Advancing Technology, Innovation and Partnerships

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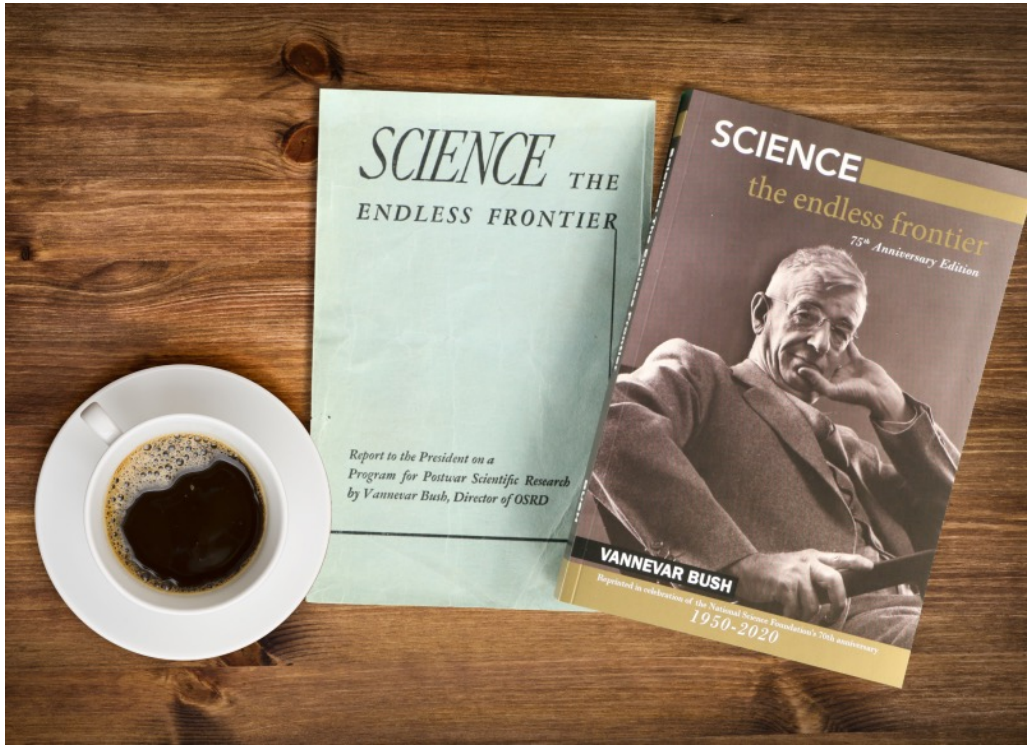
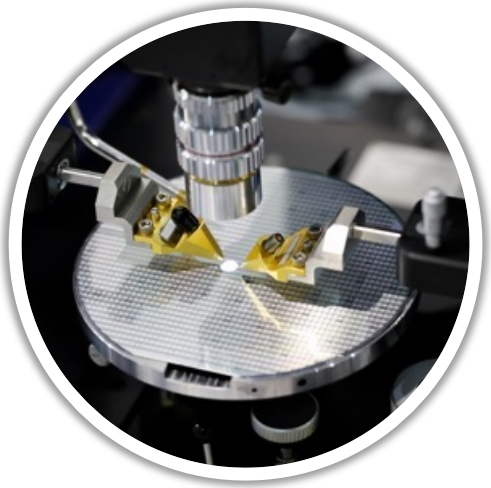
President's Council of Advisors on Science and Technology
September 21, 2022

75 years ago: *The Endless Frontier*



A defining moment

An evolving research & innovation ecosystem



Pace of discovery accelerated by data, emerging technologies

Demand for societal impact

Opportunity to leverage partnerships

Catalyzing a paradigm shift in the ecosystem

Today

- Largely investigator-driven
- Primarily academic research teams
- Stream of discoveries improve prosperity, resilience, quality of life

Catalyzing a paradigm shift in the ecosystem

Today	Tomorrow
• Largely investigator-driven	• Users / beneficiaries engaged in shaping, conducting research
• Primarily academic research teams	• Multi-sector teams – academia, industry, government, civil society, communities of practice
• Stream of discoveries improve prosperity, resilience, quality of life	• Important societal and/or economic problems drive research pursuits

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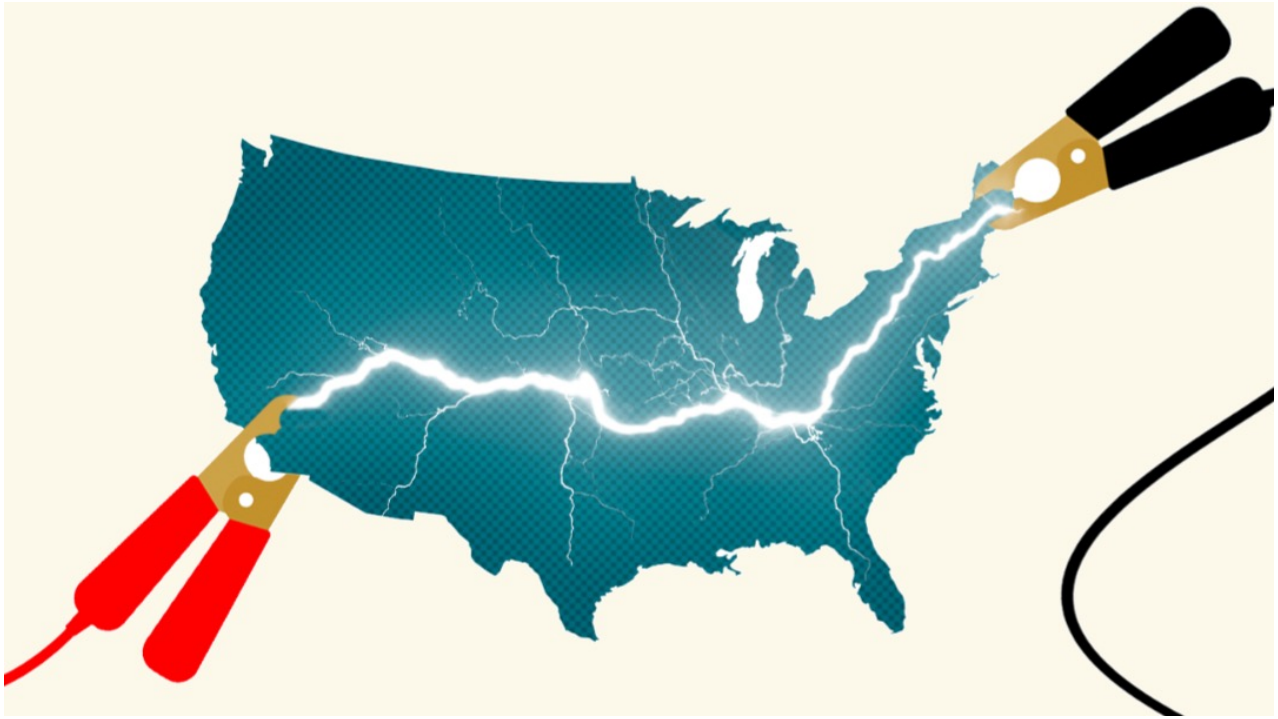
"Technology / supply push"	+ ***"Market / demand pull"***

Today: *Jump-Starting America*



CHIPS and Science Act of 2022

- Appropriates $54 billion for semiconductors incentives, R&D, workforce development
- Authorizes NSF, DOE, NIST, NASA
- Authorizes $81B for NSF:
  - +$36B for the agency
  - Of that, +$20B for TIP
- Authorizes a new NSF Directorate for Technology, Innovation and Partnerships

NSF's existing directorates and offices

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

Ramping up TIP

Jan. 21: NSF + Intel announce semiconductor workforce partnership

Feb. 15: Pathways to enable Open-Source Ecosystems launches

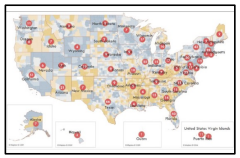
March 16: NSF establishes TIP

May 3: NSF Engines program launches

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

Privacy-Enhancing Technologies
PRIZE CHALLENGES

July 28: NSF Engines Concept Outlines published



Sept. 7: NSF, DOD partner to advance 5G security

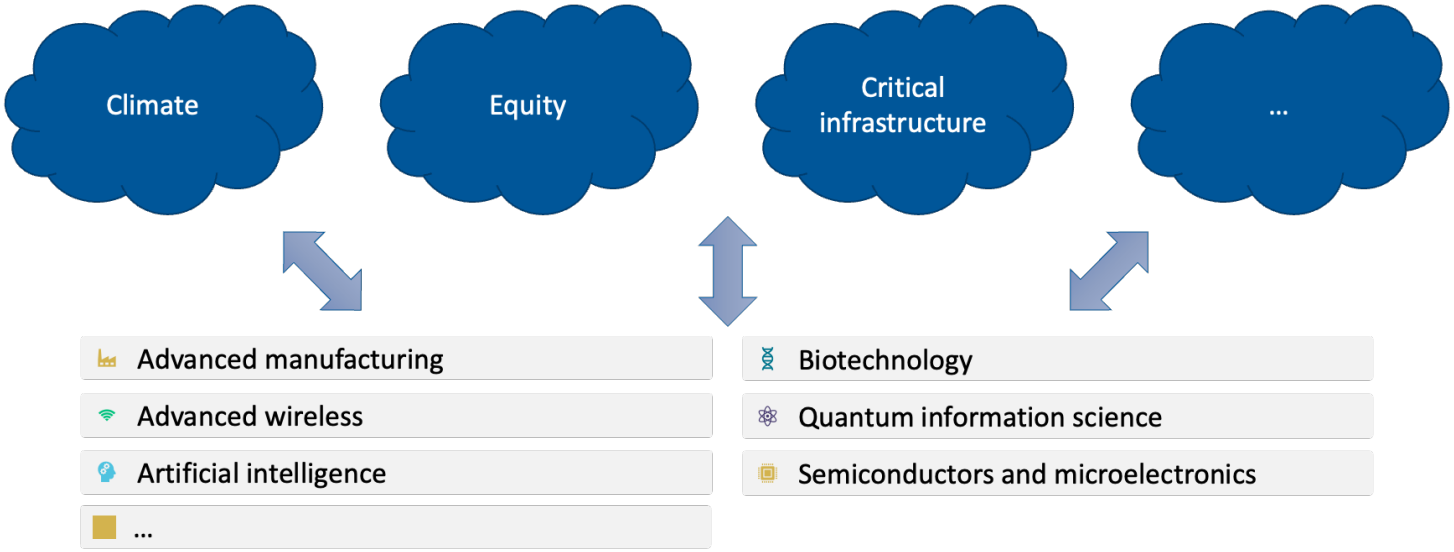
Sept. 8: NSF awards five new I-Corps™ Hubs

Sept. 19: NSF announces Entrepreneurial Fellowships

Activate

NSF Regional Innovation Engines (NSF Engines)

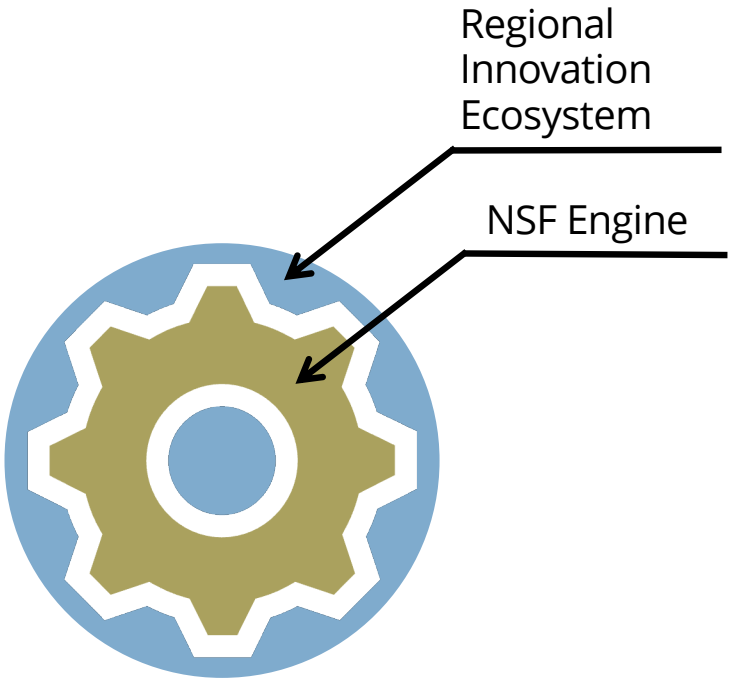
- Cultivate new regional innovation ecosystems throughout the U.S.
- Address major scientific/technological goals while solving societal challenges
- Balance technical and geographic innovation



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.

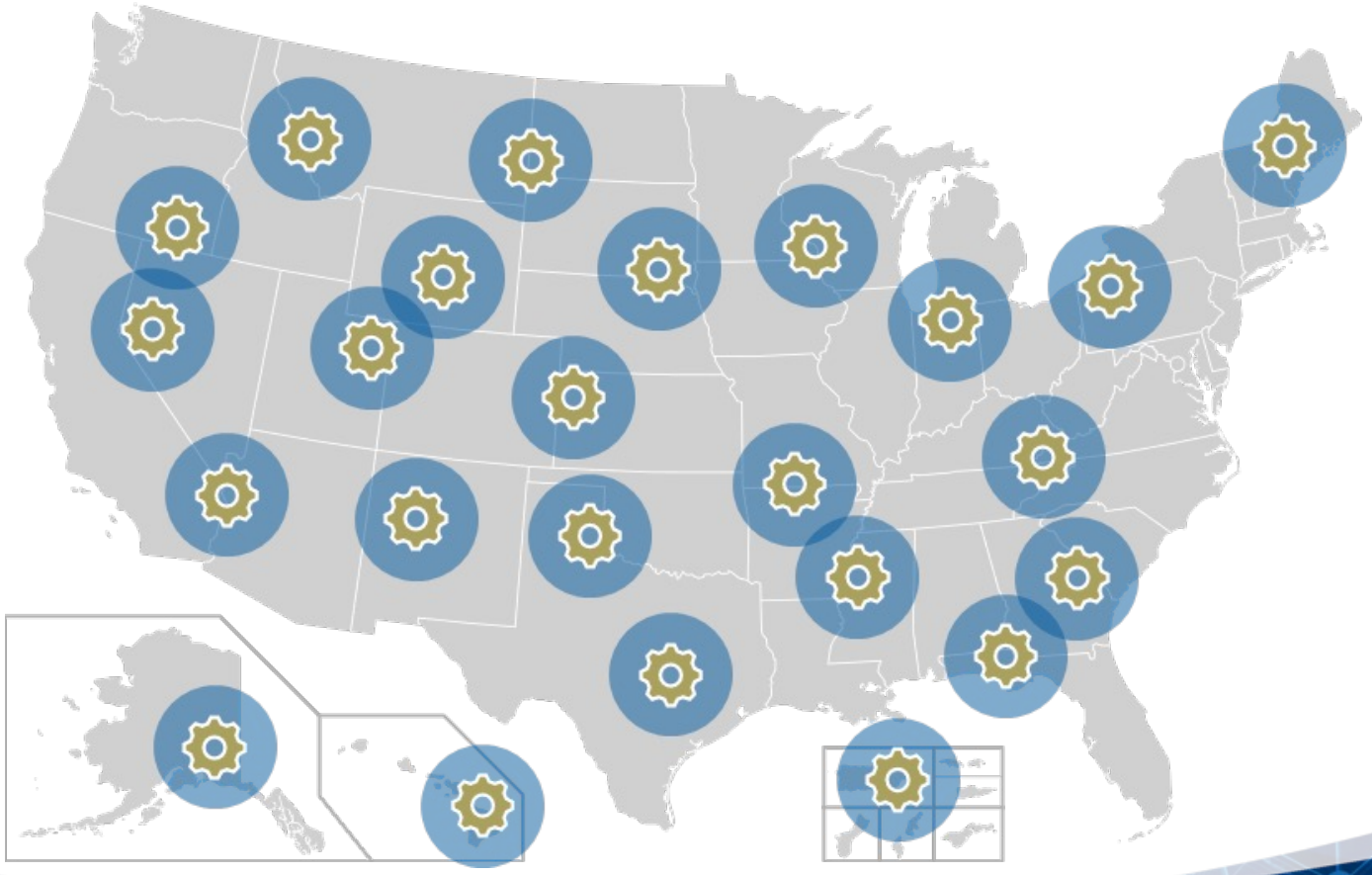
Engines are led by CEOs and include partners from industry, institutions of higher education, government, and non-profit and community organizations.



NSF Engines: Intentionally different

- A different scale
- Iterative co-design/co-creation through intentional engagement of broad, diverse stakeholders (“users”)
- Cohort-based training
- Milestone requirements for continued funding
- Focused success expectations:
  - Regional development
  - Individual and geographic diversity, including mentoring
  - Scaling and sustainability
  - Active participation and engagement
  - IP ownership extends to all contributing parties
  - Changing culture
  - Practitioner/entrepreneur development
  - Integrative/additive
- Evaluation of the overall approach

NSF Engines: Expanding innovation across the US



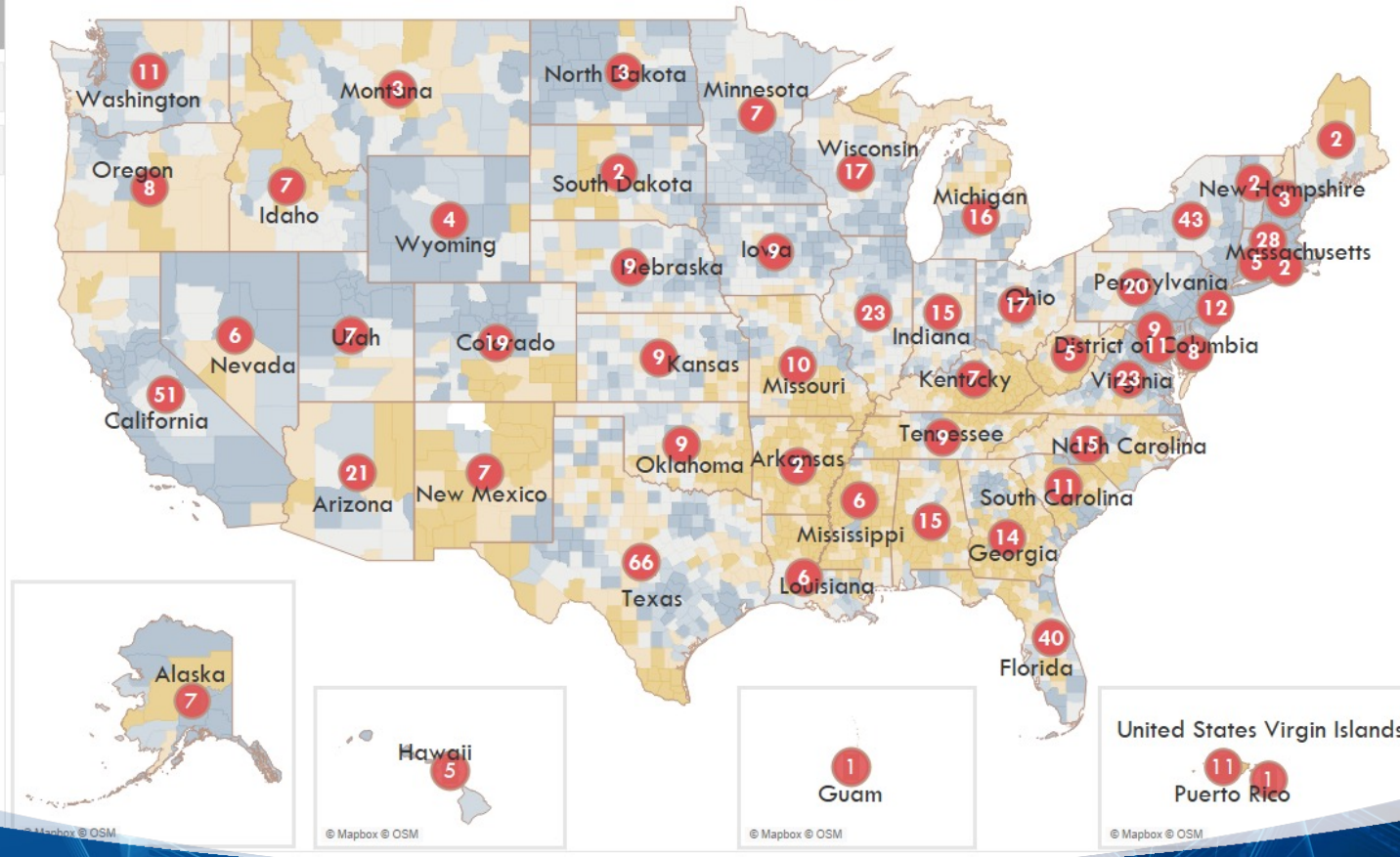
National Science Foundation
Regional Innovation Engines Program

Concept Outlines Explorer

Search by Theme (and more) | Search By State | Overview

Map View of Submissions by Lead Organization State

By Organization State
By Lead Organization
By Region of Service

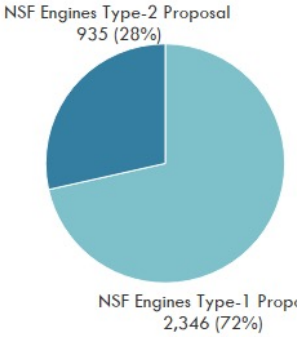


Filter(s):

NSF Engines Type
All

Concept Outline Submission Metrics

Number of Submissions Advancing	679
Number of Distinct Submitting Organizations	518
States and US Territories Submitting	54



To access the full list of all accepted concept outlines, please check https://airtable.com/...

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Search By Theme (and more) | Search By State | Overview

Search All

NSF Engines Type
All

State Name
All

Submission Organization
All

Submission ID
All

Keywords *(free text)*
All

States Footpring *(using state abbreviation)*
All

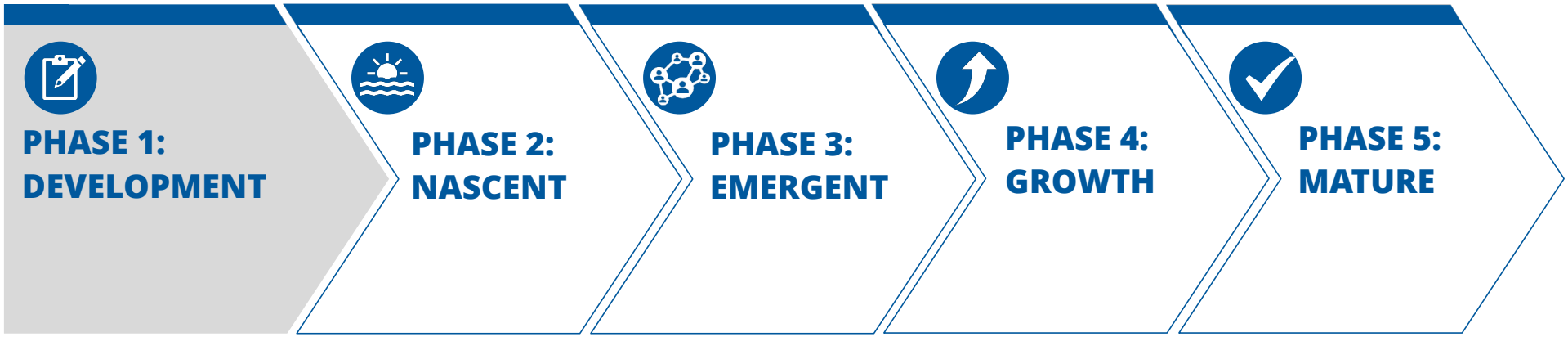
Submission Theme

Theme Count Control
10 to 103
and Null values

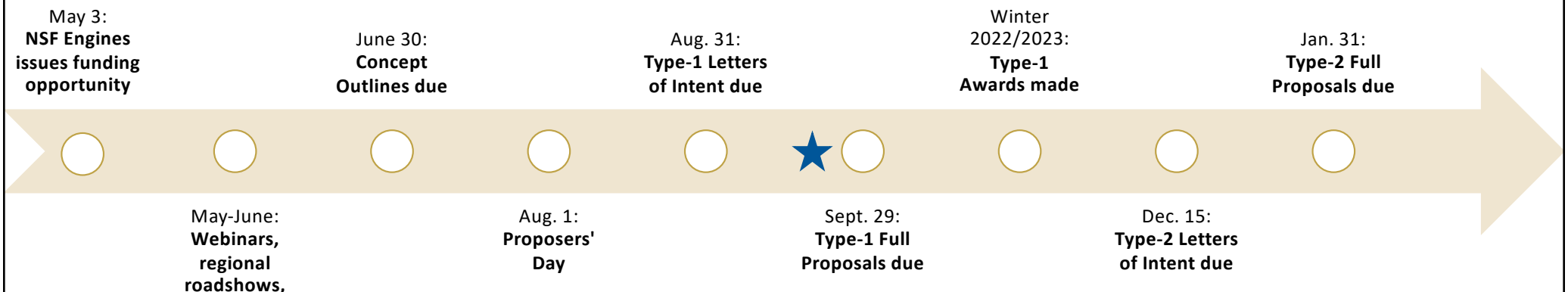
Number of Submissions: 679

ID	NSF Engines Type	Submission Title	Organization Name	Last Name	Region Of Service	States	Topic Summary	Keywords
INQ-22-00640	Type 1 Proposal	Bridging the Gap in the Digi..	XLerateHealth	Willmot	The region of service..	KY,WV,SC..	The Engine proposes to ca..	virtual care,digital health,access,equity,southeast
INQ-22-00925	Type 1 Proposal	Carbon-negative cementitiou..	Worcester Polytechnic Ins..	Eggleston	New England	MA	The Engine proposes to cr..	carbon negative,construction material,polysiloxanes,additive manufacturing,in..
INQ-22-00907	Type 1 Proposal	NSF Engines: Type-1: A Ga..	Worcester Polytechnic Ins..	Smith	Southern New Engla..	MA,RI,CT	The Engine proposes the i..	Null
INQ-22-00636	Type 1 Proposal	ICoN: Integrative Connectivit..	Worcester Polytechnic Ins..	Wyglinski	New England (CT, M..	CT,MA,ME,..	The Engine proposes to o..	connectivity,integrative,new england,wireless,workforce development
INQ-22-00491	Type 1 Proposal	NSF Engines: Type-1: WPI – ..	Worcester Polytechnic Ins..	Woolridge	Central MA, the sout..	MA	The engine proposes to w..	biotech manufacturing,tech workforce development,biomedical ecosystem,bio..
INQ-22-01119	Type 1 Proposal	A statewide innovation engin..	WiSys	Sanga	WI	WI	The Engine proposes to w..	agriculture,sustainability,technology,commercialization,startup
INQ-22-00444	Type 2 Proposal	NSF Engines: Type-2: Advan..	Wichita State University	Tomblin	Kansas with a focus ..	KS	The Engine proposes to e..	artificial intelligence,machine learning,hypersonics,lightning
INQ-22-00457	Type 1 Proposal	NSF Engines: Type-1: West ..	Western Michigan Univer..	Atilhan	Western Michigan	MI	The Engine proposes to w..	per- and polyfluoroalkyl substances,pfas,wastewater,environment,remediation
INQ-22-00772	Type 1 Proposal	"AI3 West Living Laboratory..	Western Maricopa Coalit..	Hoffman	The Greater Phoenix..	AZ	The Engine proposes to le..	artificial intelligence,robotics,cognitive applications,health technology,fintech
[illegible]	Type 2 Proposal	NSF Engines: Type-2: Using ..	Western Kentucky Univer..	Brown	South, the Midwest, ..	KY	The Engine proposes lever..	aiot,agritech,commercialization,urban economic development
[illegible]	2 Proposal	NSF Engines: Type 2: Resear..	Western Fire Chiefs Asso..	Van Ballego..	Western United Stat..	CA,CO,W..	The Engine proposes to bu..	wildland fire,wildland fire urban int[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NSF Engines: Accepting two proposal types



NSF Engines: Timeline and status



CHIPS and Science Act: NSF + EDA

Fundamental research

Economic growth

CHIPS and Science Act: NSF + EDA

Regional Technology Hubs

Fundamental research

Economic growth

CHIPS and Science Act: NSF + EDA

Regional Technology Hubs

EDA U.S. ECONOMIC DEVELOPMENT ADMINISTRATION

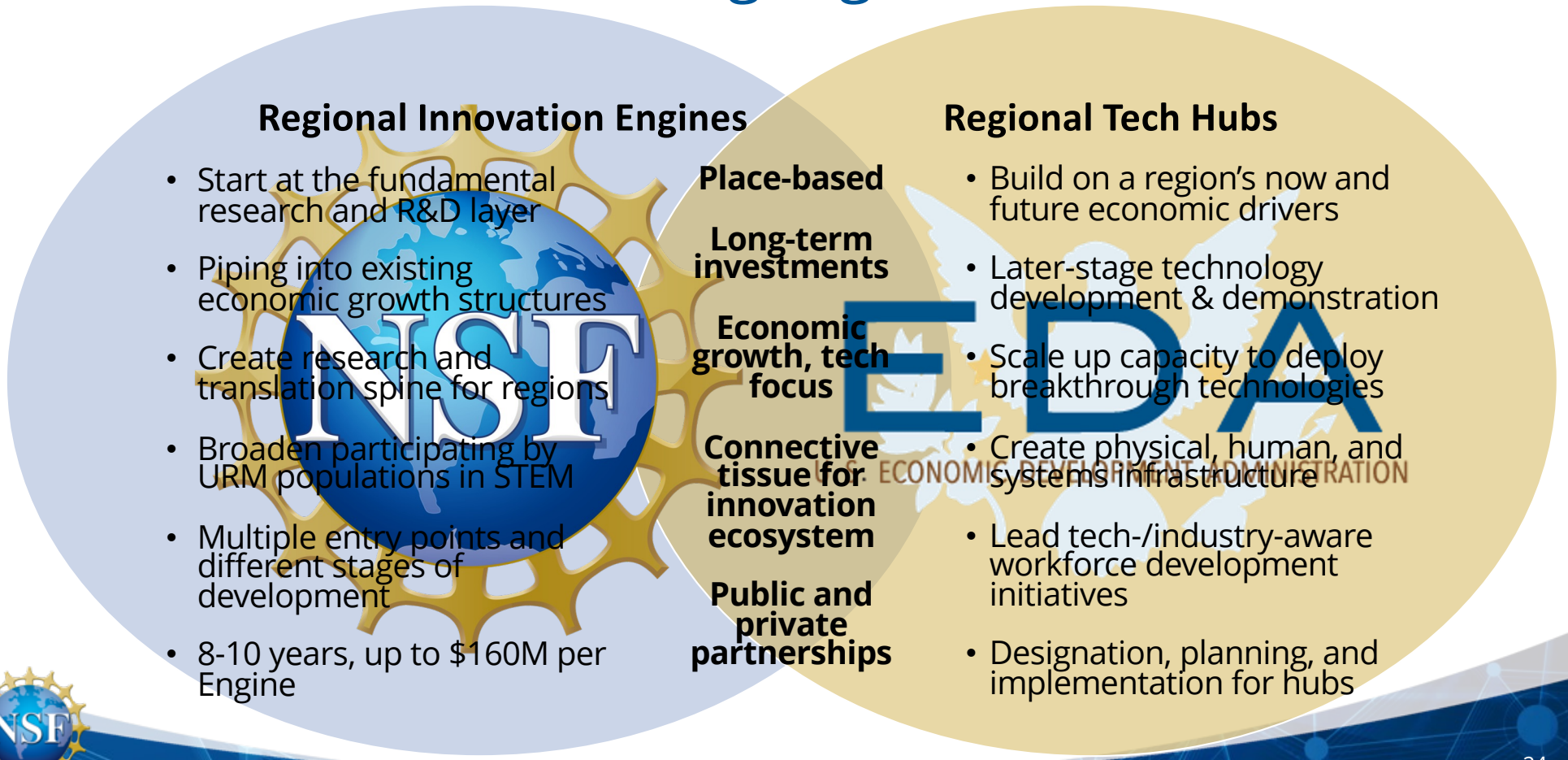
NSF

Regional Innovation Engines

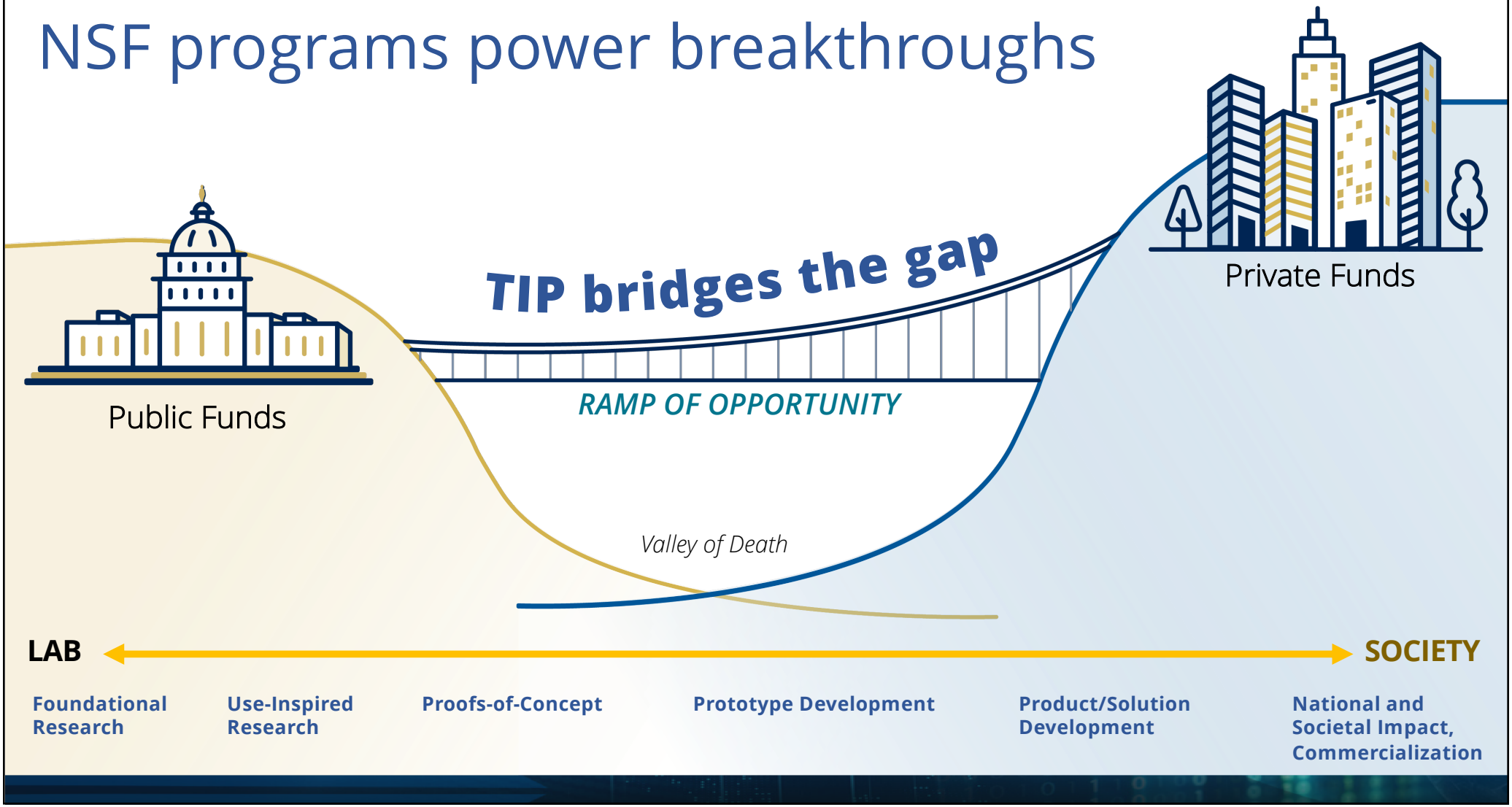
Fundamental research

Economic growth

NSF and EDA are working together



NSF programs power breakthroughs



TIP Technology, Innovation and Partnerships

https://beta.nsf.gov/tip/latest

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