CASC | Coalition for Academic Scientific Computation

CASC Response to the U.S. National Science Foundation's Directorate for Technology, Innovation and Partnerships RFI: Tech Labs Initiative

Submitted by: Coalition for Academic Scientific Computation (CASC)

Reference: NSF-Tech Labs-FY26-RFI

Question 1. Briefly describe your organization, capabilities, services offered, ownership model, and size.

The Coalition for Academic Scientific Computation (CASC) is a U.S.-based nonprofit association representing over 108 member institutions, including R1 and non-R1 universities, national laboratories, regional consortia, and research organizations. CASC's members collectively operate and support the nation's advanced computing, data, and research cyberinfrastructure (CI) ecosystem.

CASC serves as a national coordinating and convening body for academic research computing and data organizations, aligning policy, strategy, and practice across institutions, regions, and sectors. Through its member-driven community, CASC advocates for sustained public and private investment in research computing and data services; advises federal agencies—including NSF, DOE, NIH, and others—on program design and funding priorities; and engages directly in policy discussions affecting the research computing ecosystem. CASC provides analysis and guidance on workforce development, infrastructure sustainability, security, and governance, while fostering consensus-building and the sharing of strategic insights and best practices among leaders across higher education, government, and industry.

CASC does not operate research programs directly; rather, it serves as a trusted intermediary and coordination body, helping align institutional capabilities, national priorities, and workforce needs.

Question 2. What substantive comparative advantage could the NSF Tech Labs program model provide compared to standard grants and existing NSF programs?

CASC believes the NSF Directorate for Technology, Innovation and Partnerships Tech Labs initiative could offer distinct advantages over traditional NSF mechanisms when applied to appropriate problem domains.

Specifically, Tech Labs could:

- Enable full-time, integrated teams whose work is difficult to sustain under PI-centric, short-term grant structures

- Support multi-year platform development, particularly where advanced computing, data pipelines, AI workflows, or secure environments are essential
- Bridge persistent gaps between research results, prototypes, and commercialization readiness
- CASC members consistently report that traditional grants struggle to support:
  - Long-lived software and data platforms
  - Cross-institutional CI integration
  - Sustained engineering and operational roles

If well governed, Tech Labs could complement—not replace—existing NSF programs by addressing these gaps. Importantly, Tech Labs could fix a serious problem with the way new ideas are handled in the U.S. research ecosystem. Researchers and their teams of undergraduate and graduate students explore and prove validity of some great and innovative ideas in their papers and thesis documents. Then they get put on a shelf. The financial system in the U.S. does not pick up the majority of these ideas to turn them into startup companies. A few are developed by startup companies, and then the financial system buys them if the ideas are considered financially viable. Many ideas remain unexplored in the U.S., but China has labs with billion-dollar budgets to try everything they can lay their hands on, published in the open literature or stolen from U.S. information systems. They explore and find uses for many of these ideas. Tech Labs, if funded generously, can greatly help this situation.

Question 3. Could your team become an NSF Tech Lab? (Y/N)

No.

CASC is not proposing to become an NSF Tech Lab. As a membership organization, CASC's role is coordination, policy input, and ecosystem stewardship rather than direct execution of RDI activities. However, many of the 108+ member organizations are great candidates to become Tech Labs.

Question 3(b)(i). What existing technology translation teams could become an NSF Tech Lab?

Based on CASC member experience, viable Tech Lab candidates may include:

- Multi-institution cyberinfrastucture software and platform teams operating across universities and national labs
- Regional or state-scale advanced computing organizations with sustained industry engagement
- Long-standing research software engineering and data infrastructure teams that already support translational research
- These teams typically already function informally as "labs" but lack stable, flexible funding.

Question 3(b)(ii). Describe the ideal scope, experience, management, and structure of a Tech Lab team.

An effective Tech Lab team should:

- Combine technical depth (compute, data, software, AI, security) with translation experience
- Include professional engineers, not only faculty or students
- Operate with a clear management structure, including technical leadership and operational accountability. The Tech Labs should have a Chief Executive Officer (CEO) moving forward the vision and mission, a Chief Technology Officer (CTO) to ensure the intellectual ideas are vetted and implemented properly, and a Chief Financial Officer (CFO) to ensure that funds are spent wisely but who should not impose artificial financial boundaries on the technology vision.
- Demonstrate experience working across academia, industry, and public-sector partners

Question 4. What program design choices would contribute to success or create barriers?

Question 4(a). Team eligibility and restrictions

CASC recommends eligibility for:

- University-anchored teams or university-sponsored startup companies with demonstrated cross-institutional reach
- Nonprofit or independent research organizations with transparent governance
- Teams with formal partnerships spanning academia, industry, and public infrastructure providers

Restrictions should focus on:

- Preventing conflicts of interest
- Ensuring openness and accountability
- Avoiding concentration of awards among a small set of institutions or individuals

Question 4(b). Are the proposed Phase timelines well calibrated?

The proposed phases are generally reasonable; however:

- Phase 0 should emphasize governance, team readiness, and access to CI resources, not only technical planning.
- Phase 1 length of 24 months is the right length.
- Phase 2 should be 8 years in length to allow long-term commitment to staff, business and academic partners, with the following conditions:
    - Tech Labs should be run under a form of lightweight cooperative agreement, which ensures that the responsible NSF officer is aware of Tech Labs activities
    - Annual lightweight reporting on agreed milestones and timelines to and review by NSF; this should not take 1 month of effort
    - The funding should continue by default, except when the annual review raises red flags and an investigation results in termination of funding
- Milestones should explicitly assess organizational health and accountability, not just technical progress.

Question 4(c). IP rights

Intellectual property (IP) frameworks should: enable commercialization while protecting public investment; preserve access to foundational software, data, and infrastructure; and avoid opaque or exclusive arrangements that undermine trust.

- Even though NSF provides public funding, the technical details of Tech Labs work should be allowed to remain unpublished until the proper patents have been secured.
- Provisions must be made such that for some inventions the IP can be classified and never be published.

Question 4(d). Degree of independence

Operational autonomy is essential, but **independence must be bounded**. NSF should define independence in terms of technical decision-making flexibility and budget execution authority, while maintaining clear reporting requirements and external oversight and review mechanisms. This can be handled by using a lightweight cooperative agreement contract instead of a traditional grant contract.

Question 4(e). Funding considerations

Funding levels should be negotiated with NSF for each phase based on the Tech Lab project plan and statement of work to reflect:

- Team size and expertise
- CI and infrastructure requirements
- Maturity of the technology platform
- Project plan milestones and deliverables

CASC cautions against one-size-fits-all award sizes.

Question 5. What opportunities exist for synergy with industry or philanthropic efforts?

CASC members regularly engage with industry partners providing cloud, compute, and software resources, as well as philanthropic organizations supporting workforce and economic development and access. We foresee Tech Labs serving as natural integration points for federal, private, and philanthropic investment—provided governance frameworks ensure transparency and fairness.

Question 6. What translational problems could be addressed within 3–7 years?

With appropriate design, Tech Labs could address:

- Scaling and sustaining research software platforms
- Transitioning AI-enabled research tools into regulated or production environments
- Integrating advanced computing into workforce training pipelines
- Bridging mid-scale infrastructure gaps between campus and national facilities
- Stimulate economic development by doing product development in the U.S. instead of abroad

Concluding Observations

CASC supports experimentation with new funding models, while also urging NSF TIP to recognize that speed and flexibility must be matched with governance and accountability. Insufficient clarity around oversight, selection, and conflict-of-interest protections could undermine public trust.

To mitigate this risk, CASC strongly recommends:

- Clearly articulated governance frameworks
- Independent review and audit mechanisms
- Transparent criteria for selection, continuation, and termination

With these safeguards, Tech Labs could become a valuable addition to the national research and innovation ecosystem.

End of Response