Strengthening
University-Industry
Partnerships

Partners for Innovation, Funding and Development Opportunities

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Partnerships for Innovation (PFI)

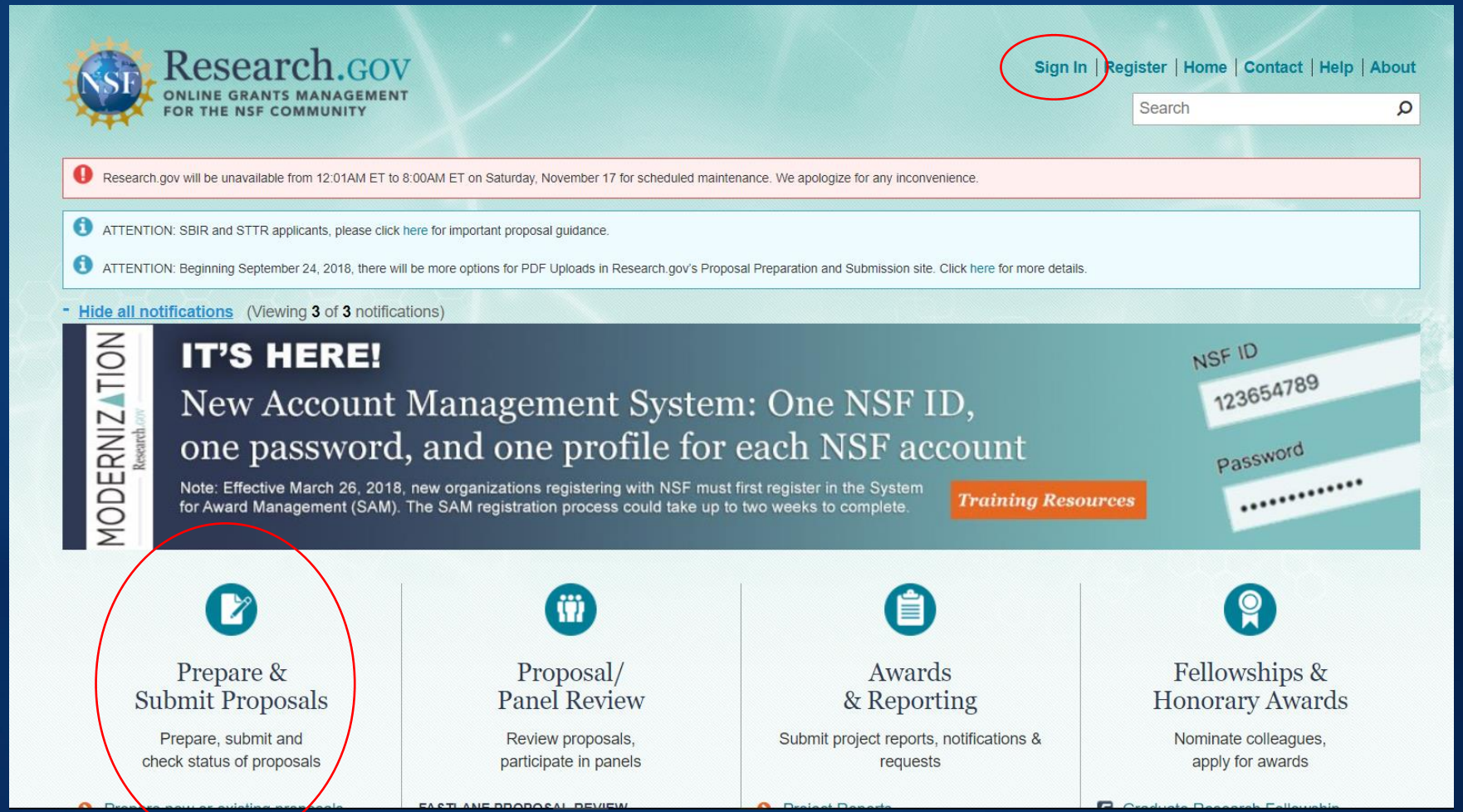
Solicitation NSF 19-506

January 13 Submission Deadline

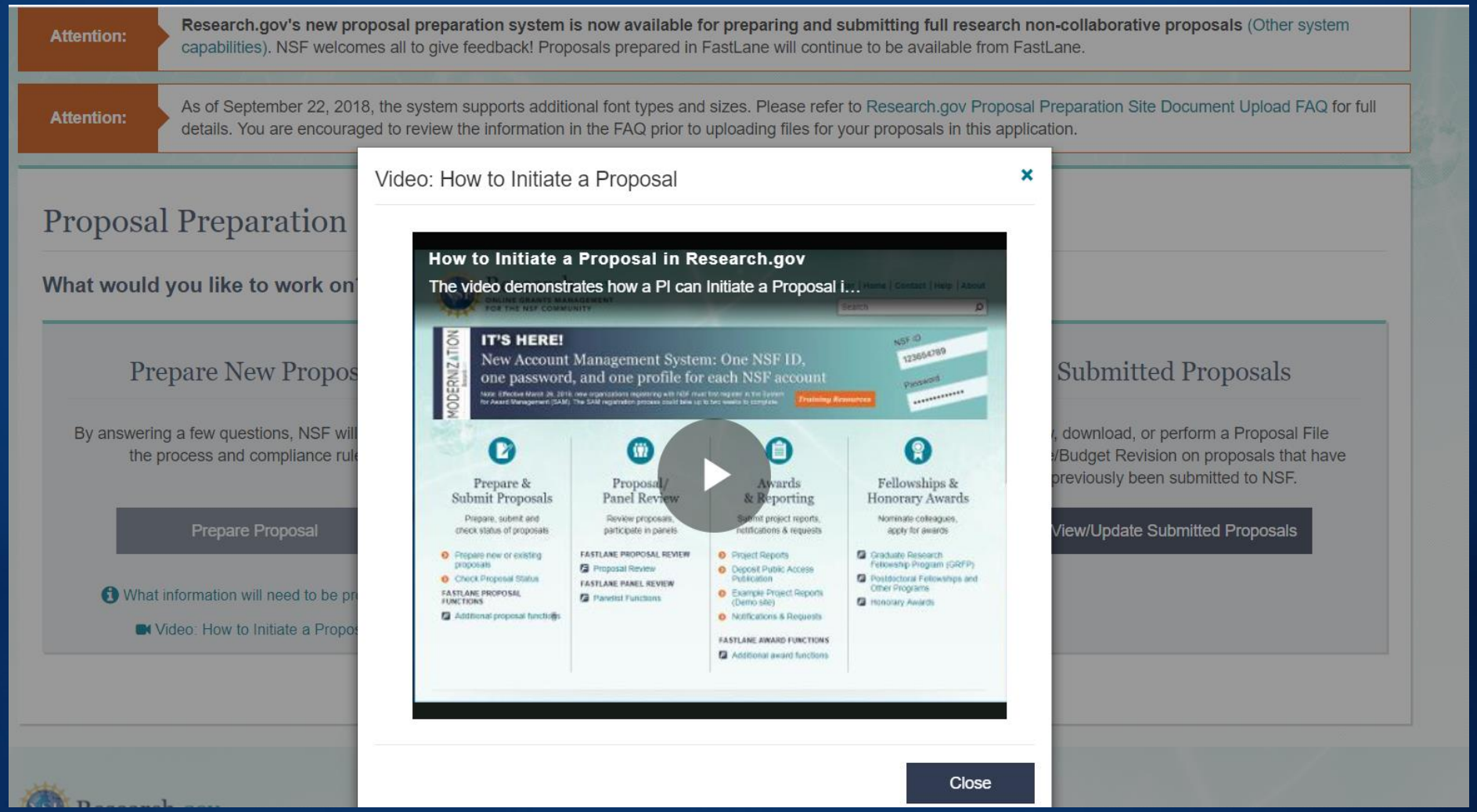
Important Resources for Applicants

- Read the solicitation NSF 19-506 https://www.nsf.gov/pubs/2019/nsf19506/nsf19506.htm
- Visit our website PFI: https://www.nsf.gov/PFI.
- Read the PFI FAQs (NSF 19-046) at: https://www.nsf.gov/eng/iip/pfi/resources.jsp.
- Contact Program Directors Jesus Soriano or Katie Bratlie– pfi@nsf.gov

NSF encourages the research community to submitting PFI proposals in Research.gov (instead of FastLane)



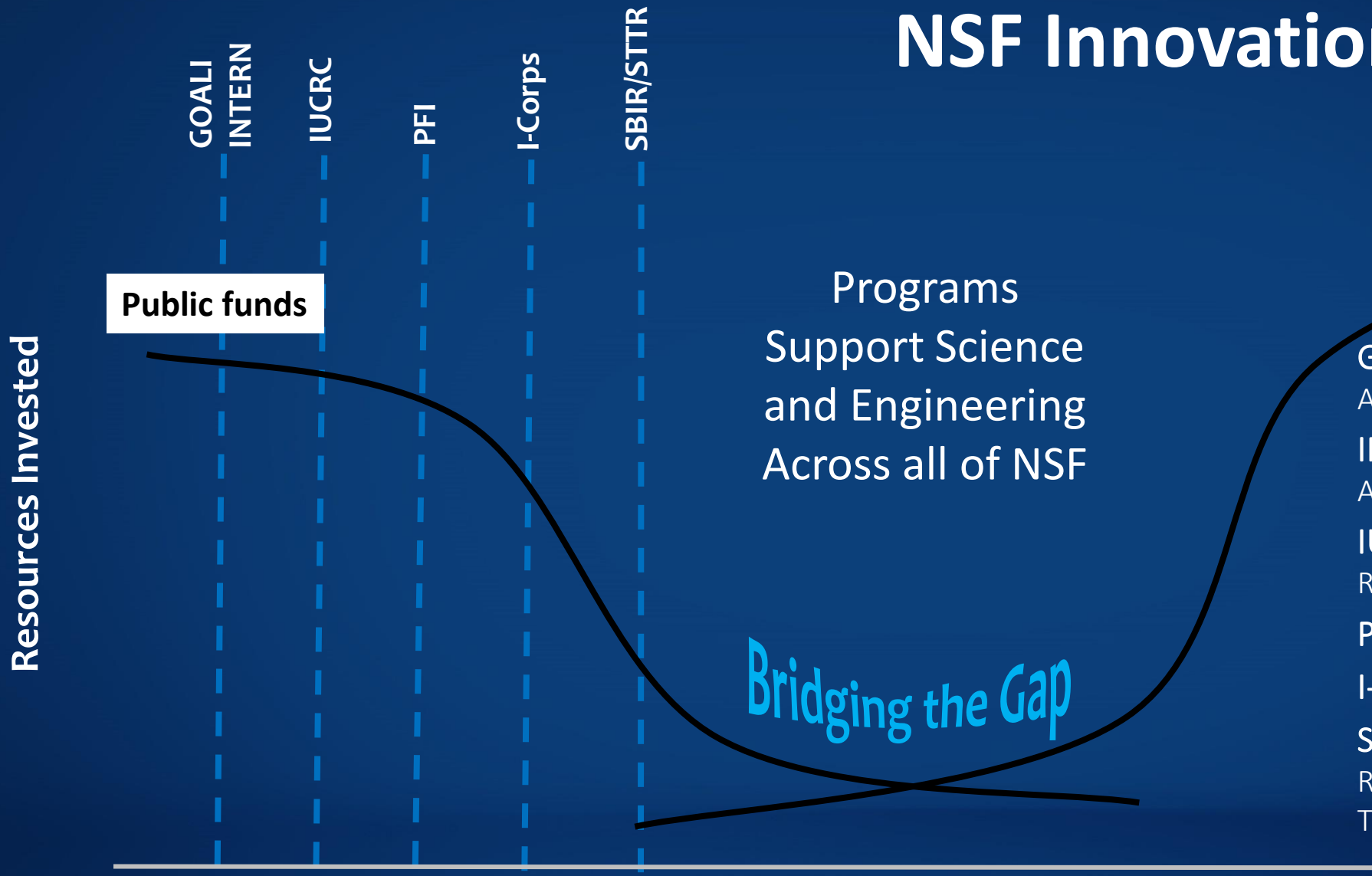
Video "*How to Initiate a Proposal*" is available upon PI login



Notice on Collaborative Proposals

- No collaborative proposals will be accepted.
  - Defined as simultaneous proposal submissions for a joint project from different organizations, with each organization requesting a separate award.
- Multiorganizational teams must submit only 1 proposal that contains subaward budgets for each partner.

NSF Innovation Programs



GOALI – Grant Opportunities for Academic Liaison with Industry

INTERN – Graduate Student non-Academic Internships

IUCRC – Industry University Cooperative Research Center

PFI – Partnerships for Innovation

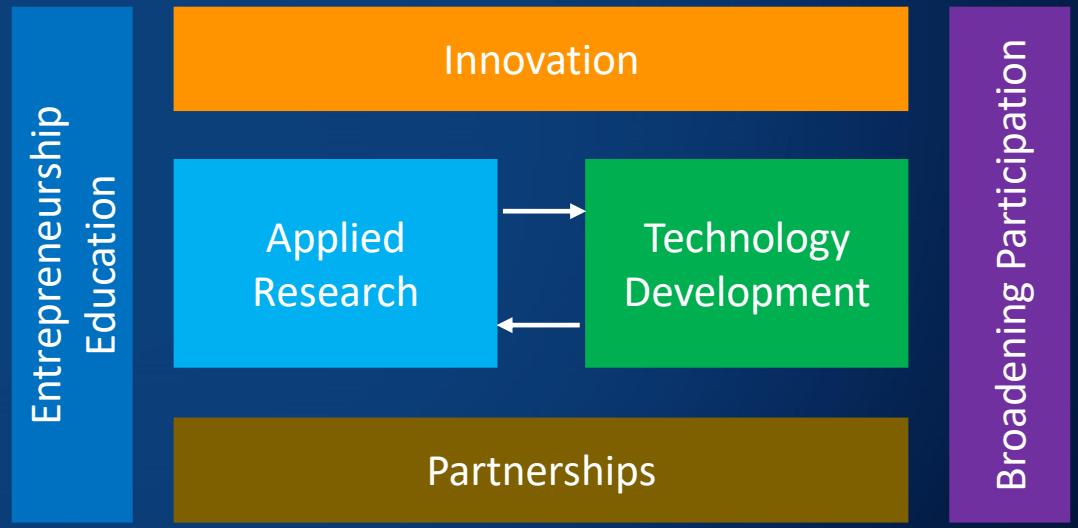
I-Corps – Innovation Corps

SBIR/STTR – Small Business Innovation Research/Small Business Technology Transfer

Division of Industrial Innovation & Partnerships https://www.nsf.gov/div/index.jsp?div=IIP

Partnerships for Innovation (PFI)

- Congressionally mandated goals:
  - Accelerate translation of research results to societal impact.
  - Promote a sustainable university-based innovation ecosystem.
  - Train faculty and students in technological innovation.
  - Engage women and other underrepresented groups in innovation.
- PFI-TT grants are up to $250,000 over 18-24 months.
  - Applied research.
  - Proof-of-concept demonstrations or prototypes.
- PFI-RP grants are up to $550,000 over 36 months.
  - Same goals than PFI-TT.
  - Focused on multidisciplinary, multi-organizational teams.
  - Requires an industry partner.



PFI-RP – Partnerships for Innovation-Research Partnerships
PFI-TT – Partnerships for Innovation-Technology Translation

Intended Program Outcomes

- Commercialization of IP derived from NSF-funded research.
- Licensing of NSF-funded research outputs to third-party corporations or start-up companies funded by PFI teams.
- Foster collaborations with industry.
- Training future innovation and entrepreneurship leaders.
- Increased participation of women, minorities, and persons with disabilities in innovation & entrepreneurship.

Program Updates (I)

- Technology translation and development in all science and engineering disciplines supported by NSF.
- New submission deadlines: January and July.
- Number of proposals per organization:
  - PFI-TT track: No limit.
  - PFI-RP track: 1 proposal per submission deadline.
- NSF Lineage now required for both TT and RP tracks.
  - Exception: Resubmission of PFI-RPs not awarded under solicitation NSF 18-511

https://www.nsf.gov/PFI

Program Updates (II)

- Educational Component of PFI:
  - Focus on leadership development & entrepreneurship training of student /postdoc team members.
  - Upon award, teams without NSF I-Corps Lineage will take mandatory I-Corps training.
- Mandatory letter of support from potential commercialization partner(s) not associated with the proposal.
- Reporting Requirements updated to include progress of lab-to-market effort.

https://www.nsf.gov/PFI

Eligibility Requirements

Organization	NSF Lineage	Number of Proposals
Principal Investigator	Technology Commercialization Expert	Non-responsive Objectives

Read solicitation NSF 19-506 for a detailed description of eligibility requirements:
https://www.nsf.gov/pubs/2019/nsf19506/nsf19506.htm

Eligible Organizations

- **Academic / Research US institutions**; includes universities and two- and four-year colleges (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members.

- Public or Non-profit, **Non-academic US organizations** located in the US that are directly associated with technology transfer activities.

- **Non-profit US organizations** located in the US that partner with an institution of higher education.

- A US **consortium of 2 or more** of the organizations described above.

NSF Lineage Requirement in PFI

Both PFI-TT & PFI-RP must meet at least one of these criteria:

- **NSF-funded research award**
  - Technology development from PI or co-PI's prior NSF funded research completed within **last 7 years**
- **NSF I-Corps™ Teams award** (supported customer discovery).
  - The product to be developed informed by an NSF I-Corps Teams award completed within **last 4 years**
  - I-Corps Info: https://www.nsf.gov/news/special_reports/i-corps/teams.jsp

Exception: Resubmission of PFI-RPs submitted but not awarded under previous solicitation NSF 18-511

Limit on Number of Proposals

Proposals

Per Organization:

- **No limit on TTs**
- **1 RP per deadline**

Per PI or Co-PI

- **2 Proposals**

(2 TT / 1TT + 1RP)

Any proposal above limit will be Returned Without Review

Awards

- **2 awards per Organization**
- **1 award per PI or Co-PI**

What PFI Does Not Fund

- Basic research with no technology development.
- Pre-clinical / clinical efficacy or safety studies, drug development, regulatory work.
- Non-R&D work: Market research, corporate or business development, sales, fundraising, intellectual property.
- Commercial development of existing products or proven concepts.
- Low-risk, straightforward engineering design, incremental improvements of existing product or process.

PFI-TT: Technology Translation Track

- Up to $250,000 for 1.5-2 years.
- Commercial potential demonstration projects for NSF-funded research outputs in any science and engineering discipline.
- Proof-of-concept, prototyping or scale-up work.
- An active Co-PI or Sr. Personnel is a Technology Commercialization Expert *in the targeted field of application or industry sector.*
- At least 1 letter of support to validate market potential/broader impact.

PFI-RP: Research Partnerships Track

- Up to $550,000 for 3 years.
- Same goals as the PFI-TT track.
- Complex projects
  - Require a multi-organizational, interdisciplinary collaboration.
- Requires at least 1 Industrial Partner.
  - Project must be industry-relevant.
  - An employee of Industrial Partner serves as co-PI (Tech. Commercialization Expert).
  - May support the educational objectives.
- Research Partners encouraged

PFI Track Comparison: TT vs RP

A detailed comparison of PFI-TT and PFI-RP proposals is available in solicitation NSF 19-506.

Visit: https://www.nsf.gov/pubs/2019/nsf19506/nsf19506.htm

The Industrial Partner (I)

- Mandatory in PFI-RP track, encouraged in PFI-TT.
- U.S.-based.
  - Foreign Public Entities (2 CFR § 200.46) or Foreign Organizations (2 CFR § 200.47) do not qualify.
- Established record of commercial revenue.
  - From sales or licensing.
  - Majority of revenues cannot be from grants and government contracts.
- For-profit or not-for-profit.
  - Non-profit, technology transfer organizations must meet revenues requirement.
- Proven experience in bringing products or services to the proposed target market sector.

The Industrial Partner (II)

- Demonstrates a strategic commercial interest in the PFI technology.
- Vendors/ service providers (included in the budget) are not Industrial Partners.
- SBIR/STTR companies may act as Industrial Partner.
- Subawards only to SBIR/STTR –funded businesses
  - Small businesses must be eligible* for SBIR/STTR.
  - Must not be owned and/or controlled by the proposing team/institution.
  - Subawards are not intended to complement or circumvent SBIR/STTR awards to small businesses, or as a standing source of revenue for the small business.

*SBIR eligibility requirements: https://www.sbir.gov/faqs/eligibility-requirements

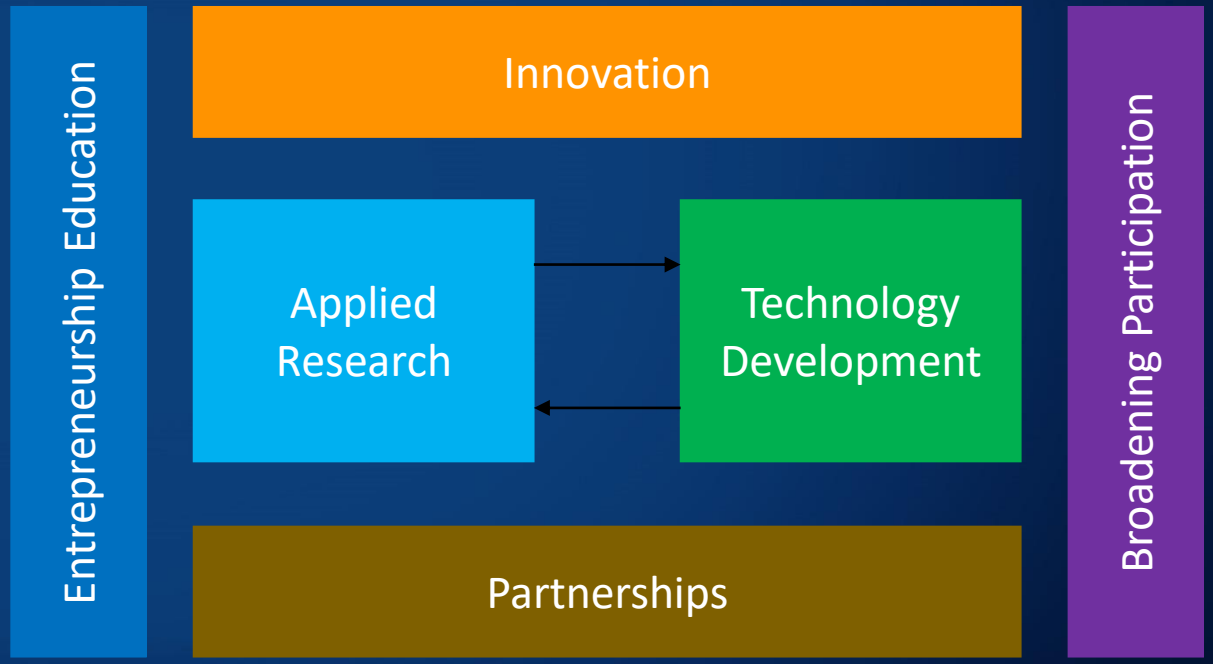
The Research Partner(s)

Read PFI solicitation NSF 19-506 for additional information on Research Partners.

Visit: https://www.nsf.gov/pubs/2019/nsf19506/nsf19506.htm

Elements of a PFI Proposal

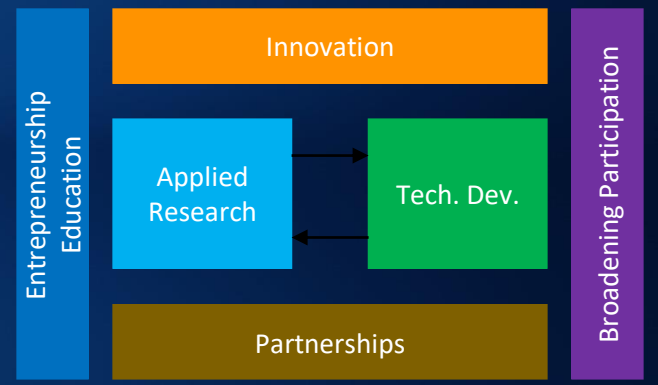
- Technology Development
- Demonstration of Commercialization Potential
- Partnerships
- Education and Leadership Development in Innovation & Entrepreneurship
- Broadening Participation



https://www.nsf.gov/PFI

Key Sections in Project Description

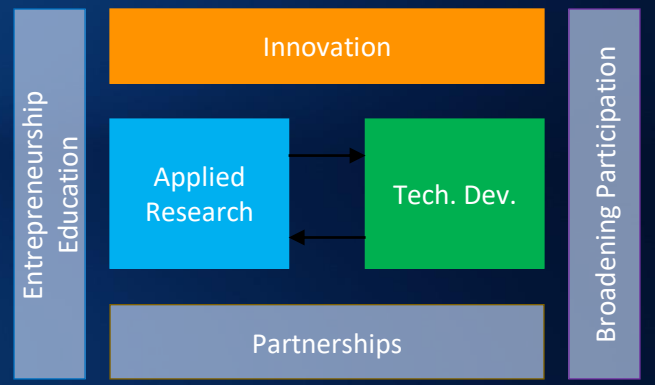
1. Executive Summary
2. From NSF Basic Research to Addressing a Market Opportunity
3. Technical Challenges and Applied Research Plan
4. Achieving Societal Impact through the Realization of Commercial Potential
5. Project Team
6. Partnerships
7. Training Future Leaders in Innovation and Entrepreneurship
8. Broadening Participation



https://www.nsf.gov/pubs/2019/nsf19506/nsf19506.htm

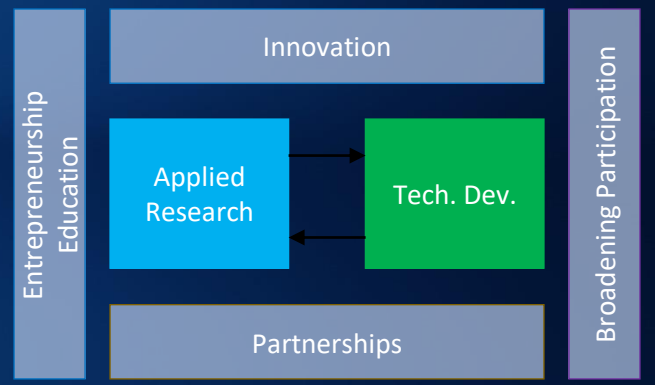
2. From NSF Basic Research to Addressing a Market Opportunity

- Document and describe the NSF Lineage.
- Why is the technology ready to move beyond the basic research?
- Intellectual Merit of the proposed product, process or service.
- Broader Impacts: societal, economic and commercial.
- What is the target market segment addressed by the proposed innovation? How is it informed by any preliminary market research or customer discovery?
- Competitive analysis & intellectual property.



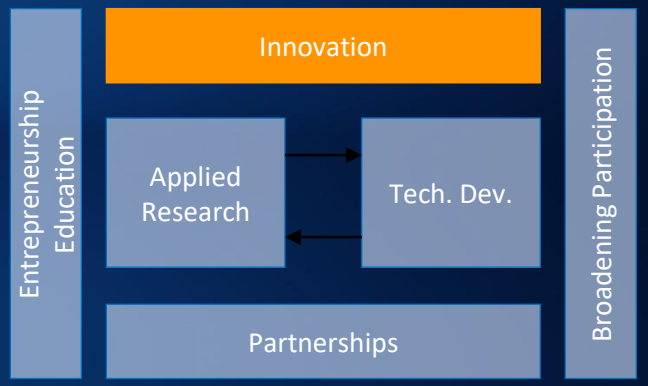
3. Technical Challenges & Applied Research Plan

- Knowledge gaps and technical barriers that you must be overcome to translate the technology into a product, process or service.
- Describe the applied research plan to address those knowledge gaps and technical barriers.
- Who will do what in the project?
- Success metrics.
- Risk assessment and mitigation plan to address potential failures.
- Milestone chart.



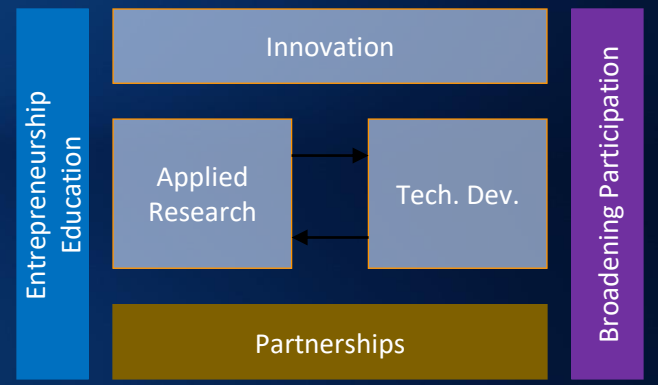
4. Achieving Societal Impact through Commercial Potential

- How will you achieve a societal benefit through commercialization?
- Your future commercialization strategy and plans beyond PFI.
- The strategic planning:
  - Ensures the sustainability of the commercialization efforts during and after your PFI project.
  - Aimed at identifying and securing strategic commercialization partners, investors, licensees, the creation and funding of spin-out companies, etc.
- Assessment plan of your partnership(s) and collaboration(s) performance in accelerating the transfer from lab-to-market.



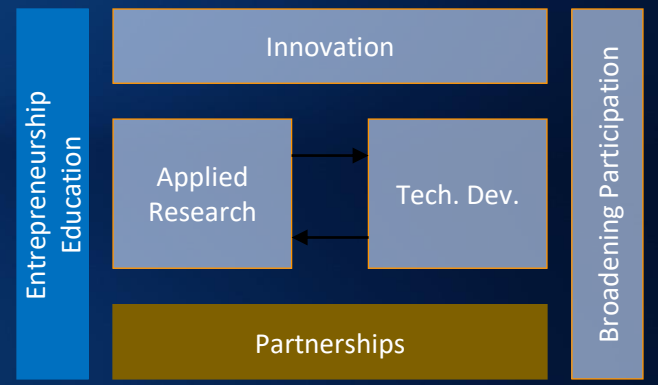
5. The Team

- Team members and their qualifications.
- Partners and/or collaborators: What are their roles and value-added?
- Masters, PhD student(s) or post-docs:
  - Their qualifications and motivation.
  - If you have not identified the student / post-doc, describe the selection process to recruit her/him.
- In PFI-TT: Technology Commercialization Expert
- In PFI-RP: the Industrial Partner co-PI
  (is an employee or member of the Partner)



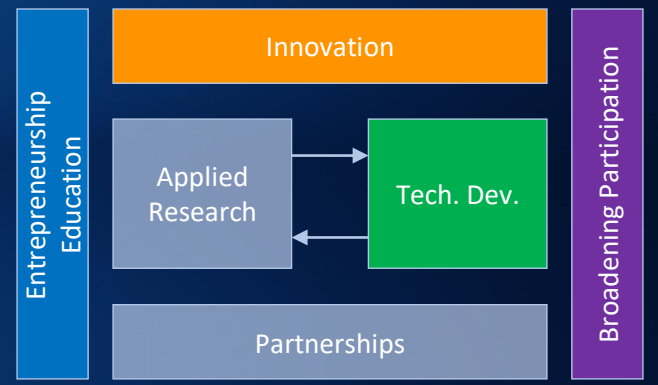
6. Partnerships

- Mandatory in PFI-RP; may be applicable in PFI-TT.
- Describe the overall partnership being assembled, roles and capabilities of each partner.
- How will the partnership achieve the goals of PFI?
  - Catalyze & accelerate technology development towards commercialization
  - Support the educational goals?
- Assessment plan.
- If the Industrial Partner is a SBIR/STTR company, discuss the need and rationale.



7. Training Future Leaders in Innovation and Entrepreneurship

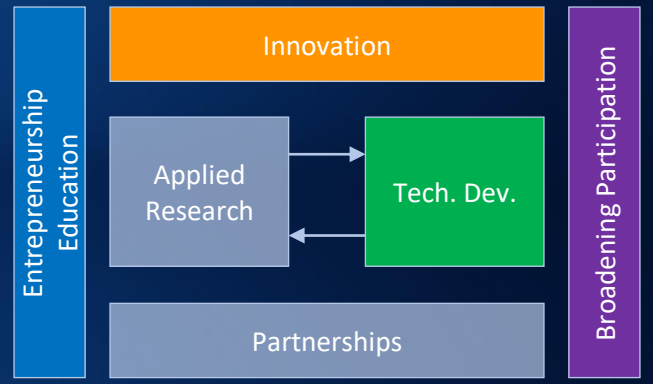
- PFI as a platform for education and leadership development of promising young innovators –masters, PhD students and postdocs.
- Provide learning objectives, expected learning outcomes and assessment plan.
- Discuss intellectual merit and broader impacts of the educational plan:
  - How will the proposed project activities enhance the knowledge and readiness of the student/postdoc for innovation beyond the usual research experience?



See instructions in solicitation: https://www.nsf.gov/pubs/2019/nsf19506/nsf19506.htm

7. Training Future Leaders in Innovation and Entrepreneurship

- We seek commitment:
  - Masters and PhD students: 100% of research effort must be dedicated to PFI.
  - Postdocs: must dedicate at least 50% of non-teaching time to PFI.
  - Allocate personnel expenses for students /postdocs accordingly*.
- Teams without NSF I-Corps Teams Lineage must integrate the mandatory I-Corps training*.
- Leverage your Industrial Partnership
- Mentorship:
  - Industrial Partner's co-PI (in PFI-RP)
  - Tech. commercialization expert (in PFI-TT)

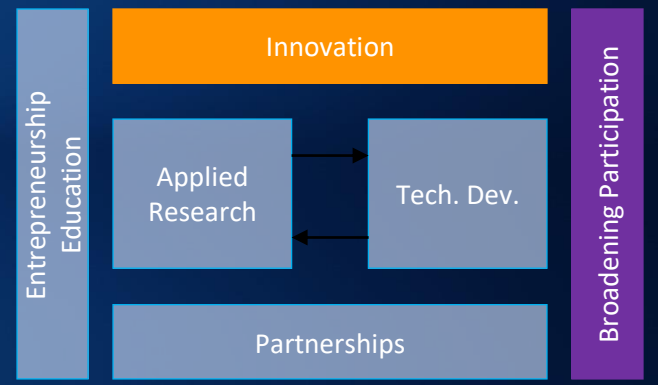


See budget instructions in solicitation: https://www.nsf.gov/pubs/2019/nsf19506/nsf19506.htm

8. Broadening Participation

- Congressionally mandated: American Innovation and Competitiveness Act (Public Law No: 114-329).
  - *"expanding the participation of women and individuals from underrepresented groups in innovation, technology translation, and entrepreneurship"*

- Your PFI project must contain a plan to broaden the participation of women, minorities, and persons with disabilities.



Questions? Send your executive summary

After you visit https://www.nsf.gov/PFI and read the solicitation, email Katie Bratlie (pfi@nsf.gov) a short summary with:

- The NSF Lineage
- The societal need/market opportunity to be addressed.
- The proposed innovation.
- Key technological hurdles you must overcome to translate the technology into a product or service.
- The envisioned pathway to commercialization.
- The team and partners you would bring to the PFI project.

Questions and Contact

Katie Bratlie, PhD

Program Director, PFI

National Science Foundation

Email: kbratlie@nsf.gov

pfi@nsf.gov

Thank you!

kbratlie@nsf.gov

https://www.nsf.gov/PFI