

NSF EPSCoR:
Enabling Education,
Outreach, & Diversity
Through Geographic
Engagement



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Quick Share in a Pair

What is the first word that comes to mind when thinking about NSF Established Program to Stimulate Competitive Research (EPSCoR)?



EPSCoR Goals

- Catalyze research capability across and among jurisdictions
- **Education:** Establish STEM professional development pathways
- **Outreach:** Effect engagement in STEM at national and global levels
- **Diversity:** Broaden participation of diverse groups and institutions in STEM
- Impact jurisdictional economic development

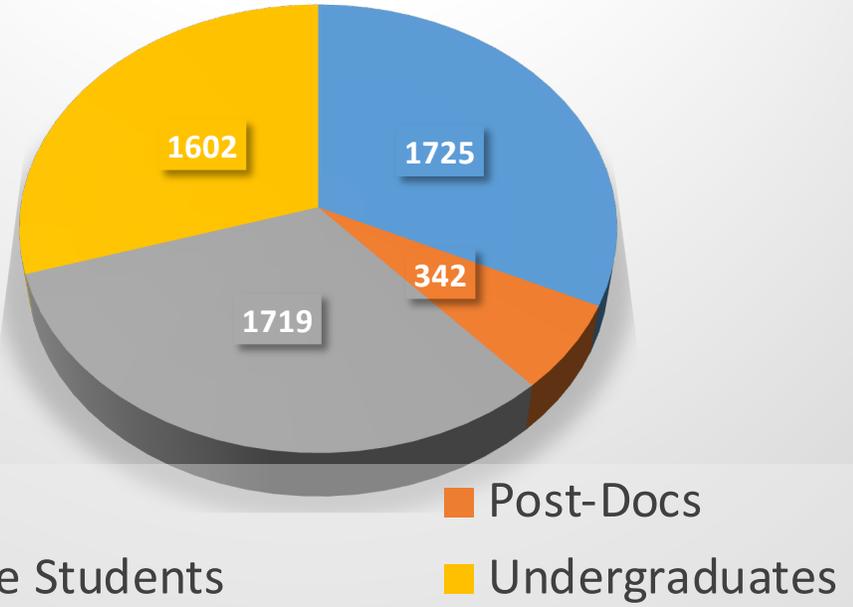


EPSCoR Mission: Enhance research competitiveness of targeted jurisdictions by strengthening STEM capacity and capability



EPSCoR Goal #2: Establish STEM professional development pathways

Number of People Supported by EPSCoR RII Projects Across All EPSCoR Tracks FY20



EPSCoR Goal #3: Broaden participation of diverse groups and institutions in STEM

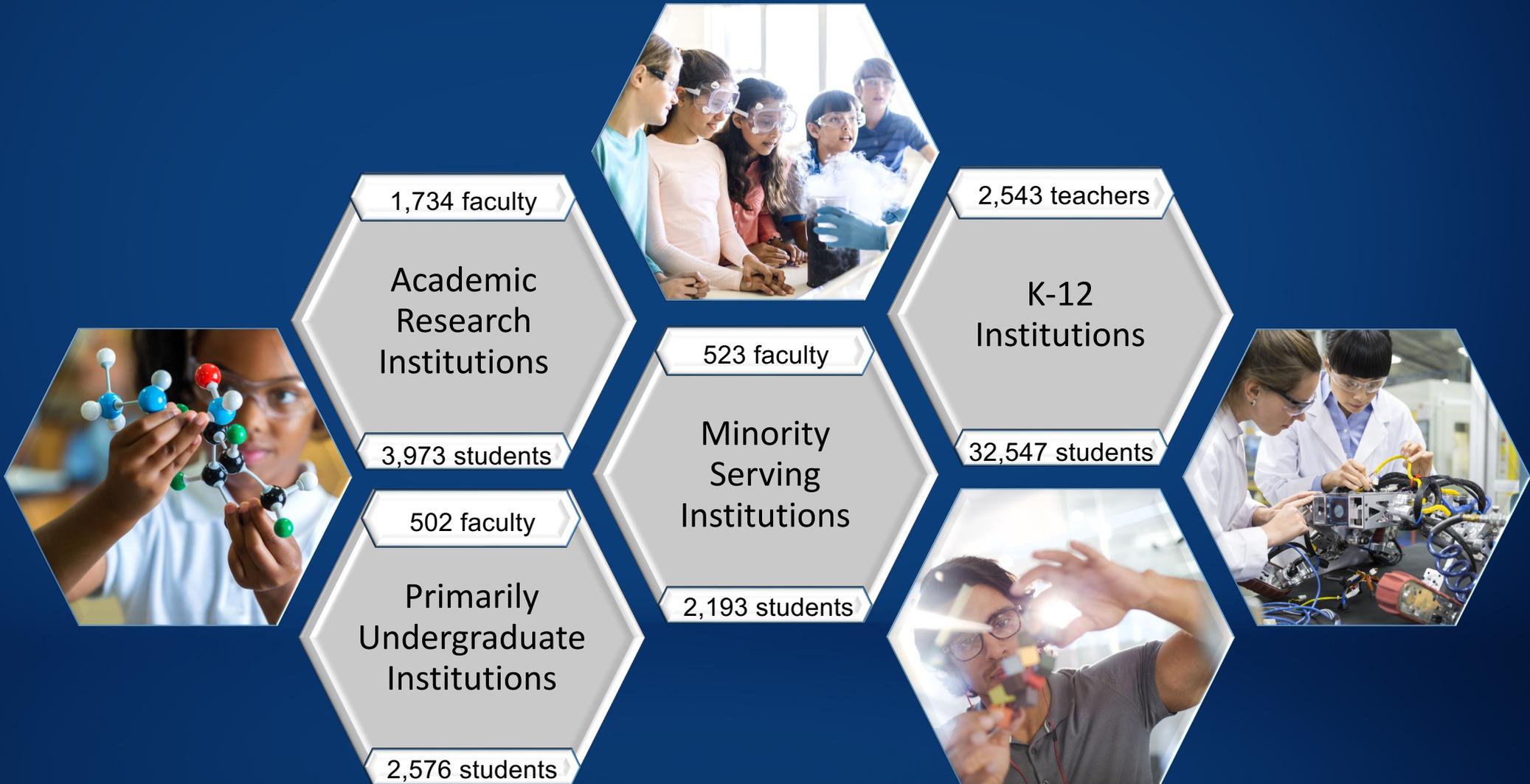


“Traditional Ecological Knowledge is the pathway for tribal worldview when recruiting tribal students into STEM. AI students tend to shy away from STEM thinking it has no connection to their tribal worldviews. When you talk about plants, animals, water, oil and gas, and other natural resources those topics are STEM in tribal communities.”

- Tarissa Spoonhunter, CWC



EPSCoR Goal #4: Effect engagement in STEM at national & global levels



RECENT RELEVANT EPSCoR HIGHLIGHTS

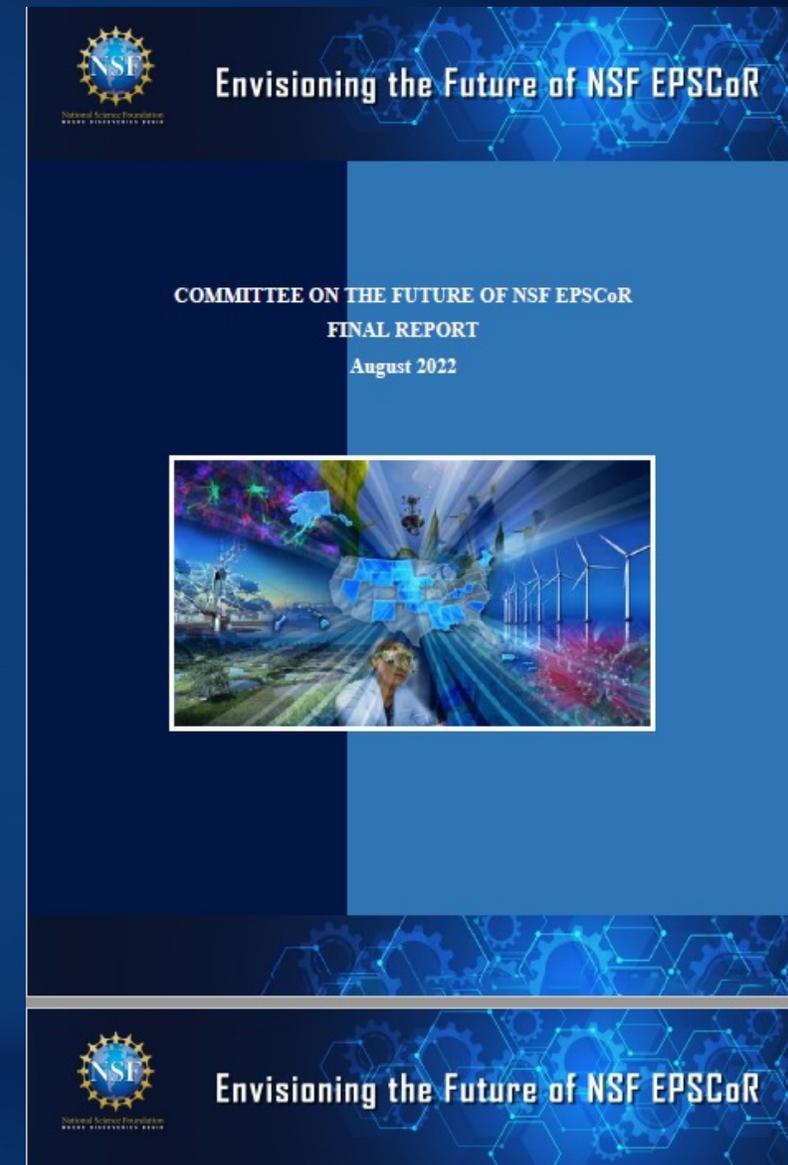


Future of NSF EPSCoR Report Recommendations

Focus Areas:

- Research and infrastructure capacity and competitiveness
- Education and workforce development
- Broadening participation
- Economic development

The report provides 8 recommendations and 19 specific suggestions.





National Science Foundation
WHERE DISCOVERIES BEGIN

Envisioning the Future of NSF EPSCoR

The Committee's work was organized around **two major motivating questions**:

1

What does the **available evidence** tell us about the effectiveness of NSF EPSCoR's current investment strategies, both individually and collectively, in advancing scalable, jurisdiction-wide solutions and best practices to achieve the program's goals?

2

Based on the answers to the question above, are there **novel strategies** or changes to the current strategies that would enable NSF EPSCoR and its jurisdictional partners to more effectively achieve its mission?

<https://nsf.gov-resources.nsf.gov/2022-08/Envisioning-The-Future-of-EPSCoR-Report.pdf>



Recommendations

ECONOMIC DEVELOPMENT



1. Ecosystem Approach to Investments: Leverage partnerships with other federal agencies; encourage collaboration between EPSCoR and non- EPSCoR jurisdictions.
2. Increased integration of NSF EPSCoR: Support greater integration of NSF EPSCoR across NSF; develop internal programs to leverage strengths and priorities of jurisdictions.

RESEARCH AND INFRASTRUCTURE CAPACITY AND COMPETITIVENESS



3. Diverse Talent Recruitment and Retention: Grow critical mass of highly capable and competitive faculty, staff, and students; develop new grant programs that will **encourage nationally competitive, sustainable research** and promote collaboration within and beyond jurisdictions.
4. Physical and Administrative Infrastructure: Invest in **constructing and/or modernizing research infrastructure in jurisdictions; invest in staff to support intellectual property development, commercialization, and corporate in jurisdictions**



Recommendations

EDUCATION AND WORKFORCE DEVELOPMENT



5. Programs to Promote Intra- and Inter-jurisdictional Research, Education, and Workforce Development: Fund collaborative proposals across multiple jurisdictions that leverage existing expertise and promote synergistic research, workforce development, and educational activities.
6. Support for Workforce, including those with Diverse Career Pathways: Expand research and collaboration opportunities for individuals at different career stages, especially pre-tenure and pre-promotion mid-career faculty.

BROADENING PARTICIPATION



7. Proactive Inclusion Strategies: **Provide opportunities** for EPSCoR researchers, particularly those from underrepresented groups, to participate and offer input on NSF panels and advisory committees.
8. Access and Opportunity: **Provide support** in research administration, funding of brick-and-mortar research facilities, research collaborations, and innovative mentoring partnerships at MSIs, PUIs, and TYCs.



Government Accountability Office (GAO) Report on EPSCoR (2022)

What GAO Found

The National Science Foundation (NSF) funds research and education across all fields of fundamental science and engineering. Its Established Program to Stimulate Competitive Research aims to enhance the ability of eligible U.S. states and territories (known as jurisdictions) to compete for research funding from NSF and other federal agencies. GAO’s econometric analysis of the program suggested that participating jurisdictions received more federal research funding after joining the program. In addition, the jurisdictions that joined during the program’s early growth—between fiscal years 1980 and 1992—had statistically significant increases in their research funding. However, those that joined later—between fiscal year 2000 and 2012—did not, which may be partly because they have not participated as long. The early participants also had larger increases in the success rates of their NSF research proposals.

Changes in Jurisdictions’ Research Funding and Proposal Success Rates

Jurisdictions	Program’s effect on research funding from NSF and other federal agencies	Trend in research proposal success rates from fiscal year 2011 to 2020
All participating jurisdictions	Statistically significant increase	7 percentage point increase
Jurisdictions joining between fiscal years 1980 and 1992	Statistically significant increase	9 percentage point increase
Jurisdictions joining in fiscal year 2000 or later	No statistically significant change	4 percentage point increase

Source: GAO analysis of data from the National Science Foundation (NSF) on U.S. states and territories (jurisdictions) participating in the Established Program to Stimulate Competitive Research. | GAO-22-105043



Recent Study Released

+ 2M Research Study of EPSCoR



Study of the Established Program to Stimulate Competitive Research (EPSCoR)

BASE PERIOD REPORT – FINAL | CONTRACT #: NSFDACS17C1236

May 1, 2020



2M Study Rationale

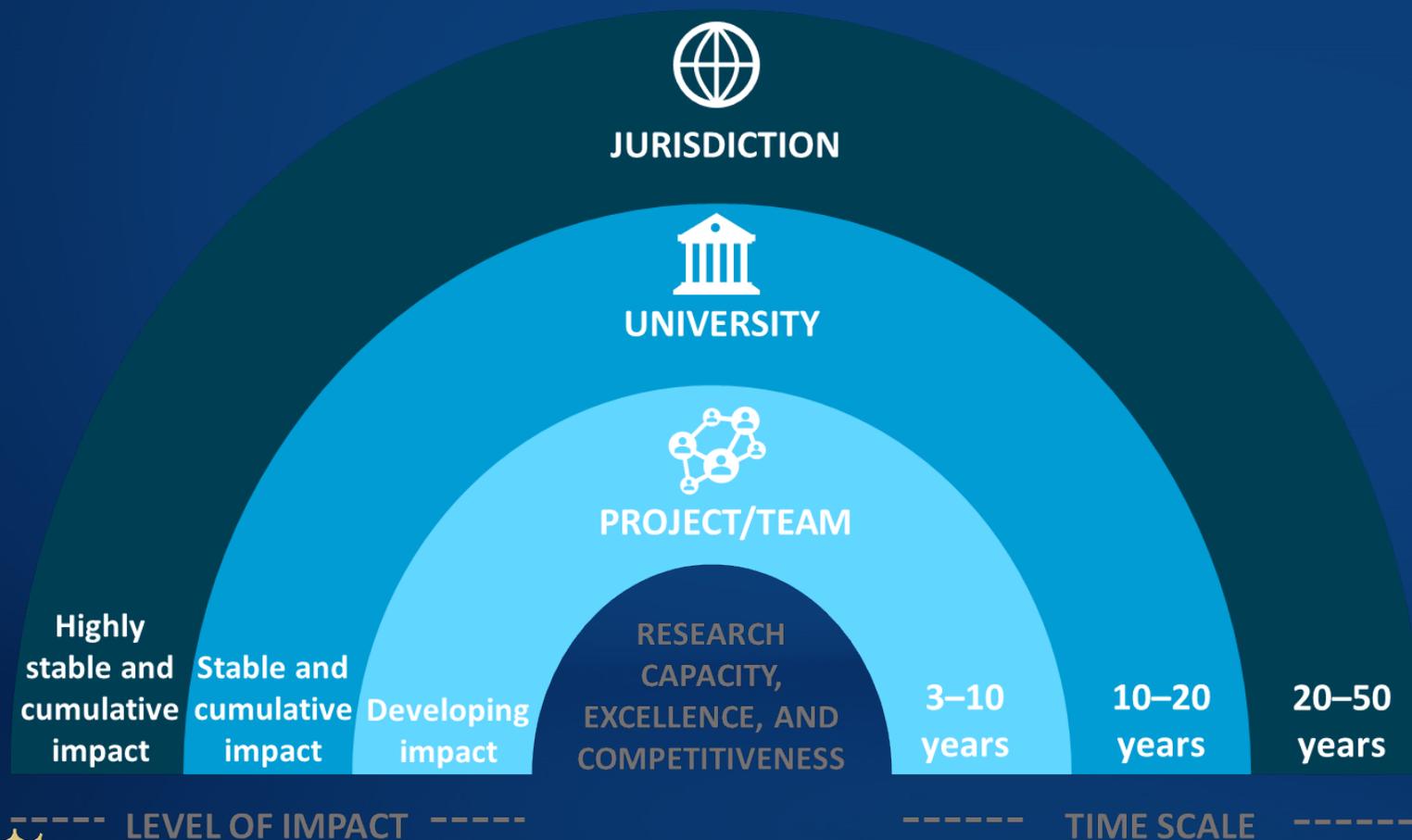
- EPSCoR eligibility criteria based on a **single** metric
- Overall need a shared understanding of **Academic Research Excellence and Competitiveness (AREC)**
- AREC framework will help understand **jurisdictional variability** and opportunities for EPSCoR **program enhancements**



Embedded Systems Approach

Academic Research Excellence and Competitiveness (AREC)

AREC Framework Levels



4 Levels of Analysis for the AREC Framework:



JURISDICTION LEVEL



UNIVERSITY LEVEL



PROJECT/TEAM LEVEL



INDIVIDUAL LEVEL



2M Study on EPSCoR (2022)

Summary of Strategic Variability Findings

EPSCoR jurisdictions vary among reported strategic activities.

Strategic Activities



EPSCoR funding mostly supported the following strategic activities:

- Building cyberinfrastructure
- Holding workshops, camps, or seminars
- Funding undergraduate students, graduate students, or existing faculty
- Supporting collaborative relationships within a jurisdiction
- Building state or local programs
- Creating instructional or curricular material

Research Purpose



Activities were conducted primarily for the purpose of

- research,
- education, and
- community outreach and engagement.

Infrequently Reported Activities



No awards reported activities focused on supporting lesbian, gay, bisexual, or transgender individuals.

There were relatively few reported activities related to

- hiring new researchers or administrative staff,
- supporting researchers to attend courses,
- funding individuals with disabilities, and
- building collaborative relationships between different departments within the same university .

The variability in strategies used may be attributed to differing needs or objectives but could potentially be due to program changes or inconsistencies in reporting.



Grand Challenges and Opportunities for the EOD Community



Grand Challenges and Opportunities

- How can each jurisdiction help effect improvement at each level?
- What are effective means of advancing inclusive, diverse research, education, and outreach engagement within EPSCoR communities?
- What are the challenges/barriers (and opportunities) to engaging in funded research?
- What are the challenges and barriers (and opportunities) to complying with utilizing research resources?



2M Study on EPSCoR (2022)



Way to Achieve the Challenge

- Submit an EPSCoR workshop proposal (NSF 19-588)
- Consider and apply for other NSF or federal funding in EOD areas
 - Talk with NSF staff present at EOD conference
 - Research other federal programs (e.g., NIH's Faculty Institutional Recruitment for Sustainable Transformation (FIRST) program)
 - Explore NSF supplemental funding opportunities for broadening participation efforts in existing awards
- Work with others within and outside of EPSCoR in the EOD community





Measuring Impact

- Baseline data
- Encourage project participants to provide their demographic data for EPSCoR's reporting requirements.
- EPSCoR Impacts one-pagers



Thank You!

