

# The National AI Research Resource (NAIRR) Pilot

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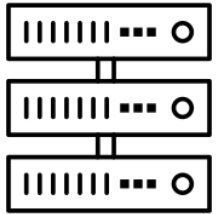
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# Vision and goals for a National AI Research Resource

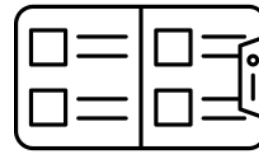
**A widely-accessible, national research infrastructure** that will advance the U.S. AI R&D environment, discovery, and innovation, through access to



Significant **computing** resources



High-quality **datasets** and **foundation models**



**Software and data tools** and platforms



**Education and support** resources and materials

## Goals

- ✓ Democratize access to resources that can be costly and hard to navigate.
- ✓ Assure that public interest is strongly represented in AI and drives a responsible and trustworthy AI ecosystem.
- ✓ Improve U.S. capacity for AI R&D, spur innovation, and increase the diversity of AI talent and expertise.

# How did we get here?

- 2020 AI Initiative Act mandated a NAIRR Task Force be created to examine the concept
- June 2021 - NAIRR Task Force launched by OSTP and begins extensive work.
- January 2023 - Task Force final report provides implementation plan for a \$2.6B initiative.
- March 2023 – OSTP and NSF establish a NAIRR Interagency Working Group with 14 agencies to plan a pilot effort.
- October 30, 2023 - President's Executive Order on Safe, Secure, and Trustworthy AI.
  - *Directed NSF and collaborating agencies to launch a **NAIRR pilot** within 90 days.*



## Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence

By the authority vested in me as President by the Constitution and the laws of the United States of America, it is hereby ordered as follows:

Section 1. Purpose. Artificial intelligence (AI) holds extraordinary potential for both promise and peril. Responsible AI use has the potential to help solve urgent challenges while making our world more prosperous, productive, innovative, and secure. At the same time, irresponsible use could exacerbate societal harms such as fraud, discrimination, bias, and disinformation; displace and disempower workers; stifle competition; and pose risks to national security. Harnessing AI for good and realizing its myriad benefits requires mitigating its substantial risks. This endeavor demands a society-wide effort that includes government, the private sector, academia, and civil society.

## Agencies

- National Science Foundation
- Defense Advanced Research Projects Agency
- Department of Agriculture
- Department of Defense
- Department of Energy
- Department of Veterans Affairs
- National Aeronautics and Space Administration
- National Institutes of Health
- National Institute of Standards and Technology
- National Oceanic and Atmospheric Administration
- US Patent and Trademark Office (USPTO)

## Non-governmental orgs

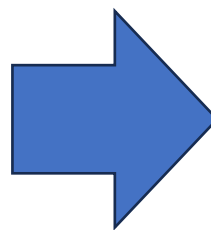
- AI2: Allen Institute for AI
- AMD
- Amazon Web Services
- Anthropic
- Cerebras
- Databricks
- Datavant
- Eleuther AI
- Google
- Groq
- Hewlett Packard Enterprise
- Hugging Face
- IBM
- Intel
- Meta
- Microsoft
- MLCommons
- NVIDIA
- Omidyar Networks
- OpenAI
- OpenMined
- Palantir
- Regenstrief Institute
- SambaNova Systems
- Vocareum
- Weights & Biases

See: <https://new.nsf.gov/focus-areas/artificial-intelligence/nairr>



## In-kind contributed resources

- Access to computing hardware, systems and testbeds
- Cloud computing credits and access to associated models, data and software platforms
- Software/platform licenses for NAIRR Pilot users
- Open large language models, datasets, software libraries and privacy-enhancing platforms
- API access and research collaborations on closed models
- Educational platforms 'notebooks' for classrooms and students
- Enhanced training, expertise and user support.



*Working now at speed to integrate these resources into the pilot and make them available to the research and education community*



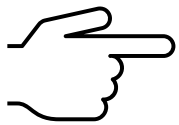
See: <https://new.nsf.gov/focus-areas/artificial-intelligence/nairr>



# NAIRR Pilot Objectives

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1. Demonstrate the value & impact of the NAIRR concept.
2. Support novel & transformative AI research and education with participation from broad communities.
3. Gain initial experience to advance and refine the NAIRR design in preparation for a full NAIRR implementation.



The pilot will demonstrate or investigate all major elements envisioned in the NAIRR, but at a **limited** scale.

A best effort, **proof of concept** approach leveraging agency-supported resources and in-kind contributions from industry and non-profits.



User Journey



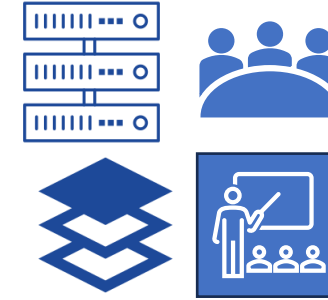
**US-based  
Researchers,  
Educators &  
Students**



**NAIRR Pilot  
Portal**

<https://nairrpilot.org>

*Built by SGX3*



**Pilot Resources  
and Opportunities**

The NAIRR Pilot provides infrastructure and resources; it does not fund end-user research.

Operations

**NAIRR  
Open**

Enable open AI research and access to diverse AI resources via a central portal and coordinated allocations

**NAIRR  
Secure**

Enable AI research needing privacy and security-preserving resources. Assemble exemplar privacy preserving resources.

**NAIRR  
Software**

Facilitate use of AI software, platforms, tools and services across platforms

**NAIRR  
Classroom**

Reach new communities through education, training, user support and outreach



**Governance**



**Community Design  
Process**



## Current Opportunities

### SURVEY OF US RESEARCHERS, EDUCATORS, AND STUDENTS

We are eager to learn your use cases for the NAIRR Pilot, your challenges using AI resources, and other perspectives. The survey is open through March 8, 2024.

[Fill out survey](#)

*Extended to March 31*



### APPLY FOR COMPUTING

An initial set of NAIRR Pilot advanced computing resources, such as GPUs, is available to researchers and educators. The call is open through March 1, 2024.

[Apply for computing](#)

*>150 submissions – under review  
Next open call under preparation*

### PILOT RESOURCES

Partners are contributing many kinds of resources to the pilot, such as pre-trained models, AI-ready datasets, and relevant platforms.

[View Pilot resources](#)



NSF 24-051

## Dear Colleague Letter: Request for Information on Researcher and Educator Use Cases for the National Artificial Intelligence Research Resource (NAIRR)

January 24, 2024

Dear Colleagues:

Artificial Intelligence (AI) resources and tools are rapidly advancing and becoming vital to science and engineering research and education. Progress at the AI research frontiers and effective use of AI in other research domains and in education often requires access to research infrastructure resources that may be difficult to find, access, and utilize, such as large-scale computing resources, AI-ready datasets, pre-trained

<https://www.nsf.gov/pubs/2024/nsf24051/nsf24051.jsp>



- Encourages responses from researchers, educators and students
- Barriers, challenges, and priorities for accessing and using AI resources and tools.
- Results will guide the NAIRR pilot, eventually full NAIRR and other investments.
- Robust and ongoing response covers all NSF domains and other areas.

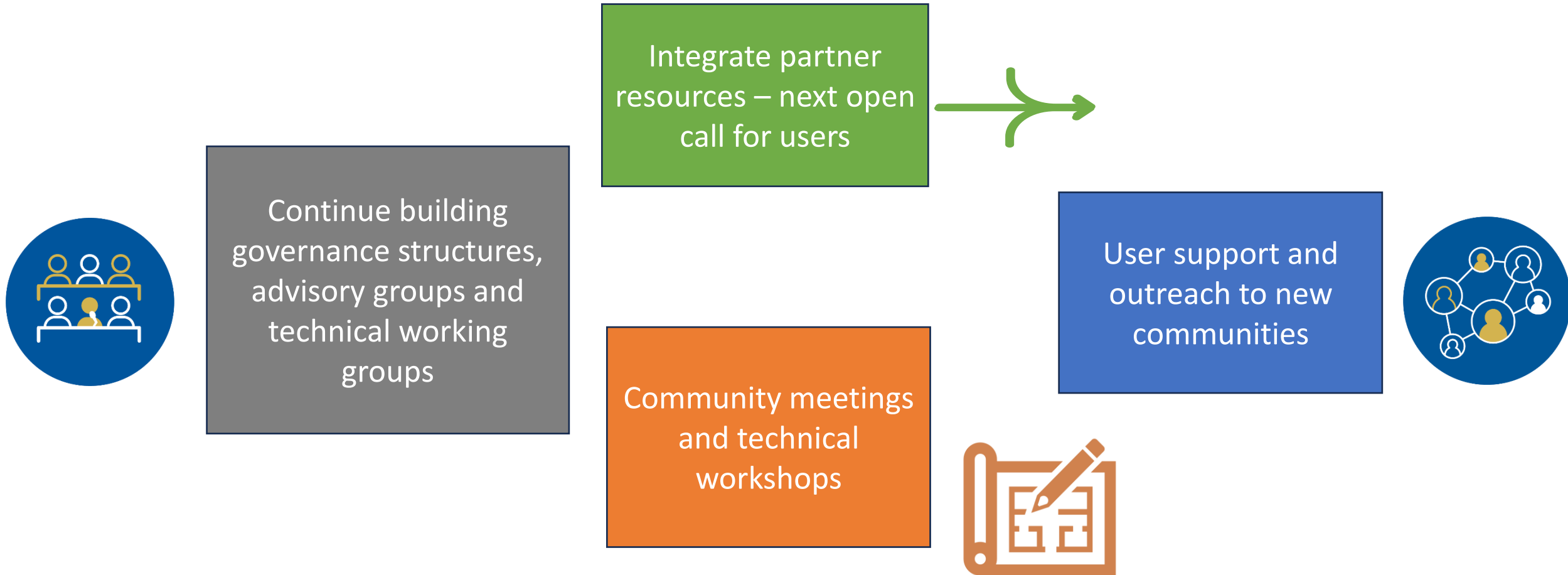
- NSF and DOE are collaborating to provide special access to certain resources and testbeds to US-based researchers for a limited period (Jan 24 to Mar 1, 2024).
  - DOE ORNL **Summit** pre-exascale HPC and Argonne NL ALCF **AI Testbed**
  - NSF-supported **Delta GPU, Frontera, Lonestar6, and NeoCortex** testbed.
  - See <https://nairrpilot.org/allocations>.
- Thematic focus of this initial call: **Safe, Secure and Trustworthy AI**. Other projects may be considered if aligned with NAIRR Pilot goals.
- Using processes inspired by Covid-19 HPC Consortium, and derivations of the NSF-supported ACCESS backend (XRAS, allocations expertise, user support, ...)
- Announcement of the allocated projects will be made after the review and matching process is complete.
- Next open call with more resources planned for the Spring timeframe.

# Early results

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- Scale and breadth of industry in-kind contributions validates the stated interest in working with government to achieve the goals.
- Pilot has confirmed a strong cross-agency interest and involvement, and overwhelming researcher needs.
- Education interest in NAIRR for classrooms and student projects has skyrocketed.  
→ Will accelerate the NAIRR Classroom pilot area.
- Many needs expressed for integrated pathways between data and compute  
→ Will begin building *pilot demonstration projects* including through the National Discovery Cloud for Climate (NDC-C) and pilot partner collaborations.

# What's next?



# Thanks! Questions?

Stay connected to the NAIRR pilot

- Subscribe for announcements: send a blank email to [nairr\\_pilot\\_announcements-subscribe-request@listserv.nsf.gov](mailto:nairr_pilot_announcements-subscribe-request@listserv.nsf.gov)
- Send inquiries to [nairr\\_pilot@nsf.gov](mailto:nairr_pilot@nsf.gov)

