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Methodology for the Evaluation of the National Science Foundation's Experimental Program to Stimulate Competitive Research (EPSCoR)

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Methodology for the Evaluation of the National Science Foundation's Experimental Program to Stimulate Competitive Research (EPSCoR)

American Evaluation Association
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EPSCoR Origins

- “Balance” built into NSF’s authorizing statute (42 U.S.C. §1862e)
 - “an objective of the Foundation to strengthen research and education in the sciences and engineering... *throughout the United States, and to avoid undue concentration of such research and education*” [emphasis added]
- 1977-8: NSF establishes EPSCoR as limited-time experiment (NSB resolution 78-12)
- 1988 EPSCoR enacted into law as part of NSF reauthorization (Pub. L. 100-570, title I, Sec. 113)

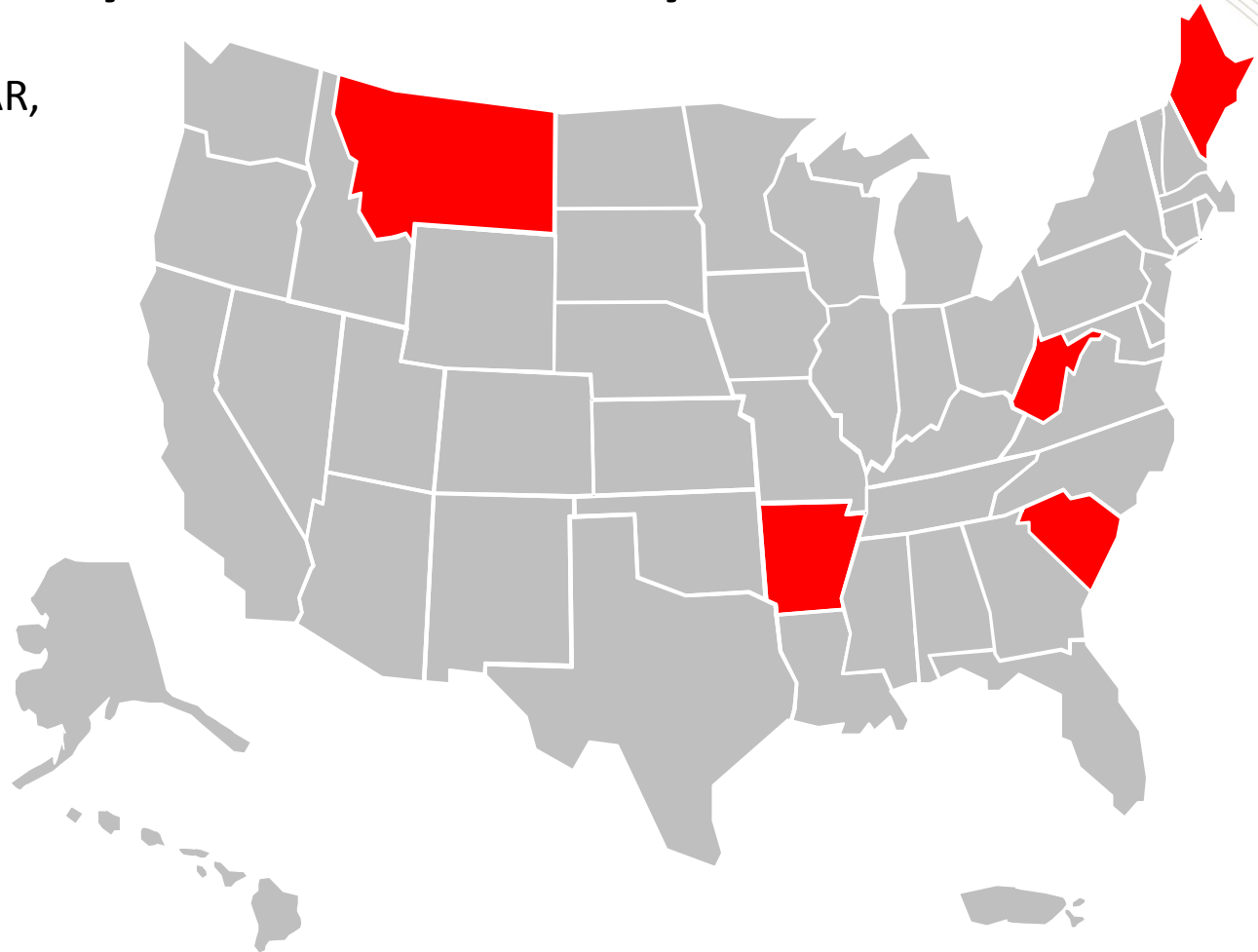
Original Legislative Authorization

National Science Foundation Authorization Act of 1988 Section 113 [emphasis added]:

- (a) The Director shall operate an Experimental Program to Stimulate Competitive Research, the purpose of which is to assist those States that
- (1) historically have *received relatively little Federal* research and development funding; and
 - (2) have *demonstrated a commitment to develop their research bases* and improve science and engineering research and education programs at their universities and colleges

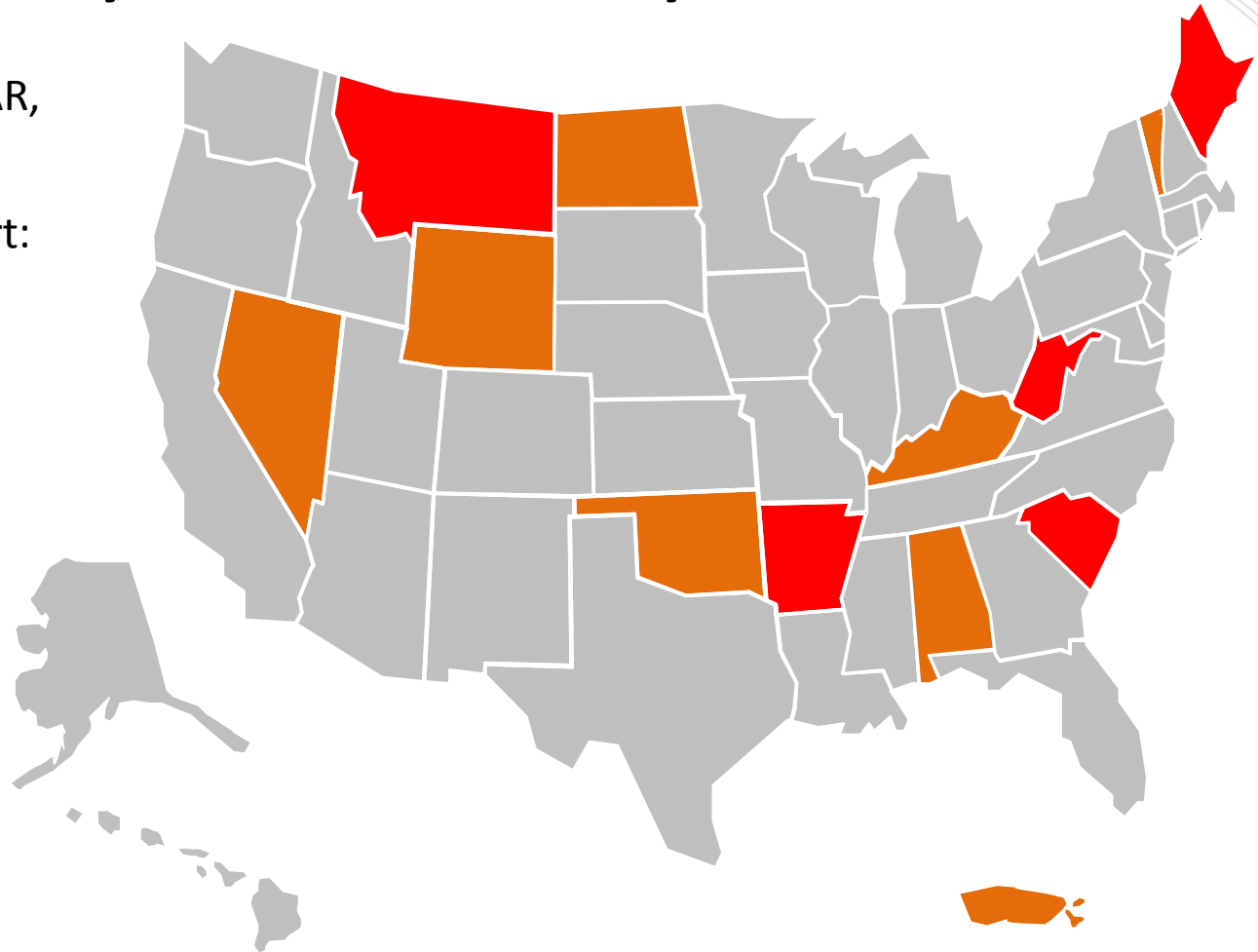
EPSCoR-Eligible States, by Year of Entry

- Gray = not eligible
- Red = 1980 cohort: AR, ME, MT, SC, and WV



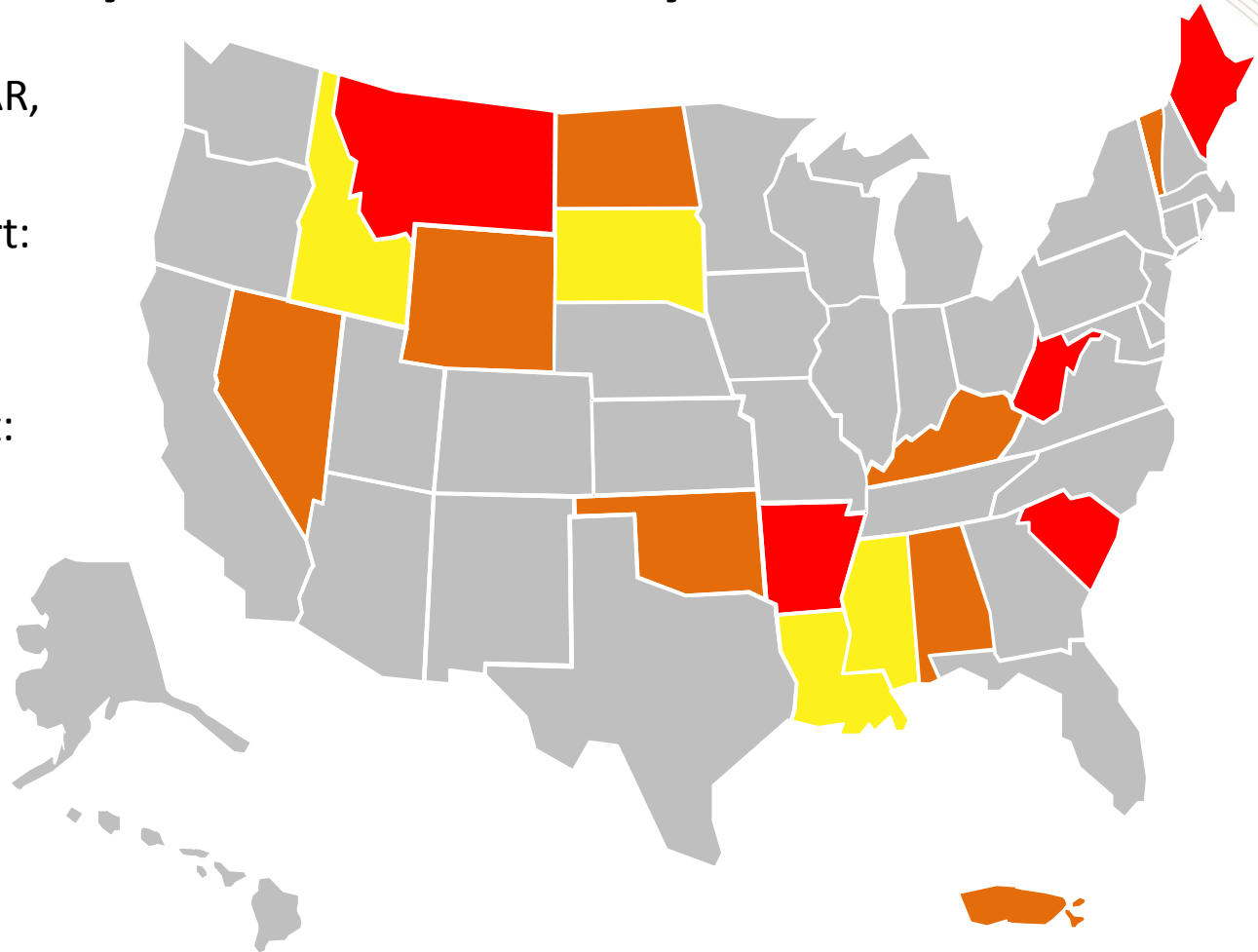
EPSCoR-Eligible States, by Year of Entry

- Gray = not eligible
- Red = 1980 cohort: AR, ME, MT, SC, and WV
- Orange = 1985 cohort: AL, KY, ND, NV, OK, PR, VT, and WY



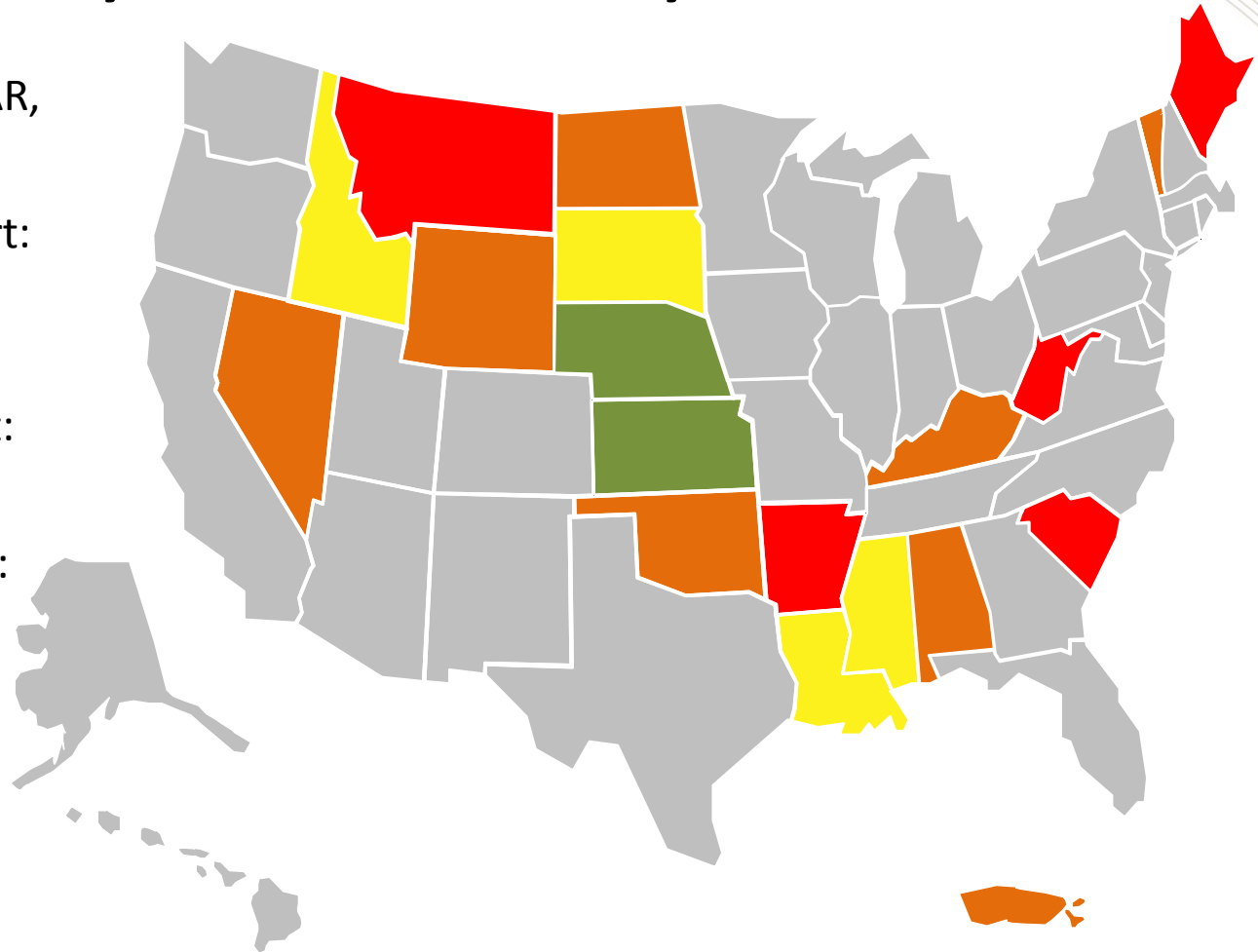
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- Gray = not eligible
- Red = 1980 cohort: AR, ME, MT, SC, and WV
- Orange = 1985 cohort: AL, KY, ND, NV, OK, PR, VT, and WY
- Yellow = 1987 cohort: ID, LA, MS, and SD



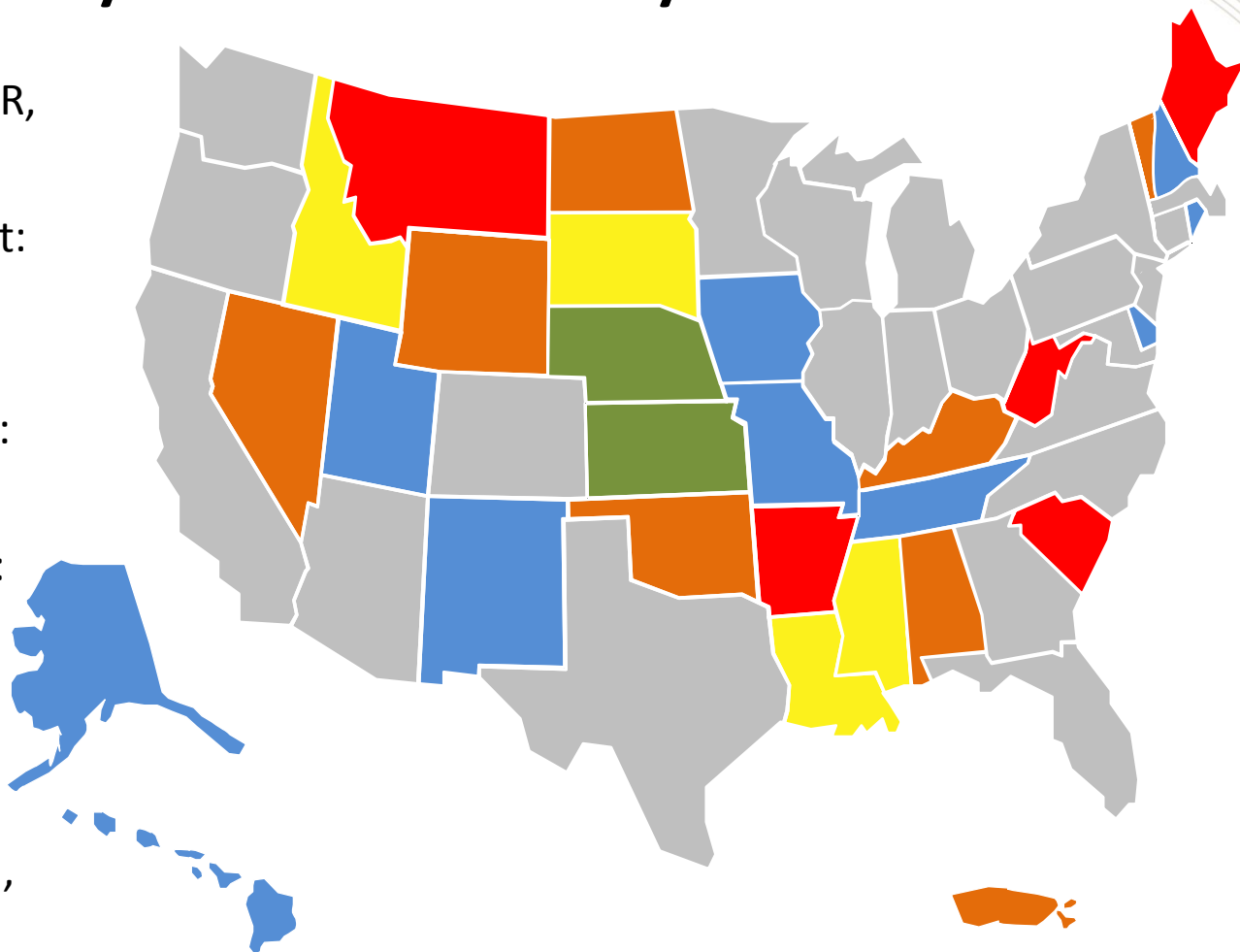
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- Orange = 1985 cohort: AL, KY, ND, NV, OK, PR, VT, and WY
- Yellow = 1987 cohort: ID, LA, MS, and SD
- Green = 1992 cohort: NE and KS



EPSCoR-Eligible States, by Year of Entry

- Gray = not eligible
- Red = 1980 cohort: AR, ME, MT, SC, and WV
- Orange = 1985 cohort: AL, KY, ND, NV, OK, PR, VT, and WY
- Yellow = 1987 cohort: ID, LA, MS, and SD
- Green = 1992 cohort: NE and KS
- Blue = entries into EPSCoR 2000+: AK, DE, GU, HI, IA*, MO, NH, NM, RI, TN*, UT*, and VI

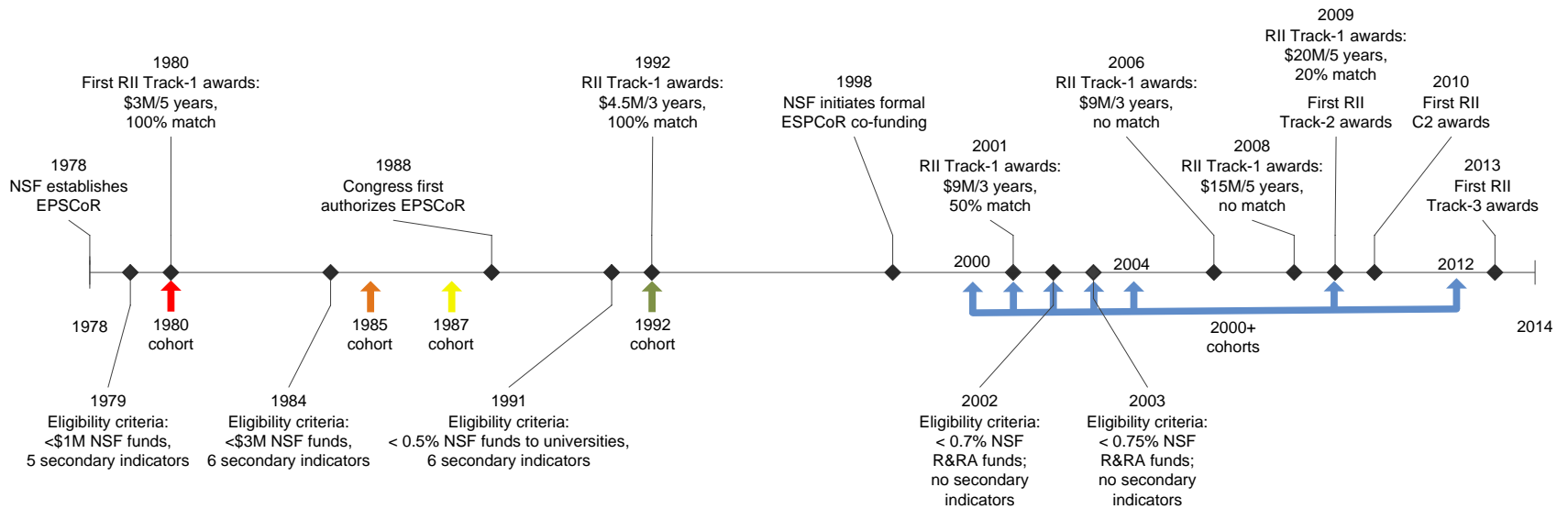


* Iowa, Tennessee, Utah above current threshold of 0.75% of NSF R&RA

EPSCoR Uses Multiple Approaches

- Research Infrastructure Improvement (RII) awards:
 - *Track-1 Awards. Currently \$4M/yr for 5 yrs. One award per state funds academic research infrastructure based on state S&T plan*
 - Track-2 Awards. \$2M/yr for 3 yrs for collaborative, multi-state research (started in 2009)
 - C2 Awards. \$500K/yr for 2 yrs for cyber-infrastructure (2009-2010)
 - Track-3 Awards. \$150K/yr for 5 yrs for education (started in 2013)
- Co-Funding of Research Projects:
 - *EPSCoR co-invests with NSF Directorates and Offices in proposals that have been merit reviewed and recommended for award, but could not be funded without joint support*
- Workshops and Outreach Activities

EPSCoR Timeline



Task Origins and Context

- Both internal and external (Office of Management and Budget) drivers for task
- Task initiated August 2011
- Other EPSCoR-related studies previously released
 - EPSCoR community convenes internal workshops (reports issued August 2006 and April 2012)
 - America COMPETES Reauthorization Act requires National Academies to report on all EPSCoR programs (report issued November 2013)

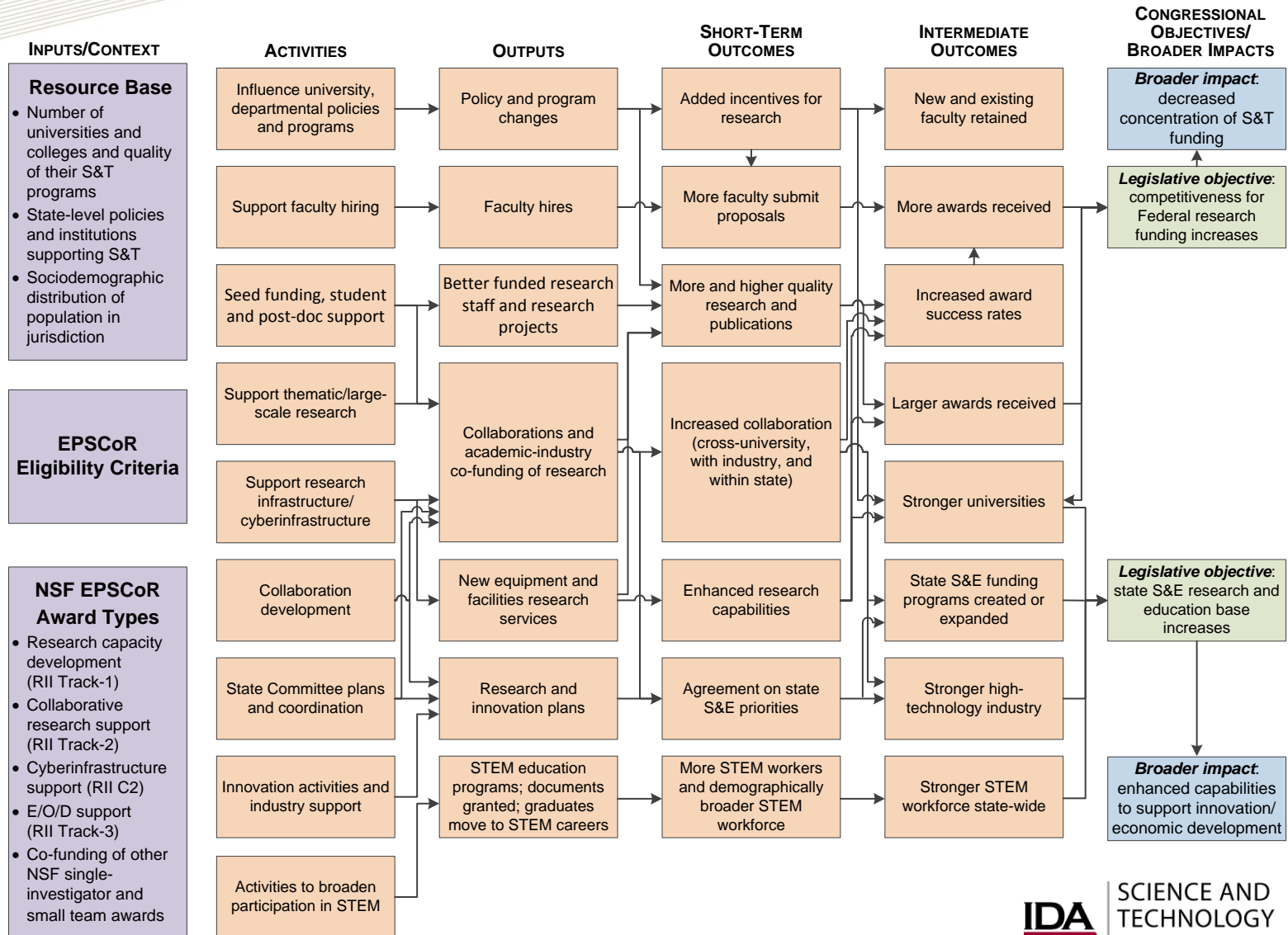
Task Objective

- Perform a two-year, in-depth, *life-of-program assessment* of NSF EPSCoR activities and their outputs and outcomes
 - Competitiveness for funding
 - Enhanced science and engineering (S&E) research base
- Provide recommendations on better *targeting of funding* to those jurisdictions for which the EPSCoR investment can result in the *largest incremental benefit* to their research capacity

Study Methods Overview

- Literature review on EPSCoR and research capacity development
- Developed EPSCoR logic model
- Qualitative data
 - Survey of EPSCoR jurisdictions
 - Interviews of EPSCoR State Committee members
 - Analysis of EPSCoR RII proposals and annual reports
- Quantitative data
 - Analysis of NSF awards data
 - Analysis of National Center for Science and Engineering Statistics (NCSES) survey data
 - Information from journal articles with U.S. authors, as identified through the Thomson Reuters Web of Knowledge
 - Analysis of EPSCoR eligibility criteria and NSF eligibility determinations

EPSCoR Logic Model



Presentations that Follow Describe Methods Used

- Quantitative Analyses/Competitiveness for Funding
 - Change in NSF Funding (per-jurisdiction, per-investigator)
 - Concentration Analyses
- Qualitative Analyses/Enhanced Research Base
 - Institution-Building
 - State Committees
 - Education, Outreach, and Diversity (E/O/D)
 - Academic Development
 - Innovation

REPORT DOCUMENTATION PAGE

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12. DISTRIBUTION/AVAILABILITY STATEMENT
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13. SUPPLEMENTARY NOTES

14. ABSTRACT
This presentation was prepared for a meeting of the American Evaluation Association in October 2014. It presents background regarding the National Science Foundation's Experimental Program to Stimulate Competitive Research (EPSCoR) program itself, including a synopsis of the program's legislative authorization, goals, and descriptive statistics regarding eligibility and participating jurisdictions. The EPSCoR program logic model is presented, identifying the legislatively mandated goals—increasing the competitiveness of investigators for NSF and other Federal funding and increasing participating jurisdictions' science and engineering research bases—and the program's theory of action to reach those goals. The presentation concludes with an overview of the methods that were used to conduct the evaluation.

15. SUBJECT TERMS
EPSCoR, Logic Model, Theory of Action, Program Goals, Descriptive Statistics

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