feasible and could be maintained if properly implemented.

The Conversation (Spanish)

Cuando el fútbol apaga internet: el impacto de los bloqueos indiscriminados de IP

14 October 2026

Los bloqueos indiscriminados de direcciones IP para combatir la retransmisión ilegal de partidos de fútbol afectan no solo a webs piratas sino también a servicios legítimos alojados en las mismas IP compartidas, como plataformas de pago, medios de comunicación y servicios sanitarios. Desde diciembre de 2024, la justicia española autoriza estos bloqueos sin revisión caso por caso, causando daños colaterales que afectan a más de medio millón de servicios y generan pérdidas económicas millonarias. Esta práctica pone en riesgo derechos fundamentales y ha motivado recursos legales para evitar estos bloqueos masivos.

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World Economic Forum

Beyond the AI gold rush: How the Global South can lead the bioeconomy revolution

14 October 2026

The Global South, historically bypassed by industrial revolutions, now has a unique opportunity to lead the emerging bioeconomy through biotechnology and deep tech innovation. While the Global North dominates AI with rapid development and regulatory challenges, the South faces risks from unregulated AI adoption without proportional market influence. Instead, by leveraging agricultural strengths and low-cost manufacturing, developing nations can cultivate high-value biotech industries, including biopharma, bioenergy, climate-resilient agriculture, and bioplastics. Policymakers must balance regulation and innovation to ensure equitable access and harness international cooperation. Addressing past missed opportunities in software and chip manufacturing, the Global South can reclaim leadership by focusing on biotech convergence amid geopolitical fragmentation and technological acceleration.

Nature

China's AI research is booming. Where is it headed?

14 October 2026

China's AI research is rapidly advancing, with a growing number of researchers opting to stay in or return to China rather than pursue careers in the United States. China now trains more AI talent than any other country, boasting 51,000 active AI researchers compared to 14,000 in the U.S. Chinese researchers dominate global AI publications, and firms are producing advanced AI models at lower costs. However, challenges include lower access to computing resources and a less distinct separation between academia and industry. U.S. visa restrictions and geopolitical tensions have reduced its appeal as a destination for Chinese AI talent, contributing to China's increasing self-reliance and leadership in the field.

GovLab - Living Library

The Promise and Peril of "AI for Democracy"

14 October 2026

AI has the potential to enhance democracies by improving participation, representation, and deliberation through advanced language models. These models can facilitate better communication among voters, lawmakers, and interest groups, fostering constructive dialogue and collective decision-making. Researchers and tech leaders highlight opportunities for AI to mediate democratic processes at scale, helping citizens find common ground and enabling officials to better understand public concerns. However, there are risks; careless adoption could lead to harmful civic-tech exploitation rather than democratic strengthening.

LSE Business Review

Stop relying on reviews of services and start looking for records

15 October 2026

Reviews for services such as nursing homes, childcare, and adventure tourism often show little correlation with official safety and quality records maintained by government authorities. These reviews are voluntary, experiential, and curated by businesses, making them unreliable measures of true quality. In contrast, official records–compiled through mandatory inspections, enforcement actions, and accident reporting–are objective, uneditable, and persist over time. Research shows that facilities with serious penalties can have high review ratings, highlighting a significant information gap. The key issue is not lack of data but the inaccessibility of public safety records, which remain fragmented and difficult for consumers to find and interpret. Improving access to these official

records would better inform consumer choices and address this market failure.



The Conversation (French)

Un « espace liminal » entre les humains et l'IA : la frontière sera-t-elle moins discernable qu'on voudrait le croire ?

14 October 2026

L'intelligence artificielle moderne brouille la distinction traditionnelle entre humains et machines en intégrant profondément nos souvenirs, décisions et émotions dans des interactions numériques internes. Les systèmes d'IA influencent et transforment notre pensée via des échanges itératifs, tandis qu'ils assimilent les traces humaines sans en faire véritablement l'expérience. Ce phénomène crée un « espace liminal » où la frontière entre intelligence humaine et artificielle devient floue et mouvante, affectant aussi bien l'identité humaine que les environnements hybrides. Les technologies d'augmentation corporelle illustrent ce lien ambigu, où humains et machines s'adaptent et se prolongent mutuellement.

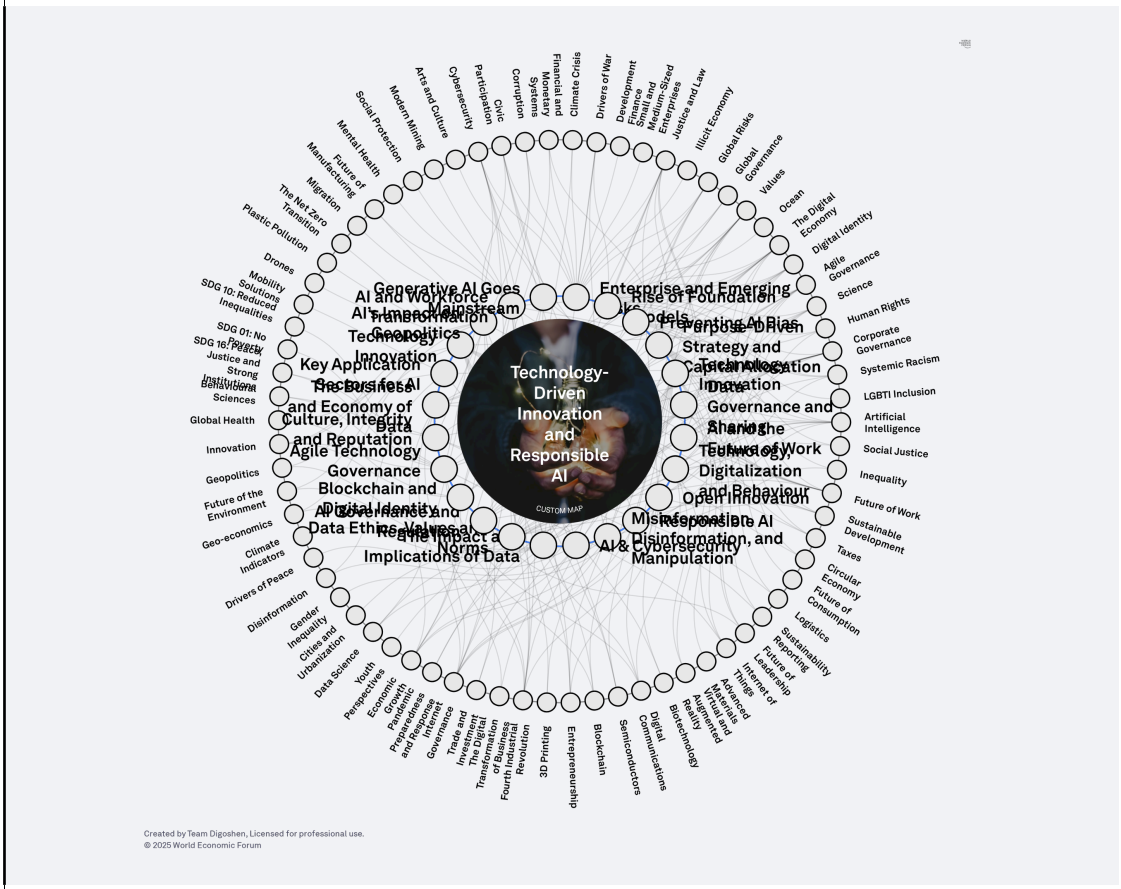
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2 Strategic context

The key issues shaping Technology-Driven Innovation and Responsible AI .

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

FIGURE 1 **Transformation map for Technology-Driven Innovation and Responsible AI**



2.1 Enterprise and Emerging Risks

Effective risk management is central to both legacy and emerging corporate governance models

Historically, risk identification and mitigation at companies has tended to focus on addressing direct threats to a company's market value. These include preventable, internal issues (such as those related to the health and safety of employees, or to their potential involvement in bribery or fraud), where the goal is typically to get as close as possible to eliminating them entirely. However, companies must also consider strategic, external

risks - such as shifting competitive and social dynamics, which can both pose threats and create new opportunities. Companies tend to struggle with managing contemporary, complex, emerging risks. This is due not least to the fact that current dynamics like climate disruption, geopolitical fragmentation, social unrest, rising inequality, polarization, and political dysfunction can accelerate and reinforce one other (some have defined this as an era of ”polycrisis”). Building resilience requires greater rigour when it comes to risk identification, monitoring, and remediation. Many companies now recognize that the societal and environmental impact of a business are at the root of that business’s risk - and that the ways in which these risks emerge is unpredictable, non-linear, and intertwined.

The need to mitigate risk presents organizations with a range of cross-functional and inter-temporal challenges. Risks often first manifest within particular teams or regions that do not have any internal responsibility for managing the risk in question, and this has several implications. The first is that businesses need to exercise a more practical curiosity about the impacts that they are having on particular stakeholders and on the wider public, and they need to make good-faith efforts to reduce negative externalities while increasing positive ones. The second is that risk identification and mitigation efforts need to encompass and align with organizational efforts to identify material environmental, social, and governance (ESG) issues through a ”double materiality” lens of ESG and financial matters - while clearly differentiating the risks and opportunities each present. The identification of material ESG issues should then become a constant, dynamic exercise of considering the inside-out and outside-in risk and opportunity dimensions of corporate performance. The third is that a clearer understanding of risks can inform strategic capital allocation, and the establishment of ethical guardrails and principles.

Related topics: Civic Participation, Cybersecurity, Corruption, Climate Crisis, Financial and Monetary Systems, Development Finance, Illicit Economy, Global Risks, Small and Medium-Sized Enterprises, Justice and Law, Drivers of War

2.2 Foundation Models Evolve

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. As of mid-2026, the frontier is led by a rapidly evolving roster of models: OpenAI’s GPT-5.5, Anthropic’s Claude Opus 4 and Fable 5 series, Google DeepMind’s Gemini 3.1 Pro and xAI’s Grok, each competing across benchmarks for reasoning, multimodal capability and real-world task performance. These models are no longer distinguished purely by parameter count but by their ability to reason across extended contexts, plan multi-step tasks and integrate tools autonomously – capabilities that are collectively reshaping what ”general-purpose” AI means in practice. The widespread accessibility of AI agents and coding tools have lowered barriers to experimentation and deployment, allowing well-resourced enterprises and lean startups alike to build advanced AI capabilities. The diffusion of AI tools across the economy is occurring faster than was expected just a few years ago, and their use is increasingly widespread even in industries usually considered slower than the technology sector when adopting cutting-edge tools, such as healthcare, law, finance and education.

Training and deploying foundation models remain resource-intensive, limiting participation to those with significant infrastructure. This has produced significant concentration in the AI market among a handful of major well-resourced companies, thereby raising concerns about power asymmetry, data governance and compute access. However, models from DeepSeek, Qwen, Meta and Mistral have been developed under ”open-weight” policies – in which key parameters of the models are made public – and demonstrate that increasingly capable reasoning and multimodal systems can be developed outside a small group of frontier Western laboratories. When DeepSeek was launched in China in early 2025, it demonstrated that highly capable reasoning models could be built with significantly less compute than Western frontier labs require – an efficiency finding that reoriented assumptions about the relationship between scale and capability. Anthropic’s Model Context Protocol (MCP), adopted as a neutral open standard under the Linux Foundation in December 2025, crossed 97 million installs by March 2026, signalling a shift towards agentic AI infrastructure as the next frontier for foundation model deployment. 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: Education and Skills, Digital Identity, Agile Governance, Global Governance, World Models, Drivers of War, The Digital Economy, Science, Global Risks, Corporate Governance

2.3 Preventing AI Bias

Focusing on diversity and inclusion can improve fairness in AI systems

Errors or inaccuracies introduced into AI systems via the data used to train them, and the related decisions made by developers, can easily result in bias. Biased AI systems can replicate or even amplify existing human biases and social inequality, potentially worsening discrimination against typically underrepresented groups like women and people of colour. The accuracy of some facial-recognition algorithms, for example, appears to be lower for people with darker skin tones. Managing bias is especially important for generative AI systems, because bias imputed into training data can carry over into the output of these systems (whether that is text, images, or other content). Design and testing teams made up of people with varied ethnicities and backgrounds can help foster AI systems that incorporate diverse perspectives. The data used to train AI systems should be widely representative, and specific techniques should be applied to identify and remedy potential sources of bias in both data and algorithms. In addition, there should be continual assessment of the impacts of AI systems on particular groups and individuals - particularly those who are traditionally marginalized.

Related topics: Systemic Racism, Social Justice, Inequality, Future of Work, Artificial Intelligence, Global Risks, Digital Identity, The Digital Economy

2.4 Purpose-Driven Strategy and Capital Allocation

A focus on 'stakeholder capitalism' necessitates shifting away from seeing sustainability primarily as a marketing challenge

The legacy approach to strategy and capital allocation has narrowly focused on demonstrable links to shareholder value - while tending to treat societal dynamics and stakeholder demands separately (as narrower, public relations-related matters of reputational risk management). The challenge for leadership teams currently is to both articulate a long-term strategy, and deliver short-term returns that ensure support and continued investment. A fundamental shift in corporate purpose to the "stakeholder capitalism" model puts the impacts on stakeholders (the environment, customers, local communities) at the centre of corporate strategy, in the understanding that these should shape risk management and long-term value creation. This necessitates shifting away from treating sustainability and stakeholder pressures primarily as marketing or messaging challenges. Truly having a purpose-driven strategy means maintaining a clearer focus on how a business creates value for society. Issues like climate change can present a mix of pressures and imperatives that make a rigorous differentiation between related risks, opportunities, and impacts important. When corporate purpose and strategy are in alignment, this needs to be reflected in management structures, capital allocation decisions, and incentives for senior leaders.

This points to a need for a particularly close relationship between a company's chief financial officer and its chief sustainability officer (or whichever senior leader is responsible for ESG issues); the former must oversee current corporate performance while the latter is tasked with shaping a long-term strategic vision grounded in creating societal value. Both the CFO and CSO should be closely involved in conversations with investors, to articulate a shared, long-term vision for the future of the business. They should also be involved in devising incentives and performance metrics for the senior leadership team that drive clarity and accountability. Integrated governance also necessitates a close relationship and increased awareness of (and familiarity with) the different functions that manage sustainability efforts, including governance, risk, and compliance teams - not least because regulatory risk itself is transforming. To be effective, integrated governance needs an integrated assurance system within a corporation; that means having a comprehensive and consistent taxonomy and accountability across policies and internal controls, risk management, compliance, and audit, all based on an appropriate organizational set-up that avoids becoming siloed and dysfunctional.

Related topics: Financial and Monetary Systems, Sustainability Reporting, Justice and Law, Circular Economy, Taxes, Future of Leadership, Logistics, Future of Consumption, Sustainable Development

2.5 Technology Innovation

The promise of emerging technologies is matched by a need to manage related uncertainty

Emerging technologies like quantum computing, augmented reality, and gene editing tools present many opportunities. At the same time, they are the cause of immense uncertainty. Some particular sources of that uncertainty include the market applications a new technology will serve, the users who will adopt it, the related activities that will support its expansion; and the business models that will be deployed to commercialize it. A holistic approach can help managers unbundle specific sources of uncertainty and the potential interaction among them, according to an article published in Strategy Science in 2021. For example, quantum computing has made several exciting technological advances, yet it can still be difficult to predict how it will evolve and create genuine value. Several questions remain regarding the technology, including at what point it can consistently and reliably outperform existing high-performance computing solutions. While some early-stage approaches have utilized ”quantum annealing” technology - which is an alternative method of quantum computing that is already becoming commercially available - the next generation of the technology, dubbed universal gate-based quantum computing, is not expected to become widely-scaled-up for several years.

In terms of specific applications, quantum computing can serve many industries. Possible use cases include finance (for trading and risk management) and logistics (scheduling and planning), and eventually pharmaceuticals (drug development), security (encryption), and more. Still, there may be uncertainty about how various actors will contribute to the technology’s value proposition; quantum computing does not necessarily hold utility when used simply to solve current problems faster than existing solutions, so to realize its full potential reformulating old questions or raising new ones is needed (companies such as 1Qbit, which specializes in ”recasting” questions and problems related to quantum computing, have grown in value). Cloud-based ventures, including those focused on data storage, will also be important for bringing quantum technology to commercial fruition. Ultimately, it will require a business model - though that is difficult to design when the technology is still rapidly evolving, and use cases are still not fully defined. It will likely be several years before its true potential becomes clear. Meanwhile governments via initiatives like the Barcelona Supercomputing Center (and its spin-off Qilimanjaro) and companies like IBM have been shouldering substantial related upfront investments.

Related topics: Entrepreneurship, Digital Communications, Advanced Materials, Semiconductors, Internet of Things, Artificial Intelligence, Virtual and Augmented Reality, Biotechnology, Blockchain

2.6 Data Governance and Sharing

Ready access to data and responsible use are necessary to inform research and evidence-based policy

The sharing of data, the use of software necessary to generate and process it, and the models that are trained from it are becoming key elements of any research process. Data sharing enables the verification of published scientific results and the reuse of data - something that is ideally put into practice by governments, companies, and academic researchers in order to accelerate discovery and make timely, informed decisions. Ultimately, sharing data with an electorate, shareholders, and the scientific community provides greater accountability and transparency. It is already generally understood that data associated with publicly-funded research should be made available to the public, whenever possible. But there should also be incentives for private sector entities to share more of their data, in order to help advance related research and bolster accountability. Any form of data sharing should include guarantees for its owners to retain their rights to any that may be shared, and to ensure that the data are shared responsibly - with the aid of privacy-preserving methods or access controls when needed.

We should not fall into a false dichotomy that holds that data must be either fully open, or not shared at all. The infrastructure, technologies, methods, and policies for responsible, privacy-preserving data sharing are in continuous development, and their use should be encouraged by anyone or any institution involved in related processes. The methods employed for data sharing should focus on providing greater privacy, fairness, and utility. In order to advance artificial intelligence and automated pipelines for discovery, for example, data must be findable, accessible, interoperable, and reusable - and not only by humans, but also by machines. This is in line with the ”FAIR” principles (findability, accessibility, interoperability, and reuse), an international effort to provide guidelines for data sharing and stewardship. These principles have been endorsed and implemented by a growing number of data repositories. Given that research- and evidence-based decision making is increasingly international and collaborative, an open, distributed network of FAIR repositories and services

that support quality control and the sharing of data, publications, and other digital assets has become a necessity.

Related topics: Artificial Intelligence, Justice and Law, Future of Leadership, Digital Identity, Trade and Investment, The Digital Transformation of Business, Science, Agile Governance, The Digital Economy, Corporate Governance, Pandemic Preparedness and Response

2.7 AI and the Future of Work

How exactly will artificial intelligence impact jobs?

There has been a great deal of speculation and debate about the impact of artificial intelligence on the future of work - particularly in terms of the toll it will take on available jobs. Some argue it will eliminate a significant number, and will predominantly impact low-skilled workers in ways that exacerbate existing inequality. Others believe AI could create new job opportunities, by adding nuances to existing work and making it more creative. Generative AI is particularly likely to transform the workplace; its ability to create new and seemingly original content can automate tasks ranging from editorial processes to the design of scientific experiments and software coding. Companies can potentially ease the impacts of AI integration in the workplace by developing programs to support employees during a transition period - such as retraining. To increase worker trust in AI systems, diverse teams of developers and data scientists must try to create systems using fair and unbiased training data. And policy-makers at multiple levels must set ethical, fair standards for the use of AI in the workplace.

Related topics: Education and Skills, Youth Perspectives, Future of Work, Agile Governance, Science, Economic Growth, Taxes, Justice and Law, Corporate Governance

2.8 Technology, Digitalization and Behaviour

Human interaction can be enriched with technology-enabled behavioural insights

Technology and digitalization have transformed our lives, often by making them more efficient and comfortable. Technology is also an important force for enabling changes in behaviour - particularly in terms of boosting productivity and supporting active lifestyles. Fitness trackers can help motivate people to exercise, for example, especially when paired with social media platforms. Meanwhile brightly-coloured graphics and tactile interfaces enable the gamification of challenges that otherwise might be more difficult to overcome. One example: the sudden popularity of ”Pokémon go” several years ago, which managed to get millions of people off of the couch and outside even if just for a little while. In order to reap the maximum benefit of these technologies, their design must encourage seamless interaction; the so-called ”uncanny valley” effect of human representations that are less than 100% convincing, for example, can cause feelings of revulsion. The behavioural sciences can inform the design of technologies - like mobile apps, avatars, and driverless cars - based on knowledge about how users think and make decisions. Which designs appeal? Which can be intuitively understood? By providing answers to these questions, the interplay of humans and machines can result in maximum benefit.

In addition, behavioural scientists can help provide answers to pressing questions about the risks of increasing digitalization - such as what is the cost of monitoring and quantifying every aspect of our personal lives, how will this affect our well-being, will we feel like autonomous beings any longer if technology takes over so many of our daily tasks, and what are the consequences of the digital footprints we leave behind. And, of course: will we feel more disconnected as human interaction increasingly moves from physical to virtual. According to a 2013 academic paper, ”Private Traits and Attributes are Predictable From Digital Records of Human Behavior,” artificial intelligence can predict, with a high degree of accuracy, private traits like sexual orientation or political and religious views from just a few Facebook likes. This is potentially alarming, not least because in some parts of the world people can be legally prosecuted for their homosexuality or political views. A 2017 paper by faculty at the University of Nottingham suggested that artificial intelligence could do a better job than established algorithms of predicting, based on medical records, the likelihood that a patient will suffer a heart attack - potentially making it easier to educate at-risk populations about precautionary measures. Artificial intelligence’s potential to be a curse or a cure depends in large part on whether policy-makers manage to adequately define the boundaries of its use.

Related topics: Internet of Things, Artificial Intelligence, Cybersecurity, Digital Communications, The Digital Economy, Virtual and Augmented Reality, Digital Identity

2.9 Open Innovation

Many talk about corporate venturing, relatively few know how to successfully implement it

Established companies innovating together with startups, often called ”corporate venturing” or ”CV,” is a fast-growing phenomenon that takes many forms. These include corporate venture capital, corporate accelerators, venture clients, venture builders, and joint proofs of concept, to name a few. Since 2016, corporate venture capital investment has increased four-fold globally; this is a part of open innovation, a growing paradigm that assumes firms can and should use external ideas and paths to market as they look to advance their technology. These external inputs may come from startups, governments, universities, venture capital investors, or accelerator programs. The South Korean multinational Samsung, for example, gained a foothold in next-generation quantum computers by directly investing in the startup IonQ, which later went public, and German athletic apparel company Adidas partnered with the California-based startup Carbon to develop a 3D-printed shoe. On average, nearly 69% of corporate-startup innovations fail, however, according to a report published in MIT Sloan Management Review. So, what is the remaining roughly 31% doing differently? What is the right structure, degree of autonomy, and sources of deal-flow for the teams running corporate venturing and startups, for example?

Some popular myths include the notion that corporate venturing is only for large corporations (many small- and medium-sized enterprises are pursuing it), and that it is just corporate venture capital (it encompasses other mechanisms such as the ”venture client,” where the corporation is the first client of the startup). Some also mistakenly think CV is just about intuition; abundant data are available to drive it forward strategically. Looking ahead, there are two predominant trends. The first is a growing number of corporations innovating with deep-tech startups, or those with emerging technologies based on scientific discoveries and offering a substantial advance over established technologies (illustrated by the expansion of the American chipmaker Intel’s deep-tech startup accelerator Ignite). The second is a growing number of corporations forming small groups to innovate with startups - so called ”CV squads” - to share costs, anticipate opportunities, and strengthen value propositions. The carmaker Volvo, for example, did this by teaming up with telecommunications firm Ericsson and others. To capture the true value of corporate venturing, in terms of fielding innovative new products and services, chief innovation officers should make a point of reviewing their existing CV strategies.

Related topics: Agile Governance, Entrepreneurship, Education and Skills, Sustainable Development, Justice and Law, Science, Cities and Urbanization

2.10 Responsible AI

Ethics, transparency, diversity, and inclusion must all be considered

Responsible artificial intelligence means developing and using AI systems that are ethical, transparent, inclusive, and unbiased. AI systems must not be designed with the intent to harm or discriminate. And transparency necessitates that the operation of that system, and the data it uses, be clearly documented and explained; this can help build trust and accountability. Meanwhile bias and inclusivity must be considered throughout the entire development process, from data collection and preparation to use. Ensuring the responsibility of generative AI systems is challenging. Careful oversight is necessary to monitor and prevent harmful or unethical content, such as deepfakes or biased text. Both governments and private organizations are constantly implementing new policies to ensure that AI systems are developed and used responsibly.

Related topics: Global Gender Gap, Systemic Racism, Inequality, Artificial Intelligence, Civic Participation

2.11 Misinformation, Disinformation, and Manipulation

Greater efforts are necessary to combat the deepfakes enabled by generative AI

Generative artificial intelligence and neurotechnology can produce and disseminate realistic, convincing deepfakes - including synthetic video, audio, and text - that can deceive, misinform, and manipulate. These deepfakes can undermine the credibility and accountability of otherwise legitimate information sources and systems, erode trust, and pose serious risks to democracy, security, and human rights. Leaders everywhere should support research and innovation related to detection and verification methods and tools - and

develop and adopt ethical and legal norms and standards to prevent and combat the misuse and abuse of generative AI.

Related topics: Drivers of War, Human Rights, Economic Growth, Disinformation, Civic Participation

2.12 AI & Cybersecurity

Defenders currently have an advantage due to their deeper understanding of their own systems and infrastructure.

AI enables more efficient code review, automated vulnerability detection, and enhanced security operations. Security teams can enlist AI in realizing their data advantage, processing vast amounts of threat data and responding to incidents more quickly. AI is particularly transformative for Security Operations Centers (SOCs), where it can automate routine tasks and help analysts focus on complex threats. However, defenders must not rest on their laurels, as attackers are also leveraging AI for reconnaissance and social engineering. AI enables the rapid analysis of stolen data, more convincing phishing campaigns, and sophisticated deepfake impersonation attacks. State actors are already using AI to enhance their cyber operations, and criminal groups are following suit. Protecting sensitive data from AI-enabled content analysis has become essential.

The next wave of challenges is already emerging. AI-powered polymorphic malware will be able to continuously modify its code to evade detection, and advanced network reconnaissance capabilities could make it nearly impossible to prevent exposure of vulnerabilities in external-facing assets. To defend against these threats, organizations must ironically get back to the cybersecurity basics by implementing phishing-resistant multi-factor authentication using physical security keys that rely on FIDO2 standards, minimizing their external attack surface, implementing strict network segmentation, developing human-based recovery protocols for compromised authentication, and adopting robust data encryption and least-privilege access controls. Investment in AI-enabled security tools remains crucial, but human oversight must be maintained. Organizations that fail to adapt to this new reality risk falling behind in an increasingly sophisticated threat landscape.

Related topics: Drivers of Peace, Economic Growth, Global Risks, Cybersecurity

2.13 The Impact and Implications of Data

As artificial intelligence becomes more prevalent, assessing its real-world impact becomes more essential

The people designing data-powered artificial intelligence systems are increasingly aware of their power to have transformative, long-term impacts. The Canadian government, for example, has introduced an ”algorithmic impact assessment” tool, to help determine the potential real-world impacts of automated decision-making systems used for tasks like visa application processing. Some have questioned the transparency of governments (and businesses) when it comes to the use of AI to deliver services; in 2018, officials in New Zealand announced a ”stocktake” of how government agencies were using algorithms to analyse data, amid concerns about potential racial profiling in automated visa application processing. Impact assessment is integral to responsible data governance. There are several methods for quantifying the impacts of technologies and policies, for both the private and public sectors. There are also qualitative methods for better understanding how technology and data affect different populations differently - these can generally be relied upon to help ensure the effective identification and participation of different stakeholders, and to evaluate the effectiveness of systems in terms of supporting an organization’s stated values.

These methods can also be used to evaluate the appropriateness of policy and regulatory responses (in the form of standards and guidelines), to better understand social and environmental ramifications of data practices, and to divine the values and norms that can better promote positive aims. The speed at which emerging technologies and new datasets develop means that evaluating impact - whether positive or negative - can be fraught with difficulty. Addressing basic questions such as what constitutes ”good enough” evidence, and what mechanisms are available to ensure the sharing of critical evidence, is essential for the legitimacy of impact assessment efforts. Increasingly complex and dynamic social systems, incomplete and often siloed datasets, and methodological constraints can only further complicate matters. Regardless, impact evaluations and assessments are important tools that can help build public confidence in the design and deployment of data systems. This will only become more important, in light of the increasingly prominent role artificial intelligence is playing in maintaining global stability, implementing adequate cybersecurity, managing global power dynamics, and maintaining international security.

Related topics: The Digital Economy, Geo-economics, Geopolitics, Artificial Intelligence, Digital Communications, Drivers of War, Cybersecurity, Future of the Environment, Climate Indicators, Corporate Governance

2.14 Data Ethics, Values and Norms

Data can be deployed to solve global problems and achieve the SDGs, with the right oversight

The development and deployment of any emerging technology keys on social values, preferences, and ethical norms. It is important for organizations to understand these factors in a local context before formulating how they will govern data and artificial intelligence; in addition to whether local values and norms are adequately reflected, they should seriously consider the interplay between technology and individual rights, and how to put safeguards in place that incentivize responsible and human-centric development. Ensuring the trustworthiness of an organization's data practices is essential, often for practical reasons; for example, Facebook was sued in the US in 2019, after the Department of Housing and Urban Development alleged the company was violating a prohibition on housing discrimination because its machine learning algorithms functioned like an advertiser that excludes users based on race, ethnicity or religion. Certain foundational elements should be considered at the start of commercial projects: privacy, accountability, safety and security, transparency and explainability, fairness and non-discrimination, human control of technology, professional responsibility, and the promotion of human values. Understanding these in the relevant context is necessary for responsible data use.

By using data responsibly, businesses, non-profits, and governments can better address many of the unprecedented social and environmental challenges we now face - not least current and future pandemics, and environmental disasters aggravated by the worsening impacts of climate change. For example, artificial intelligence can play a significant role in achieving the UN Sustainable Development Goals - one study published in 2020 found that AI can enable the accomplishment of 134 targets across all 17 global goals if its development is supported by the necessary regulatory oversight (though it may also inhibit 59 targets). Some of the levers at hand that can help facilitate the use of data for good include global digital trade, the facilitation of equitable access to data flows, and responsible data collection. Technical elements such as data portability and interoperability are also important. The need to mitigate risks calls for putting firm safeguards in place related to cybersecurity, encryption, risk management, accountability, and overall data protection. Some uses of data and machine learning present particular sets of risks, like privacy breaches and phishing attacks.

Related topics: Corporate Governance, Pandemic Preparedness and Response, Systemic Racism, Global Risks, Agile Governance, Justice and Law, Social Justice, Climate Crisis, Artificial Intelligence, Cybersecurity, Sustainable Development

2.15 AI Security and Regulation

Policy-makers 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's Artificial Intelligence Act – the world's first comprehensive AI law – entered into force in August 2024 and is rolling out in stages. Bans on unacceptable-risk AI practices (such as social scoring and certain biometric systems) took effect in February 2025 and rules for general-purpose AI models became applicable that August. In a notable amendment, the EU's Digital Omnibus political agreement, reached in May 2026, extended the deadline for certain high-risk AI obligations to December 2027 to reduce compliance friction and support competitiveness. South Korea's Basic AI Act entered into force in January 2026, and China enforces multiple AI regulations including updated Generative AI Services Management Measures, with synthetic content identification rules effective September 2025. In the United States, while no single federal AI law exists, President Trump signed an Executive Order in December 2025 establishing a national policy framework for the technology, emphasizing innovation and international competitiveness over prescriptive regulation. Among corporations themselves, efforts like Anthropic's Project Glasswing have brought together actors such as Apple, Amazon, NVIDIA and Microsoft to work cooperatively to secure software from AI-enabled cybersecurity risks.

International coordination on AI governance has advanced but remains uneven. The Hiroshima Process, launched at the G7 in 2023, provides 11 principles that seek to create a framework for the safe use of AI globally. More recently, at the February 2026 India AI Impact Summit in New Delhi, some 89 signatories –

including the US and China – endorsed the New Delhi Declaration on AI Impact, a non-binding framework supporting principles such as AI's use for science, economic growth and social empowerment. Dedicated AI safety and security institutes continue to operate in countries including the United Kingdom, Singapore and Japan. Industry collaboration is also maturing: the Agentic AI Foundation, formed under the Linux Foundation in December 2025 with contributions from Anthropic's MCP, OpenAI's AGENTS.md and Block's goose framework, represents a new model of cross-competitor cooperation on agentic AI standards. Balancing innovation with safety remains a central challenge: policy-makers aim to protect the public from AI's harms without stifling beneficial AI research and applications.

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

2.16 Blockchain and Digital Identity

Current systems for identity management are siloed and inefficient, and call for new models

About one billion people around the world remain without the official proof of identity often crucial for receiving services and benefits - and those with official proof often have little-to-no control over how it is being managed. The concept of digital identity has therefore become increasingly important for many governments and institutions, given the ways it can potentially help knock down barriers when it comes to everything from property ownership, to political participation, to receiving fair access medical care and services. The COVID-19 pandemic has only brought issues related to identity management further into focus - as pandemic relief and stimulus payments, medical records, and address information all generally reside in separate systems with no means of interoperating. Many governments are therefore now exploring the use of blockchain technology to enable more seamless and secure systems for identity management. Some countries, such as Estonia, had already become leaders in the use of blockchain-based digital identity; an estimated 98% of Estonian residents have a national ID-card that functions as a travel ID, health insurance card, proof of identification for banking, and more.

In Canada, blockchain technology has been used to credential over 500,000 businesses through its "Verifiable Organizations Network." In any country, adequate oversight and management are central to the use of blockchain - not least because unique and consistent identifiers are prerequisites for decentralized services. For example, blockchain-based currency transactions are routed via public addresses that represent a transacting entity, and signed off on via a unique private key (a cryptography tool used to encrypt and decrypt code). However, the anonymity this enables may come into conflict with regulations related to identification that are designed to minimize illicit transfers of funds. As a result, blockchain-based digital identity systems still face considerable technological, managerial, and regulatory issues. In addition to the scalability considerations first required in order to support billions of individual users, data integrity will be critical - especially given the potential for administrators to interact with a large volume of relatively unsecure, "off-chain" data. Regulatory models will likely need to adapt, in order to accommodate new models of identity and prevent adverse related consequences such as social exclusion or widening digital divides.

Related topics: Global Health, Financial and Monetary Systems, Innovation, Corruption, The Digital Economy, Digital Identity

2.17 Agile Technology Governance

Some reinvention may be necessary to better understand new technologies requiring regulation

Governments may have to reinvent the ways they operate in order to keep pace with technology. Powerful digital tools like artificial intelligence are swiftly disintermediating entire markets - taking influence away from traditional regulators and unskilled workers, and increasingly handing it to corporations and skilled labour. Meanwhile public sector officials everywhere are being challenged to move beyond simply understanding major technological advances to being able to mitigate, shape, and harness them in order to better govern - by becoming more accessible, transparent, and trustworthy. Governments making this transition will have to change their approaches to creating and enforcing regulation, not least in order to safely stimulate rather than stymie innovation. These governments may have to create brand-new ways to cope with the spread of new technologies, either by nurturing internal expertise or by working together with the private sector. Those that are sufficiently agile will be able to find ways to better understand the task at hand - and to steer technological development in ways that improve the state of the world for everyone.

Faster, 5G mobile networks promise to make digital communication even more ubiquitous, and increasing levels of processing power and storage capacity are boosting the amount of knowledge readily available to just about any computer user. When coupled with the increased availability and quality of data, conveyed through increasingly rich and varied visualizations and other analytic techniques, these trends have the potential to fundamentally reshape online discourse, news reporting, and public services - in ways that can respond more directly to the needs of the public. But there are also serious related risks that need to be managed. According to Cisco's 2018 Annual Cybersecurity Report, cyber attackers targeting governments have developed increasingly sophisticated and threatening malware, and can cover their tracks with encryption while exploiting novel vulnerabilities in cloud computing and the Internet of Things. New and evolving rules of the road such as the European Union's General Data Protection Regulation, which came into effect in 2018, will be critical for managing the consequences of such threats - but will also introduce their own new complexities to governing.

Related topics: Global Governance, Agile Governance, SDG 16: Peace, Justice and Strong Institutions, SDG 01: No Poverty, Blockchain, Behavioural Sciences, Cybersecurity, Innovation, Corporate Governance, SDG 10: Reduced Inequalities, Internet of Things, Digital Communications

2.18 Culture, Integrity and Reputation

Successfully nurturing a culture of integrity and corporate reputation requires going beyond compliance

Culture, integrity, and reputation are fundamental to corporate governance; they have extended beyond traditional boundaries, and are increasingly vital for companies aiming to implement a cohesive global integrity agenda. This agenda should encapsulate core values, regulatory mandates, and voluntary commitments to societal and environmental stewardship - while being adaptable to an evolving external context. Any transition to more robust governance requires a shift from rhetoric to action, and an emphasis on the role of leadership in shaping employee behaviour and establishing a corporate ethos firmly rooted in integrity. Eliminating corporate duplicity and "greenwashing" requires breaking down silos, and fostering alignment across critical functions like ethics, compliance, risk management, ESG and sustainability, and public affairs. Companies face unprecedented expectations to take clear stances on pressing issues - and without tangible, measurable action to back up their words, accusations of duplicity are likely.

Successful integrity efforts require more than just stringent oversight to prevent regulatory inadequacies, or the appointment of a single individual to helm these efforts; it calls for cultivating an organizational purpose and value system that is authentic and consistently upheld. A true commitment to integrity is reflected in every action a company takes to strengthen its culture, enhance its reputation, and affirm its dedication to ethical conduct and governance. Creating a corporate culture that encourages employees to voice concerns without fear of reprisal is fundamental for maintaining a healthy working environment. It is vital that organizations put in place robust mechanisms for reporting issues, guaranteeing complete anonymity, and educating employees about their responsibility to identify and report such concerns. This can be accomplished by incorporating whistleblowing and incident management protocols into core employee ethics-training programmes. In every case, leadership can play a key role in helping raise awareness by proactively addressing these issues, and fostering an atmosphere of open communication.

Related topics: Corruption, Sustainability Reporting, Behavioural Sciences, Logistics, Corporate Governance, SDG 16: Peace, Justice and Strong Institutions

2.19 The Business and Economy of Data

Legitimate questions have been raised about advantages afforded to digital incumbents

The global economy is now largely built on a foundation of data. It is completely redefining the ways business is done, economies function, and societies interact. Data has a number of unique properties that distinguish it from the physical resources that have traditionally shaped economies in recent centuries, which have created new possibilities but also new threats and troubling consequences. While social media platforms like Facebook and TikTok have grown exponentially in recent years, enabling people to find each other and information quickly and often at no direct cost, the related rise of online advertising has made people the product - more specifically, their personal data. As a result of the ascendance of related business models and services, relatively novel ethical considerations have come into play (according to one estimate, digital ads accounted for 58% of all media ad spending by 2020). Legitimate questions have been raised about

advantages afforded to digital incumbents, based on network effects and economies of scale, unequal access to user data, a general lack of transparency, conflicts of interest, and vertical integration.

The collective nature of data means most people are more impacted by other people's than their own. Much like climate change, the threats stemming from the collection and use of data are both globe-spanning and personal. On one end of the spectrum, companies have been accused of misusing data and exploiting the public's lack of understanding about the subject, while on the other organizations are trying to act more responsibly and finding ways to create shared value (many are doing a bit of both, intentionally and unintentionally). Regardless of motivation, the practices common in the data economy raise difficult questions, including whether businesses are mere stewards or owners of data, what their proper role is in terms of enforcing data rights, and whether data should be treated as a utility, an asset, or something else entirely. Finding the right answers demands that we - as consumers, citizens, corporations, and civil society - actively engage with the troubling issues at hand to ensure that data-based economies benefit everyone, while protecting them from the unintended and intended harm omnipresent in the digital realm.

Related topics: The Digital Transformation of Business, The Digital Economy, Corporate Governance, Digital Identity, Economic Growth, Artificial Intelligence

2.20 Key Application Sectors for AI

It has made practical inroads in fields including healthcare, insurance, and mobility

The number of practical and potentially far-reaching applications of artificial intelligence is expanding, across multiple areas of knowledge work. In general, it costs a lot to feed, educate, and train a wise human being - human intelligence is almost unavoidably expensive. That is why it can be so costly to consult with a specialist doctor, or hire a skilled tutor for a child. Increasingly, AI technology is being used to develop applications in sectors including healthcare, insurance underwriting, mobility (including self-driving vehicles), and social media. Governance is key; we want medical devices and self-driving cars to be safe, and social media that does not subject us to disinformation campaigns. We also do not want AI to make it possible for people with bad intentions to more easily create bioweapons, though in reality it is more likely that AI will first make it possible for well-resourced pharmaceutical companies to create beneficial new biologics and drugs. A similar dynamic applies to cybersecurity - AI could be used to expose vulnerabilities, but that will most likely internally benefit organizations with data or other assets which they can defend by patching those vulnerabilities.

Related topics: Global Health, Corporate Governance, Mobility Solutions, Disinformation, Biotechnology

2.21 Technology Innovation

'General purpose' technologies like artificial intelligence can have profound consequences for society

Some innovation, like the development of new pharmaceuticals, has an obvious and direct link to novel scientific research. Other types may result from using existing technology in new ways, or even from developments in unrelated fields. Many companies behind the sharing economy, for example, are essentially offshoots of existing internet and mobile technologies. While certain technologies like drones or 3D printing may create new markets and disrupt existing networks, technical innovation in the form of so-called "general purpose" technologies has the potential to disrupt entire groups of industries; examples have included the steam engine, the automobile, the personal computer, the internet and, potentially, artificial intelligence - all of which have had profound consequences for society. Since research and development is key, policy-makers have been keen to focus on ways in which it can be improved. Common areas of focus include national systems for research funding, systems for awarding and protecting patents (which are sometimes state-subsidized), improvement in translating university research into value for the private sector, and tax incentives for innovative firms (such as R&D tax credits, or special tax regimes for revenue derived from intellectual property).

The physical and biological worlds are merging, partly due to the creation of new materials designed to emulate the biological world; the discovery of new classes of recyclable, thermosetting polymers (plastics) called polyhexahydrotriazines is a major step towards a more sustainable economy, for example. New materials are now routinely being used in medical implants, for tissue engineering, and for the creation of artificial organs - and 3D printing is increasingly being used to create customized structures. The biological and digital worlds overlap most controversially in the world of genetic engineering. Widely accessible and

affordable gene sequencing and editing systems, such as CRISPR/Cas9, make it possible to reliably and precisely remove or replace sequences in the genomes of both plants and animals. The biological and digital worlds are also overlapping in the form of sensors used to monitor health and behaviour - and to understand and influence brain activity. Advances that might have once been confined to digital systems, like the application of cryptography to blockchain technology to create programmable, secure, and distributed records, are also now having an impact in the real world, in terms of managing land records, for example, or tracking deforestation.

Related topics: Taxes, Blockchain, Sustainable Development, Drones, Circular Economy, Entrepreneurship, The Net Zero Transition, Future of Work, Innovation, Science, Semiconductors, Future of the Environment, Plastic Pollution

2.22 AI's Impact on Geopolitics

AI is changing international relations and war, with uneven effects around the globe

AI is increasingly viewed as a strategic asset in national security and economic competition, reshaping alliances and power dynamics across all regions. The United States and China remain the dominant poles of the global AI race, but middle powers are rapidly closing the gap. China's lead in open-source AI models and its focus on applied, deployment-ready technologies have made it a compelling partner for emerging economies. In 2025, DeepSeek's demonstration that frontier-level reasoning models can be built on domestically produced chips reinforced Beijing's push for "algorithmic sovereignty." The European Union, meanwhile, has carved out a distinct position as a rule-setter rather than a model developer, with the AI Act increasingly serving as the template for regulatory frameworks in Latin America, Africa and parts of Asia. India, having launched its national AI mission with significant public investment, is positioning itself as a third pole: a large-scale developer and deployer that insists on data sovereignty and rejects both uncritical adoption of US platforms and Chinese infrastructure dependencies. The Gulf states–particularly the UAE and Saudi Arabia–have emerged as significant AI investors and as coveted partners for both Washington and Beijing in the contest for global AI influence. Governments across all income levels are investing in military AI for intelligence analysis, cybersecurity and autonomous systems, raising the stakes in global alliances and rivalries. On the battlefield, AI is already changing how wars are fought, with autonomous drone systems and AI-assisted targeting deployed across multiple active conflicts. No comprehensive treaty on lethal autonomous weapons has been agreed, and the dual civilian and military nature of many AI technologies complicates any control regime.

A growing concern for lower income countries is the widening AI capability gap: as frontier AI concentrates in a handful of countries, the risk of a two-tier world–AI haves and have-nots–is increasingly seen as a geopolitical challenge in its own right. For middle powers and the Global South, the challenge is to build the institutional capacity and political will to shape a governance framework that serves broader human interests–not just those of the most powerful AI states. In late 2025, the UN General Assembly adopted a resolution establishing two new mechanisms: an Independent International Scientific Panel on AI–the first global scientific body on the subject, comprising 40 experts from across regions–and a Global Dialogue on AI Governance. The first session of the Global Dialogue will convene in Geneva in July 2026, back-to-back with the ITU's AI for Good Global Summit, with UN Secretary-General António Guterres describing it as recognition that "no country can see the full picture alone." The ambition is significant, but the new mechanisms face real headwinds: military applications of AI are explicitly out of its scope, the United States has publicly opposed multilateral AI governance initiatives and funding uncertainties remain. The Council of Europe's Framework Convention on AI, in force since 2024 and signed by Canada, Japan and the UK among others, represents the most concrete legally binding international instrument to date, though its reach is limited to the European sphere.

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

2.23 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. The World Economic Forum's Future of Jobs Report 2025 – drawing on over 1,000 leading global employers representing more than 14 million workers across 55 economies – projects that 92 million roles will be displaced by 2030 while 170 million new roles will be created, yielding a net gain of 78 million jobs but constituting a 22% churn in the global workforce. Around 1.1 billion jobs could be transformed by technology over the next decade, with AI and information processing affecting 86% of businesses by 2030. White-collar occupations that involve routine writing, processing or decision-making are seen as particularly exposed. At the same time, AI is 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.

This workforce transformation presents both challenges and opportunities. Workers in many fields will need to adapt by learning new skills that complement AI – gaining expertise in overseeing AI outputs or focusing on interpersonal and creative tasks that machines cannot easily replicate. The WEF's Future of Jobs Report 2025 identifies AI and big data as the fastest-growing skill category over the next five years, followed by networks/cybersecurity and technological literacy. Creative thinking and resilience, flexibility and agility are also rising in importance. The report emphasizes that AI will create more jobs than it displaces only if companies invest deliberately in people and redesign work, rather than simply layering technology onto old structures. 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 Work, Entrepreneurship, The Digital Economy, Industries Disrupted, Education and Skills, Economic Growth, Future of Manufacturing, Social Protection

2.24 From Generating to Acting

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. By 2026, generative AI has moved firmly from experimentation to operational deployment across industries. Agentic AI systems – capable of completing multi-step tasks, browsing the web, writing and executing code, and managing workflows autonomously – have become the dominant paradigm, with estimates that 40% of enterprise applications will embed task-specific AI agents by the end of 2026. The question facing organizations is no longer whether to adopt generative AI but how to govern it responsibly.

The economic and social impact of generative AI is increasingly quantifiable. The Forum's Future of Jobs Report 2025 found that AI and information processing will affect 86% of businesses by 2030, and that human-only work tasks – which stood at 47% of all tasks in 2025 – are projected to fall to roughly 33% by 2030 as human-machine collaboration spreads. Entire industries, from media and marketing to law and software development, are being reshaped. Yet the rise of generative AI also presents other challenges. These systems sometimes produce incorrect or fabricated information ("AI hallucinations"), raising reliability concerns. Questions of copyright and intellectual property have prompted legal challenges in multiple jurisdictions. In response, policy-makers and AI developers are seeking guardrails – from better model transparency to content labelling – to ensure generative AI is used responsibly.

Related topics: Civic Participation, Economic Growth, Future of Work, Technological Revolutions, Education and Skills

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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 Technology-Driven Innovation and Responsible AI , 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 Technology-Driven Innovation and Responsible AI 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.

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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