Overview

- About McAllister and Quinn.

- Definitions.

- Teaming Approach.

- Best practices for developing a center-level team.

- Center-level programs.

- Next Steps and Questions.

About McAllister & Quinn

Washington, DC-based consulting firm

- Founded in 2004.

- Specialize in securing funding for a wide range of organizations.

- Practice Areas: Higher Education; Advanced Tech, Homeland Security, & Defense; Healthcare; Non-Profit & Public Agencies.

Team of grants experts

- Over 80 staff from Legislative and Executive branches, Academia, Non-profits, & Industry.

- Access to over 300 grant writers, consultants & subject matter experts.

Our Approach

Government Relations

Strategic federal engagement strategies including federal marketing campaigns to executive branch agencies and congressional engagement activities.

Research Development

Concept development and upstream positioning to improve competitiveness for extramural funding pursuits.

McAllister & Quinn also specializes in comprehensive proposal development services.

Strategic & Advanced Intelligence
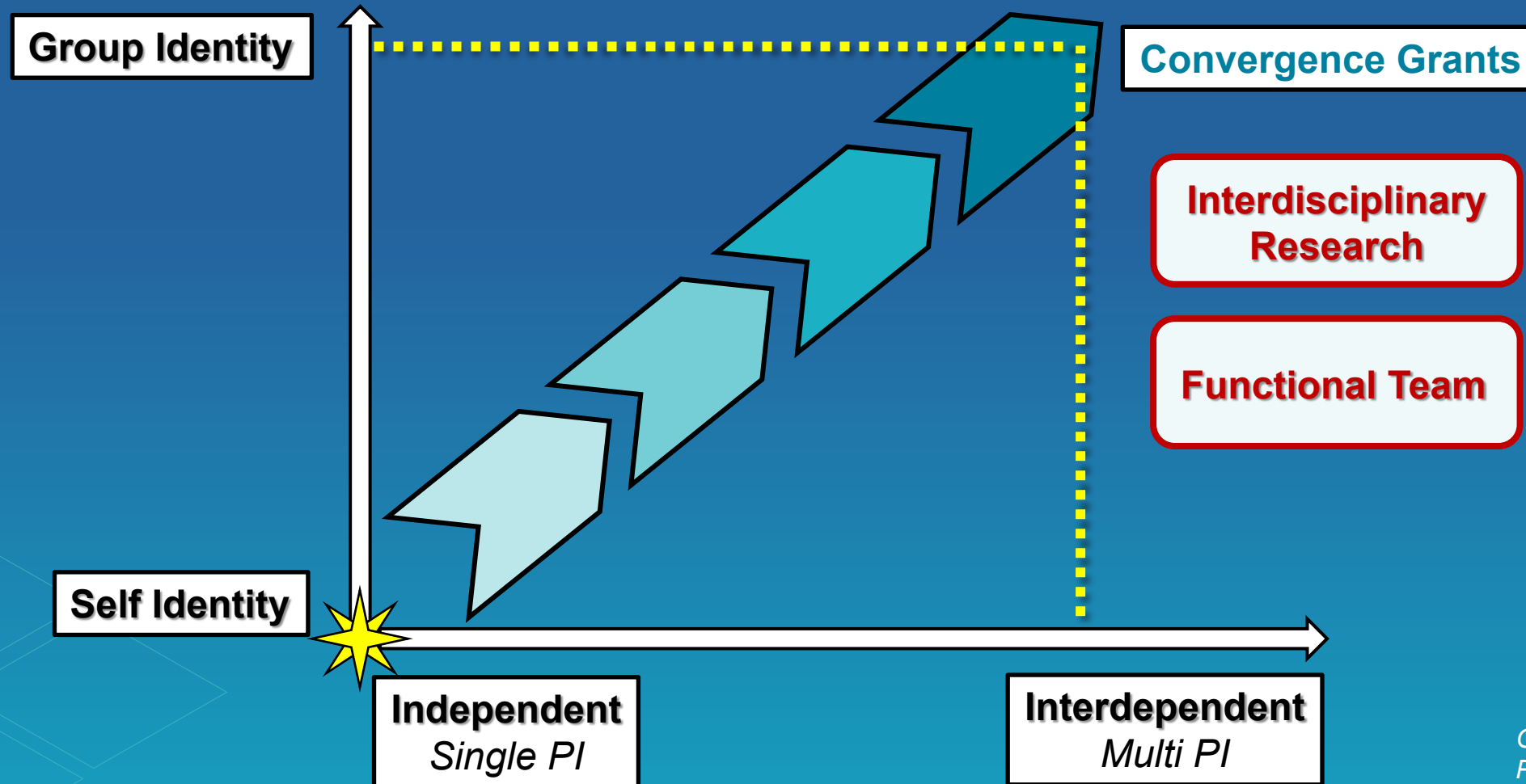
Government Relations

360° APPROACH

Capacity Building

Research Development
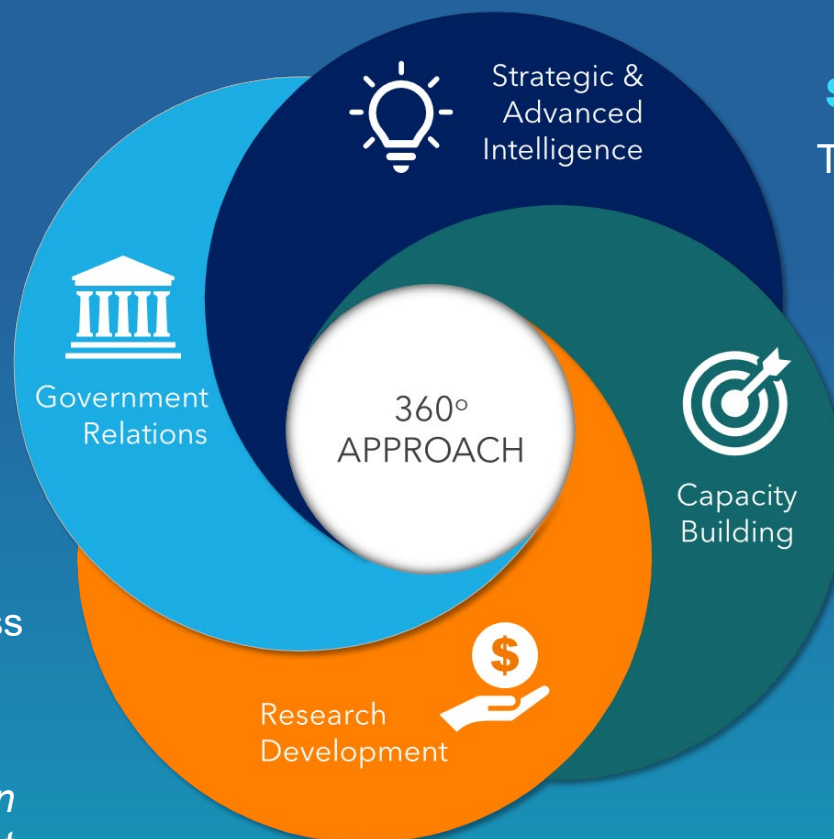
Strategic & Advanced Intelligence

Targeted, timely, and actionable analysis of federal funding trends, R&D policy, sponsor priorities, and funding opportunities.

Capacity Building

Tailored faculty coaching to build federal engagement and grantsmanship skills.

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Interdisciplinary Research

NATIONAL ACADEMY OF SCIENCES

- Advances fundamental understanding or solves problems whose solutions transcend the scope of a single discipline or area of research practice.

- Integrates information, data, techniques, tools, perspectives, concepts or theories from two or more disciplines or bodies of specialized knowledge.

- Can be done by teams or by individuals.

Interdisciplinary Research Requirements

- NSF's support of interdisciplinary research and education is essential for accelerating scientific discovery and preparing a workforce that addresses scientific challenges in innovative ways.

- Doesn't need to be transformative.

- Diversity, Equity, Inclusion and Accessibility (DEIA) and Workforce Development are emphasis components.

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Convergence Research

- NSF Ten Big Ideas (Understanding the Rules of Life, Navigating the New Arctic, Harnessing the Data Revolution).

- Focuses on complex and compelling problems with pressing societal need.

- Deep integration of methods, knowledge, expertise from different disciplines and forming novel frameworks.

- Varied non-academic partners (community and industrial involvement).

- Diversity, Equity, Inclusion and Accessibility (DEIA) component. [NSF: Diversity and Culture of Inclusion]

- Acceleration of Research Impact. New frameworks, paradigms or even disciplines can emerge from research/results.

Successful Convergence Projects

Characteristics of successful convergence projects:

- **Compelling** case for a convergent approach.

- Involvement of the **next generation** of convergence researchers.

- Deep **integration** of knowledge, tools and techniques, while demonstrating a **novel research approach.**

- **Team readiness** to engage in convergence research.

  [previous interdisciplinary collaborations; joint publications;

  specialized knowledge; co-development of research infrastructure.]

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What is a team?

- In a team, two or more people work and interact together to solve a problem through a shared vision, purpose, and goals.
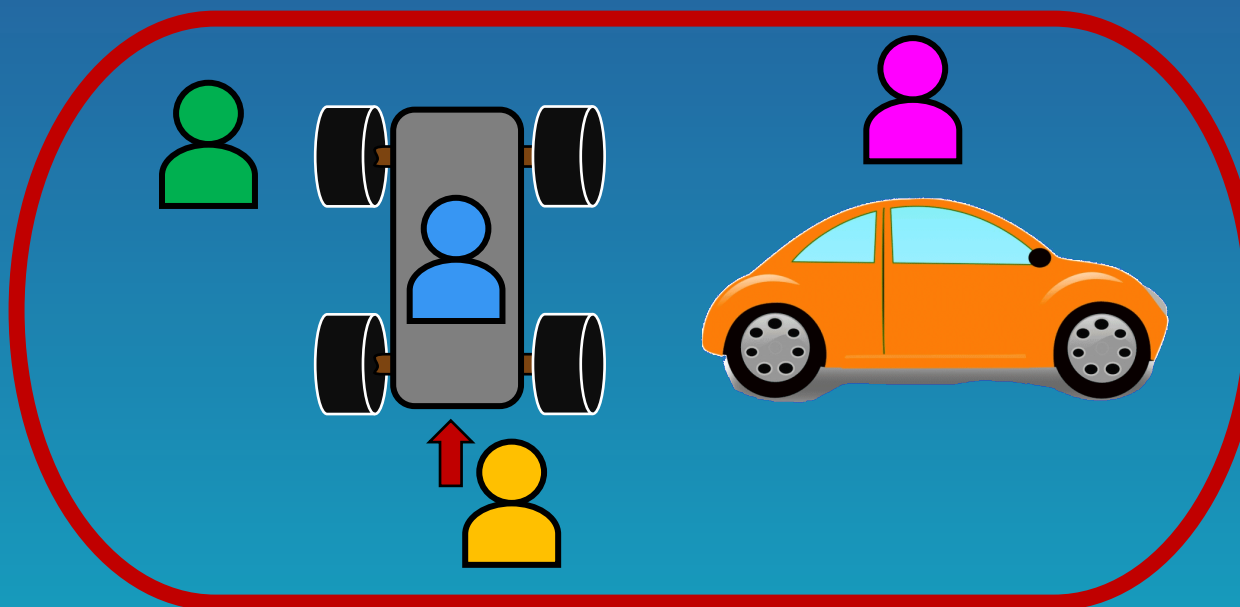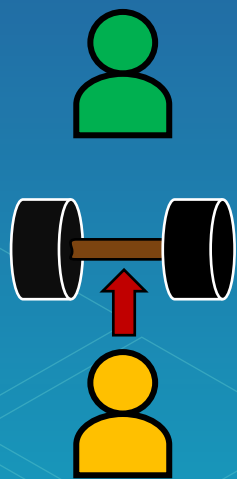
**Shared Vision: Build a car**

Set goals?

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Importance of diverse interdisciplinary teams

- Successful teams have people who work together but who think and communicate in very different ways.

- Race, sex, knowledge, education, language, background.

- Diverse individuals bring different perspectives and creativity.

- Teams solve problems faster when they're more cognitively diverse.

- Teaming: Research, Acknowledge and Utilize.

Goal

Reality

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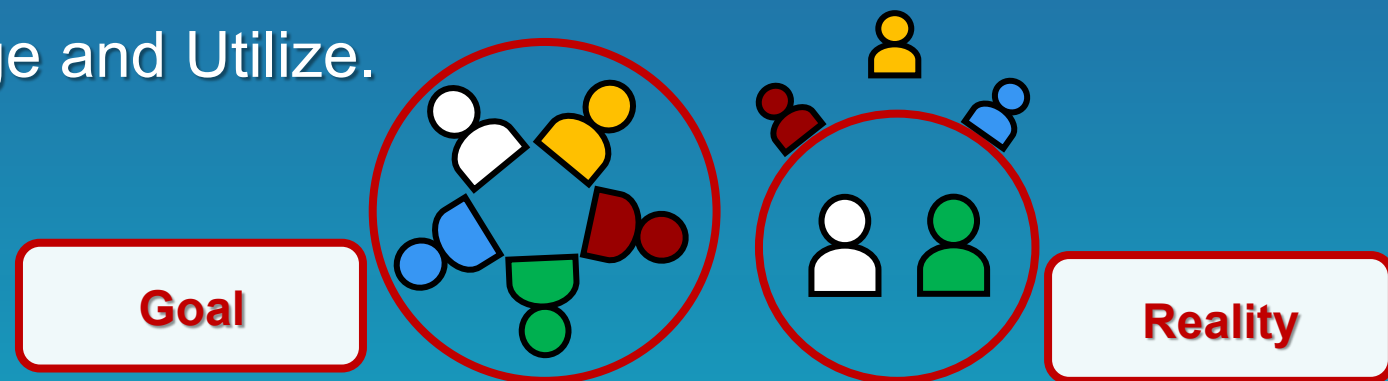
Can you be a team leader?

Team leaders should be able to:

- build consensus around goals and problem definition;

- empower all team members to contribute regardless of status and power differences;

- foster a culture of collaboration and inclusion;

- facilitate communication among all stakeholders;

- resolve conflicts;

- continuously improve and inspire individual and team performance.

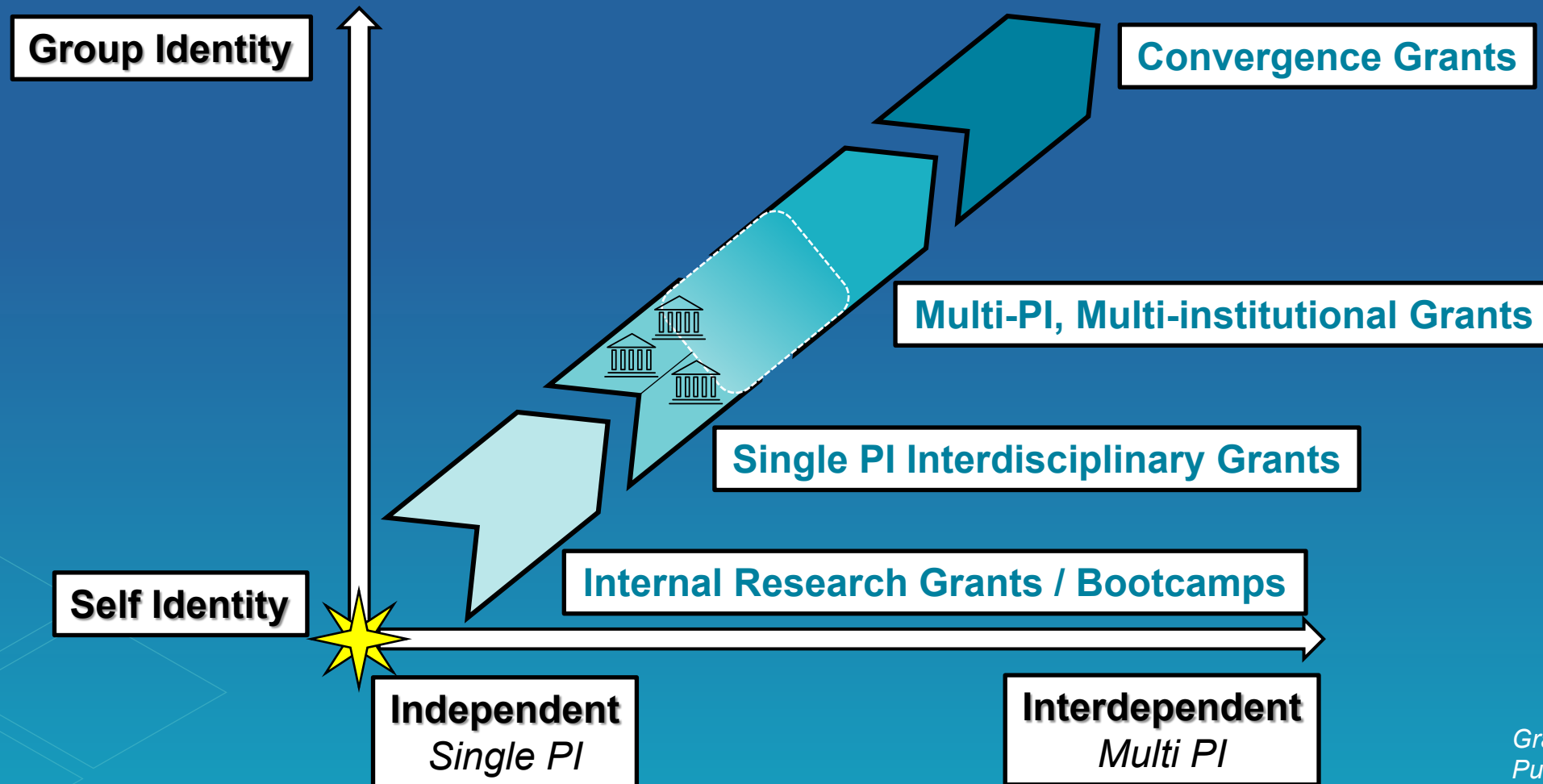Research, Acknowledge and Utilize.

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Teaming Approach Questions

- How will the team leadership, management, and administration look?

- How will you manage essential team processes?

- Do you have the required technology and resources?

- How will you communicate and coordinate?

- How will you ensure psychological safety for all members?

- How will you resolve conflict?

- How will you evaluate your collaboration?

- Who is your institutional level advocate who can be a supporter of the project when hurdles or issues develop?

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Organizational Approach

- Will your institution recognize team members' input and contributions during a performance review?

- How can you fast track and support teaming efforts and proposal development?

- How will you assist the team as it encounters resistance, obstruction, or complacency when it interacts with other institutional bodies?

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Pathway to Team Science and Convergence

Group Identity

Convergence Grants

Multi-PI, Multi-institutional Grants

Single PI Interdisciplinary Grants

Internal Research Grants / Bootcamps

Self Identity

Independent
Single PI

Interdependent
Multi PI

*Graphic adapted from NIH
Publication No.18-7660*

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Why teams fail

"not working as intended"

75% of Cross-Functional Teams Are Dysfunctional

Behnam Tabrizi, *https://hbr.org/2015/06/75-of-cross-functional-tea...functional*

- Silo thinking within the teams. (Use Port... ...ance Team/Board)

- Diversity of knowledge in team... ...t fully utilized or acknowledged. (provide clarity around ...nsibilities, and expectations)

- Unclear gov... ...rong and regular communication)

- Lac... ...c goals. (Set expectations)

- Failure to instill psychological safety in team members.

Decreased Productivity and Morale

Reality

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Best Practices: Team Dynamics

- Partnerships should be based upon a shared vision – outcome based.

- Continually evaluate partnerships.

- Prevent silo thinking with a Portfolio Governance Team (PGT)

- Maximize (and use) diversity.

- Ensure psychological safety for all members.

- Start planning early.

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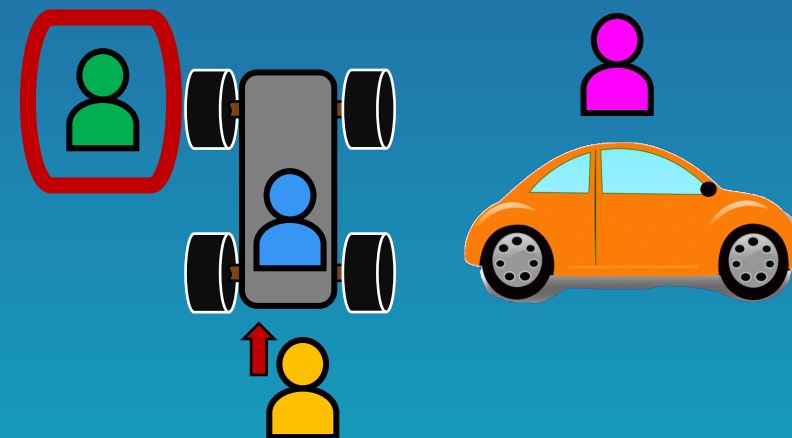
Best Practices: Engagement and Impact

- Establish connections with diverse communities outside academia that can bring about new ideas and opportunities.

- Involve groups who will be impacted by the outcomes of research.

- Understand the range of possible collaborative approaches and adapt to fit the community culture.

- Respect all viewpoints.

- Start planning early.

Best Practices: Institutional Considerations

- Utilize your resources on campus (DEIA, Office of Community Engagement, Office of Technology Transfer).

- Is your organization committed to advancing the proposed partnerships?

- Identify your high-level institutional advocate for the project.

- Start planning early.

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Best Practices: Proposal Development

- Use institutional resources.

- Have a consistent layout plan for the document and supplemental materials.

- Define acronyms early, and use consistently by all parties.

- Speak the same language, especially when you have multiple writers.

- Review drafts both internally and externally.

- Build trust by determining publication authors and rotation.

Best Practices: Strategic Planning

- Don't get discouraged, and DO NOT disband your team.

- Remember your goals.

to solve vexing research problems, especially those focusing on societal needs.

- Explore different opportunity cycles.

- Pivot the team for further opportunities.

- How do merit review criteria differ between solicitations?

- Assemble required information beforehand.

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Best Practices Example: Assembling Documentation

DOC Manufacturing FOA:

- Identify and address gaps in services to advance the state's manufacturing sector and improve competitiveness of the manufacturing base.

How? **Benchmark?**

- Explain your statewide engagement of small- and medium-sized manufacturers.

Who are they? **How to engage?**

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Best Practices Example: Assembling Documentation

NSF ERC:

- How does ~~the~~ *your* proposed Center's research benchmark against the state-of-the-art?

- Why is ~~the~~ *your* proposed research competitive when benchmarked against the state-of-the-art?

  - **What is state-of-the-art?**

  - **How to quantify and what benchmark to use?**

  - **How to determine competitiveness?**

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Convergence Research: A Different Mindset

- Must be proactive.

- Know typical review criteria and assemble documents beforehand.

- Nurture team.

- Solve other people's research questions, not your own.

"My epiphany came when I realized that grant programs do not exist to make me successful, but rather my job is to make those programs successful."

*Porter, R. (2007). Why academics have a hard time writing good grant proposals. The Journal of Research Administration, 38, 161-167.*

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Center-Level Opportunities: NSF

Program	Next Solicitation	Most Recent Funding Level	Specific Review Criteria
Engineering Research Centers (ERC) (Gen 4)	Spring 2024 [Every 2 years]	~ $26M per award for 5 years ($3.5M for year 1)	• How does the proposed Center's research benchmark against the state-of-the-art? • Why is an ERC necessary to tackle the idea? • What are the proposed strategies for engaging and developing the appropriate stakeholder community?
NSF Science and Technology Centers: Integrative Partnerships (STC)	Fall 2024 [Every 2-3 years]	~ $6M for year 1 (with commitment for five years of support.)	• Would such a center have potential to transform our foundational scientific understanding, and if so, is an STC the appropriate vehicle? • Are the plans for research appropriately ambitious for an STC? • Are the partner organizations and participants meaningfully integrated into a diverse Center that is more than just the sum of the parts?

Center-Level Opportunities: NSF

Program	Next Solicitation	Most Recent Funding Level	Specific Review Criteria
Regional Innovation Engines Program (TIP)	Summer 2024	Type-1 award: $1M per award for up to 2 years. Type-2 award: $160M per award for up to 10 years.	• Coalition of regional partners, comprising academic institutions, non-profits, for-profit companies, and government entities. • Leverage partnerships across the country in a way that complements other ongoing efforts (e.g., investments from NSF and other federal or state agencies, as well as private-sector activity). • Prototyping and piloting of research-based solutions (i.e., co-design and co-creation); and translating research results to practice. • Technology-translation and workforce-development outputs will be tracked and assessed.
NSF Convergence Accelerator	Spring 2024	Phase-1 award: $750,000 per award for 1 year. Phase-2 award: $5M per award for 2 years.	• Do the proposed ideas differ markedly from research supported by other NSF programs, initiatives, Big Ideas or other NSF funding mechanisms? • Present virtual or in-person oral pitch review • Public Convergence Accelerator Expo.

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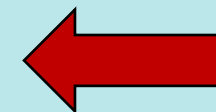
Center-Level Opportunities: DOE

Program	Next Solicitation	Most Recent Funding Level	Specific Review Criteria
DOE Energy Frontier Research Centers (EFRCs)	Winter of 2023 [Every 2 years]	$8M-$16M per award for 4 years	• How might the results of the proposed work impact the direction, progress, and thinking in relevant scientific fields of research? • Can the stated goals be achieved by similar researchers working independently? • What mechanisms are presented to evaluate success/failure and to reconfigure research thrusts as needed? • How well has the applicant articulated plans to address issues of diversity, equity, and inclusion within the EFRC?
Office of Science Financial Assistance Program (omnibus)	Spring of 2023 [Every year]	Up to $25M per award for 5 years	• How might the results of the proposed work impact the direction, progress, and thinking in relevant scientific fields of research? • How does the proposed work compare with other efforts in its field, both in terms of scientific and/or technical merit and originality?

Center-Level Opportunities: DOD

Program	Next Solicitation	Most Recent Funding Level	Specific Review Criteria
Multidisciplinary University Research Initiative (MURI) Army, Navy and Air Force	Q1 2023 [Every year]	$6.25M-$7.5M per award for 5 years	• Multidisciplinary research efforts. • MURI programs will promote application of defense research, principally for defense purposes but also for commercial purposes. • Encourage interactions with research and development organizations that transition research findings to application, particularly industrial organizations, DoD laboratories, and other organizations that perform research and development for defense applications.

Center-Level Opportunities: NIH

Program	Next Solicitation	Most Recent Funding Level	Specific Review Criteria
Exploratory Grants for Climate Change and Health Research Center Development (CCHRC; P20 Clinical Trial Optional)	November 2023	Up to $2.5M per award for 3 years	• Is the level of institutional commitment appropriate and demonstrative of significant support to the CCHRC? • Are interactions among projects, cores, and external partners/communities evident? • Is there evidence that the lines of authority and the administrative structure are designed for effective management and leadership of the Center? • Does the senior leadership have demonstrated effective and responsible leadership in the past? • Does the project proposal address a critical gap in knowledge or feasibility of adaptation approaches for climate change impacts on health? • How will successful completion of the aims change the concepts, methods, technologies, or preventative interventions that drive this field?

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Center-Level Opportunities: ARPA H

Program	Next Solicitation	Most Recent Funding Level	Special Requirements
Advanced Research Projects Agency for Health (ARPA-H) BAA	Open until March 14, 2024	To be determined	• Focus areas: Health Science Futures; Scalable Solutions; Proactive Health; Resilient Systems. • Awardees will develop groundbreaking new ways to tackle health-related challenges through high potential, high-impact biomedical and health research. • Acceleration of Impact. • Proposals are expected to use innovative approaches to enable revolutionary advances in science, technology, or systems. • Revolutionary, not evolutionary. • Performance is assessed regularly. • Proposals cannot address policy changes, traditional education and training, center coordination, or infrastructure construction.

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ARPA-H Definition of "Revolutionary"

- <u>Reframing</u> – What haven't we thought of before? What are the gaps and how can we be creative about solutions? Don't get bogged down in traditional dogmas.

- <u>Scaling</u> – Orders of magnitude of change in scale. 4-month timeline? How can you shrink that down to a day?

- <u>Complexity</u> – combining disparate components in a novel way.

ARPA-H Revolutionary Ideas
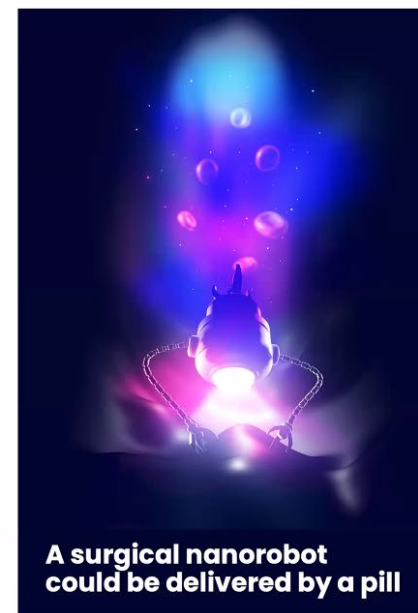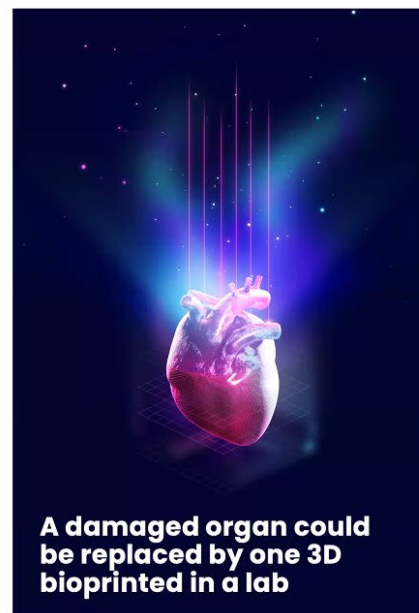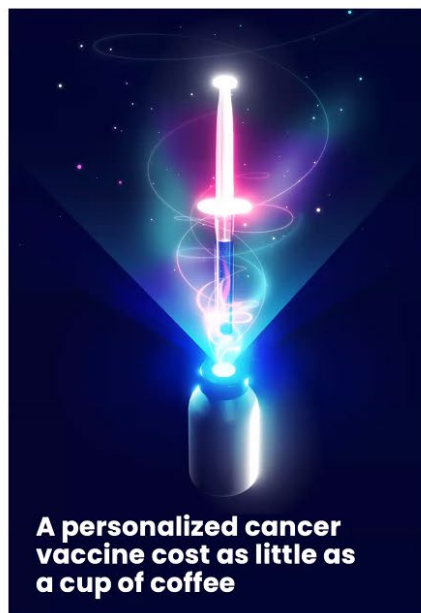
Resources

- Science of Team Science listserv

- Growing Convergence Research at NSF Lecture Series
  https://beta.nsf.gov/od/oia/ia/growing-convergence-research-nsf

- Enhancing the Effectiveness of Team Science (ISBN 978-0-309-31682-8)
  The National Academies Press at *http://www.nap.edu/catalog.php?record_id=19007*

- NCI Collaboration and Team Science Field Guide
  The National Institutes of Health at *http://teamscience.nih.gov*

- NIFA Leading Transdisciplinary Projects Resources
  USDA at *https://www.nifa.usda.gov/leading-transdisciplinary-projects-resources*

- Interpersonal relationships drive successful team science: an exemplary case-based study
  H. Love et.al; *https://doi.org/10.1057/s41599-021-00789-8*
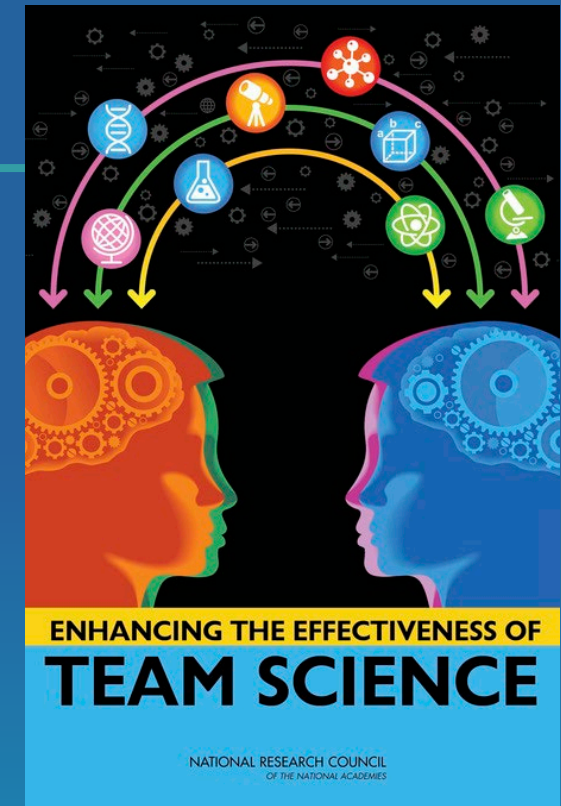
Next Steps

- Funding Opportunities Handout

- Short questionnaire

- Office Hours Engagement

Questions?

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