

TECH FUTURES LAB

Inaugural Retreat Highlights: Exploring Unprecedented Futures

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On June 23-24, 2026, the Hoover Institution's Tech Futures Lab hosted its inaugural retreat, which brought together thought leaders from academia, industry, nonprofits, and governments to help anticipate and mitigate the risk of strategic technological surprises. Through a series of interconnected exercises, this brain trust identified possible technological breakthroughs, debated controversial assumptions about AI and national power, traced potential unplanned and unexpected applications of technology, and considered the long-term effects of technology on multiple domains, including health, economics, geopolitics, and humanity.

The retreat was not designed to make specific forecasts but to explore a broader range of plausible—not necessarily probable—trajectories for existing and emerging technologies. The insights will help set the agenda for the Lab in the coming year, including topics for future wargames and exercises, and provocative questions to address in future analytic products.

The following summary presents the [overarching themes and cross-cutting debates](#) that surfaced organically during almost every discussion and exercise over the course of the two days.

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OVERARCHING THEMES AND CROSS-CUTTING DEBATES

The Past May No Longer Be Prologue

Throughout the retreat, participants raised the possibility that we could be facing an unprecedented future in which events and dynamics have no historical analog. As a result, longstanding models and theoretical frameworks for analyzing and understanding strategic domains, including the economy, governance, and geopolitics, may no longer be relevant as the players change, sources of power expand and evolve, and humans are taken out of the equation. For instance, how do standard models of coercion and crisis management apply if the decision-maker is AI or is heavily reliant on AI in ways we might not know?

Technological Advantages—Invention, Adoption, or Scale

A key discussion running through the retreat was on technology and strategic advantage. Participants discussed what provides the most sustainable advantage—invention, adoption, or scale of production—and for whom. From the debates, many participants seemed persuaded that diffusion and deployment may matter more to national strength than invention. A country that invents a technology may not be the country that manufactures, scales, or sells it most effectively. Similarly, within societies, adoption and adaptation may pay as many dividends as invention and without the high investment cost of research and development. Additional questions included: How might advantages in development vs. deployment be different in different technological areas? Where does it pay most to be first? Where do benefits accrue most from fast following – and why? Can advantage be sustained over time?

AI as Foundation, Infrastructure, and Multiplier

Artificial intelligence appeared in almost every discussion, even when the assigned subject was robotics, biotechnology, government, education, finance, or defense. Most participants believed that AI is likely to evolve from a distinct product into an operating layer that simply becomes part of underlying infrastructure. Much like electricity and the internet, AI was assumed to become

part of the infrastructure upon which everything else is being built. However, many raised concerns about access and cost creating disparities within and between countries.

The Future of Power

Most participants agreed that technology has become a more important source of power, influence, and authority in the international system, but not just for states. Historically, communications networks, space capabilities, energy infrastructure, currencies, surveillance tools, weapons, and computational capabilities were built or controlled mainly by governments, but today and going forward, private companies and individuals lead, own, and operate these advanced systems at a scale that gives them direct influence over public decisions and international regimes, standards, and institutions. This network power gives nonstate actors influence that crosses national boundaries and in some cases, supersedes the power of the state.

- **U.S. Power and Influence:** Participants saw several ways the United States could lose its leading position in science and technology, including cuts to universities and basic science research, hostility toward foreign talent, weak manufacturing capacity, poor communication about technology, badly designed regulation, declining domestic public trust in technology that impedes adoption, eroding trust among allies, and excessive reliance on proprietary frontier models. The combination of these dynamics is likely to weaken both U.S. hard and soft power.
- **Role of Nonstate Actors:** Participants considered how technologies are increasing the power and reach of nonstate actors in different domains, including a company controlling a satellite network affecting military communications; a model provider setting rules for access to information or analytical capability; and a firm with private energy, security; and digital infrastructure becoming less dependent on the state. In many ways, these nonstate actors have the potential to possess sovereignty

without physical territory. Participants argued that such dynamics could limit the power of non-authoritarian states.

The Future of Governance

Participants were divided over the impact of technology on the effectiveness and legitimacy of governments and governing systems. On the one hand, automated systems might make public services faster and easier to use, leading to more efficient processes and benefits. Agencies could detect some forms of fraud, process information more quickly, and tailor services to individuals. On the other hand, the same systems could exclude eligible people, make errors that are difficult to appeal, or move public decisions behind trade-secret protections. Similarly, there was debate over surveillance and automation and whether they would make governments more effective but less legitimate. Cameras and data analysis could reduce crime and fraud and make people safer—as in authoritarian, security states—but at significant cost to freedom and liberty.

What is True

Several participants anticipated that policy formulation could become increasingly unstable when agreement is eroding on even the most basic facts of many issues. The conversation went beyond concerns about synthetic media and deepfakes, describing the defining challenge as not only detecting fakery but establishing mechanisms of verification and accountability durable enough to function when truth itself is contested and/or emergent. Moreover, there is a risk that public debate among science and technology experts can blur the lines between evidence, opinion, and emotion, fueling public pessimism and distrust in science itself.

The Role of Trust

Connected to truth, trust emerged as one of the retreat's main concerns. Specifically, how might technologies contribute to the ongoing erosion of trust in leaders, institutions, expertise and information more generally? Participants

discussed synthetic media, cyberattacks, automated persuasion, biased models, opaque government systems, and information environments in which people cannot tell whether a source is genuine. The problem is broader than false content. A flood of generated material can weaken confidence in accurate information, and even authentic recordings can be dismissed as fake.

Governments can use the presence of disinformation to justify more extensive controls. Private platforms can become the de facto arbiters of which claims are seen and which are suppressed, but private companies have competing agendas that do not necessarily reflect the public interest.

What May Be Lost

Many of the conversations raised the question of what we may be losing as we adopt more advanced technologies, especially AI. Participants raised concerns about the erosion of human capabilities, especially learning skills and critical thinking, both of which require a degree of friction rather than instant answers. Rather than augmenting and enhancing human capability, could we lose capacity and skills over time as we cede thinking processes to AI? Connected to this line of questioning were other debates about ethical decision-making, especially related to human life in warfare and in medical treatments, and about human purpose if AI and automation eliminate jobs. What remains distinctly human once machines can do the rest? Many participants were eager to continue these discussions.