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General Comment

See attached file(s)

Attachments

Chamber ofProgress AI RD Strategic Plan Comments 5.29.25



May 28, 2025

Networking and Information Technology Research and Development (NITRD)
National Coordination Office
c/o National Science Foundation
2415 Eisenhower Avenue
Alexandria, VA 22314

Re: NSF-2025-OGC-0001, concerning the development of a 2025 national artificial intelligence (AI) research and development (R&D) strategic plan

On behalf of Chamber of Progress – a tech industry association supporting public policies to build a more inclusive society in which all people benefit from technological advancements – I appreciate the opportunity to share these comments regarding the development of a 2025 AI R&D Strategic Plan.

To maintain U.S. leadership in AI and realize its economic potential, the 2025 Strategic Plan must promote research that accelerates AI adoption, enhances competitiveness, and ensures broad, equitable access to AI's benefits. We urge the Administration to rebalance the 2023 R&D agenda by prioritizing five key areas:

1. **Adoption and diffusion research** – to better understand how AI spreads across sectors and identify strategies to accelerate its use.
2. **Operationalizing workforce development** – to build scalable models that address talent gaps across the AI value chain.
3. **Studying the economic impact of governance regimes** – to assess how emerging regulatory frameworks affect innovation and competitiveness.
4. **Defending fair use through infrastructure and policy support** – to reinforce the legal foundations that enable access to training data.
5. **Incentivizing efficiency in model development** – to encourage breakthroughs in lightweight, cost-effective AI systems.

Together, these priorities will ensure that American innovation translates into real-world gains for workers, consumers, and businesses.

Rebalance R&D Priorities to Drive Competitiveness and Diffusion

The 2023 National AI R&D Strategic Plan emphasized the importance of responsible and trustworthy AI. While these goals are essential, the plan largely set aside critical issues related to governance, and did not address adoption and diffusion, fair use and copyright, or model efficiency. As a result, the 2025 update must rebalance R&D priorities to place an equal emphasis on competitiveness, productivity, and widespread adoption in order to

maintain U.S. leadership and fully realize the promise of AI. Research on AI fairness and bias has already surged, growing by over 600% since 2019, according to the 2025 AI Index report.¹ These advances must now be matched by concerted efforts to understand and accelerate AI integration across the economy.

Research should prioritize the widening gap between cutting-edge AI development and its real-world application, particularly among small and mid-sized firms that drive much of the U.S. economy. While the U.S. maintains a narrow lead in frontier AI research, many businesses lack the resources, expertise, or infrastructure to integrate these technologies, leaving productivity gains unrealized and benefits concentrated among a few dominant players. This underutilization poses a strategic risk. Without a deliberate focus on adoption and deployment, the U.S. could fall behind global competitors like China, which pairs R&D investment with aggressive adoption targets to drive sector-wide implementation.²

The 2025 plan offers an opportunity to chart a new course, one that reflects the urgent need to translate research into real-world impact. A truly forward-looking strategy must support the entire AI value chain: from breakthroughs in foundational models to tools that accelerate adoption, training programs that close workforce gaps, and infrastructure that ensures startups and small firms can compete. By refocusing its priorities, the 2025 update can drive innovation, strengthen U.S. dominance, and ensure that AI's benefits are widely and equitably distributed across sectors and communities.

Fund Research on AI Adoption, Diffusion, and Deployment

While the United States remains a global leader in AI development, leadership in innovation alone is not enough. The economic gains from AI will only be realized if we close the gap between development and deployment, ensuring that businesses and governments have the tools, knowledge, and incentives to adopt AI effectively. To that end, the 2025 plan should explicitly prioritize R&D on AI adoption and diffusion.

AI adoption in the U.S. is uneven and remains limited in absolute terms.³ Many firms face substantial barriers to implementation, including upfront costs, a lack of internal technical expertise, and uncertainty about return on investment.⁴ These challenges are particularly acute for small and mid-sized enterprises. China, by contrast, has pursued a coordinated strategy that links R&D investments with adoption roadmaps and

¹ AI Index Steering Committee. *Artificial Intelligence Index Report 2025: Chapter 3 – Responsible AI*. Stanford Institute for Human-Centered Artificial Intelligence (Stanford HAI) (2025).

https://hai-production.s3.amazonaws.com/files/hai_ai-index-report-2025_chapter3_final.pdf

² See: Will Rinehart. "China's AI Strategy: Adoption Over AGI." Center for Technology, Science, and Energy, American Enterprise Institute (May 8, 2025). <https://ctse.aei.org/chinas-ai-strategy-adoption-over-agi/>

³ Kathryn Bonney, Cory Breau, Catherine Buffington, Emin Dinlersoz, Lucia Foster, Nathan Goldschlag, and John Haltiwanger. *Tracking Firm Use of AI in Real Time: A Snapshot from the Business Trends and Outlook Survey*. U.S. Census Bureau, Center for Economic Studies, CES Working Paper 24-16R (Oct. 2024).

<https://www2.census.gov/library/working-papers/2024/adrm/ces/CES-WP-24-16R.pdf>

⁴ OECD, Boston Consulting Group, and INSEAD. *The Adoption of Artificial Intelligence in Firms: New Evidence for Policymaking*. OECD Publishing (2025).

https://www.oecd.org/en/publications/the-adoption-of-artificial-intelligence-in-firms_f9ef33c3-en.html

industry-specific targets.⁵ Indeed, from 2023 to 2024, China achieved the single largest year-over-year growth rate in its organizations' use of AI.⁶

To promote continued American leadership, the U.S. must adopt a more intentional approach. We recommend that the 2025 plan include:

- A federal effort to collect and publish comprehensive, sector-specific data on AI adoption and diffusion across industries and state and local governments.
- Development of sectoral AI adoption roadmaps that identify use cases, barriers, and recommended implementation strategies.
- Funding for research into mechanisms that boost adoption, including public-sector procurement pilots, compute vouchers for small businesses, open-source toolkits, and best practice guides for enterprise integration.
- Inclusion of measurable outcome metrics tied to productivity gains and commercial-scale deployment.

A research agenda that supports not only the development of AI, but its diffusion into the broader economy, is critical to ensuring that the United States remains at the forefront of global competitiveness in the AI era.

Operationalize Workforce Development to Close the AI Talent Gap

The 2023 strategic plan correctly identified workforce challenges as a limiting factor in the effective deployment of AI, but it stopped short of outlining actionable pathways to close that gap. The 2025 update should go further by treating workforce development not just as a descriptive priority, but as an area for targeted research and policy experimentation. Without concrete investments in skills training, job-linked education pathways, and employer partnerships, AI will remain concentrated in a limited set of firms and regions.

To ensure that firms across the economy have access to the AI talent they need, the federal government should fund research into scalable, evidence-based models for talent development that span the entire AI value chain. In particular, the plan should support:

- Development and evaluation of registered AI apprenticeship programs in collaboration with employers and state and local workforce development boards funded through the Workforce Innovation and Opportunity Act (WIOA).
- Expansion of microcredentialing programs through community colleges and online platforms to serve early to mid-career workers and those transitioning from other sectors.

⁵ See: *The Economist*. "Xi Jinping's Plan to Beat America at AI." *The Economist* (May 25, 2025).

<https://www.economist.com/china/2025/05/25/xi-jinpings-plan-to-overtake-america-in-ai>

⁶ AI Index Steering Committee. *AI Index Report 2025: Chapter 4 – Economy*. Stanford Institute for Human-Centered Artificial Intelligence (Stanford HAI) (2025). <https://hai.stanford.edu/ai-index/2025-ai-index-report/economy>

- Targeted support for small and mid-sized firms that invest in hiring and training workers for AI-related roles.
- Longitudinal studies on the labor market effects of AI diffusion, including regional impacts and implications for the STEM pipeline.

We also urge the plan to account for external pressures on the domestic workforce. For example, tariffs reduce hiring in critical science and engineering roles within U.S. semiconductor firms,⁷ constraining the very pipeline needed to support AI leadership.

Support Economic Research on Governance and Regulatory Impact

The 2023 strategic plan deliberately set aside questions of governance and regulatory design,⁸ focusing instead on technical standards and safety mechanisms. While understandable at the time, this omission left a significant gap in the federal R&D agenda. With countless state-level AI proposals emerging across the country and increasing calls for federal legislative action, there is a pressing need for independent, empirical research into the economic impacts of various regulatory models.

To inform both state and federal decision-making, the 2025 plan should fund studies that examine the costs and consequences of competing approaches to AI governance, including:

- The impact of fragmented state regulations on startup formation, compliance costs, and AI deployment.
- Comparative analysis of policy tools such as voluntary standards, safe harbor frameworks, and preemption.
- Economic modeling of how regulatory uncertainty affects investment and innovation across the AI ecosystem.

These insights are essential for designing governance regimes that safeguard the public interest without stifling innovation. By supporting this kind of research, the federal government can provide an evidence base that helps legislators craft smart, innovation-friendly rules and avoid a patchwork of conflicting mandates that burden emerging firms and technologies.

Promote Fair Use and Responsible Data Infrastructure

A thriving AI ecosystem relies on access to diverse, high-quality training data. The United States' global leadership in AI has been made possible in large part by the foundational principle of fair use, which allows the use of copyrighted material for transformative purposes like training AI models. This principle reflects the core Constitutional purpose

⁷ Mehmet I. Canayaz, Isil Erel, Umit G. Gurun, and Yufeng Wu. *When Protectionism Kills Talent*. National Bureau of Economic Research Working Paper 32466 (May 2024; rev. Jan. 2025).

https://www.nber.org/system/files/working_papers/w32466/w32466.pdf

⁸ National Science and Technology Council (Networking and Information Technology Research and Development Program). *National Artificial Intelligence Research and Development Strategic Plan: 2023 Update*. (May 23, 2023), p. 2.

<https://www.nitrd.gov/pubs/National-Artificial-Intelligence-Research-and-Development-Strategic-Plan-2023-Update.pdf>

of U.S. copyright law “to promote the Progress of Science and useful Arts,” and has been consistently upheld by the courts to foster innovation and scientific advancement. Continued progress in American AI R&D depends on the continued affirmation of the importance of fair use to the nation’s innovation economy by policy makers and its continued judicial application to permit emerging technologies to broadly benefit society.

However, ongoing legal uncertainty – driven largely by the efforts of copyright-controlling litigants to define generative AI training to be outside the scope of fair use – threatens to chill innovation, particularly for startups, academic researchers, and other non-incumbent actors. The 2025 plan should support research that reinforces the centrality of fair use to U.S. innovation policy, while also exploring technical and policy tools that can facilitate broader access to AI training data in ways that are consistent with existing law.

Federal investment should explore a range of approaches, including data provenance infrastructure, differential privacy, federated learning, and secure computation, that may help enable scalable, privacy-preserving access to training data. These technologies, while promising, remain early-stage, and further research is needed to evaluate their effectiveness, interoperability, and practical limitations.

In addition, the plan should fund:

- Studies that assess the economic and innovation-related harms caused by overly restrictive interpretations of copyright in the AI context.
- Exploratory research into attribution frameworks and voluntary licensing registries that could support developers seeking greater certainty without imposing prohibitive burdens or implying that prior authorization to acquire and utilize training data is required in all circumstances..
- Expansion of open, high-quality, fee-free, publicly licensed datasets for training, benchmarking, and experimentation.

By supporting research that reinforces fair use and expands access to training data, the U.S. can preserve its global leadership in AI while enabling innovation across sectors.

Incentivize Compute Efficiency and Lightweight AI Models

Finally, the 2025 plan should do more to support R&D that reduces the computational cost of training and deploying advanced AI models. As model capabilities continue to grow, so too do their hardware and infrastructure demands, creating barriers for startups, academic researchers, and smaller firms that cannot afford to compete at scale.

We urge the federal government to prioritize research into model efficiency, including techniques such as pruning, distillation, quantization, and architecture optimization. In addition, the 2025 plan should:

- Fund R&D on lightweight foundation models designed for edge devices, small-scale deployment, and low-bandwidth environments.
- Support benchmarking frameworks that measure compute efficiency and performance tradeoffs.
- Establish competitive prize challenges that reward breakthroughs in efficiency, including models that achieve comparable performance with a fraction of the compute resources.
- Encourage transparency from model developers around compute use, while avoiding prescriptive or one-size-fits-all mandates.

A focus on compute efficiency will broaden participation in AI development, reduce barriers to entry for smaller players, and create downstream benefits for consumers—such as faster, more affordable, and more widely available AI-powered services. By making efficiency a core priority, the federal government can ensure that AI innovation remains accessible, competitive, and well-distributed across the ecosystem.

Conclusion

Taken together, the recommendations outlined in this comment reflect a vision for an AI R&D strategy that is forward-looking and aligned with the practical needs of the U.S. economy, ensuring that federal investments deliver measurable benefits across sectors and regions. By broadening the federal research agenda to emphasize adoption, workforce development, governance insights, fair data access, and model efficiency, the 2025 strategic plan can unlock the full potential of AI across every layer of the U.S. economy.

Thank you for the opportunity to submit these comments.

Sincerely,

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