

PUBLIC SUBMISSION

| |
|----------------------------------------------------------------------------------------------------------------------------------------|
| Received: May 29, 2025 Tracking No. mb9-eivz-np0a 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-0178
Comment on FR Doc # 2025-07332

Submitter Information

Organization: IBM

General Comment

See attached file(s)

Attachments

IBM - 2025 RandD Strategy RFI Comments FINAL



600 14th St. NW, Suite 300
Washington, D.C. 20005

May 29, 2025

Subject: RFI on the Development of a 2025 National AI R&D Strategic Plan [Docket ID No. NSF-2025-OGC0001]

To Whom It May Concern:

On behalf of International Business Machines Corporation (IBM), we welcome the opportunity to respond to the National Science Foundation's (NSF) and Office of Science and Technology Policy's (OSTP) request for information (RFI) regarding the "Development of a 2025 National Artificial Intelligence (AI) Research and Development (R&D) Strategic Plan."

As the following recommendations attest, there are numerous domains where federal funding can have an outsize impact – domains that may currently be underfunded by the private sector. Likewise, there are opportunities for the 2025 National AI R&D Strategic Plan (hereafter, "AI R&D Strategic Plan") to leverage existing policy vehicles to help promote greater market certainty for American firms. Some of these recommendations include:

- Supporting research into smaller, open source, task-specific models by funding efforts to create task hierarchies relevant to federal missions and analyze cost-benefit tradeoffs between developing specialized versus general-purpose models;
- Focusing on developing more transparent and secure systems through American-led standards and best practices, rather than misguided third party audits;
- Providing seed funding for open-source toolkits that support public use cases; and
- Establishing domestic AI "communities of discovery" that coordinate end-to-end discovery processes to ensure American AI continues to lead among international partners and allies.

IBM commends NSF and OSTP for soliciting these comments. The development of this new AI R&D Strategic Plan will help to secure America's position at the forefront of scientific advancements and technological innovation. We look forward to continuing to work with the administration as it develops the AI R&D Strategic Plan.

Respectfully,

Mike Harney
Vice President of Government and Regulatory Affairs
IBM Corporation

IBM Response to NSF and OSTP RFI on the *Development of a 2025 National AI R&D Strategic Plan*

Funding the Next Wave of Open AI Innovation

In order to ensure American dominance of AI well into the coming decades, the federal government should prioritize research beyond transformer-based architectures, which, while powerful, present challenges in areas such as explainability, energy efficiency, and hallucination risk. Alternative approaches – such as models inspired by neuroscience that incorporate memory hierarchies and dynamic control – offer promising solutions.

In addition, we recommend a shift toward research that can support the development of specialized, task-specific models tailored to federal missions. This includes funding efforts to develop hierarchies of mission-critical tasks and analyzing the tradeoffs between creating many tailored models versus relying on general-purpose systems with guardrails. Efforts should also be made to search for new, more efficient algorithms for model implementation functions. This could include research into new hardware architectures beyond GPUs, as well as co-designing the algorithm and associated hardware to optimize for efficiency. While there are some efforts underway in this arena, its highly exploratory nature means government support could play a key role in catalyzing and coordinating this work. Any improvements developed under the banner of a government-funded R&D effort also means that the associated efficiency improvements would accrue not to any one single entity and could be shared with the broader AI ecosystem.

Investing in Tools and Measurements, not Third-Party Audits

As AI systems become more autonomous, particularly through agentic capabilities, their complexity and risk profile increase. While some legislative efforts have proposed to address these risks through third-party auditing and validation requirements, such efforts are doomed to create unnecessary regulatory bottlenecks at the critical early-stage developmental lifecycle of AI models. Instead, we continue to urge policymakers to address risks presented by specific applications of AI. AI regulation must be contextualized – what works in one domain may not transfer to another.

However, there is research that can be conducted to help focus on developing more transparent and secure agentic systems, taking cues from fields such as software security. For example, the government should prioritize funding tools for combating malicious use, such as the creation of deepfakes, detecting AI-generated content, and jailbreak attempts. The U.S. government can play a key role in further helping to drive adoption of technical standards and best practices as these tools are developed and deployed and real-world feedback is circulated.

In addition, the security of AI systems is vital, particularly as these systems become more complex and agentic. Definitions must be clarified across sectors to align stakeholder expectations. The U.S. government can likewise play a valuable role here, complementing internal red-teaming practices to help promote developing best practices and standards as this field of research continues to evolve.

To help accelerate advancements in this space, the government could consider investments in adversarial and worst-case testing, especially in dynamic, post-training environments where alignment challenges often persist.

American Leadership Through Public-Private Partnerships

Finally, America is well-served by the proliferation of American-built open source models. Such proliferation can be strengthened and managed securely by leading on cross-border collaboration. We recommend forming international “communities of discovery” that are resourced to run full R&D cycles, from hypothesis to validation. These efforts should focus on both technical and infrastructure layers, ensuring that global research partnerships are trusted, comprehensive, and capable of delivering real-world solutions. American-led multinational research consortia like these can help ensure American AI continues to proliferate among allied nations and can play an important role in addressing key challenges facing Western democracies.

Conclusion

IBM commends NSF for undertaking this critically important effort on ensuring the United States’ strategic R&D plan remains up to date with advancements in cutting edge technological developments. As you proceed, we welcome the opportunity to continue engaging with the administration to promote policies that will help accelerate American scientific discovery and ensure continued American dominance in cutting edge technologies.