Accelerating the American Scientific Enterprise Through Innovation and Openness

Andreessen Horowitz (a16z) welcomes the opportunity to provide input on accelerating the American scientific enterprise. a16z manages pooled vehicles which hold investments in numerous AI development firms, including as a leading investor in startups and open-source AI developers. As a venture capital firm that invests in entrepreneurs building the future through technology, a16z has a deep interest in fostering a vibrant and competitive innovation ecosystem.

To secure the United States' position as the unrivaled world leader in science and technology, federal policy must prioritize tech startups—what we call Little Tech. Startups drive breakthrough innovation, challenge established paradigms, and translate research into products and services that benefit Americans. History shows that transformative technologies often emerge from small teams with bold ideas. Startups are synonymous with advancing the scientific enterprise in America.

With the goal in mind, the recommendations below focus on building infrastructure that lowers barriers to entry, supporting open research ecosystems, reducing administrative friction, ensuring access to global talent, and investing in pro-competitive governance.

I. Build Shared AI Research Infrastructure (Questions 3, 6, 7)

A critical role for the federal government is to lower barriers to entry in AI by providing access to affordable shared resources that might otherwise be too capital-intensive for startups and small research teams. We propose the creation of a National AI Competitiveness Institute (NAICI), housed within the National Institute for Standards and Technology (NIST), with the following core components:

- **Large-scale compute cluster**: Establish a compute cluster totaling approximately 10,000 advanced GPUs, housed at public universities or national laboratories.
- **Affordable access**: Provide affordable access to compute resources for academic researchers, students, nonprofits, and startups. This enables experimentation with novel architectures and models, leading to innovation that benefits the broader ecosystem.
- **Benchmark and evaluation tools**: Provide access to standardized benchmark datasets and evaluation tools, enabling rigorous assessment of AI models.
- **High-quality data**: Provide participants with access to standardized, "AI-Ready" datasets based on data already held by the federal government, released under permissive licenses.

By providing shared infrastructure, the government can level the playing field between well-funded incumbents and innovative newcomers, enabling competition on the merits of ideas rather than access to capital. This approach has precedent: national laboratories and land-grant universities have long provided researchers with resources they could not afford independently, catalyzing discoveries that drove American economic growth.

II. Support Open AI Ecosystems (Questions 2, 6, 7, 12)

Open-source AI represents a significant U.S. competitive advantage. A strong open ecosystem enables startups and researchers to build on shared foundations rather than duplicating efforts, accelerating the pace of innovation.

The federal government should:

- **Fund open-source research**: Provide targeted funding for research that utilizes, improves, and expands open-source AI models, datasets, and development tools.
- **Require open outputs**: Require that non-sensitive data and outputs generated from federally funded research be made available for AI training in machine-readable formats and under permissive licenses.
- **Support interoperability**: Invest in standards and tools that enable different AI systems to work together, preventing lock-in to proprietary platforms.

Closed ecosystems tend to entrench incumbents by raising switching costs and limiting competition. Open ecosystems, by contrast, lower barriers for new entrants and enable the rapid diffusion of advances across the research community. The extraordinary recent progress in AI has been driven in significant part by open publication of research and open-source release of models and tools.

III. Reduce Administrative Burdens on Researchers (Questions 1, 3. 9)

Compliance and reporting requirements impose significant costs on researchers, and these costs fall disproportionately on small teams. Startups and academic labs lack dedicated compliance staff, meaning researchers themselves must divert time from innovation to paperwork. They also lower the impact of federal research funding: researchers will contribute the most value for the American people when they can focus on research, not on administration.

To maximize research productivity, the government should:

- **Streamline reporting**: Simplify grant reporting requirements, focusing on outcomes rather than process documentation. Reporting should demonstrate impact, not merely document activities.
- **Alternative funding mechanisms**: Expand the use of prizes, challenges, and milestone-based grants that reward results rather than requiring extensive upfront proposals and ongoing compliance. The National Science Foundation's recently announced Tech Labs Initiative, which

provides milestone-based funding and operational autonomy to research teams working on breakthrough technologies, represents a promising step in this direction.
- **Reduce duplication**: Harmonize requirements across agencies to eliminate duplicative reporting obligations when researchers receive funding from multiple sources.

The goal should be to maximize the time researchers spend on research, not paperwork. Every hour spent on compliance is an hour not spent on discovery.

IV. Ensure Access to Talent (Questions 1, 5, 9, 10, 13)

Cutting-edge research requires both adequate financing and access to the best talent. America's scientific leadership has historically depended on attracting the world's best researchers to our universities, laboratories, and companies. These researchers have then proceeded to found companies, win Nobel Prizes, and train the next generation of American scientists. Continuing to attract top-tier graduate students and postdoctoral fellows is essential to the research workforce, including through cross-border collaboration that accelerates breakthroughs by connecting researchers with complementary expertise.

Policy should facilitate talent recruitment and retention, such as through simplifying talent acquisition procedures for researchers, students, and entrepreneurs in strategic technology fields; providing clear, predictable rules for research collaborations that have minimal national security implications; and ensuring that legitimate security measures do not inadvertently and unnecessarily deter beneficial scientific exchange.

The goal should be to maintain America as the destination of choice for scientific talent while implementing targeted, risk-based protections for sensitive research.

V. Invest in Research on AI Governance (Questions 4, 5, 7, 9)

Regulations designed to address legitimate concerns can have unintended consequences for competition and innovation. Well-resourced incumbents can more easily absorb compliance costs, while startups may be priced out of markets entirely.

The government should:

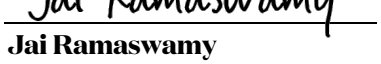
- **Fund impact research**: Support research to identify barriers to AI innovation and assess the differential effects of proposed regulations on startups versus established firms.
- **Pilot programs**: Support regulatory sandboxes and pilot programs that allow evidence-based evaluation of governance approaches before broad implementation.
- **Measure before mandating**: Adopt an evidence-based approach that measures the costs and benefits of proposed rules, with particular attention to effects on competition and entry.

The goal should be governance that promotes competition and innovation, not protection of incumbents. Smart regulation can address legitimate concerns without inadvertently entrenching dominant players or foreclosing innovative approaches.

Conclusion

The United States' position as the global leader in science and technology depends on creating enabling conditions for innovation. By building shared infrastructure, supporting open ecosystems, pursuing efficient administrative processes, ensuring access to global talent, and investing in evidence-based governance, the federal government can foster a dynamic environment where startups and researchers thrive.

Little Tech is the engine of American innovation. The policies outlined above would help ensure that the next generation of transformative technologies is built in, and not merely exported to, the United States. a16z looks forward to continued dialogue with policymakers on a framework that accelerates the American scientific enterprise by enabling Little Tech to compete, scale, and succeed.



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