



# Advancing American Innovation in the National Interest

Dale Swartz

## Introduction: Moving at Hypersonic Speed

Since the summer of 2021, multiple nations (including the United States) have conducted tests of a hypersonic glide vehicle (HGV), a nuclear-capable, strategic missile traveling at speeds exceeding Mach 5 and able to maneuver and evade traditional defenses. Notably, press reports indicate that one successful HGV test completed a partial orbit of the earth over the South Pole—a trajectory not covered by existing missile defense systems—and fired a second test missile from the vehicle as it neared its target.<sup>1</sup>

To successfully test this hypersonic capability marks significant advances across a range of next-generation technologies, including advanced materials, propulsion, and guidance/navigation systems. Despite ample investment, it is not clear that the United States is able to field a similar capability itself or to successfully defend against it.<sup>2</sup> Beyond national security implications, the hypersonic example represents a growing list of areas where America risks losing its innovation edge. A decline in American innovation leadership—particularly in critical dual-use technologies like artificial intelligence (AI), semiconductors, and quantum information science—would hold profound implications for American economic growth, resilience, and security.

## Innovation: Why Should We Care?

“Innovation” here refers to a step-change improvement in technologies, processes, and business models that enable America to improve productivity and create value in a critical sector. For the past seventy-five years, the United States has benefited from being the leading global innovation engine, fielding path-breaking advances like the Global Positioning System (GPS), the internet, machine learning, and human genome sequencing. Cumulatively, these breakthroughs have enhanced American competitiveness—both through economic dynamism (notably productivity gains) and national security.<sup>3,4</sup>

The United States of America’s stated national security agenda for the twenty-first century<sup>5</sup> rests on tackling a series of innovation challenges: succeeding in the enduring, tech-enabled marathon that defines competition among modern superpowers, securing the environment and global commons, and advancing a broader human flourishing agenda (e.g., health and interplanetary space travel). This can be seen already with competition on AI innovation—already a foundational technology for many applications—and a new era health diplomacy centered around biotechnology (e.g., mRNA vaccines).<sup>6,7</sup>

America’s innovation engine overall has not kept up with the rapid pace of change in the twenty-first century, and America is staring down a potential crisis in the coming decade. Other nations are also advancing in critical capabilities like AI/machine learning and fifth-generation telecom networks (5G), underpinned in some cases by central directives focused on critical technologies and a significant expansion in international investment.<sup>8</sup> Silicon Valley is now but one of several talent pools with at-scale innovation hubs also in Beijing, Tel Aviv, and Bengaluru.

## Four “Big Ideas” for Advancing American Innovation in the National Interest

What is to be done? There are four transformational themes that decision-makers could consider to advance American innovation, which will require a holistic approach across the public, private, and social sectors to succeed. Some of these initiatives have been discussed elsewhere at length,<sup>9</sup> but taken together they provide a comprehensive, enduring framework for how to help meet the urgency of the moment. The United States has a critical window of opportunity to act over the next two to five years, to keep pace with global peers in the face of significant advances in global innovation.

**First, protect the “crown jewels”—present and future.** American firms and policy leaders should rethink intellectual property (IP) and consider national security protections for critical sectors. The industries currently defined as “strategic” are too narrow, and generally focus first on certain classified defense technologies. For example, this does not account for the increased value and relevance of new classes of commercially oriented digital and biotech technologies. Stakeholders should focus on a broader range of strategic subsectors (e.g., telecom, autos, pharmaceuticals) and foundational technologies critical for economic competitiveness as well as national security (e.g., semiconductors—“the new oil”<sup>10</sup>—along with AI, synthetic biology, and quantum technologies among others).<sup>11</sup>

Identifying critical industries should be done at a granular level; the existing regulatory regime uses a sledgehammer when a scalpel is the better instrument. Policymakers should collaborate closely with industry to identify and agree on protections for a dynamic list of dual-use chokepoint technologies and processes (e.g., specific AI algorithms, next-gen battery technology and rare earth materials, and leading-edge semiconductor nodes/advanced lithography) that are the “crown jewels” on which future economic innovations rest. Innovation implies obsolescence; IP protection and policy enforcements should be focused on limited resources on true competitive discriminators versus larger classes of last-generation technologies that are of declining value or that have become commoditized.

Finally, the United States may need to consider imposing costs on private firms that aid in the transfer of American innovation “crown jewels” abroad. The outcome could pose undue national security risks.

**Second, innovate faster by getting back to the basics—focusing on talent and investment.** Talent and investment are both critical to moving at pace and at scale in innovation—and the challenges are stark (e.g., limited STEM pipeline, underinvestment outside of certain technologies and subsectors). On building innovative talent, it is “table stakes” to provide an immigration “fast lane” for deeply technical, entrepreneurial talent. This will widen the pathway for world-class workers with the right skills to build the next generation of technologies in the United States. A proposal gaining bipartisan support for a “national security innovation visa” is being considered by legislators, e.g., by providing a pathway for skilled immigration for key individuals employed by a U.S. company working in national security, engaged in research funded by the Department of Defense, or who have scientific or technical expertise vital to elements of the National Defense Strategy. Beyond this, the U.S. should double down on initiatives to foster talent with business acumen and leadership abilities. Finally, U.S. decision-makers could choose to double down with state and local partners to thoughtfully build regional innovation ecosystems, with a focus on worker training and reskilling to address the widening technical talent gap.

On investment: Decision-makers should also rapidly accelerate catalyzing investments in technology infrastructure and basic research that will have multiplier effects on private firms (such as the semiconductor sector). But these investments alone may be insufficient. Public-private capital partnerships have worked well in other areas. For example, the U.S. could look to scale up the In-Q-Tel venture capital model employed by the U.S. intelligence community.<sup>12</sup>

**Third, innovate wider by building a grand technology alliance for the twenty-first century to counter authoritarian aggression.** In the post-World War II international order, alliances were framed in political and economic terms. In the 2020s, alliances and partnerships are technology driven (such as AUKUS). America does not hold a monopoly on critical technology innovations—nor should it—but current partnership frameworks do not fully leverage the talent and infrastructure of close partners, including the United Kingdom, Australia, and Japan. Three concrete ideas could help here, which the author has written about previously.<sup>13</sup> First, the United States should extend the “Canadian exemption” for U.S. classified International Traffic in Arms Regulation (ITAR) export controls to National Technology

and Industrial Base (NTIB) countries. Second, scale up the U.S.-EU Trade and Technology Council to include the full G7 and the Quad in Asia. Finally, establish a new data governance structure to build new international “trusted networks” to provide a better and larger data protection framework.

More broadly, the United States should take a “whole of society” approach—one that sees major U.S. technology and industrial firms as critical actors and partners alongside government in the development of a global innovation web that renews American innovation leadership.

**Finally, reimagine the U.S. government’s role in advancing innovation.** Too many commentators still idealize the 1950s “Vannevar Bush” model of outsize U.S. funding for R&D and tech transfer to industry. A “top-down” industrial and innovation policy risks looking too much like the Chinese “civil-military” fusion strategy—one that erodes America’s free enterprise spirit and puts government concerns ahead of those rest of society. A new U.S. innovation and technology strategy can focus more on fostering ecosystems of talent, capital investment, and infrastructure—all while advancing U.S. competitiveness in multiple arenas on the world stage.

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<sup>1</sup> Kelley Saylor, “Hypersonic Weapons: Background and Issues for Congress,” Congressional Research Service, May 2022; Demetri Sevastoulo and Kathrin Hille, “China Tests New Space Capability with Hypersonic Missile,” *Financial Times*, 16 October 2021; Chandelis Duster, “Hyten: China’s Hypersonic Test Missile Test ‘Went Around the World’,” CNN online, 18 November 2021: <https://www.cnn.com/2021/11/17/politics/john-hyten-china-hypersonic-weapons-test/index.html>.

<sup>2</sup> Ibid (Saylor)

<sup>3</sup> James Manyika and Michael Spence, “A Better Boom: How to Capture the Pandemic’s Productivity Potential,” *Foreign Affairs*, July/April 2021.

<sup>4</sup> Economically, innovation advances fuel growth and prosperity. A silver lining of the global coronavirus pandemic was a massive acceleration in the development and adoption of digital technologies. Rapid changes in the mode and speed of decision-making in large sectors of the American economic unlocked startling productivity gains.

<sup>5</sup> The White House, “Interim National Security Strategic Guidance”, March 2021: <https://www.whitehouse.gov/wp-content/uploads/2021/03/NSC-1v2.pdf>.

<sup>6</sup> Final Report, National Security Commission on Artificial Intelligence, March 2021.

<sup>7</sup> Krishna Kumar, “America Can Still Deliver on Global Vaccine Diplomacy,” *The National Interest*, 28 December 2021.

<sup>8</sup> 2021 Annual Report to Congress, U.S.-China Economic Security and Review Commission.

<sup>9</sup> A representative (not exhaustive) list includes: “Innovation and National Security: Keeping our Edge,” Council on Foreign Relations Task Force, final report released September 2019; “The Contest for Innovation: Strengthening America’s National Security Innovation Base in an Era of Strategic Competition,” Report of the Reagan Institute’s Task Force on 21st Century National Security Technology and Workforce, released December 2019; “Meeting the China Challenge: A New American Strategy for Technology Competition,” UCSD-Asia Society Working Group on Science and Technology in U.S.-China Relations, 16 November 2020; Steve Blank, Joe Felter, and Raj Shah, “The U.S. Must Harness the Power of Silicon Valley to Spur Military Innovation,” TechCrunch, 24 February 2022.

<sup>10</sup> Alan Murray and David Meyer, “Semiconductors Are the New Oil,” *Fortune – CEO Daily Newsletter*, 25 March 2021.

<sup>11</sup> For a starting list, see McKinsey’s analysis: <https://www.mckinsey.com/featured-insights/americas/building-a-more-competitive-us-manufacturing-sector>.

<sup>12</sup> Christopher Darby and Sarah Sewell, “The Innovation Wars: America’s Eroding Technical Advantage,” *Foreign Affairs*, March/April 2021.

<sup>13</sup> See the Ronald Reagan Institute’s Task Force on National Security and American Manufacturing Competitiveness, published in November 2021. The author was a senior advisor and lead author: [https://www.reaganfoundation.org/media/358068/task\\_force\\_report\\_2021\\_manufacturing\\_renaissance.pdf](https://www.reaganfoundation.org/media/358068/task_force_report_2021_manufacturing_renaissance.pdf).