National Science Foundation
Directorate for Technology, Innovation and Partnerships

Funding Programs in the TIP Directorate

Parvathi Chundi
SBIR/STTR and POSE Program Director
Division of Translational Impacts

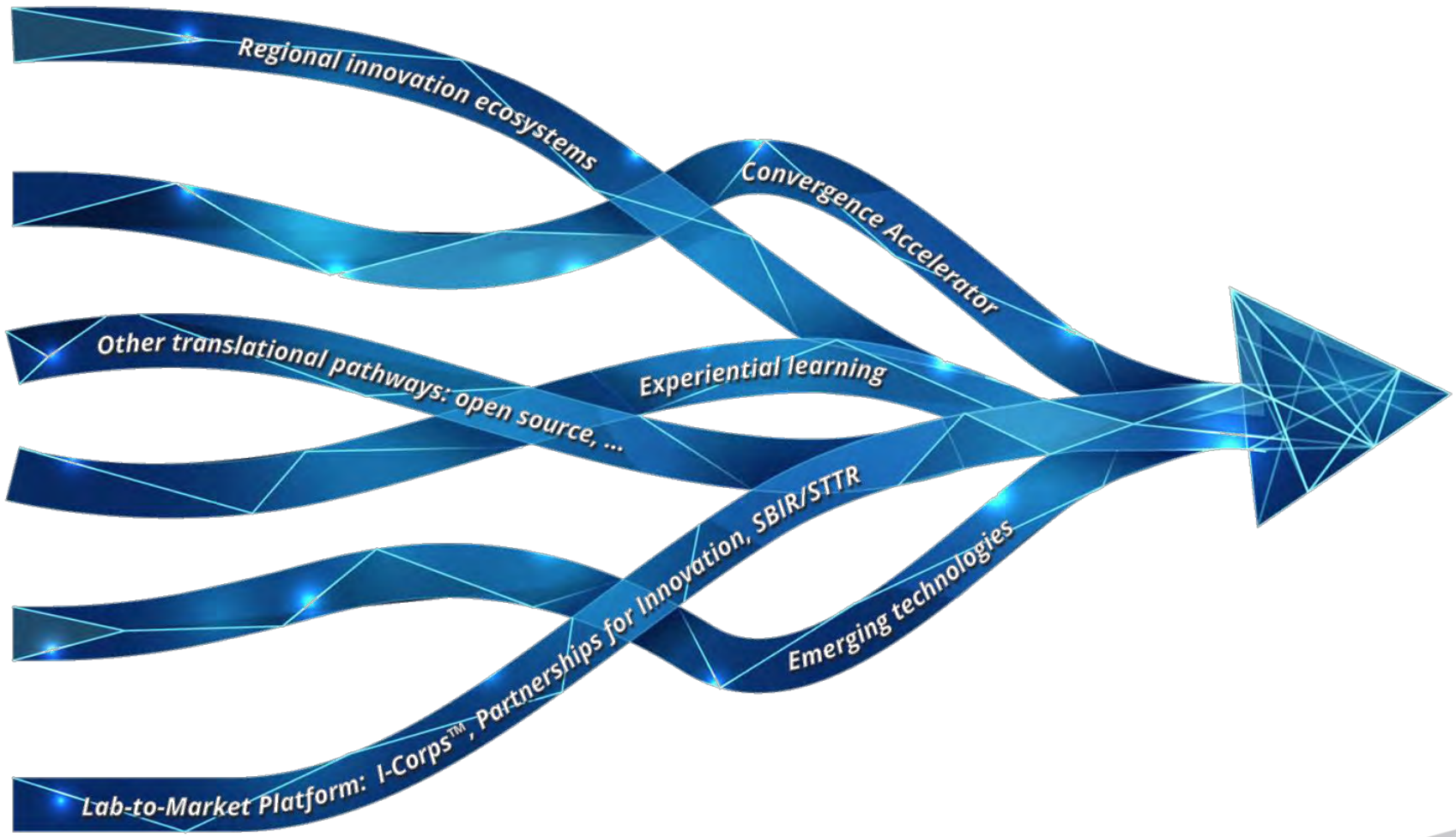
A New “Horizontal”: Strengthen and Scale Use-Inspired and Translational Research

TIP Directorate -- Mission

- harness the nation's vast and diverse talent pool to **advance critical** and **emerging technologies, address pressing societal** and economic challenges, and accelerate the translation of research results from lab to market and society

- improve U.S. competitiveness, grow the U.S. economy and train a diverse workforce for future, high-wage jobs.

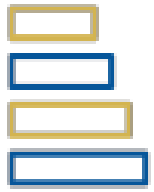
TIP: Accelerating Research to Impact



TIP: Accelerating Research To Impact

Fostering Innovation and Technology Ecosystems

Nurtures regional and national innovation and technology ecosystems to support researchers and innovators to converge, develop and accelerate use-inspired research for societal impact.



Establishing Translation Pathways

Supports startups through a lab-to-market platform and establishes new pathways for translating research results for society.

Partnering to Engage the Nation's Diverse Talent

Advances and deepens high-impact, public and private partnerships across all areas of science, engineering and education to cultivate innovation ecosystems, create technology solutions, and support future STEM leaders.

Technology, Innovation and Partnerships (TIP) Programs

Supporting Use-Inspired Research Leading to Technology and Innovation Ecosystems:

Innovation and Technology Ecosystems (ITE)

Regional Innovation Engines (RIE)

Convergence Accelerator

ExLENT

Supporting Technology Translation: NSF Lab-to-Market Platform

Translational Impacts (TI)

Partnerships for Innovation (PFI)

Innovation Corps (I-Corps™)

America's Seed Fund powered by NSF

Other Translational Pathways

Pathways to Enable Open-Source Ecosystems (POSE)

NSF Entrepreneurial Fellowship

TIP Technology, Innovation and Partnerships

TIP Technology, Innovation and Partnerships

Convergence Accelerator Program

Convergence Accelerator

- Brings together multiple disciplines, expertise, and partnerships from academia, industry, non-profit, government, and other sectors together to develop solutions
- Convergence Research Topics for 2022
  - **Track H: Enhancing Opportunities for Persons with Disabilities**
  - **Track I: Sustainable Materials for Global Challenges**
  - **Track J: Food & Nutrition Security**

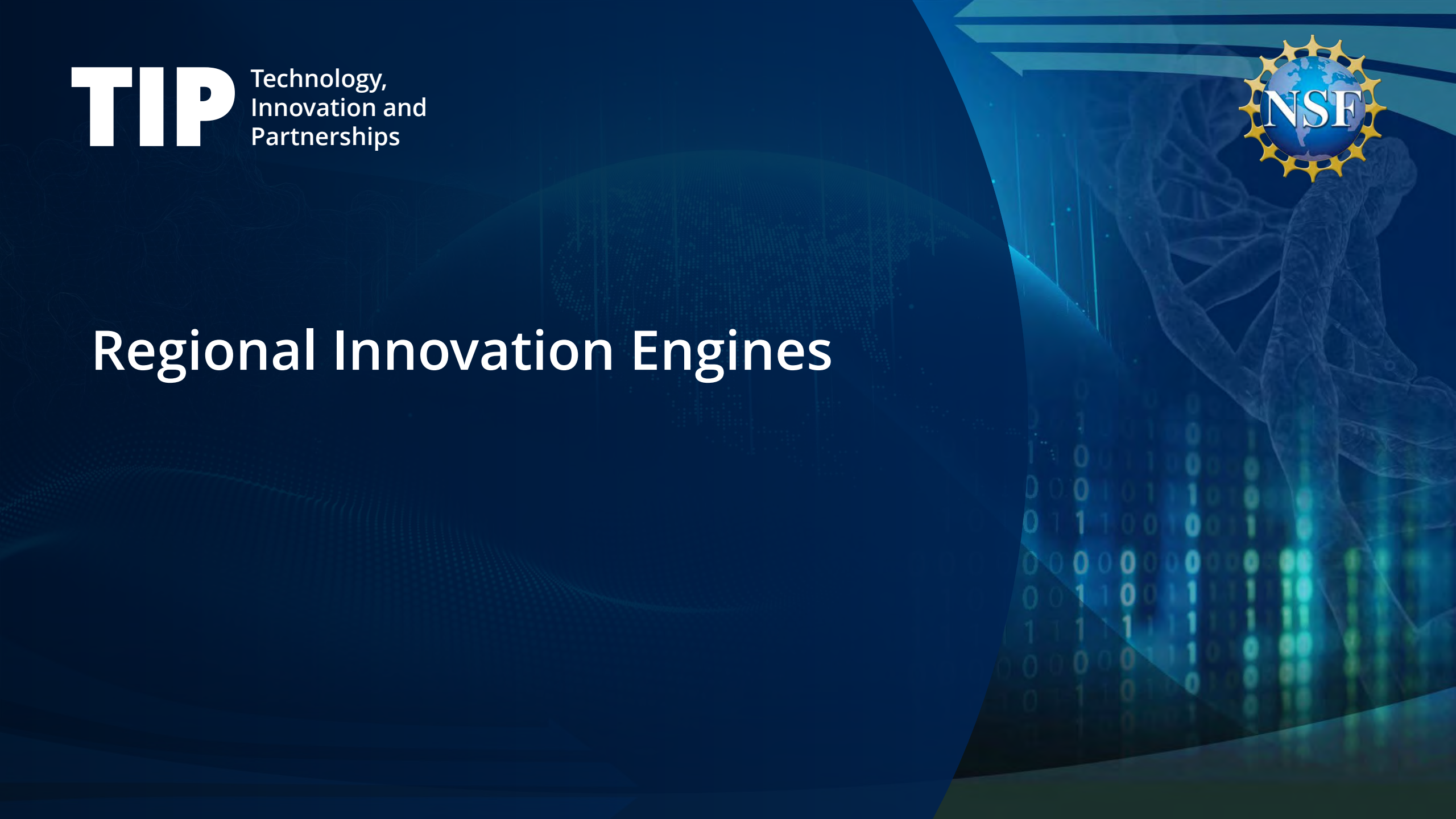
- Use-inspired research and accelerated transition of that research into prototypes in a two-phase process.
  - Phase 1: *Learning + Applying the Convergence Accelerator Fundamentals, Convergence Research Planning*
  - *Phase 2: Continued Application of the Convergence Accelerator Fundamentals, Prototyping and Sustainability Planning*

Program Structure

NSF's Convergence Accelerator

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.

TIP Technology, Innovation and Partnerships

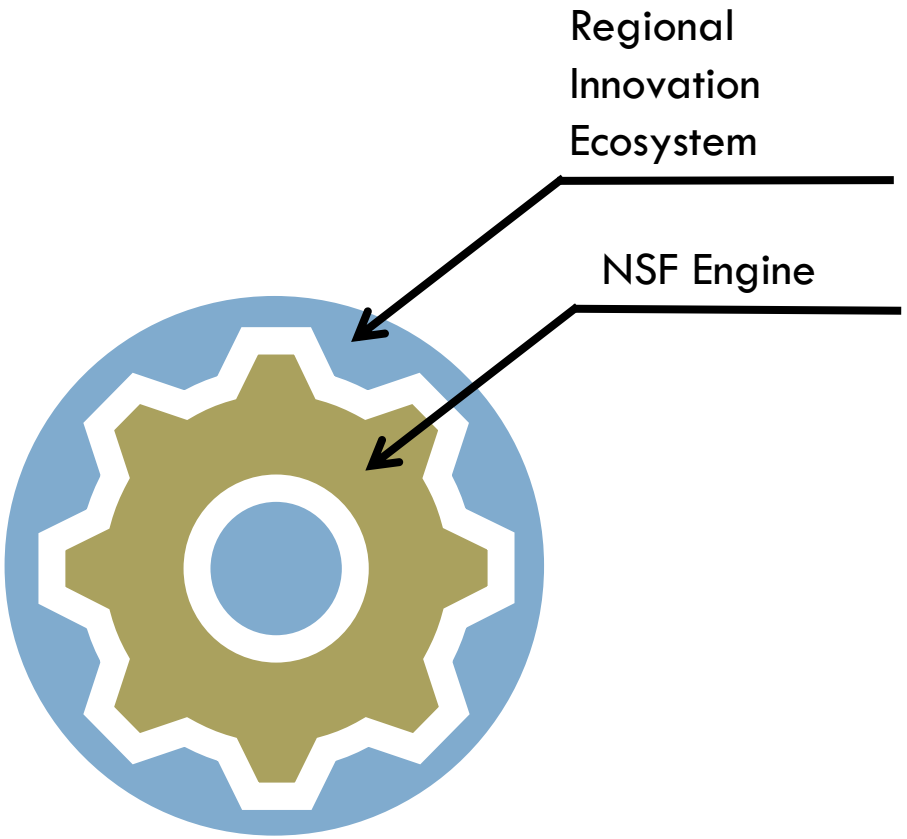


Regional Innovation Engines

What is an NSF Engine?

A multi-sector coalition of regional partners working together to catalyze a regional innovation ecosystem in a topic area of regional relevance and national and societal significance.

Engines are led by CEOs and includes partners from industry, institutions of higher education, government, and non-profit and community organizations.



NSF Engines

- Two years of development funding to build an Engine
- Each NSF Engine can receive up to $160 million to support the development of diverse regional coalitions to engage in use-inspired research and development.
- Focused success expectations:
    - Regional development by changing its culture
    - Individual and geographic diversity, including mentoring
    - Practitioner/entrepreneur development
    - Integrative/additive

TIP Technology, Innovation and Partnerships

ExLENT

NSF workforce development program opens new doors in emerging technology fields

NEW

More information @ beta.nsf.gov/tip/latest

$30 Million Investment

- Expands practical learning opportunities for individuals interested in emerging areas such as AI, Biotech, etc.
- Awards of up to $1 million over three years.
- The ExLENT program promotes partnerships between organizations in emerging technology fields and those with expertise in workforce development.

Enhancing the NSF Lab-to-Market Platform

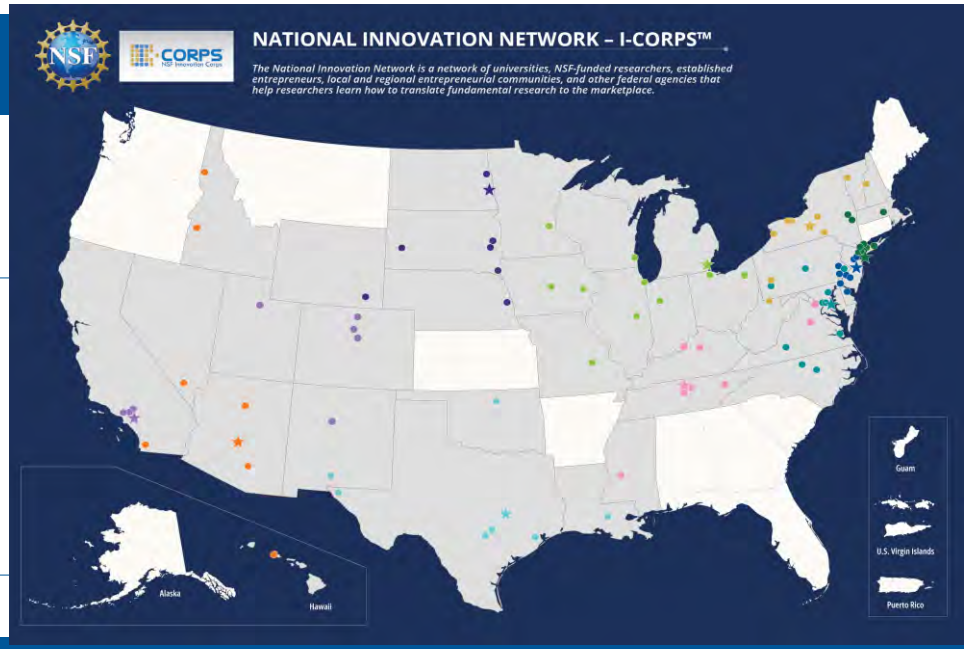
Innovation Corps (I-Corps™)

Train NSF-funded faculty, students, and other researchers in innovation and entrepreneurship skills.

Spur translation of fundamental research to the marketplace.

Reach

10	I-Corps Hubs involving nearly 100 universities
40+	University Sites & Nodes



Outputs

5,800	Individuals trained since 2012
1,000+	Startups created

Partnerships for Innovation (PFI)

NSF's Partnerships for Innovation

- A prototyping award for researchers with history of NSF funding
- Does not require employment at a small business
- Two Tracks:
- Technology Translation (PFI-TT)
- Research Partnerships (PFI-RP)

Duration and funding:	Opportunities:
24-36 months up to **$550,000**	Allowable Patent Expenses (APEX) supplement up to **$50,000**

Pathways to Enable Open-Source Ecosystems (POSE)

Harnesses the power of open-source development for the creation of new technology solutions to challenges of national, societal, and economic importance

Outcomes:

- Ensure more secure open-source products
- Increased coordination of developer contributions
- A more focused route to impactful technologies

Phase I – 1 year

Enables scoping activities to inform the development of the open-source ecosystems and lead to a well-developed and sustainable plan.

Up to **$300,000**

Phase II – 2 years

Supports transition of an open-source research product into a sustainable open-source ecosystems.

Up to **$1.5M**

America's Seed Fund (SBIR/STTR)

- Up to $2M in R&D funding to develop transformative, deep tech, high-impact technologies
- Transforms scientific discovery into products and services with commercial and societal benefit

Project Pitch

- Get started any time at seedfund.nsf.gov/apply

Review Criteria for Full Proposals

- Intellectual Merit
- Commercial Potential
- Broader Impacts

Phase I:
Feasibility Research
6-12 Months
Up to $275,000

Phase II:
Prototype Development
24 Months
Up to $1M

Phase IIB:
Third-Party Investment Plus
1:2 NSF Match
(up to $500,000)

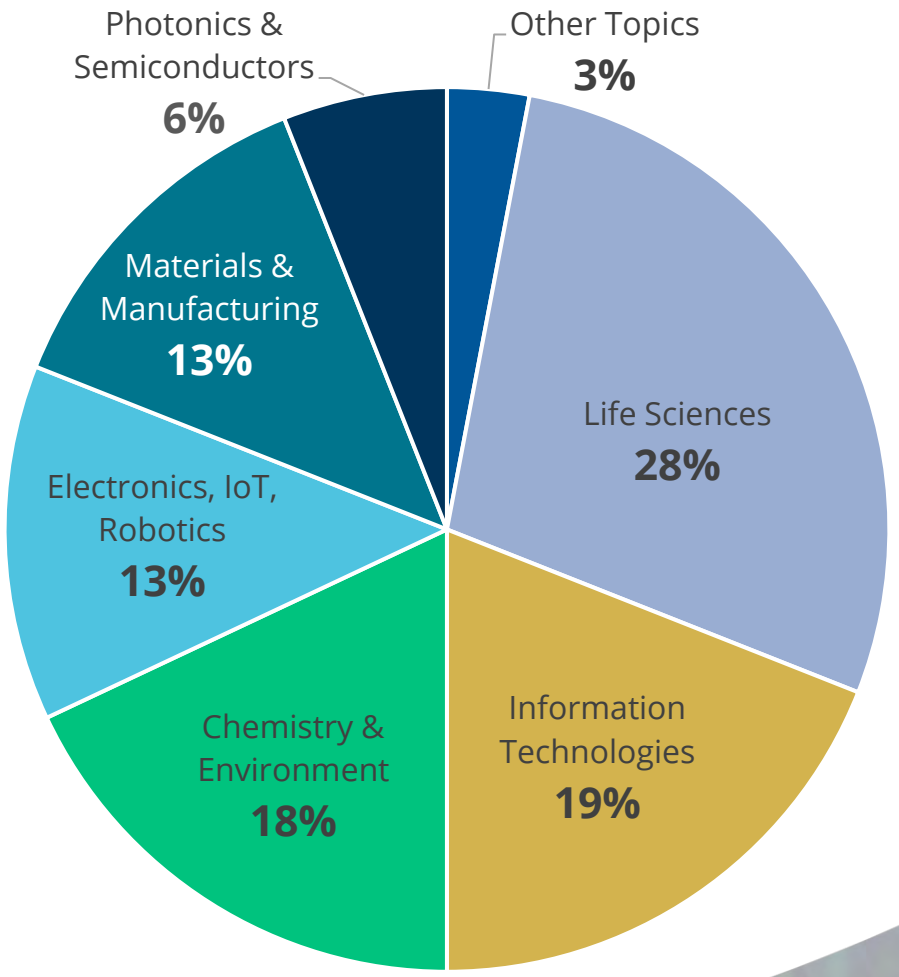
SBIR/STTR Award Funding* (FY 2020)

America's SEED FUND SBIR.STTR

Funding Obligated*
$221M

Awards
$190M

Supplements
$31M



* Funding amount reflects total dollars obligated on SBIR/STTR awards and supplements made in FY 2020. This amount excludes 1) the SBIR/STTR admin fund, 2) any award that were made for purposes other than funding small businesses, and 3) awards and supplements that have been cancelled

Recent Phase I Awardee Stats & Outputs

10 or fewer employees

95%

Founded in past five years

81%

First-time SBIR/STTR winners

59%

Outputs*

$20 billion

in follow-on institutional (equity) financing

300 successful exits

(acquisitions, mergers, IPOs)

*These figures were pulled from Pitchbook from 10/01/2015 to 09/30/2022 and include companies that received NSF funding prior to 2016.

TIP Technology, Innovation and Partnerships

NSF launches entrepreneurial fellowship program for engineers and scientists

NEW

$20 Million Investment

Activate

- Supports researchers from a variety of backgrounds and geographies to move technologies from lab to society.
- Provides Activate Fellows supported by NSF with two-years of training and at least $350,000 in direct support, plus access to specialized research facilities and equipment.
- Run by Activate.org, a nonprofit

More information @ beta.nsf.gov/tip/latest

TIP Technology, Innovation and Partnerships

Exploratory to Translational: Biomarker Colocalization

NanoView BIOSCIENCES

1996
NSF CAREER award to PI Selim Ünlü, Boston U

2011
PFI award to Ünlü and student, David Freedman

2013
Team completes NSF I-Corps

2015
NSF SBIR Phase I award

2018
NSF SBIR Phase II award

2020
Company completes fundraising round – raises $15M

TIP Enhances NSF Priorities

Enhance Fundamental Research and Development	>	Support research across the spectrum of science, engineering, technology and education
Strengthen U.S. Leadership in Emerging Technologies	>	Includes the establishment of a new directorate for technology, innovation and partnerships within NSF to advance science and engineering research and innovation
Advance Equity in Science and Engineering	>	Increase participation in science and engineering of individuals from racial and ethnic groups underrepresented in these fields
Advance Climate Science and Sustainability Research	>	Advance use-inspired, solution-oriented research and innovation in climate and clean energy-related research
Continue construction of forefront infrastructure	>	Support test beds, living laboratories and prototyping facilities

LEARN ABOUT TIP

- Mission and focus
- Innovation programs
- Funding opportunities
- Stay informed with our newsletter
- Resources and upcoming events

Visit, beta.nsf.gov/tip/latest