



# Report out on NSF Industry Partnership Summit and an introduction to TIP

*To the ERC Industry Liaison Officer working group*

*May 17, 2023*

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# Industry Summit

April 26, 2023

Engage with leaders from industry to discuss partnerships and explore effective mechanisms for doing so.

- *What are the topics and areas that are ripe for collaboration or partnerships?*
- *What are efficient models for engagement?*

60 leaders from 48 companies across a range of sectors

Partnership types discussed ranged from Direct (like Intel joining NSF in running a funding competition) to Catalyzed (like ERC model where grantees have the relationship) to Industry serving as an NSF Awardee

Workforce  
Development

Tech Areas

Partnership  
Models



# First NSF Industry Partnership Summit, April 26, 2023

- ~60 Industry representatives, across 11 sectors
  - BioTech, Chemicals, Computing, Construction, Instrumentation, Manufacturing, Medical Instruments, Pharma, Semiconductors, Software/Services, Telecomm
  - AI embedded in industry – “No semiconductor/electronic design software is built without AI/ML in it.” – Synopsis
- High interest in working together on training and workforce development
  - “Teach the Teachers” – especially at the Community College level – was highlighted and identified as a challenge and area of interest.
  - Incentivize workers who are aging out; Learn from abroad?



# Summit Attendance

Organization	Directorate/Tech Area
Spirit AeroSystems	Aerospace
Boeing	Aerospace
Honda	Auto Manufacturing
Deere and Company	Auto/Ag Manufacturing
PepsiCo	Beverages
Johnson & Johnson	Biotech
Fujifilm Diosynth Biotechnologies	Biotech
Dow	Chemicals
BASF Corporation	Chemicals
Evonik Corporation	Chemicals
Bayer	Chemicals, Pharma
BASF	Chemicals, Pharma
Procter & Gamble Company	Chemicals, Pharma
Novartis	Chemicals, Pharma
IBM	Computing
NVIDIA	Computing
Intel Corporation	Computing
Microsoft Research	Computing
Cisco	Computing
Juniper Networks	Computing
ARA	Construction
Booz Allen Hamilton	Consulting
Palo Alto Research Center	Digital R&D
Vertiv	Engineering Data Center

Organization	Directorate/Tech Area
Mars, Incorporated	Food, Pets
EMD Group	Healthcare Tech
Optics 1	Imaging
Keysight Technologies	Instrumentation
Thermo Fisher Scientific	Instrumentation
NI	Instrumentation
Deerfield Management	Investment, healthcare
Siemens	Manufacturing
Danaher Corporation	Manufacturing, medical
Caterpillar Inc	Manufacturing, Trucks
Deerfield Discovery and Development	Pharma
Tokyo Electron Limited	Semiconductor
Micron Technology, Inc	Semiconductor
LAM Research	Semiconductor
Samsung Semiconductor, Inc	Semiconductor
Synopsys	Semiconductor
SAP	Software
Amazon	Software, Services
IBM	Software, Services
L3Harris Technologies	Tech, Defense
Blackberry	Telecomm
Ericsson	Telecomm
Xylem	Water tech

Formal report is still being prepared, but informally we can share some of our own observations of the conversations in which we took part

### **Breakout 1: Opportunities and challenges**

- How can industry participate?
- What are standard NSF timelines and terms?
  - Proposal requirements for partnerships?
  - Required industry entities for partnership design
- Curiosity-driven research vs. use-inspired research options?
- IP options?
- Value proposition of student/postdoc interns for both industry AND university partners



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- **Breakout 2: Issues for specific sectors (Semiconductors)**

- Data center energy and size demands
- Neuromorphic computing or quantum technologies
  - Aligning hardware roadmaps with AI development roadmaps
- Need for increased use inspired design
- Need training facilities for faculty and students across *diverse locations*
- Fabrication Costs
- Code culture change
- Global competition
- New government players...



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### **Breakout 3: Workforce needs by sector (Semiconductors)**

- Needs:
  - At least 2X the number of people
  - Cybersecurity, Data Science
  - Retraining of existing workforce to “pivot”
- Current Program Examples
- Options for the future
- Diversity, Equity, and Inclusion



# Next steps

- Invited attendees to participate in workgroups focused on:
  - Sector specific workgroups
  - Industry wide workforce needs
  - NSF – Industry engagement models
- Potential follow-on summits with non-profits, State and Local governments, and mid-sized companies



# Introduction to the Directorate of Technology, Innovation, and Partnerships (TIP)



# TIP: Accelerating research to impact



## **Fostering Innovation and Technology Ecosystems**

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

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## **Establishing Translation Pathways**

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

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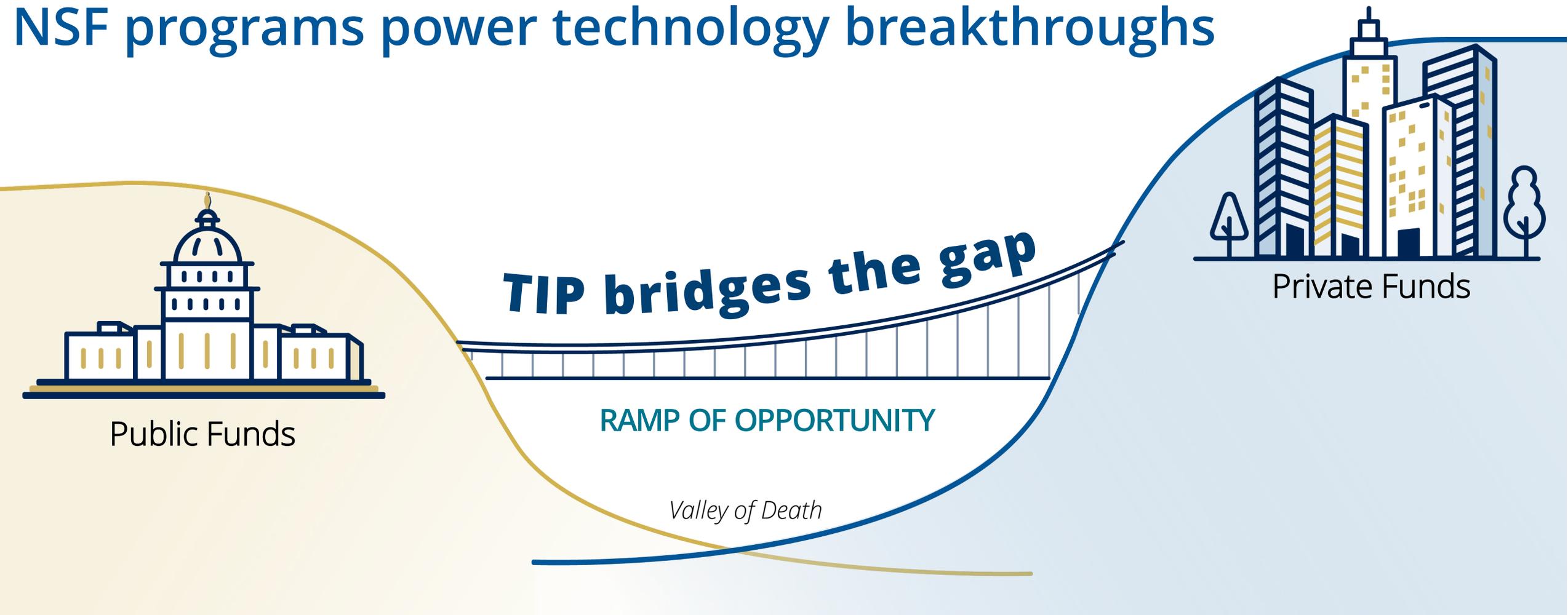


## **Partnering to Engage the Nation's Diverse Talent**

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



# NSF programs power technology breakthroughs



# NSF ENGINES

## DEVELOPMENT AWARDS

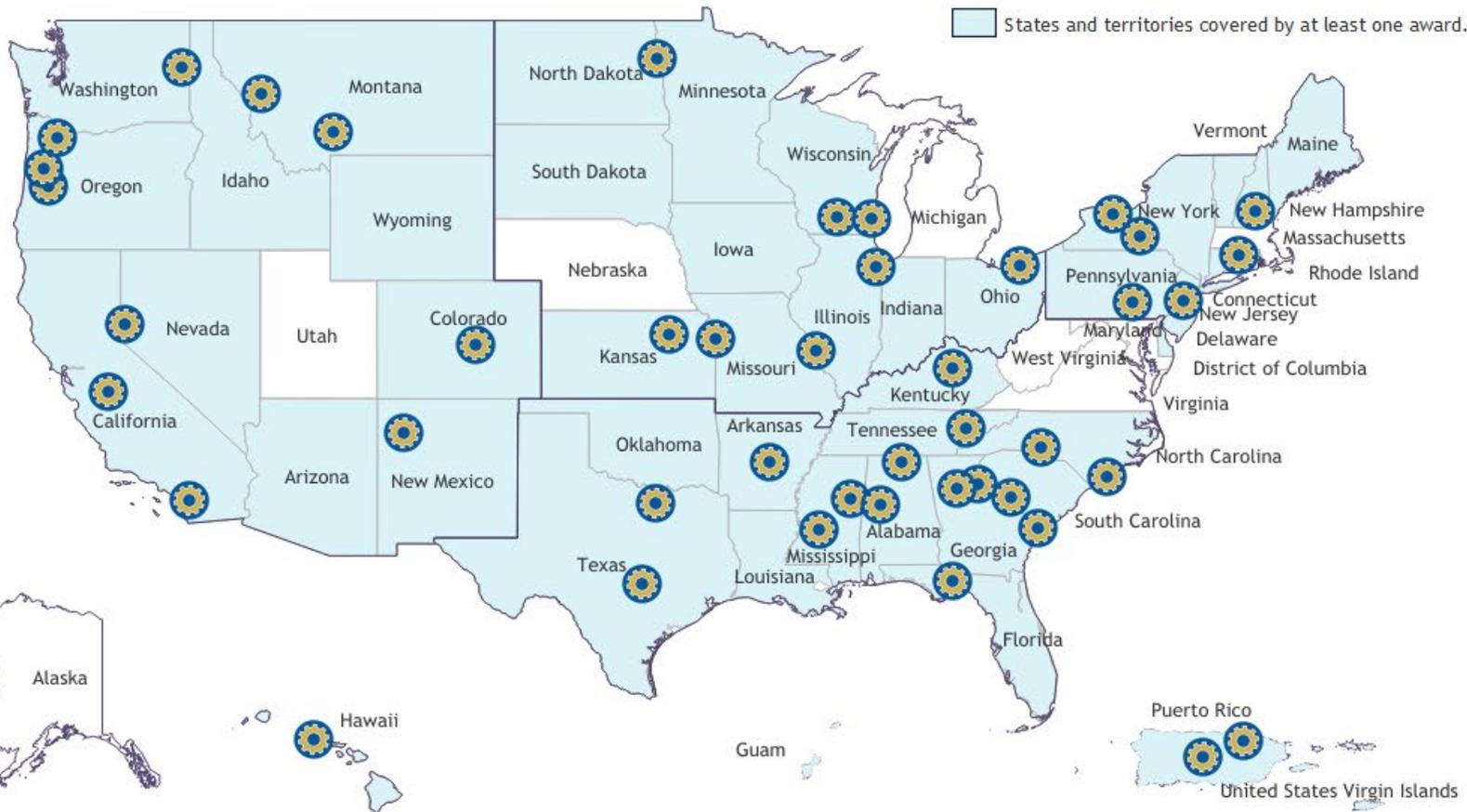


### 44 NSF Engines Development Awards

Hover over each Engine icon to see the details.

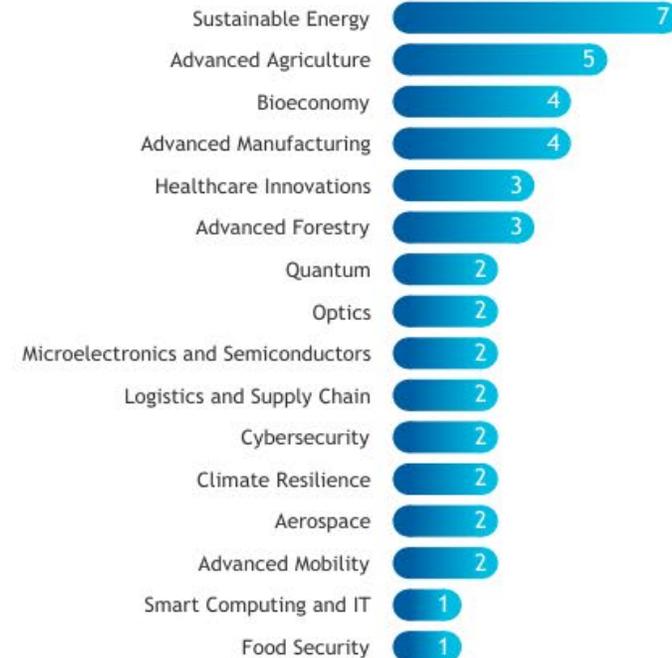
Search

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.



# Thank you!

Follow up:

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