

# PUBLIC SUBMISSION

<b>Received:</b> May 28, 2025 <b>Tracking No.</b> mb8-ab42-je63 <b>Comments Due:</b> May 28, 2025 <b>Submission Type:</b> Web
--

**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-0142  
Comment on FR Doc # 2025-07332

---

## Submitter Information

**Organization:** Renaissance Philanthropy

---

## General Comment

Please see the attached file for Renaissance Philanthropy's response to the RFI on the Development of a 2025 National Artificial Intelligence (AI) Research and Development (R&D) Strategic Plan. Thank you for your consideration.

---

## Attachments

Renaissance Philanthropy Response to National AI R and D RFI



Docket ID No. NSF-2025-OGC-0001

May 29, 2025

Networking and Information Technology Research and Development National  
Coordination Office  
National Science Foundation  
2415 Eisenhower Avenue  
Alexandria, VA 22314

Dear Director Dohne,

Renaissance Philanthropy appreciates the opportunity to provide input on the 2025 National AI R&D Strategic Plan.

Launched in 2024, Renaissance Philanthropy surfaces breakthrough ideas and incubates ambitious initiatives to fuel a 21st century renaissance in science and technology. Through our [AI and Education Program](#), Renaissance Philanthropy links ideas, talent, and funding to advance innovation in education. Our key initiatives include the global [Learning Engineering Tools Competition](#) and the [Learning Engineering Virtual Institute](#), which seek to widen educational opportunities by leveraging advances in computer and learning sciences and promoting multi-sector collaborations. We share the administration's ambition to tap into the potential of artificial intelligence (AI) for the benefit of society, and recognize AI's transformative power to make education more engaging, personalized, and accessible.

**Recommendations for the 2025 National AI R&D Strategic Plan**

The federal government should facilitate AI-driven improvements in education and other fields through strategic investments in research infrastructure. While there are critical roles for industry, philanthropy, and others to play in securing the U.S.'s AI dominance, the public sector is uniquely positioned to 1) fund the development of high-quality benchmark datasets, 2) grow multi-sector partnerships, 3) support early-stage AI innovations not yet ripe for private investment, 4) stand up coordinated research programs, 5) spark American innovation through national AI challenges, 6) invest in autonomous experimentation infrastructure, 7) support open source software for AI, and 8) build and expand access to biological specimen banks.

To advance AI in U.S. education over the next three years, the federal government should:

- 1) **Fund the development of open, high-quality benchmark datasets in education.** [Benchmark datasets for education](#) are large, well-structured collections of real-world data that can evaluate how AI models perform and if they are helping students or teachers in meaningful ways. These are public goods, which allow anyone to see how models perform and the data they are trained on. Benchmark datasets can also reveal bias and ensure that AI works for everyone, not just select groups. There is not a natural market incentive to create free and open benchmark datasets in education, so a federal investment is vital.
- 2) **Spur multi-sector AI research partnerships to unlock innovations at the intersection of AI and education.** AI research should not belong to a single sector; government, philanthropy, and industry all have different assets to contribute. The U.S. can most effectively understand and leverage AI through multi-sector partnerships. The National Science Foundation's (NSF) [National AI Research Institutes](#), for instance, enlist investments in AI research not only from across several federal agencies, but also from industry partners. The education-focused AI Institutes, including the two co-funded by NSF and the Institute of Education Sciences (IES), are seeding promising innovations, such as an AI-powered [speech and language screener](#) for young children. Federal investments in multi-sector research partnerships should be expanded.
- 3) **Support the development of early-stage AI-powered tools in education.** Federal investments like IES's [Accelerate, Transform, and Scale \(ATS\) Initiative](#) and [Small Business Innovation Research Program \(SBIR\)](#) support the development of AI-powered educational technologies that show promise but are not yet ready for commercialization. The ATS Initiative drives ARPA-inspired, interdisciplinary efforts to "develop and scale breakthrough solutions and capabilities in focused areas that research or industry do not traditionally support." SBIR focuses on supporting the development of research-backed technologies. Since the private sector cannot be relied upon to make early-stage investments, the federal government must sustain ATS and SBIR.
- 4) **Invest in coordinated research programs that use AI to solve the nation's greatest challenges.** [Coordinated research programs](#) build interdisciplinary teams to tackle real-world challenges. The [ATS Initiative](#), inspired by Advanced Research Projects Agencies (ARPAs) like DARPA and ARPA-H, facilitates coordinated research but lacks some of the hiring and peer review flexibilities

ARPAs possess. The federal government should establish a full-fledged ARPA for education, bringing together the nation's brightest minds to innovate around how AI could minimize chronic absenteeism, make significant gains in K-12 math and literacy, and solve other seemingly intractable problems. The federal government should also consider the virtual institute model of coordinated research. The [Learning Engineering Virtual Institute](#) (LEVI), for example, provides five years of technical support to teams developing AI tools to achieve one big goal: to double the rate of middle school math progress for low-income students. With two years left in the program, LEVI teams are already demonstrating promising results. For instance, students using LEVI-supported [PLUS Tutors](#) are nearly doubling their rates of math improvement.

- 5) Fund an annual national challenge inviting a wide array of innovators to use AI to solve the nation's greatest challenges in education.** The National AI R&D Strategic Plan should include [prize competitions](#) as a high-ROI approach to solving clearly-defined challenges in education (and other fields), all while building a broader field of American talent using AI for good. As the founder and organizer of the [Tools Competition](#), Renaissance Philanthropy knows firsthand that challenges and competitions are a high-leverage way to cultivate a broad community of problem solvers. The Tools Competition leverages AI, big data, and learning science to meet the needs of learners worldwide, and is on track to have the tools supported reach more than 100 million learners. An annual national challenge for AI in education should prioritize identifying research-backed innovations that safely and effectively deploy AI in classrooms.

To tap into the full potential of AI in other fields over the next three years, the federal government should:

- 6) Invest in autonomous experimentation infrastructure to unlock real-world value from AI discoveries.** While AI models are able to rapidly generate new hypotheses and potential discoveries, they are still bottlenecked by the sluggish pace at which real-world experiments can be done. Autonomous experimentation infrastructure—robotic automation, scientific equipment, and closed-loop AI systems—bridges this gap by enabling rapid hypothesis testing, iterative learning, and scalable experimentation. Federal investments in this infrastructure can dramatically accelerate the pace at which AI unlocks real-world value, particularly in materials science, biology, and energy innovation. Other [countries](#) have already made significant investment in autonomy-first scientific infrastructure; without similar investment, the U.S. is at risk of falling behind in realizing the competitive advantages of frontier AI development. Autonomous experimentation centers can serve as national R&D assets, similar to

supercomputing assets at universities and national labs, which serve thousands of scientists across the country as shared AI infrastructure.

- 7) Support open source software for AI, ranging from chip design and instruction sets to AI compilers and model serving infrastructure.** Open source software forms the backbone of a secure, competitive, and innovation-rich AI ecosystem. From low-level hardware abstractions like instruction set architectures to compilers, training libraries, and model serving tools, open source enables transparency, reproducibility, and interoperability. Federal investment in open source software infrastructure—such as through programs like [NSF's Pathways to Enable Open-Source Ecosystems \(POSE\)](#)—can support continued innovation and American leadership across the AI software stack. The Department of Energy's new [Foundation for Energy Security and Innovation \(FESI\)](#) could also leverage philanthropic capital to support more energy-efficient open-source AI models and other AI-enabled energy security software systems.
- 8) Build and expand access to biological specimen banks to enable AI-based discovery of new disease treatments.** Biological AI models like AlphaFold are powering discovery of therapeutic candidates, but achieving AI's potential to prevent and cure diseases like cancer and Alzheimer's requires integration of data across biological, medical, and lifestyle domains and over time. Such datasets would allow AI models to detect onset of disease years or even decades earlier than is now possible; discover biological pathways that provide new opportunities to treat currently intractable conditions; identify biomarkers that could be used to make clinical trials more efficient and informative; and define optimal care strategies for a particular individual. Biological repositories, housing specimens from thousands or millions of people that are linked with other health data, can train this next generation of biological AI models. The U.S. should continue to support epidemiological cohort studies and biological repositories, especially those with large sample sizes, longitudinal collection of specimens from participants, and linkages with rich health data. Additionally, partnerships with healthcare systems and pharmaceutical companies could unlock vast biological collections and datasets for AI training. Finally, all of these resources should be made as open as possible, while preserving privacy, to allow many researchers to generate or analyze data, since it is impossible to determine in advance which strategies will prove most powerful.

Renaissance Philanthropy sees the administration's executive order on [Advancing Artificial Intelligence Education For American Youth](#) as a good first step in making the types of investments and infrastructure that strengthen the U.S. as the global leader in

AI. We hope that the 2025 National AI R&D Strategic Plan will be another step in the right direction. Equally as important, though, the administration must match its stated ambitions with the funding, staffing, and expertise required to carry them out.

Thank you for the opportunity to share our ideas and expertise as you shape the 2025 National AI R&D Strategic Plan.

Sincerely,

Kumar Garg  
President, Renaissance Philanthropy

*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.*