

Current Opportunities

Describe Your Use Cases

Tell us your AI research infrastructure use cases, your challenges with using existing resources, and other perspectives to inform the future of the NAIRR Pilot.

Responses accepted through **March 8, 2024.**

<https://bit.ly/3SvXT8C>



Access to Computing

An initial set of NAIRR Pilot advanced computing resources, *including GPUs*, is available to researchers and educators.

The call is open through **March 1, 2024.**

Future call in Late March

<https://nairrpilot.org/allocations>



Datasets & Other Resources

Browse other initial resource contributions, such as pre-trained models, AI-ready datasets, and research platforms.

More coming soon!

<https://nairrpilot.org/pilot-resources>





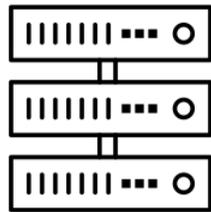
All About The National AI Research Resource (NAIRR) Pilot Effort

February 2024

NAIRR Pilot

Vision for the National AI Research Resource

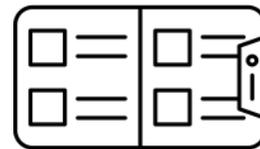
A widely-accessible, national research infrastructure that will advance the U.S. AI R&D environment, discovery, and innovation by empowering a diverse set of users through access to:



Secure, high-performance, privacy-preserving **computing**



High-quality **datasets**



Catalogs of **testbeds** and **educational materials**



Training tools and **user support** mechanisms

Goals:



Spur **innovation**



Increase the **diversity** of talent in AI



Improve U.S. **capacity** for AI R&D



Advance **trustworthy AI**

Why do we need a NAIRR?

- AI holds potential to solve critical societal and global challenges
- Many researchers and educators lack access to sufficient resources
- Researchers investigating AI to serve the public good and to train the next generation of researchers need access to essential resources



How did we get here?

- 2020 AI Initiative Act created a congressionally mandated NAIRR Task Force
- June 2021 - NAIRR Task Force launched to examine the feasibility of a NAIRR
- Jan 2023 - Task Force final report provides implementation plan including optional pilot
- March 2023 - NAIRR Interagency Working Group established with 14 agencies - led by OSTP & NSF
- October 30, 2023 - President's Executive Order on Trustworthy AI directs NSF and collaborating agencies to launch NAIRR pilot within 90 days



What is the scope and scale of the *full* NAIRR?

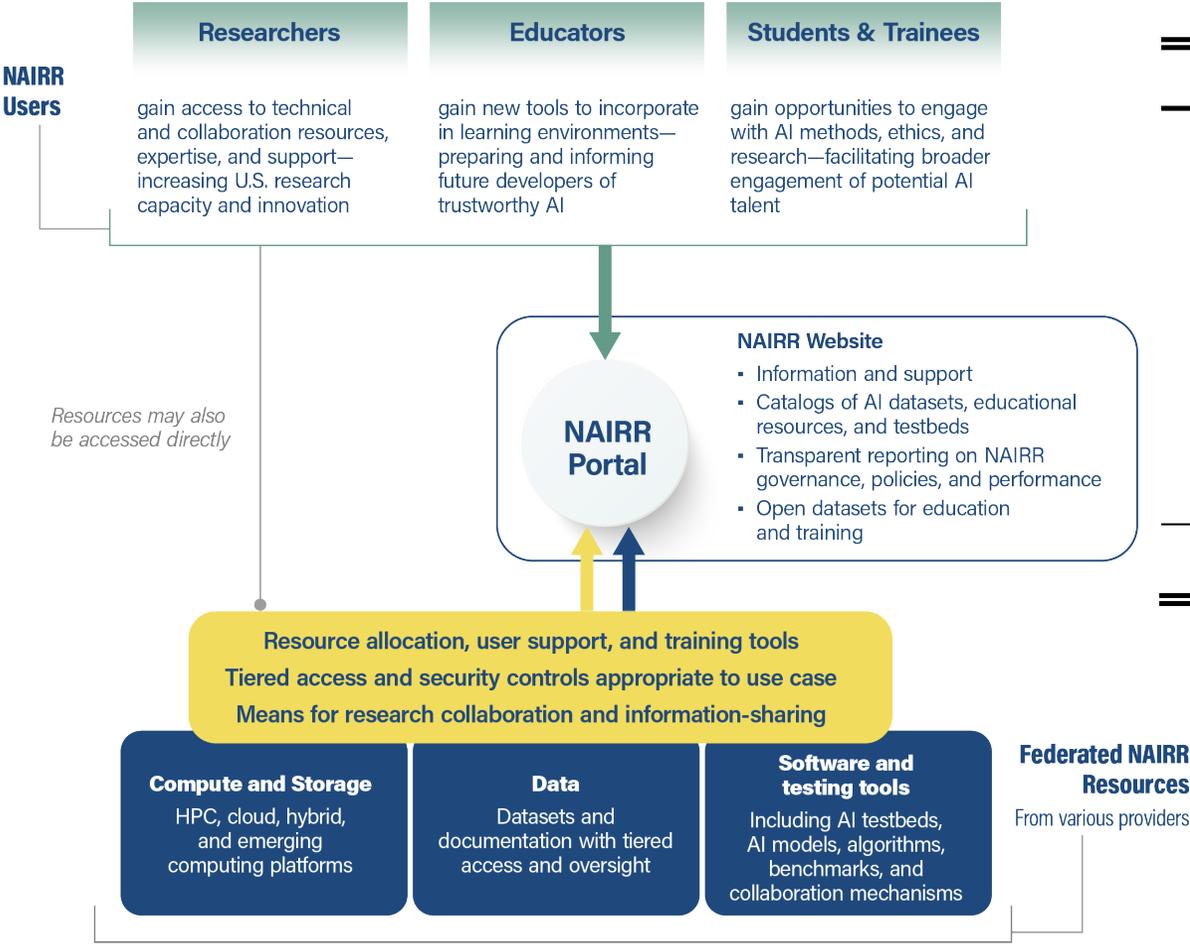


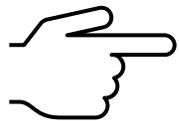
Table 1. NAIRR Six-Year Budget Summary*

Year	Resource Providers	Operating Entity	Evaluation	Total
1	\$375M	\$70M	\$5M	\$450M
2	\$375M	\$60M	\$5M	\$440M
3	\$375M	\$60M	\$5M	\$440M
4	\$375M	\$60M	\$5M	\$440M
5	\$375M	\$60M	\$5M	\$440M
6	\$375M	\$60M	\$5M	\$440M
6-year total	\$2.25B	\$370M	\$30M	~ \$2.6B

*** NOTE: only an estimate from the Task Force. No funding has yet been appropriated for NAIRR.**

NAIRR Pilot Goals

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.

<https://nairrpilot.org/>

10 agency and 25 non-gov partners

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More coming soon!

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Available to research community **today**:

- Access to advanced computing systems and testbed architectures from DOE and NSF
- Select datasets from agency partners

Available in **late March***

- 2nd open opportunity to access resources
- Wider range of capabilities, including cloud computing, API access to trained models, community platforms and collaboration opportunities

*Pending system and funding availability



Agencies

- US 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 Trade Office (USPTO)

➤ More Joining!

Non-governmental orgs

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

➤ More Joining!

Types of Contributions

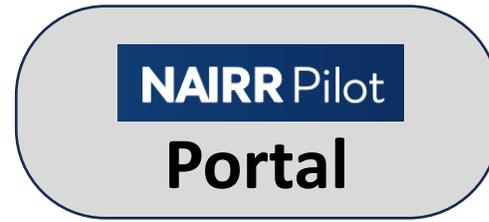
- Cloud computing credits and access to associated models, data and software platforms
- Access to computing hardware, systems and testbeds
- Software/platform licenses for NAIRR Pilot users
- Open large language models, datasets, software libraries and privacy-enhancing platforms
- API access and research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



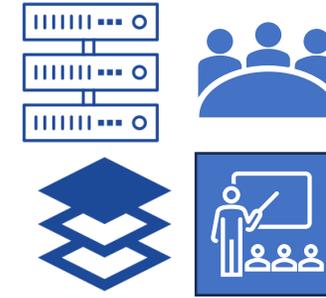
NAIRR Pilot Organization

User Journey


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



<https://nairrpilot.org>



**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**



NAIRR Pilot Users



AI Researchers



Domain Scientists
Applying AI



Students and
Educators

US-Based Institutions including:

- Academic institutions
- Non-profits
- Federal agencies or federally-funded R&D centers
- State, local, or tribal agencies
- Startups and small businesses with Federal grants

Initial priority areas as pilot is scaled

Initial themes will frame the first open calls for proposals and scope activities

- **Safe, Secure, and Trustworthy AI**

- Testing, evaluating, verifying and validating AI systems
- Improve accuracy, validity and reliability of model performance, while controlling bias
- Advance the ability to assure model functionality and align output with human values and safety guardrails

- **Healthcare**

- Cancer treatment
- Individual health outcomes

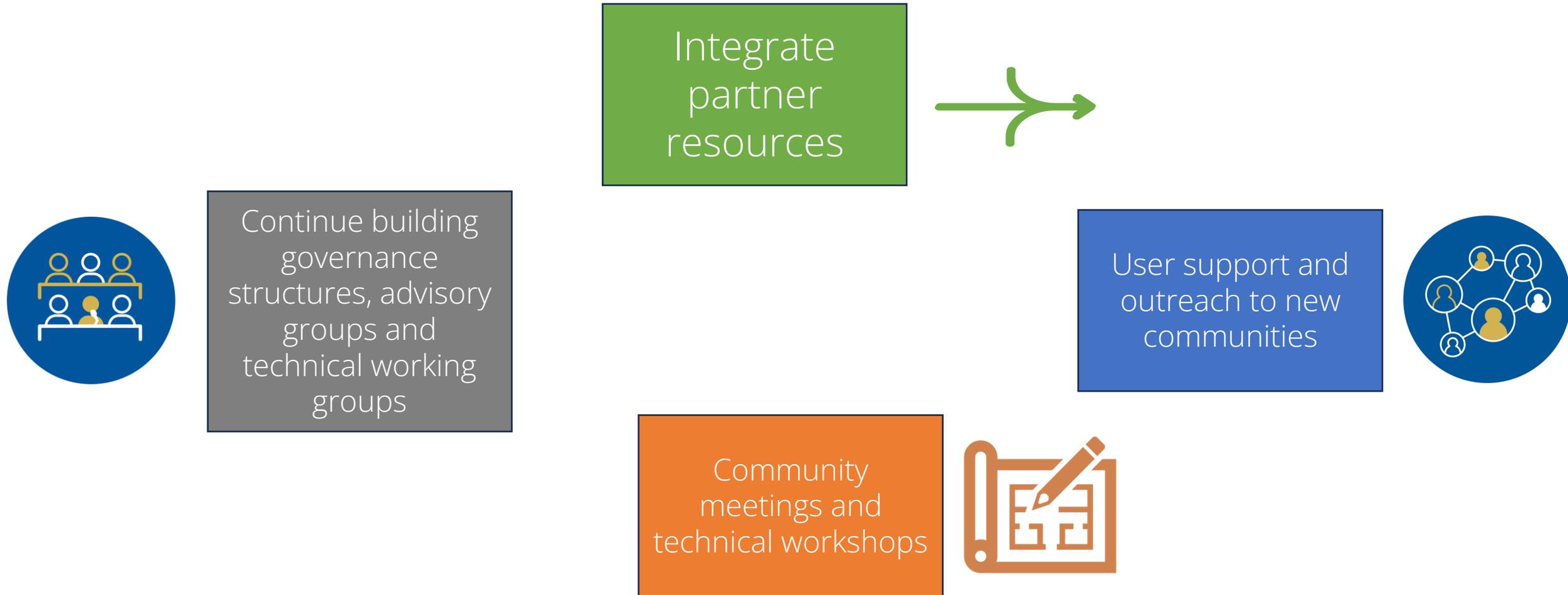
- **Environment and infrastructure**

- Advance resilience and optimization of agricultural, water, and grid infrastructure
- Address earth, environmental, and climate challenges via integration of diverse data and models

- **AI Education**

- Enable training and education of a cohort of scholars at universities across the country in AI technologies and their responsible use

What's next after the launch?



Computing Resources Available



U.S. DEPARTMENT OF
ENERGY

Office of
Science

- Frontera / Lonestar6
 - Large CPU / GPU resources
- Delta
 - GPU-focused resource
- Neocortex
 - Wafer-scale AI accelerator
- Summit
 - Large capacity CPU/GPU system
- ALCF AI Testbed
 - Various AI Accelerators



Coming Late March* (Stay tuned!)

- More Advanced Computing offerings
- Access to Cloud resources
- Access to trained models, community platforms and collaboration opportunities
- Sneak peak of future resources at:
<https://bit.ly/4bedykr>



*Pending system and funding availability

Scaling the NAIRR Pilot

Pilot Launch Jan. 24, 2024



Enhanced Pilot Spring 2024

- NAIRR Pilot Portal goes live
- Call for access to NSF and DOE high performance computing systems targeting responsible and trustworthy AI research
- Initial datasets available from agencies and partners
- RFI Survey of Researcher and Educator use cases
- Projects supported ~25-50

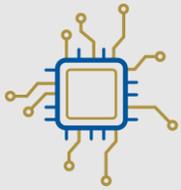
- Access to additional computing resources
- Future calls on targeted topics
- Enhanced user functionality
- Projects supported: ~100-300

Support NAIRR Pilot users and outreach to new communities

- Build out support and community for NAIRR pilot users
- Outreach to new communities, working through consortia, state and regional networks
- Pilot classroom resource support targeting rural and underserved institutions
- Consult with other agency projects



Connecting the National Secure Data Service Demonstration project with the NAIRR Pilot



The 2022 CHIPS and Science Act calls for a 5-year demonstration project to develop, refine, and test models to inform the full implementation of a National Secure Data Service (NSDS). The NSDS is envisioned as a government-wide data linkage and access infrastructure to support evidence building. **More info at:** <https://nces.nsf.gov/nsds>



The 2022 CHIPS and Science Act also calls for consultation with NAIRR. The NSDS Demonstration and NAIRR have multiple overlapping priorities, such as the use and integration of privacy preserving techniques, secure compute environments, standardization, and other tools.



NCSES is sponsoring an upcoming webinar to share ideas for new NSDS Demonstration projects. One breakout session will focus on utilizing AI in a shared service environment. Coming soon to <https://www.americasdatahub.org/events>

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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

- 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.

<https://bit.ly/3SvXT8C>

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Questions and Discussion