

PUBLIC SUBMISSION

Received: May 29, 2025 Tracking No. nba-573f-zd3t Comments Due: May 28, 2025 Submission Type: API
--

Docket: NSF-2025-OGC-0001
NITRD_FRDOC_0001

Comment On: NSF-2025-OGC-0001-0001
Request for Information: Development of a 2025 National Artificial Intelligence Research and Development Strategic Plan

Document: NSF-2025-OGC-0001-DRAFT-0318
Comment on FR Doc # 2025-07332

Submitter Information

Organization: San Diego Supercomputer Center, UC San Diego

General Comment

See attached file(s)

Attachments

SDSC Response to Request for Information on the Development of a 2025 National Artificial Intelligence AI Research and Development RandD Strategic Plan

In Support of Federal Investments into the U.S. Multi-Sector AI Infrastructure

San Diego Supercomputer Center (UC San Diego)

This document is approved for public dissemination. The document contains no business-proprietary or confidential information. Document contents may be reused by the government in developing the 2025 National AI R&D Strategic Plan and associated documents without attribution.

The United States of America's dominance in AI depends on the unparalleled capabilities of our multi-sector national infrastructure. Complementary strengths across industry, academia, and government drive the invention, development, deployment, and scaling of cutting-edge AI technologies and applications. **Strategic federal investments are critical to the success of our nation's AI ecosystem, enabling academic institutions to train the workforce of the future, advance foundational AI research—specifically the invention of next-generation AI algorithms—and translate discoveries into impactful applications. These contributions both underpin and accelerate industry innovation, economic development, and national security.**

University research centers like the San Diego Supercomputer Center, one of the first supercomputer centers established in the 1980s, are unique assets within our national landscape. Federal funding plays a vital role in maintaining the infrastructure and expertise of these centers, which are essential to driving foundational research and its application across sectors.

The data, compute, and expertise infrastructure led by university research centers like SDSC has had a foundational role in the nation's AI preeminence and, with strategic federal investments, will accelerate future AI innovation that strengthens our competitive edge. SDSC, part of the new School of Computing, Information and Data Sciences at UC San Diego, exemplifies how university research centers collaborate with industry to bring state-of-the-art data and compute infrastructure to the national research community. For nearly 40 years, SDSC has also developed expertise that enables the usability of that infrastructure for researchers integrating and developing cutting-edge scientific advances.

The following recommendations highlight foundational components of the existing national infrastructure and urgent gaps that must be addressed collectively through federal funding to sustain the nation's competitive edge in AI:

- Data and compute infrastructure to meet the increased demands of foundational AI research in academia

Strategic federal investments in research infrastructure, particularly through the National Science Foundation, have driven current AI advancements. This includes NSFNET, which connected researchers in the 1980s to supercomputer centers like the SDSC, laying the groundwork for the modern internet. SDSC and counterpart centers have continued to provide crucial data and compute infrastructure for academic innovation since that time. To sustain future research progress, increased investment in data and compute infrastructure is necessary to meet growing demands and avoid capacity limitations.

Investments in compute and data infrastructure are also needed to support the adoption of AI education nationwide. Widespread access to this infrastructure for education is crucial for developing the next generation of STEM talent, but without sustained federal funding, access remains prohibitively costly for most institutions.

- Foundational AI research that will lay the groundwork for the next wave of transformative advancements

Academic institutions are a defining strength of the U.S. AI ecosystem, driving groundbreaking research often long before it can be scaled or broadly adopted. Federally funded research at these institutions has historically led to innovations that later benefit industry, the economy, and national security. For example, NSF-funded research on neural networks in the 1980s laid the groundwork for today's AI applications like ChatGPT. Increased federal investments in foundational AI algorithm research are urgently needed to drive the next phase of scientific and technological advances.

- Scaling the human expertise that bridges gaps for educators and researchers across the country in the wide-scale adoption of AI

Access to data and compute infrastructure alone is crucial, but not sufficient for accelerated AI innovation. Harnessing the full potential of AI requires human expertise, training, and support that bridges gaps for researchers facing barriers to applying AI. This requires federal investment in the people who make data and compute infrastructure usable for the national research community. The experts develop the workflows and structures that make breakthroughs possible. For decades, SDSC and its counterpart institutions have built the expertise that bridges gaps that make data and computationally intensive advancements possible, including through the current NAIRR

Pilot. Scaled progress necessitates investments in expertise infrastructure that grow alongside data and compute infrastructure.

- Cross-sector collaborations focused on translating discoveries into impactful applications

Research pursued in collaboration across sectors accelerates the translation of scientific discoveries into practical applications. An exemplar of this research approach—led by SDSC in partnership with utilities, state and federal agencies, and the private sector—has applied and developed AI advances for over a decade to help mitigate wildfire devastation. Academic expertise can bridge knowledge gaps that address challenges facing industry; greater federal investment in mechanisms that support cross-sector research collaboration would enable academia and industry to more actively leverage their complementary strengths.

In summary, strategic federal investments into our multi-sector national infrastructure are essential to driving the nation’s AI dominance by leveraging the unique strengths of academia to train the next-generation workforce, pioneer foundational AI research breakthroughs, and turn those breakthroughs into real-world solutions that fuel industry innovation, economic growth, and national security.