



NSF's Convergence Accelerator

# NSF's Convergence Accelerator Accelerating Convergent Solutions for Societal Impact

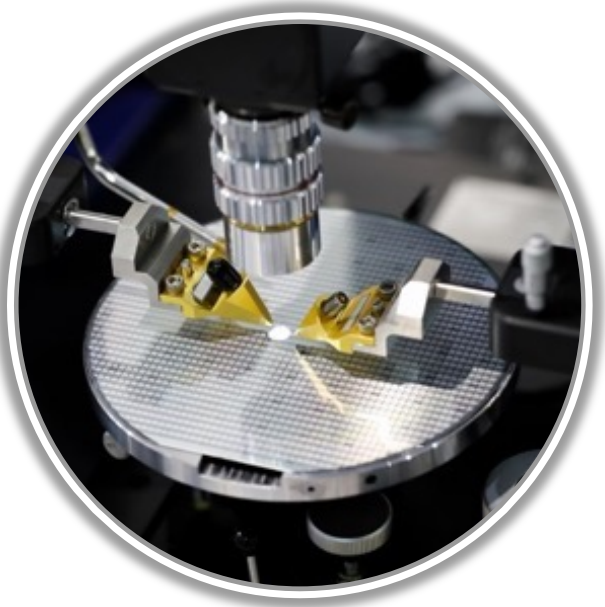
Douglas Maughan  
Head, NSF Convergence Accelerator

*December 9, 2021*

ACCELERATING CONVERGENT SOLUTIONS FOR SOCIETAL IMPACT



# A Pivotal Moment for Science & Engineering



**Pace of discovery accelerated by data, emerging technologies**



**Demand for societal impact**



**Opportunity to leverage partnerships**



## **MISSION:**

To promote the progress of science; to advance the national health, prosperity, and welfare; and to secure the national defense; and for other purposes

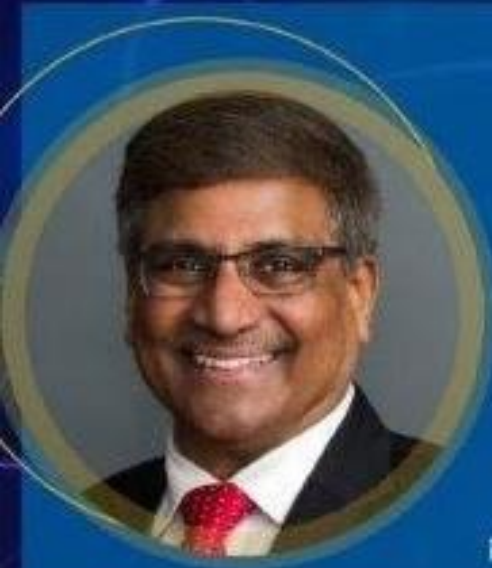
## **VISION:**

Envisions a nation that capitalizes on new concepts in science and engineering and provides global leadership in advancing research and education

# NSF'S MISSION

To promote the progress of science; to advance the national health, prosperity, and welfare; and to secure the national defense.

## Director's Vision



Advance the frontiers of research into the future



Ensure accessibility and inclusivity



Secure global leadership

We can accomplish this vision with:

# SPEED AND SCALE



## We are in a DEFINING MOMENT



Intensity of global competition



Urgent need for domestic talent

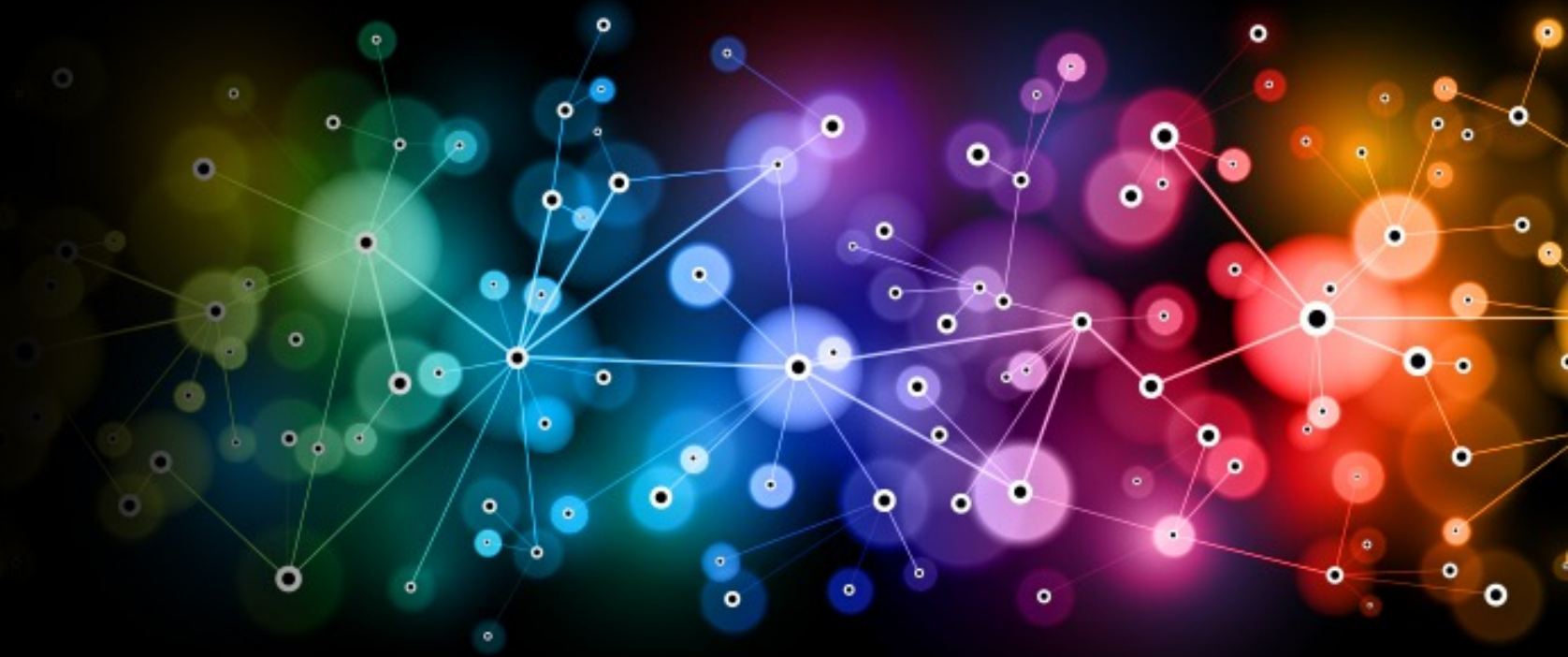


Broad support for science as path for solving global grand challenges

# CONVERGENCE RESEARCH

Today's grand challenges will **NOT** be solved by one discipline working alone.

Grand Challenges require **CONVERGENCE:** the merging of ideas, approaches, and technologies from widely diverse fields of knowledge to stimulate innovation and discovery.



# NSF CONVERGENCE ACCELERATOR

*Accelerating Solutions Toward Societal Impact*

## GOALS:

- Disrupt the usual way of NSF business through a new innovation model
- Expand and diversifies multidisciplinary teams and partnerships to include academia, industry, non-profits, government, and other sectors
- Deliver solutions that have a national societal impact

### Characteristics

- Use-inspired research
- Clear goals, milestones, high-impact deliverables
- Leverages multidisciplinary teams
- **Larger, national societal scale**
- Requires **diverse partnerships** – industry, non-profits, academia
- **Acceleration at speed and scale**

### Proactively & Intentionally Managed

- Teams and Cohorts—“Tracks”
- **Cooperation and Competition**
- **Intensive education and mentorship—human-centered design thinking, team science, and customer discovery**
- Mission-driven evaluation

# ... PROGRAM STRUCTURE ...

## IDEATION (DCL/RFI, WORKSHOPS):

Selected by gathering input from the community. Identified topics must meet a societal need at scale, be built upon foundational research, and be suitable for a multidisciplinary, convergence research approach.

## PHASE I (PLANNING):

Up to \$750K over 9 months is provided to further develop the initial concept (building upon basic research), identify new team members/partners, participate in a hands-on innovation curriculum, and develop an initial/low-fidelity prototype.

## PHASE II (IMPLEMENTATION):

Up to \$5M over 24 months to develop solution prototypes and to build a sustainability model to continue impact beyond NSF support.



# Phase 1: Innovation Curriculum

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## Team Science

Unifying a diverse team to develop a vision and focus on common goals.

- Collaboration Agreement
- Tool Box Dialogue

## Human-Centered Design

A collaborative process for multidisciplinary teams to produce tangible outputs rooted in the needs of people who will use the solution.

- Use-Inspired Research
- Research Synthesis
- Low-fidelity Prototyping

## Coaches

Helps teams navigate the program, apply the curriculum, prepare pitches and phase 2 proposal submission, and create a strategy for creating a sustainable solution beyond NSF funding and support.

## Track Integration

Each track funds a set of diverse teams focusing on different aspects of a national-scale societal challenge. Teams will work together provide the highest societal impact and to solve the complex challenge.

## Communications

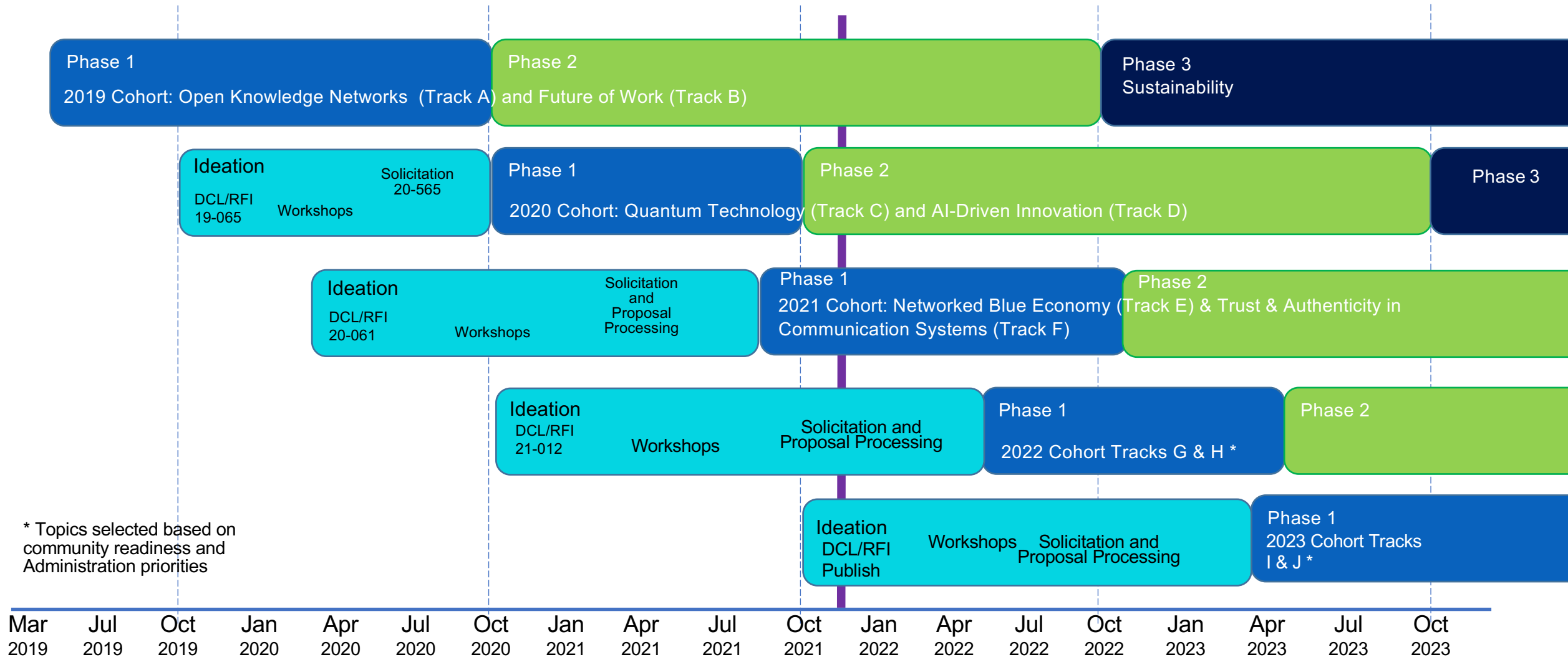
Convey the project's value by describing the challenge and solution through communication, storytelling and pitching to various stakeholders including potential partners, investors and end users.

- Storytelling
- Pitching

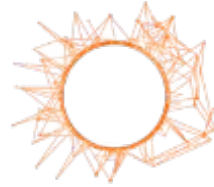


# CONVERGENCE ACCELERATOR PROGRAM

## Overall Timeline – 2019-2023



# Convergence Accelerator Portfolio



Track A

Track B

Track C

Track D

Track E

Track F

Open  
Knowledge  
Networks

AI and the Future  
of Work

Quantum  
Technology

AI-Innovation  
Data Sharing &  
Modeling

Networked  
Blued Economy

Trust &  
Authenticity in  
Communication  
Systems

**2019 COHORT**

Phase 2

**2020 COHORT**

Phase 2

**2021 COHORT**

Phase 1

# CONVERGENCE ACCELERATOR FUNDING MECHANISMS

Each year the program releases a solicitation funding opportunity featuring several convergent research topics selected from the program's ideation process.

**Two paired funding mechanisms provide opportunities for non-academic entities to submit and lead proposals.**

## **Traditional NSF Solicitation – Academic submitters**

- Example: NSF-21-572 (recommended); refer to [http://bit.ly/CA\\_GrantSolicitation\\_NSF-21-572](http://bit.ly/CA_GrantSolicitation_NSF-21-572))

## **AND**

## **Broad Agency Announcement (BAA) – For-profit or Non-profit (or similar)**

- Example: BAA Solicitation 2021- [https://bit.ly/CA\\_BAA\\_Solicitation2021](https://bit.ly/CA_BAA_Solicitation2021)
- Additional Information: Fee/profit is an allowable cost

*Researchers and innovators are encouraged to apply.*

# Solicitation Evaluation/Review Criteria

*Convergence Accelerator: Submitting the “same old proposals” won’t work!*

## INTELLECTUAL MERIT & BROADER IMPACTS:

### Intellectual Merit:

Encompasses the potential to advance knowledge

### Broader Impacts:

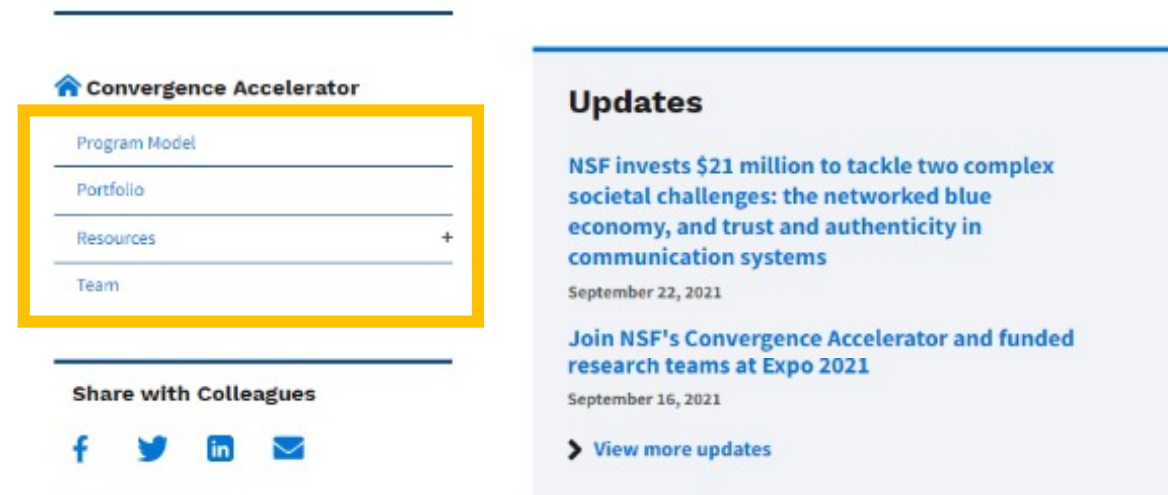
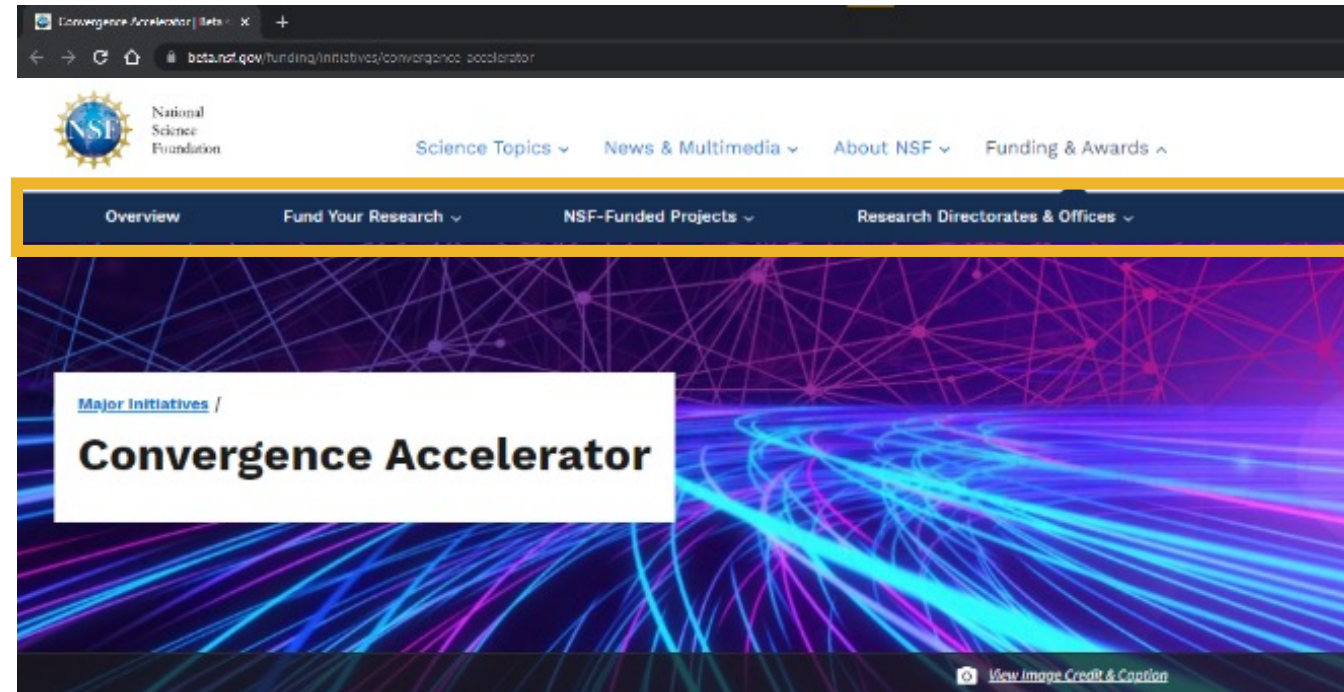
Encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes

## PROGRAM SPECIFIC CRITERIA:

- **Convergence:** Multiple disciplines with a focus on social science aspects; think big—Experts from multiple institutions
- **Cross-cutting Partnerships:** Multiple organizations and sectors; not just academia; must include industry, non-profits, government, and other communities of practice American people in 3 years, (e.g., Prototypes); What impact the solution have a national and/or global scale?
- **Broadening Participation:** Describe activities that will be undertaken to increase the participation of underrepresented groups (e.g., expertise, partnerships, user groups, resource needs); Refer to the Broadening Participation Plan requirements
- **Deliverables:** What can teams deliver to the American people in 3 years, (e.g., Prototypes); What impact the solution have a national and/or global scale?
- **Track Integration:** How can multiple teams work together to solve a national-scale complex challenge?
  - Each track funds a set of diverse teams focusing on different aspects of a national-scale societal challenge
  - Teams are uniquely positioned to ensure the highest societal impact

# LEARN ABOUT US.

- Unique Program Model
- Exciting Program Offerings
- Current Portfolio
- Ways to Connect into the Program and with the Team





NSF's Convergence Accelerator

# CONNECT WITH US.

<https://beta.nsf.gov/funding/initiatives/convergence-accelerator>

Convergence-Accelerator@nsf.gov

Douglas Maughan  
Head, Convergence Accelerator  
dmaughan@nsf.gov



The image features a central dark blue circle with the text "THANK YOU!" in white, bold, sans-serif font. The background is a complex network of nodes and lines, transitioning from green and yellow on the left to purple and blue on the right. The nodes are represented by small circles of various colors, and the lines are thin, connecting the nodes in a dense, web-like structure. The overall aesthetic is modern and digital.

**THANK YOU!**