



Accelerating Research to Impact

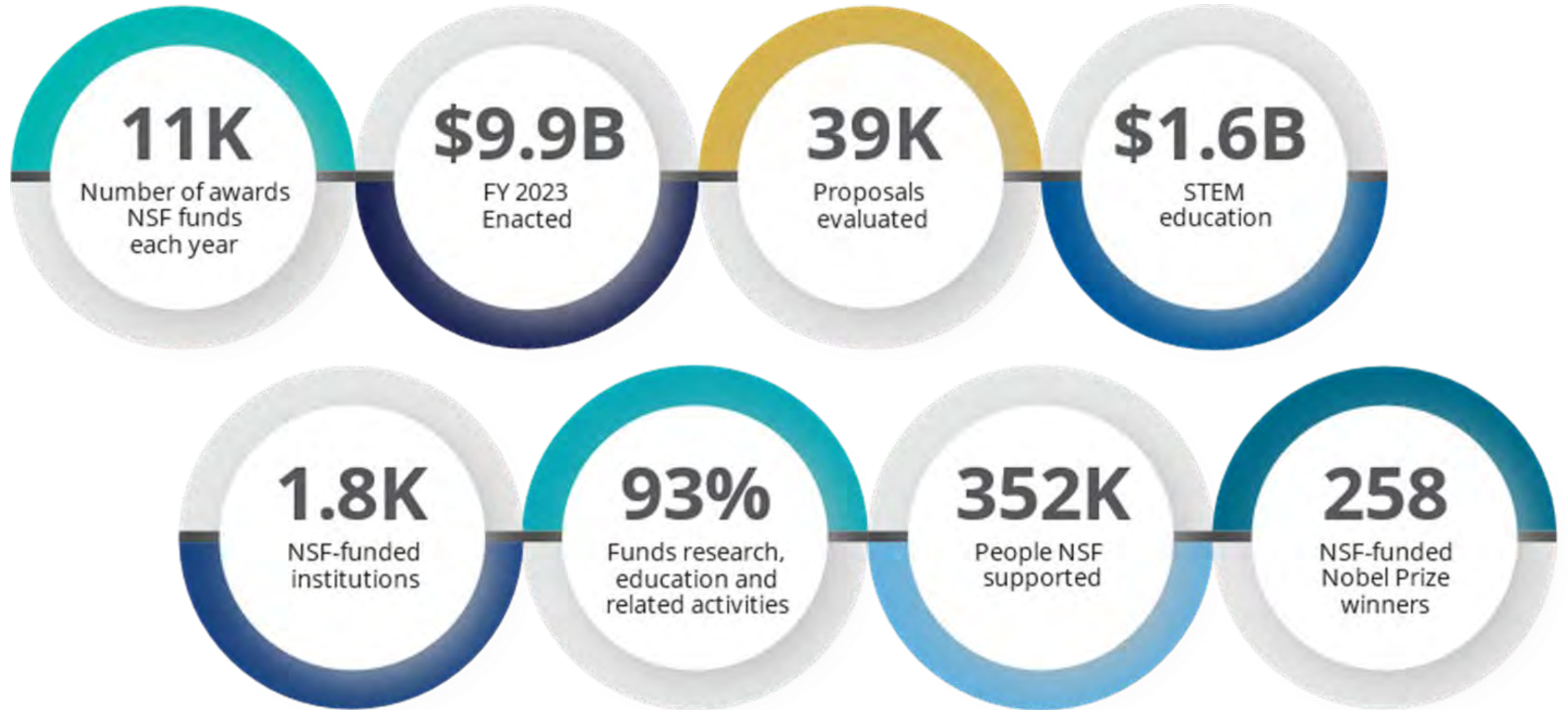
Allen Walker
Senior Advisor
Directorate for Technology, Innovation and Partnerships

ERC Industry Liaison Group
May 17, 2023
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NSF Mission



NSF by the Numbers



Today's agenda

- Inspiration, vision
- Mission, functions, program
- Status



Changing landscape



Pressing socioeconomic challenges



Changing climate



Equitable access to education, health care



Critical and resilient infrastructure

Evolving research and innovation ecosystem



Pace of discovery accelerated by data, emerging technologies



Demand for societal impact



Opportunity to leverage partnerships

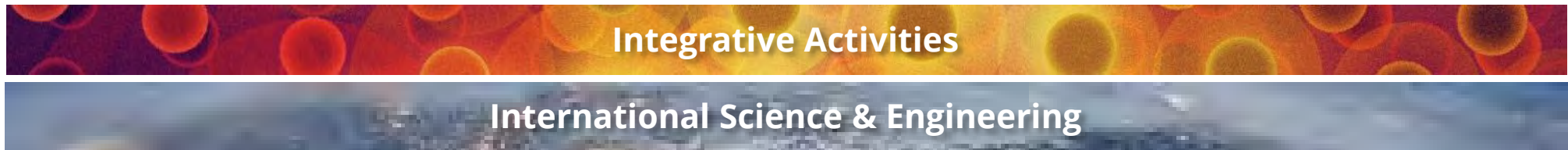
NSF's existing directorates and offices



A new “horizontal” to enhance use-inspired and translational research



DIRECTORATE FOR TECHNOLOGY, INNOVATION AND PARTNERSHIPS (TIP)



TIP's Mission



TIP harnesses 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. TIP improves U.S. competitiveness, growing the U.S. economy and training a diverse workforce for future, high-wage jobs.

TIP: Accelerating research to impact



Fostering Innovation and Technology Ecosystems

Nurtures regional and national innovation and technology ecosystems to support researchers and innovators.



Establishing Translation Pathways

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



Partnering to Engage the Nation's Diverse Talent

Advances and deepens public and private partnerships across all areas of science, engineering and education.

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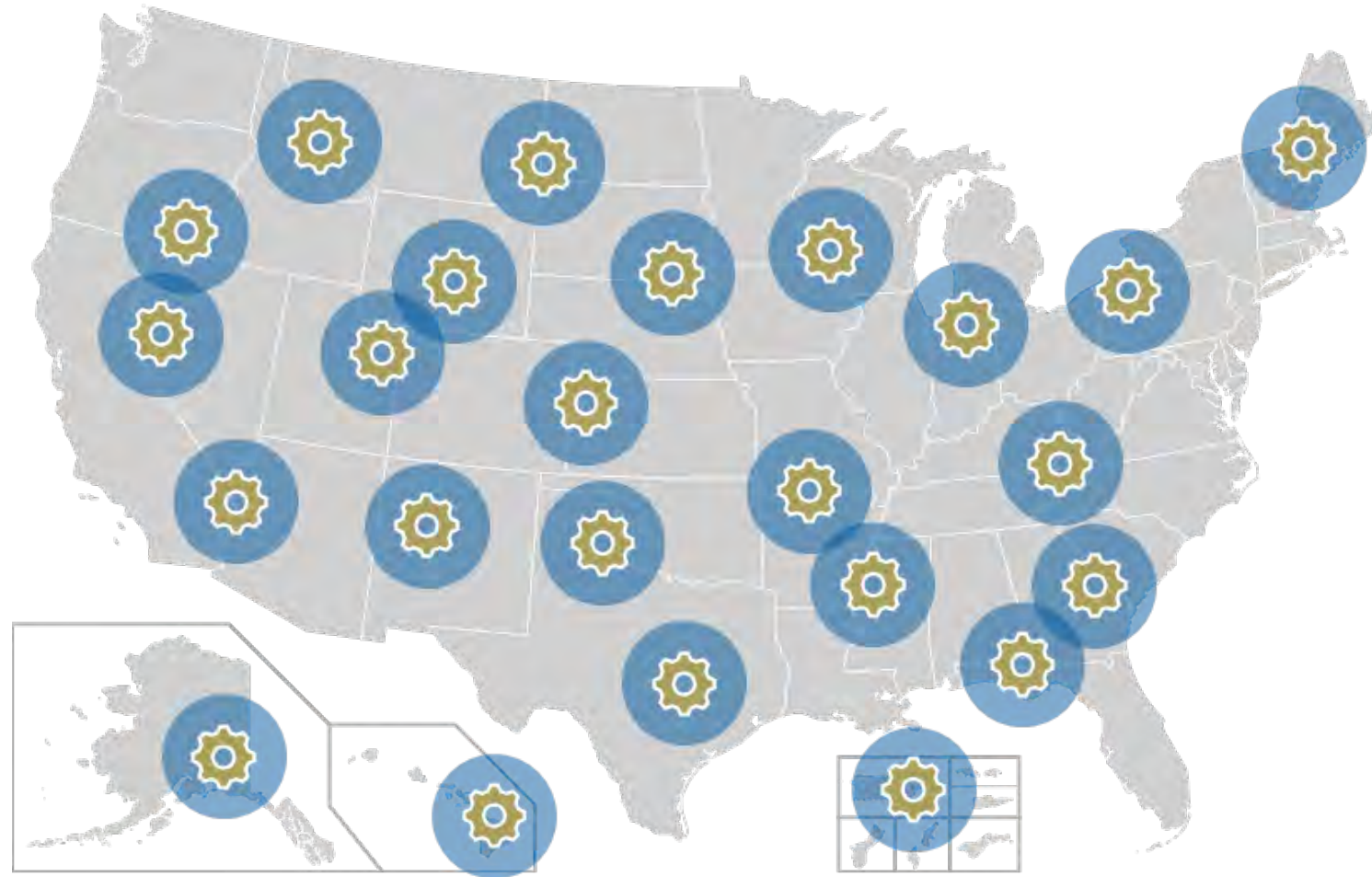
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Partnering to Engage the Nation's Diverse Talent

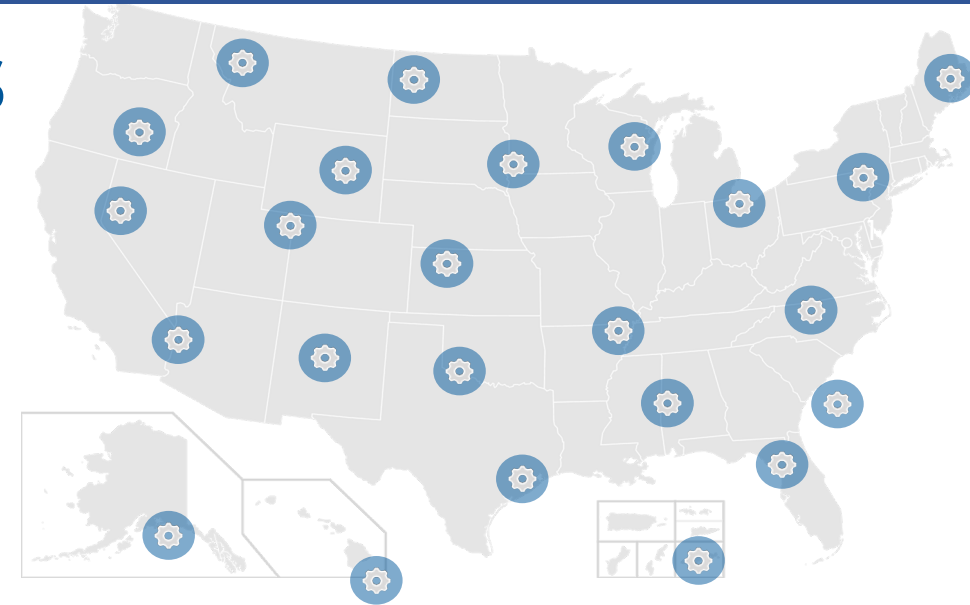
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Expanding innovation across the US



NSF Regional Innovation Engines

Supports the development of diverse, regional coalitions to engage in use-inspired research, drive research results to the market and society, promote workforce development, and ultimately stimulate the economy and create new jobs.



NSF Engines are funded **up to \$160 million** for **up to 10 years**

NSF Engine Development Awards - up to **\$1 million** for **up to 2 years** to plan for an Engine. (Awards coming soon!)

NSF ENGINES

DEVELOPMENT AWARDS



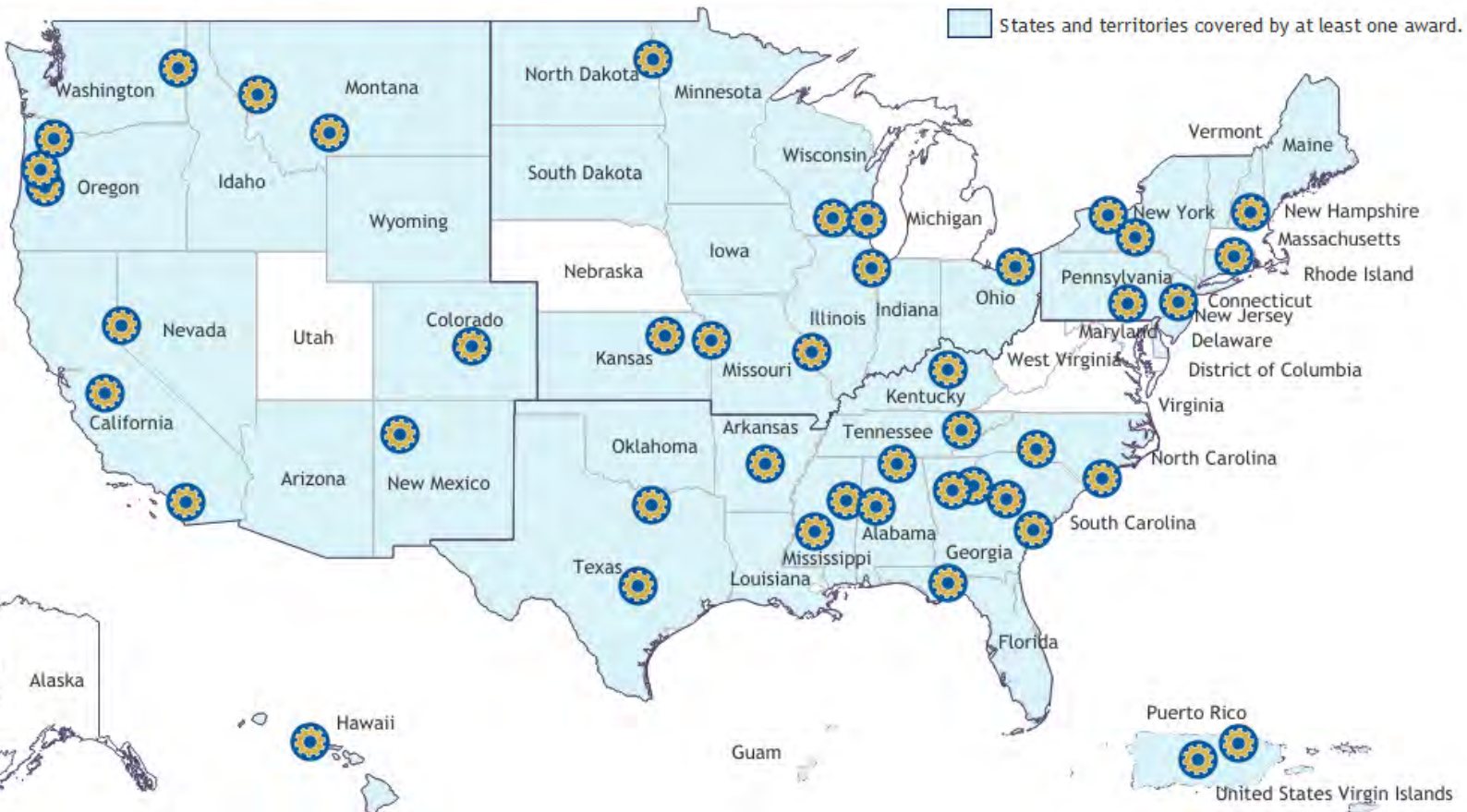
- MAIN
- KEY TECHNOLOGY AREAS
- GEOGRAPHY
- DEMOGRAPHY
- ABOUT

44 NSF Engines Development Awards

Hover over each Engine icon to see the details.

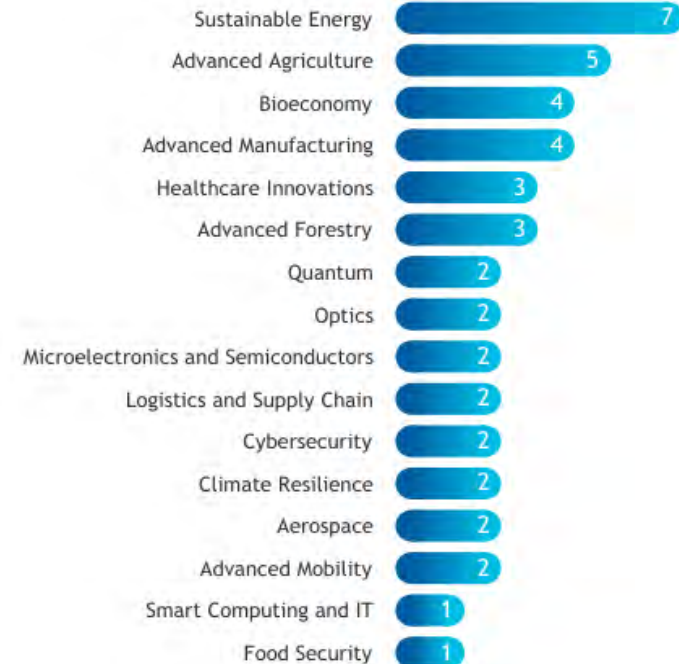
Search

The first-ever NSF Engines Development Awards will help regional partners collaborate to advance key technologies, address societal challenges, and create economic opportunities. The awards to 44 unique teams span universities, nonprofits, business and other organizations across U.S. states and territories.



Topics

Each Award is aligned with one of the following topics
Click on a topic of interest to see the details.



Convergence Accelerator

Convergence Accelerator multidisciplinary teams use convergence research fundamentals and innovation processes to stimulate innovative idea sharing and development of sustainable solutions.

PHASE I (PLANNING):

Up to \$750,000 over 9 months

PHASE II (IMPLEMENTATION):

Up to \$5 Million over 24 months



Convergence Accelerator



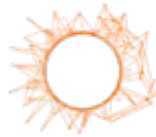
Track A

Open Knowledge Networks



Track B

AI and the Future of Work



Track C

Quantum Technology



Track D

AI-Innovation Data Sharing & Modeling



Track E

Networked Blue Economy



Track F

Trust & Authenticity in Communication Systems

2019 COHORT
Phase 2

2020 COHORT
Phase 2

2021 COHORT
Phase 1



Track G

Securely Operating Through 5G Infrastructure (joint with DOD)



Track H

Enhancing Opportunities for Persons with Disabilities



Track I

Sustainable Materials for Global Challenges



Track J

Food & Nutrition Security

Track K

Equitable Water Solutions

Track L

Real-World Chemical Sensing Applications

Track M

Bio-Inspired Design Innovations

2022 COHORT

FUTURE COHORT

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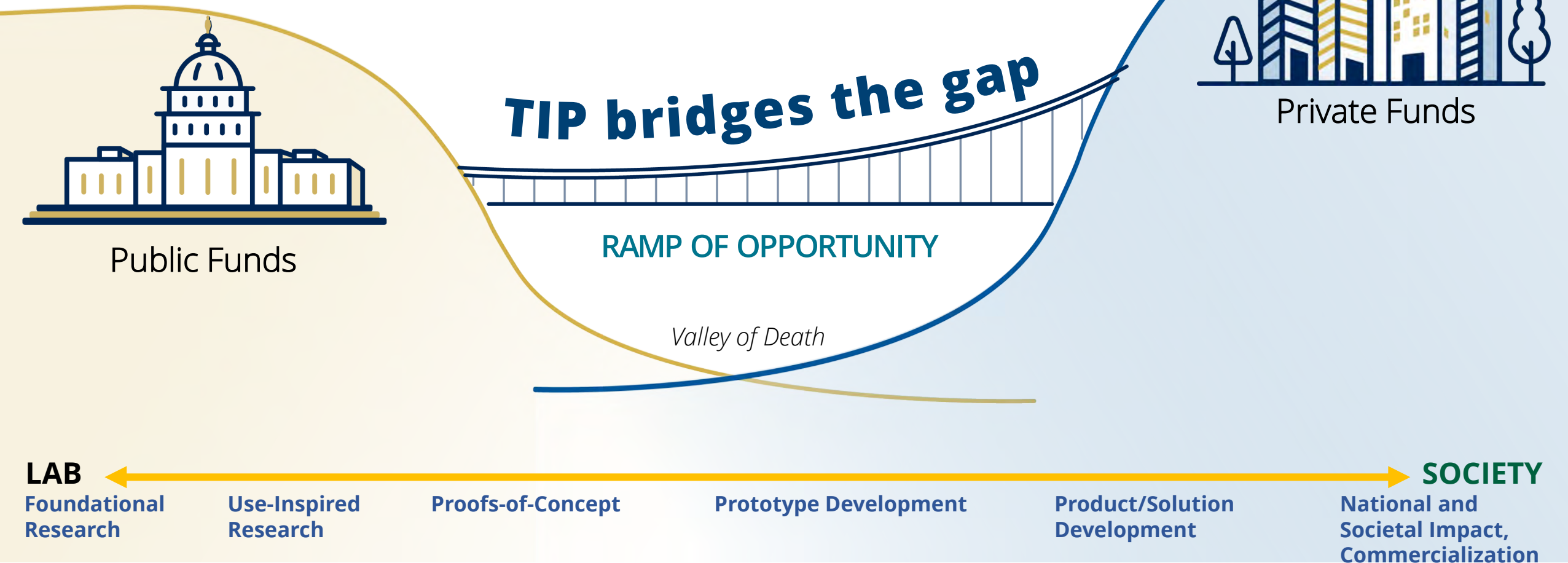
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NSF programs power technology breakthroughs



America's Seed Fund (SBIR/STTR)

Up to **\$2 Million** in R&D funding for startups to develop transformative, deep tech, high-impact technologies



America's
SEED FUND
SBIR.STTR

Phase I

6-12 months

Up to **\$275,000**

Phase II

2 years

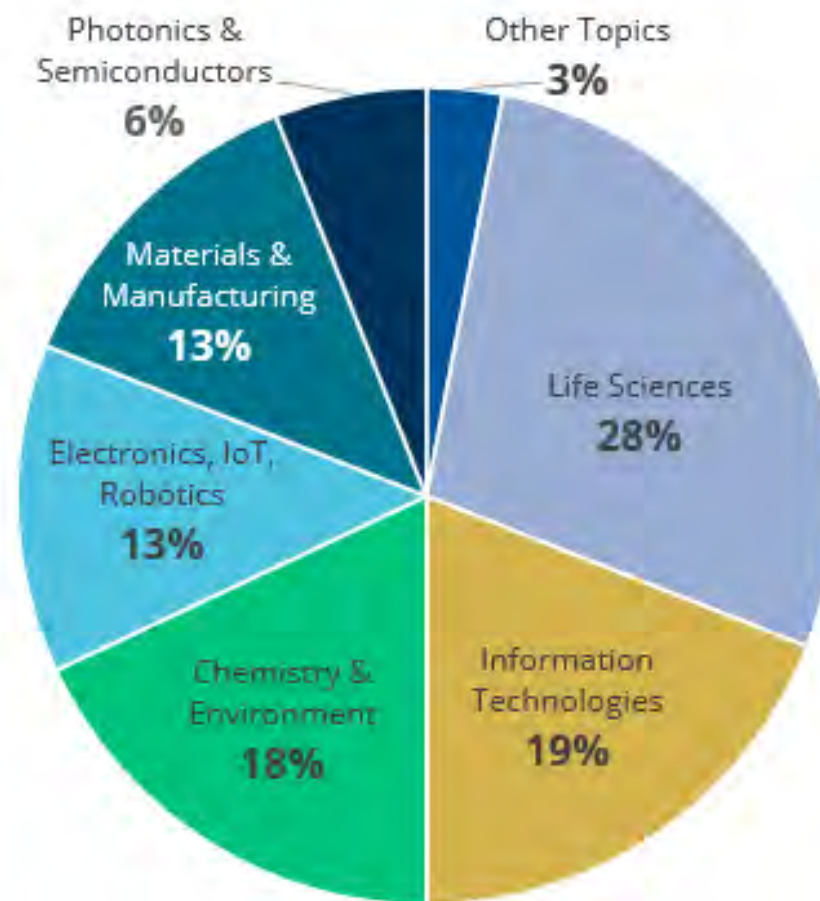
Up to **\$1M**

Phase IIB

Up to

\$500,000

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



* Funding amount reflects total dollars obligated on SBIR/STTR awards and supplements through September 30, 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

Partnerships for Innovation (PFI)

- Translational research toward proof-of-concept of a future product, process or service.
- For researchers with NSF funding
- Two Tracks:
 - Technology Translation

**2 years
up to \$550,000**

- Research Partnerships (industry partner required)

**3 years
up to \$1 million**

<https://beta.nsf.gov/funding/initiatives/pfi>

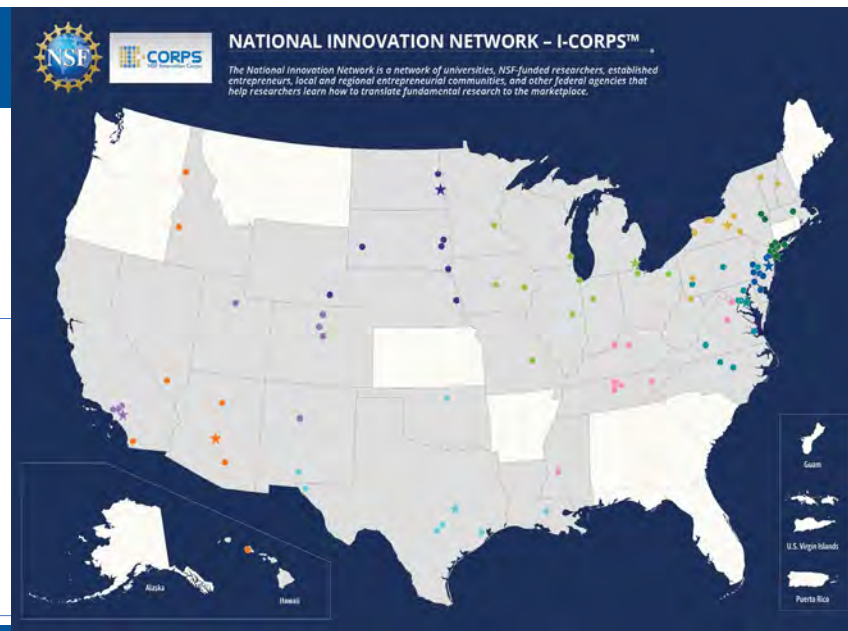
Innovation Corps (I-Corps™)

- Spur translation of fundamental research to the marketplace.
- Train NSF-funded faculty, students, and other researchers in innovation and entrepreneurship skills.

Reach

10 I-Corps Hubs involving nearly 100 universities

40+ University Sites & Nodes



Outputs

5,800 Individuals trained since 2012

1,000+ Startups created

Pathways to Enable Open-Source Ecosystems (POSE)

Harnesses the power of open-source development for the creation of new technology solutions to:

- ensure more secure open-source products;
- increase coordination of developer contributions and
- a more focused route to impactful technologies.

Phase I – 1 year
Up to **\$300,000**

Phase II – 2 years
Up to **\$1.5M**

NSF ART: New \$60 million NSF program aims to grow speed, scale of research solutions

NEW



Up to \$6 million over  four years

- The **Accelerating Research Translation**, or ART program, will support institutions of higher education to build capacity and infrastructure to strengthen and scale the translation of basic research outcomes into impactful solutions.

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

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NSF Partners with Intel and Micron

JANUARY 2022



NSF announces \$100 million partnership with Intel Corporation to support semiconductor design and manufacturing, and workforce development

NOVEMBER 2022



NSF announces \$10 million partnership with Micron to train and build a skilled semiconductor manufacturing workforce

NSF launches prize challenge to develop innovative learning technologies for K-12 students

NEW



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

- The Visionary Interdisciplinary Teams Advancing Learning, or **VITAL, Prize Challenge** developed to encourage interdisciplinary teams from the science and engineering research and startup or small-business communities to advance innovative concepts into prototypes for potentially game-changing learning technologies.

NEW

NSF ExLENT: a workforce development program that opens new doors in emerging technology fields



Up to \$1 million over  three years

- ExLENT program promotes partnerships between organizations in emerging technology fields and those with expertise in workforce development to expand practical learning opportunities for individuals interested in entering or gaining more experience in emerging and novel technology.

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



NSF launches entrepreneurial fellowship program for engineers and scientists

NEW

At least \$350,000 in direct support



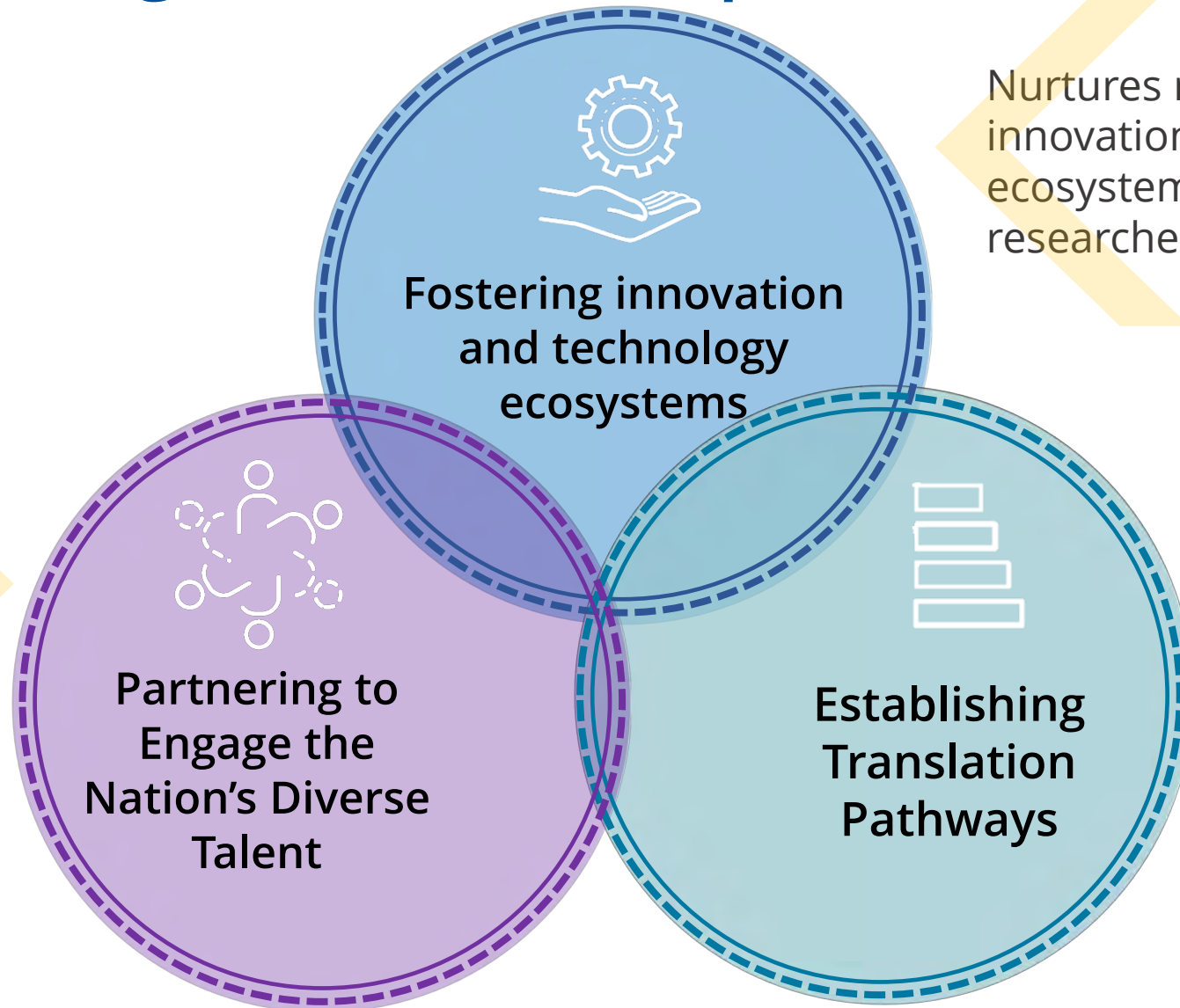
Activate

- Supports researchers from a variety of backgrounds and geographies to move technologies from lab to society.
- Run by a non-profit, Activate.org, 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.

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

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Ramping Up TIP

intel.

JAN 21:
NSF + Intel announce \$100M semi. workforce partnership



MAR 16:
TIP is established



JUL 20:
NSF, NIST, OSTP, UK announce privacy prize challenges



JUL 28:
NSF Engines Concept Outlines published



OCT 19:
NSF launches ExLent program



OCT 27:
NSF + Micron announces \$10M semi. workforce partnership

NOV 10:
NSF announces winners in first phase of NSF, NIST, OSTP, UK privacy prize challenges



JAN 26:
NSF announces cross-sector partnership with Ericsson, Intel, IBM and Samsung as part of its FuSe initiative



JAN 10:
NSF, NobleReach Emerge announce biotechnology investment



MAR 15:
NSF launches Proto-OKN



FEB 2022

FEB 15:
Pathways to enable Open-Source Ecosystems launches

MAY 2022

MAY 3:
NSF Engines program launches

JUL 2022

SEP 7:
NSF, DOD partner to advance 5G security



SEP 19:
New Fellows program launches



SEP 2022

SEP 8:
NSF awards 5 new I-Corps Hubs™



OCT 2022

NOV 2022

DEC 8:
NSF launches EPIIC

DEC 12:
NSF announces Builder Platform for NSF Engines

DEC 19:
NSF invests \$12M to Circular Economy

DEC 2022

DEC 9:
NSF invests \$12M on solutions for persons with disabilities

DEC 13:
NSF invests \$11M to address food/nutrition insecurity

JAN 2023

FEB 2023

FEB 8:
NSF launches ART



MAR 2023



Learn about TIP

- Programs & funding opportunities
- Stay informed with our newsletter
- Resources and upcoming events
- Job opportunities

Visit new.nsf.gov/tip/latest



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One year ago, under the leadership of Director Sethuraman Panchanathan, the U.S. National Science Foundation announced the establishment of the Directorate for Technology, Innovation and Partnerships, or TIP, the agency's first new directorate in more than 30 years.

Just a few months later, Congress passed the "CHIPS and Science Act," authorizing the establishment of the directorate and charging it with the critical mission of advancing U.S. competitiveness through investments that accelerate the development of key technologies and address pressing societal and economic challenges.

Learn More About TIP

- [More About TIP](#)
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- [TIP Leadership](#)
- [TIP Staff](#)
- [Careers](#)



NSF broadens participation in innovation ecosystems by supporting capacity building at institutions of higher education

NEW



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

\$Up to \$400,000 for
three years



- The Enhancing Partnerships to Increase Innovation Capacity (EPIIC) program will provide training and networking support to help build more inclusive innovation ecosystems and pathway into NSF Engines.