

# PUBLIC SUBMISSION

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## Submitter Information

**Organization:** OpenMined

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## General Comment

See attached file(s)

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## Attachments

RFI on the Development of a 2025 National AI RD Strategic Plan



# RFI on the Development of a 2025 National AI R&D Strategic Plan

*May 29, 2025*

To: NITRD NCO on behalf of the OSTP

## **Executive Summary**

Thank you for opening this RFI and for taking the time to review this response. OpenMined is aligned with the Administration's mission to promote the flourishing, economic competitiveness, and national security of the free world. We deeply understand that this is predicated on the United States out-competing China in building and deploying the most advanced AI systems globally, and we firmly believe the United States cannot achieve this outcome without a paradigm shift in AI development from centralized to distributed infrastructure. Current AI systems are constrained by the resources a single organization can control, putting the US at a strategic disadvantage against nations that can centralize resources.

We propose that the 2025 National AI R&D Strategic Plan prioritize the development of "*network-source AI*" - a distributed infrastructure enabling controlled collaboration across organizations while maintaining data sovereignty and attribution-based control. Just as ARPANET transformed computing from a race for bigger mainframes into a democratic network that changed the world, America must transform AI from a contest of centralized scale into a distributed collaboration that preserves democratic values while ensuring technological supremacy.

The strategic imperative is clear: China's ability to centralize data and compute resources through authoritarian measures creates an asymmetric advantage that democratic nations cannot match without sacrificing core values. By investing in distributed AI infrastructure over the next 3-5 years, the United States can change the rules of the competition, turning our commitment to privacy, property rights, and individual liberty from constraints into strategic advantages.

## Strategic Priority 1: Expand Foundational Research in Distributed AI Architectures

The 2023 Strategic Plan correctly identifies the need for "*Pursuing Research on Scalable General-Purpose AI Systems*" and "*Fostering Federated ML Approaches*." However, these efforts remain fragmented and underfunded relative to their strategic importance. Current AI systems' reliance on centralized data aggregation creates fundamental vulnerabilities that threaten both our competitive position and our democratic values.

As detailed in our AI Action Plan submission, democratic nations face an impossible choice between losing the AI race or abandoning privacy protections to match authoritarian data collection. This democratic dilemma emerges from the technical limitations of current architectures, where single-organization resource constraints limit AI capabilities. Moreover, existing systems suffer from attribution failure - they cannot maintain source attribution through computation, making it impossible for data owners to control how their information is used.

Over the next five years, the federal government should fund research into interoperable protocols for AI component communication, creating standards for attribution-preserving computation across distributed nodes. This foundational work must include developing consensus mechanisms for decentralized AI governance that can operate at scale. Beyond protocols, we need advances in privacy-preserving distributed learning that extend federated approaches beyond simple averaging to complex model architectures. Research into secure multi-party computation optimized for AI workloads will be essential, as will developing verified computation techniques for trustless AI collaboration.

Current federal programs demonstrate a strong foundation for expansion. The [NSF Privacy-preserving Data Sharing in Practice \(PDaSP\)](#) program provides support for practical privacy-preserving solutions that solve real-world problems. [DARPA's Cooperative Secure Learning \(CSL\)](#) initiative advances secure multiparty computation and homomorphic encryption technologies essential for distributed systems. The [DOE Privacy Preserving Analysis and Learning in Secure and Distributed Enclaves and Exascale Systems \(PALISADE-X\)](#) project pursues innovative research to explore the development and use of privacy-preserving AI for key, grand challenge datasets such as those that are the focus of the NIH Bridge2AI program.

## Strategic Priority 2: Building National Distributed AI Infrastructure

This priority combines and enhances elements from Strategy 5, *"Develop Shared Public Datasets and Environments,"* and Strategy 8, *"Expand Public-Private Partnerships,"* through a distributed architecture.

The National AI Research Resource (NAIRR) pilot program, operational through January 2026, has already supported hundreds of research projects across more than 40 states. With over a dozen federal agencies and scores of industry partners participating, NAIRR demonstrates the feasibility of federated infrastructure.

Complementing NAIRR, the DOE and its National Laboratories have been driving progress in AI for decades through their enabling infrastructure, like the next generation of [exascale supercomputing](#). More recently, [DOE has identified 16 federally owned sites](#) to support the buildout of additional physical AI infrastructure in the form of data centers and their specialized IT equipment, among other things. These physical infrastructure investments provide the backbone for distributed AI deployment.

Building on the NAIRR's demonstration of the feasibility of federated infrastructure and the DOE's expansion of physical infrastructure for AI, we propose establishing a National AI Research Network (NAIRN) that extends NAIRR's federated model and joins it with DOE's physical infrastructure through secure protocols. Such a protocol would be used to connect federal laboratories, universities, and industry partners across the country and empower them to leverage each other's resources for AI more efficiently and effectively. Unlike traditional centralized infrastructure, NAIRN would enable controlled data sharing without centralization, providing computational resources through a truly distributed grid. This network would allow organizations to contribute to and benefit from collective AI capabilities while maintaining agency over their data and computational resources.

Distributed AI testbeds should also be established at national laboratories and universities, creating environments where researchers can experiment with these new architectures at scale. These testbeds would serve as proving grounds for distributed AI techniques, enabling researchers to validate theoretical advances and demonstrate practical capabilities. University consortia should receive funding to develop regional distributed AI clusters, creating a diverse ecosystem of experimentation and innovation. Such testbeds should leverage existing NSF AI Research Institutes, including the AI-EDGE Institute at Ohio State University, which conducts research in future edge

networks and distributed intelligence, the Athena Institute at Duke University, which focuses on edge computing with AI functionality and the ICICLE Institute, also at Ohio State, which develops "plug-and-play" AI infrastructure to democratize access. These institutes, along with their industry partners, provide immediate platforms for distributed AI experimentation.

### **Strategic Priority 3: Accelerating Distributed AI Through Grand Challenges**

Following the successful DARPA model, the government should create grand challenges that specifically require distributed solutions. These challenges would demonstrate the superiority of distributed approaches while solving problems of national importance.

In healthcare, challenges could focus on developing diagnostic AI that preserves patient privacy across institutions, enabling collaborative drug discovery without sharing proprietary data, and creating population health models that respect individual consent. Scientific discovery in other disciplines, like materials science and astronomy, present additional compelling opportunities for distributed AI, in that they can help prove that distributed AI can deliver superior results while maintaining the privacy protections essential to a democratic society.

### **Strategic Priority 4: Workforce Development for Distributed AI**

The 2023 strategic plan's workforce initiatives must expand to include specialized training in distributed AI architectures. This isn't merely about adding another topic to the curriculum - it requires fundamentally rethinking how we prepare the next generation of AI researchers and practitioners.

Universities should receive funding to develop comprehensive distributed AI curricula that integrate systems thinking, privacy-preserving techniques, and collaborative architectures. Fellowship programs should be established specifically for researchers working at the intersection of distributed systems and AI, creating a pipeline of expertise that doesn't currently exist. Online courses and certification programs can extend this training to the existing workforce, ensuring that current practitioners can adapt to the distributed future.

Federal workforce enhancement requires particular attention. Government AI professionals need training in distributed architectures to effectively oversee and guide national initiatives. Cross-agency working groups focused on distributed AI should be established, creating communities of practice within government. Rotation programs

with industry leaders in distributed AI can bring cutting-edge expertise into government while giving industry professionals experience with public sector challenges.

## **Strategic Priority 5: International Leadership Through Democratic AI**

Strategy 9 of the 2023 plan addresses international collaboration, but it must be reconceptualized around distributed AI leadership. Rather than competing on centralized scale where authoritarian nations have structural advantages, America should lead the creation of international distributed AI standards that embed democratic values.

Building on NIST's leadership in AI standards, the United States should spearhead a Democratic AI Alliance. This alliance would leverage existing international collaborations, such as NIST's privacy-preserving federated learning testbed with the UK government, to create broader partnerships. Working with allies, we can establish bilateral and multilateral distributed AI research programs that create democratic alternatives to authoritarian AI systems, ensuring that nations need not sacrifice their values to participate in the AI revolution.

Global protocol leadership requires more than technical excellence - it demands strategic thinking about network effects and adoption dynamics. NIST's Zero Drafts Pilot Project for accelerated standards development provides a model for rapid yet rigorous standard setting. The United States must position itself as the indispensable leader in distributed AI protocols, creating ecosystems where American values and technologies become the global default.

This approach transforms our commitment to democracy from a constraint into the foundation of technological leadership. By leading protocol development and standardization, America can ensure that the global AI infrastructure reflects democratic principles of privacy, consent, and individual rights while maintaining a competitive advantage through network effects and ecosystem control.

## **Implementation Roadmap**

The first two years (2025-2026) should focus on foundation building within existing program structures. Federal agencies, including NSF, DARPA, and DOE, should expand their distributed AI research programs, establishing clear mandates for distributed architectures. The NAIRR pilot provides immediate infrastructure for early demonstrations. Initial protocol development and standardization efforts must begin immediately through NIST's established processes, leveraging existing expertise while

building new capabilities. The first distributed AI grand challenges should launch within 18 months using DARPA's proven challenge model, demonstrating early wins while building momentum for larger efforts.

Years three and four (2027-2028) should emphasize infrastructure deployment as DOE's 16 AI data center sites become operational and NAIRR transitions from pilot to full implementation with Congressional authorization. The distributed testbed network should expand to ten or more locations, creating a critical mass of experimental capability across the AI Research Institutes. Open-source protocol implementations should be released through NIST and refined based on real-world experience from the NAIRR and institute networks. Successful grand challenge solutions should be scaled and transitioned to operational use, demonstrating the practical benefits of distributed approaches.

By year five (2029), the ecosystem should reach maturation with over 100 organizations actively participating in distributed AI networks. America should achieve recognized leadership in global distributed AI protocols, with a clear demonstration of superior capabilities compared to centralized approaches. The groundwork should be laid for the next strategic planning cycle, building on lessons learned and capabilities developed during this transformative period.

## **The ARPANET Moment for AI**

The 2025 National AI R&D Strategic Plan must recognize that the future of AI is distributed, not centralized. By building on the substantial federal investments already underway—from NAIRR's federated infrastructure to NSF's distributed AI institutes to DARPA's secure computation programs—the United States can transform its democratic values from constraints into competitive advantages. Just as ARPANET created American dominance in computing by changing the rules of the game, distributed AI can ensure American leadership while preserving the freedoms that define us.

The federal government has already laid significant groundwork with current AI R&D funding, established distributed computing programs, and a growing ecosystem of public-private partnerships. The window for action is limited as China and other nations rapidly advance centralized AI capabilities. By pivoting to distributed architectures now, building on our existing investments and programs, America can lead the world into an AI future that enhances rather than threatens human freedom.

We urge the Trump Administration to make distributed AI infrastructure the cornerstone of the 2025 Strategic Plan, building on existing programs while providing the additional

targeted funding, clear milestones, and unwavering commitment to the democratic values that must guide our technological future. The federal government's unique role is to fund the foundational research, build the critical infrastructure, and convene the partnerships that will make this vision a reality. Let's get building!

Warmly,

Lacey Strahm  
Head of Policy, OpenMined