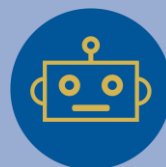
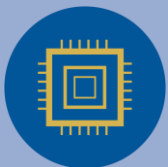


NSF Funding Programs for Translational Research

SUNY Startup Summer School
July 22, 2020

Henry Ahn

Program Director, SBIR/STTR
Industrial Innovation and Partnerships (IIP)
National Science Foundation

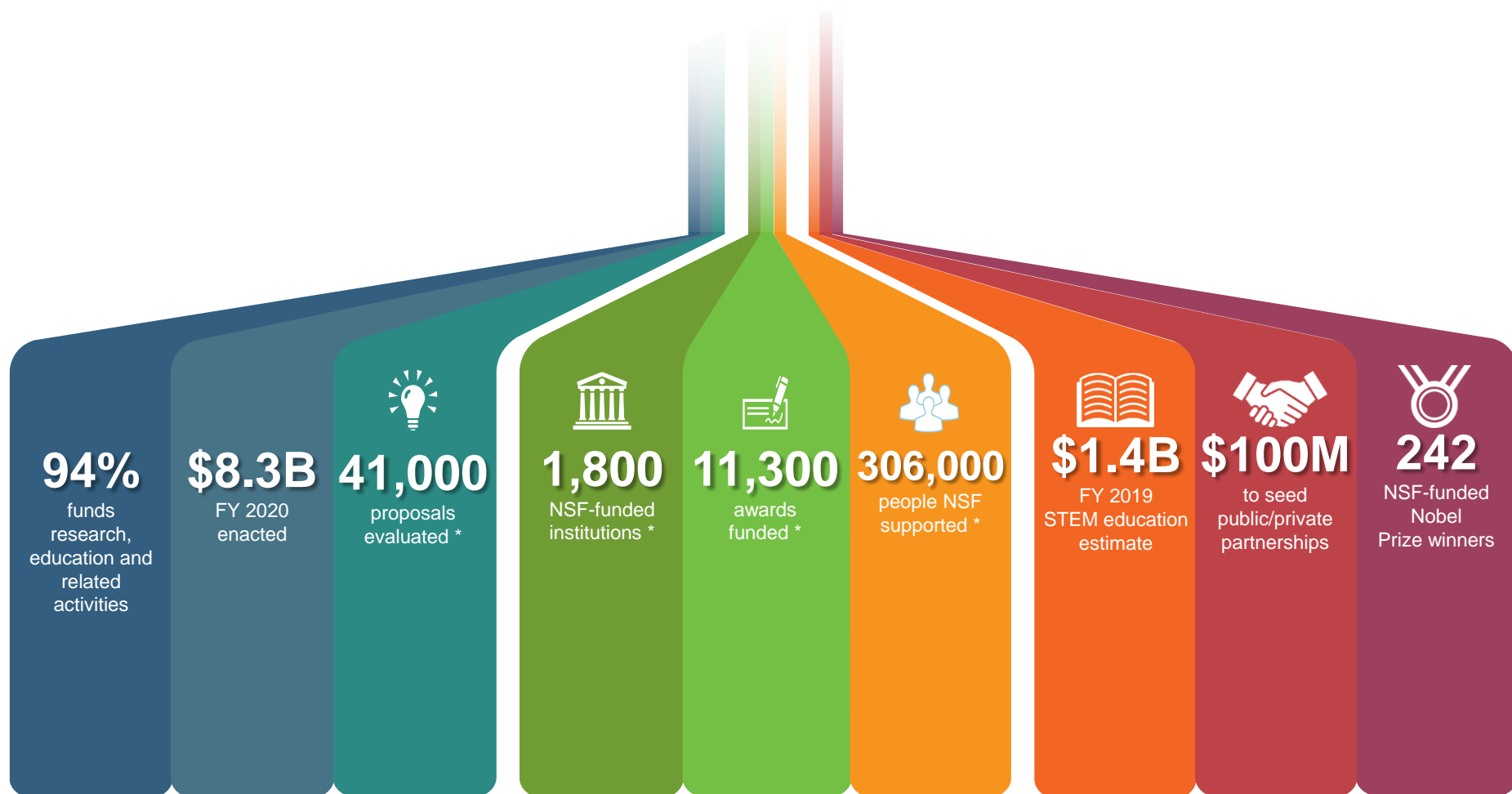


Agenda

- NSF
- Industrial Innovation and Partnerships (IIP)
- IIP Funding Programs
- SBIR/STTR Funding Programs



NSF by the Numbers



** Numbers shown are based on FY 2019 activities, the last full year of data.*



NSF supports all areas of science and engineering



**Biological
Sciences**



Engineering



**Mathematical
& Physical
Sciences**



**Computer &
Information
Science &
Engineering**



**Geosciences
(including
Polar
Programs)**



**Integrative
Activities**



**Education &
Human
Resources**

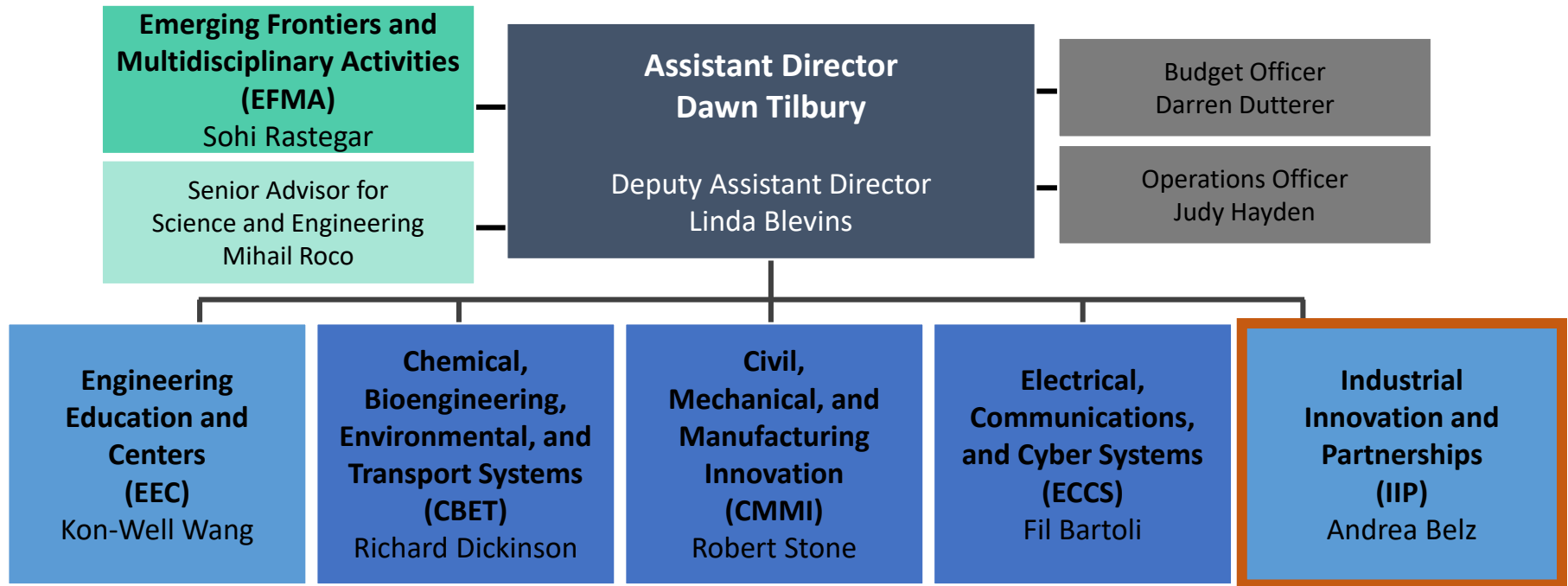


**Social,
Behavioral &
Economic
Sciences**



**International
Science and
Engineering**

Directorate for Engineering





Basic Research
\$8B



**Division of
Industrial
Innovation and
Partnerships**

\$272M
Translational R&D



Technology
Translation,
Partnerships,
and Impact

IIP Programs

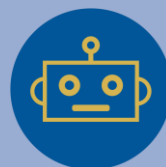
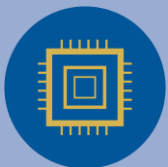
America's Seed Fund (SBIR/STTR)

Innovation Corps (I-Corps™)

Partnerships for Innovation (PFI)

IUCRC

GOALI / INTERN

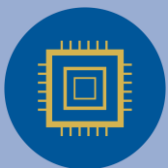




Small Business Innovation Research (SBIR)

Small Business Technology Transfer (STTR)

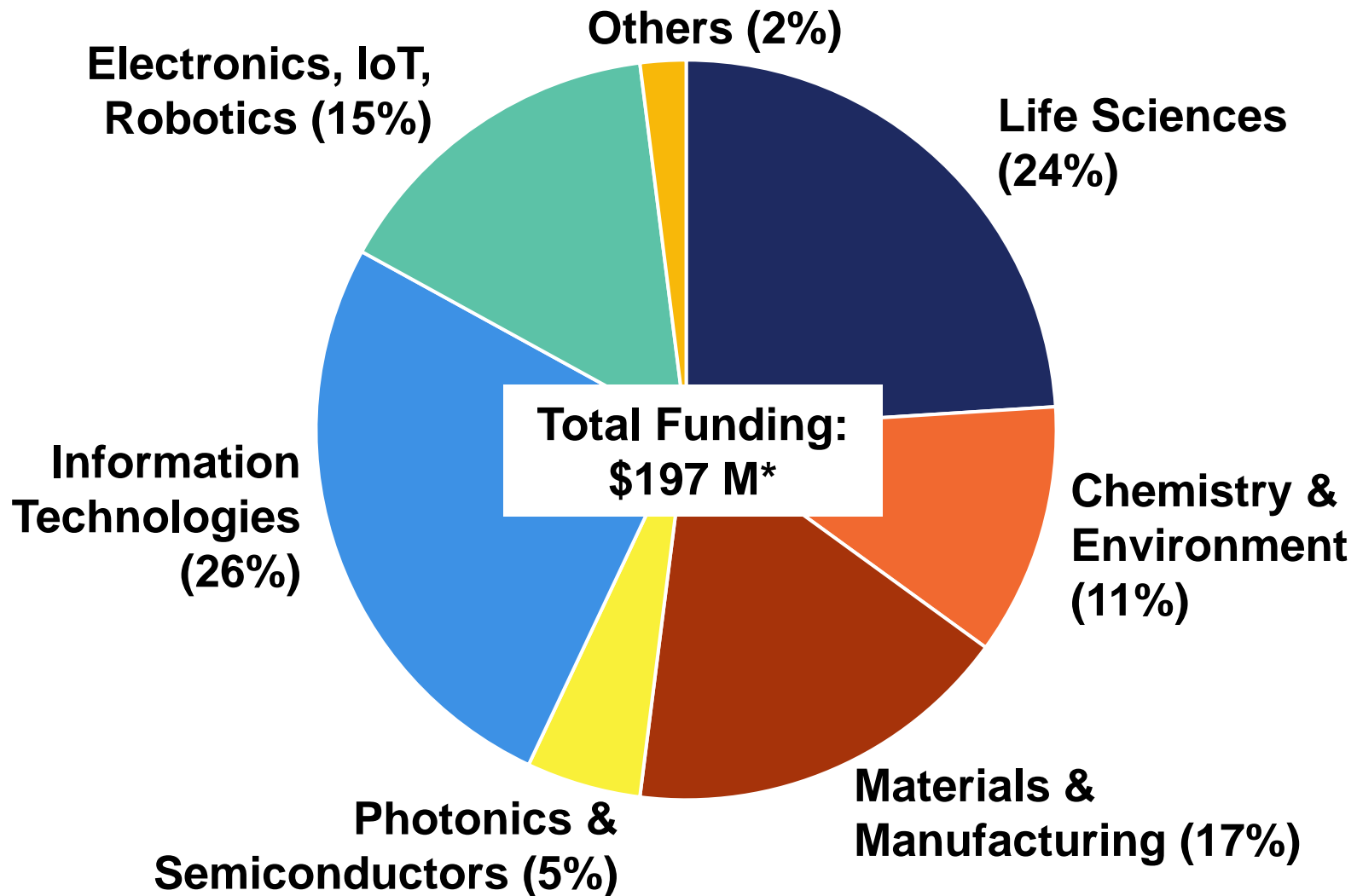
FY2018
NSF total = **\$197 M**



America's Seed Fund (SBIR/STTR)

- Funding for Startups
- Up to \$1.75 M in R&D funding to develop transformative, deep tech, high-impact technologies
- Transforms scientific discovery into products and services with commercial and societal benefit

SBIR/STTR Funding by Topic Area FY18



*excludes outreach & admin funds

Funding Phases

Phase I

Feasibility Research

6-12 Months

\$256,000



Phase II

Research Toward Prototype

24 Months

\$1,000,000



Phase IIB

Third-Party Investment Plus
1:2 NSF Match

(up to \$500,000)



Recent Phase I Awardee Stats

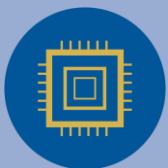
- 91% - never had an SBIR/STTR Phase II award (from any agency)
- 85% - five or fewer employees
- 72% - founded in past three years
- >75% - first-time SBIR/STTR winners



Portfolio since 2014 shows (as of Feb. 2020):

- \$9 billion in follow-on institutional (equity) financing
- 107 successful exits (acquisitions, mergers, IPOs)

([NSF Award Search](#))



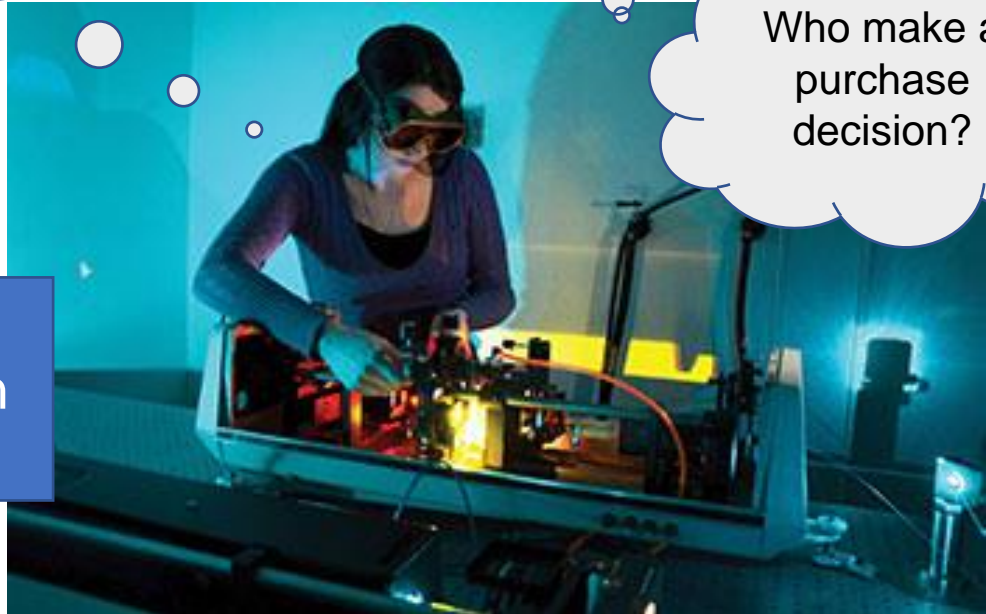
I have a great idea! Does anyone care?!

What problem does this solve for my customers?

Do customers want something more efficient – or smaller - or cheaper?

Who make a purchase decision?

The answers are not in the lab and not even on campus



I-Corps isn't... and is....

- It isn't:
 - Selling, pitching, grant writing, business plans
- It is:
 - Focus on **Technology-Market Fit**
 - Team-based
 - 7 weeks, 100+ customer interviews
 - Deliverable: “GO” or “NO-GO” decision – pivot!

I-Corps Teams Award:

7 weeks
100+ Interviews
\$50,000

www.nsf.gov/icorps



I-Corps

- Translation of fundamental research to the marketplace
- Train NSF-funded faculty, students, and other researchers in innovation and entrepreneurship skills.
- Help researchers gain valuable insight into entrepreneurship, starting a business or industry requirements and challenges.

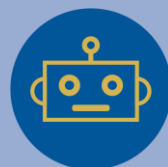
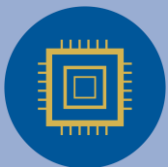
Outputs

- 1600+ NSF Teams since 2013
- Nearly 800 startups created

FY2018
NSF total = \$33M



Partnerships for Innovation (PFI)



Partnerships for Innovation (PFI)

- First step in advancing research toward marketplace
- Prototyping awards for researcher with history of NSF awards
- Does not require employment at a small business
- Open to any technology area covered by NSF
- Coupled with I-Corps

PFI-RP:

Requires partnership
36 months
\$550,000

PFI-TT:

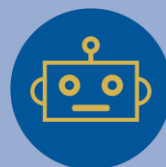
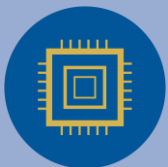
1 institution
18-24 months
\$250,000

FY2018
\$20.7M



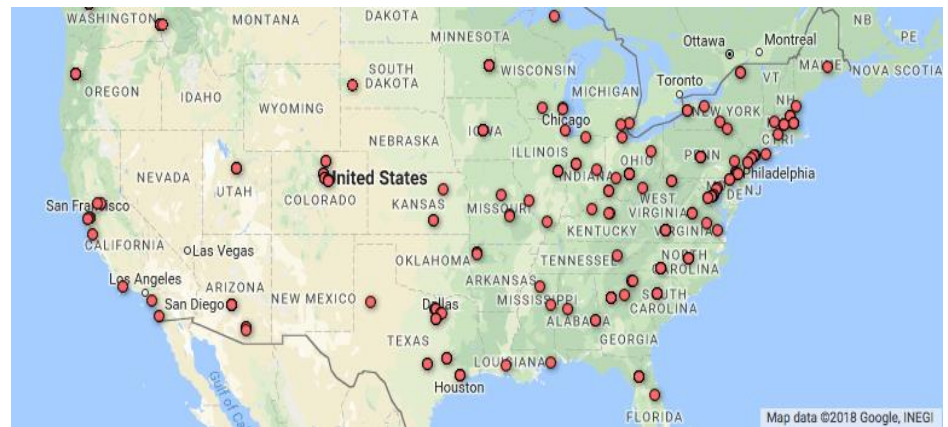
Industry-University Cooperative Research Centers (IUCRC)

IUCRC
FY 2018 = **\$20.5M**



IUCRC

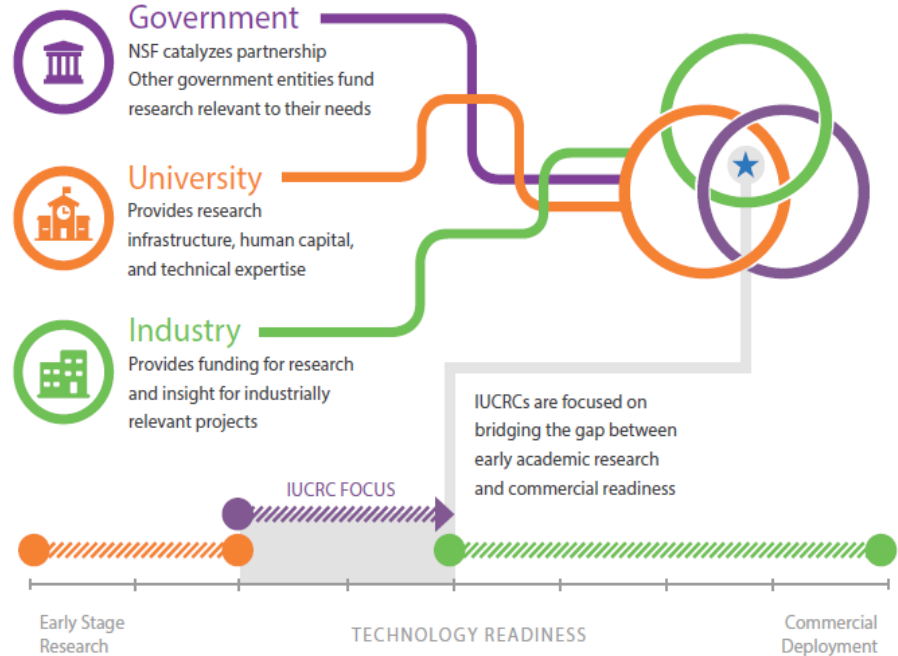
- 804 unique members
- 73 centers nationwide
- 203 research sites
- 37 states with an IUCRC site
- 1,630 center-trained students hired by members (2008-2017)
- 1:33 \$1 in member contributions leverage \$33 additional dollars in research funding



Active IUCRC Technology Areas

- Advanced Electronics and Photonics
- Advanced Manufacturing
- Advanced Materials
- Biotechnology
- Civil Infrastructure Systems
- Energy and Environment
- Health and Safety
- Information Communication & Computing
- System Design and Simulation

THE PARTNERSHIP

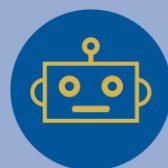
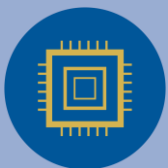


GOALI & INTERN Supplements

Grant Opportunities For Academic Liaisons

Non-Academic Research Internships For Graduate Students

IIP FY2018 - \$7.3M



GOALI & INTERN

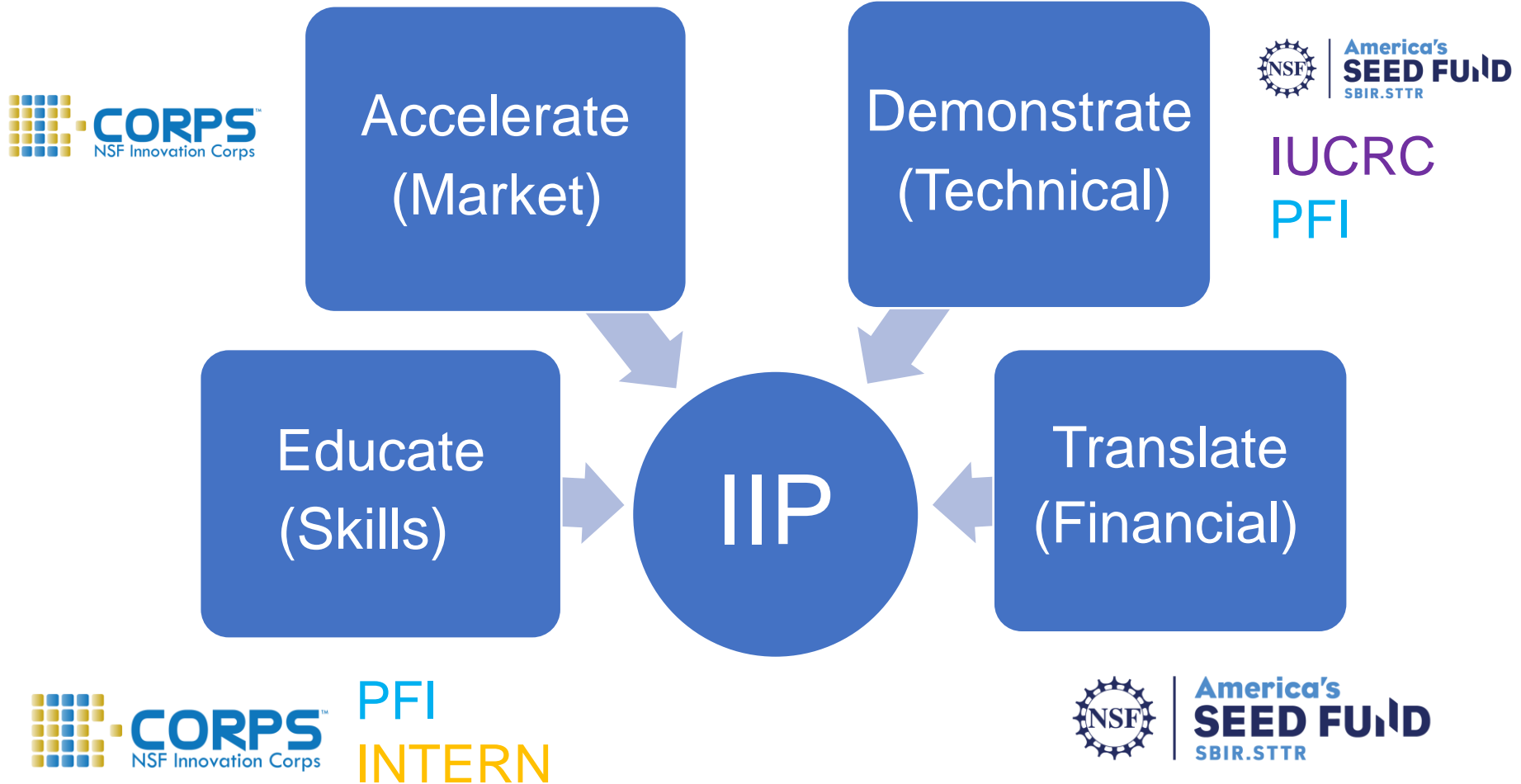
GOALI

- Type of proposal for academics
- Typical grant is 3-5 years and \$100-150K per year
- Focuses on basic research with one or more features:
 - Collaborative industry-university research
 - University faculty/students in an industrial research environment
 - Industry researchers in a university research environment

INTERN

- Up to \$55,000 per six month internship
- Requires IP agreement
- Graduate student eligibility:
 - Must be supported on an active NSF award
 - Must have completed at least one year in their graduate program
 - International students are eligible

Which risks does IIP address?





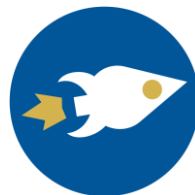
The need to support commercialization of deep technologies is profound.



NSF supports basic research across all disciplines, IIP focuses on translation of the research outcomes.

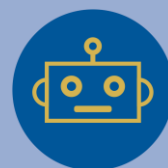
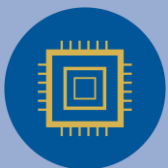


IIP programs support R&D toward commercialization.



Our portfolio includes technologies that are transforming industry and society.


More About SBIR/STTR




<https://seedfund.nsf.gov/>

← → ↻ seedfund.nsf.gov

An official website of the United States government.

 **America's
SEED FUND**
SBIR.STTR

ABOUT SHOWCASE PORTFOLIO **RESOURCES** ^ CONTACT APPLY 

FOR APPLICANTS
FOR PHASE I AWARDEES
FOR PHASE II AWARDEES
FOR REVIEWERS
EVENTS

**WE INVEST UP TO
\$1.75 MILLION IN
SEED FUNDING.**

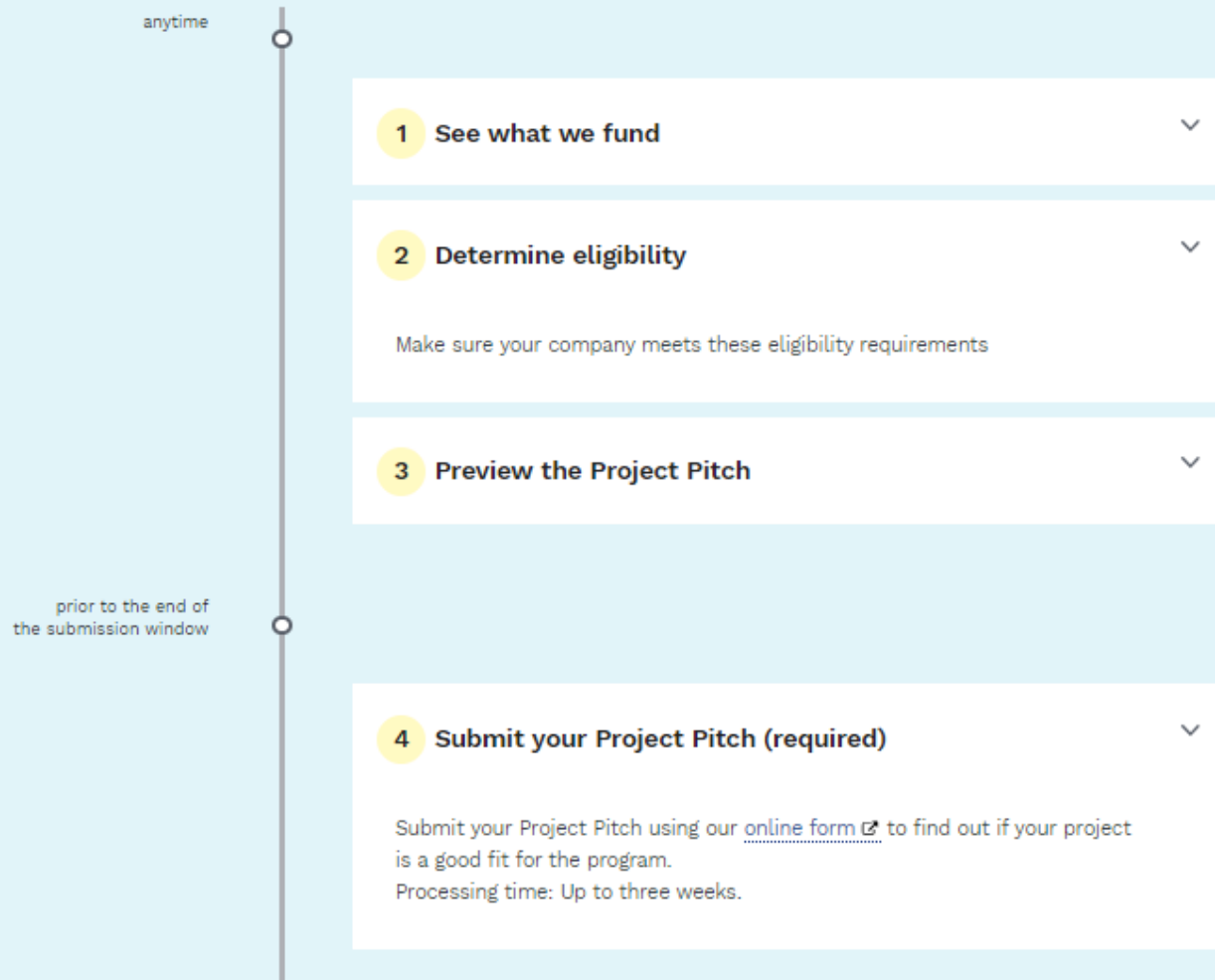
**AND TAKE ZERO
EQUITY.**

→ Get started



How to apply

Learn about our Phase I application timeline, how to prepare your Project Pitch, and what to expect once you submit your Project Pitch or full proposal.



How to Get Started ...

- Step 1 in the application process:

Submit a Project Pitch

<https://seedfund.nsf.gov/project-pitch/>

- Get started any time for fast feedback (hear back within 3 weeks)
- Purpose is to assess **fit** with the program – not a review
- Good fit => Invitation to submit a full proposal

For applicants

If you're interested in applying for funding, we encourage you to watch our videos, join us at an event, or reach out directly to our program directors to learn more about the program and what we hope to see in your proposal.

Project Pitch

Wondering if your idea is a good fit? Submit your [Project Pitch](#) and find out in three weeks.

Review Guidelines

Read the [Peer Review Guidelines](#) to determine if your proposal fits the merit review or broader impacts criteria that we use to make funding decisions.

Q&A videos

Thinking of applying for Phase I funding? Check out our videos covering [program basics](#) and [tips and tricks for submitting a proposal](#). (We offer a [PDF version of program basics](#) [PDF](#), too.)

Startup profiles

Get to know our awardees better — we've got [video profiles of startups and small businesses that have received NSF funding](#) [video](#).

FastLane guide

Before you start your proposal, take a look at our [FastLane guide](#).

FAQ

Have lingering questions? Visit our [FAQ](#), which covers the pre-application process to post-award reporting (and everything in between).

Review Criteria for Full Proposals

- **Intellectual Merit**
- **Broader Impacts**
- **Commercial Potential**

Read full review criteria:

<https://seedfund.nsf.gov/resources/review/peer-review/>

Review Process

- 1-3 months:

Applications undergo merit reviews.

- 4-6 months:

We'll notify you whether your proposal is accepted or declined.

- 5-6 months:

If your proposal is accepted, you'll receive funding of up to \$256,000.



What We Fund

- **R&D to overcome significant technical hurdles**
 - ✓ Novel, proprietary
 - ✓ Prove feasibility/viability of a new product, process or service
 - ✓ High technical risk, early-stage development
- **A significant commercial opportunity**
 - ✓ Game-changing technology in the chosen market/application space
 - ✓ Product-market fit validated by customers/partners
 - ✓ I-Corps helps



What We Do Not Fund

- ✗ Basic research (*i.e.*, research with the primary goal of knowledge creation)
- ✗ Incremental (evolutionary) improvement to an existing product or service
- ✗ Projects where:
 - There is no strong chance of commercial success
 - NSF funding can't make a big impact on the company's prospects
- ✗ Analytical or “market” studies of existing technologies or products/services



What Are Important Elements?

- Evidence that the technology works
- Understanding of initial target market, need, commercialization strategy
- IP and strength of IP
- Significant competitive advantage
- Regulatory path to market (if applicable)
- Team (management team and advisors)
- Evidence that the demand exists (support letters helpful)
- If resubmission, resubmission summary helpful



Helpful (and Not So Helpful) Tips

- A sample proposal? Sorry.
- “Provisional patent was filed in June 2018.” What happened since?
“Patent application will be filed during Phase I.” Too early for SBIR?
- “I-Corps interviews were conducted.” What was the finding?
- Milestones – what would be considered successful outcome?
- If declined, review the panel summary and reviews.
 - Resubmission summary highly recommended for another submission.
- Questions? Contact the PD in charge of that topic.



Questions?

Henry Ahn

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www.nsf.gov/eng/iip/about.jsp

@NSFSBIR

