**NATIONAL SCIENCE FOUNDATION**
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NSF 19-046

# Frequently Asked Questions (FAQs) for the IIP Partnerships for Innovation (PFI) Program

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12. I am a faculty member with a prior NSF award and I also am part of a small business. Would it be better to submit to the PFI or SBIR/STTR programs? Can I submit to both?

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17. We are a public institution that meets the definition of "Technology Transfer Organization" in the PFI solicitation NSF 19-506 We work with academic innovators to create multi-institutional, university-industry partnerships. Our business model is based on a competitive request for proposals (RFP) process to determine which projects we will support. Should we pre-identify projects in a PFI-RP proposal or can we decide which projects we will support after we receive NSF funding?

18. Can two-year colleges participate in the PFI program?

19. The funding that has supported my academic research came from an NSF-funded center. However, I am not listed as a PI or co-PI on the NSF center grant although I am considered a faculty member of the center. Am I eligible to apply to PFI?

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21. I already have a current PFI award. Can I apply again?

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27. Do all NSF I-Corps customer discovery programs meet the NSF Lineage Requirement for PFI?

28. Can I apply for PFI even if my NSF I-Corps project is ongoing?

29. If a proposer was involved in the NSF I-Corps program for one project, can they request PFI funds for a different technology?

30. According to the solicitation, even for the PFI-RP track, it seems at least one of the PIs should have prior NSF-funded projects. Did I understand this requirement correctly? This requirement was not present in the previous PFI solicitations.

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## IS MY PROJECT A GOOD FIT FOR THE PFI PROGRAM?

1. **What are the funding objectives of the Partnerships for Innovation (PFI) program?**

   The PFI program offers researchers from all disciplines of science and engineering funded by NSF the opportunity to perform translational research and technology development, catalyze partnerships and accelerate the transition of discoveries from the laboratory to the marketplace for societal benefit. Specifically, PFI supports outputs of prior NSF-funded research projects or NSF-supported customer discovery results through the NSF I-Corps™ Teams program. Consult the solicitation NSF 19-506 for more details.

2. **What is the best way to determine whether a technology translation project is a good fit for the PFI program?**

To gauge whether your project fits the goals of the PFI program, feel free to email a one-to-two-page executive summary to the PFI program director (pfi@nsf.gov) addressing the following items:

- 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.

3. **NSF has funded my academic research for years. How can I quickly determine whether I am ready to apply for PFI funding?**

First you should read Section IV of solicitation NSF 19-506. It states that all proposals submitted to the PFI program must meet a lineage requirement under one of the following two paths: (1) NSF-supported research results, or (2) NSF-supported customer discovery results through the NSF I-Corps™ Teams Program (the "NSF Lineage Requirement"). The proposed technology development project must be derived from the research results and/or discoveries from a NSF award that is current or ended no more than seven (7) years prior to the PFI proposal deadline date.

Next, you should perform a quick litmus test by comparing your current research objectives with the intended outcomes of PFI. The ultimate goals of a PFI award are: a) the commercialization of new intellectual property derived from NSF-funded research outputs; b) the creation of new or broader collaborations with industry (including increased corporate sponsored research); c) the licensing of NSF-funded research outputs to third party corporations or to start-up companies funded by a PFI team; and d) the training of future innovation and entrepreneurship leaders.

In addition, you need to ensure that your proposed PFI project meets all eligibility requirements specified in the PFI solicitation NSF 19-506 and in the NSF Proposal & Award Policies & Procedures Guide (PAPPG). Please refer to the eligibility section of these FAQs.

4. **What are the differences between PFI-TT and PFI-RP? Which track is more appropriate for my project?**

The overarching goals of the PFI-TT and PFI-RP tracks are the same and the programmatic differences between them are listed in section V.A of the solicitation NSF 19-506.

PFI-TT projects are "self-contained" and generally within the capabilities of a PI and

her/his institution, while PFI-RP projects are complex, and cannot be implemented unless a multi-organizational multi-disciplinary partnership is in place. Furthermore, participation of at least one Industrial Partner is **required** in the PFI-RP track while only encouraged in the PFI-TT.

The motivation to submit a PFI-TT or PFI-RP proposal should not be dictated by the size of the award, but by the complexity of the project and the need for a multi-organizational, inter-disciplinary partnerships.

5. **What activities are not permitted in a PFI project?**

   The following activities are not allowable in the PFI program: non-R&D work and commercial activities such as marketing, sales, corporate or business development, fundraising, intellectual property or regulatory work. Biomedical research that is normally funded by NIH is not supported by PFI. See Question 8 for more details.

   There is one notable exception to the "non-R&D" rule: PFI awardees whose NSF Lineage does not stem from the NSF I-Corps™ Teams will take a mandatory NSF I-Corps (customer discovery) training that will be provided during the term of the PFI award.

6. **Can NSF provide examples available of recently-funded PFI proposals and/or awards?**

   NSF does not provide sample proposals. The public abstracts of awarded PFI projects are available here. Please note that many of these awards were made by NSF under past PFI solicitations.

7. **We have an NSF Industry-University Cooperative Research Center (IUCRC) with strong corporate partners that support our work there and have developed a project that may be a natural fit for PFI-RP. What is your advice?**

   The goals of the IUCRC and PFI programs are complementary but not overlapping. IUCRC researchers are encouraged not to construe PFI projects, particularly in the PFI-RP track, as mere extensions of their IUCRC work. For instance, while in the IUCRC program industry members act most frequently as research sponsors, in a PFI-RP project the Industrial Partner is expected to work closely together with the academic team, jointly performing the collaborative research behind the technology development effort.

   Another important difference between the IUCRC and PFI programs stems from the central role that the graduate student/postdoctoral researcher plays in a PFI project and may not entirely match the role she/he would have in an industry-sponsored IUCRC project.

To assist NSF-funded centers and consortia that plan to submit PFI proposals, section II.D of solicitation NSF 19-506 includes the following guidance:

> *"PFI proposers are strongly encouraged to leverage the research and education capabilities of NSF-funded centers or large, multi-year, multi-faculty alliances. However, PFI is not intended to extend work that is currently funded, for instance, by NSF or Industry-University Cooperative Research Centers. Instead, centers and alliances can avoid any overlap or duplication of effort by using PFI to generate early proof-of-concept that will attract future corporate sponsorship, to spin-off technologies graduated from NSF centers, or to enable postdoctoral researchers and students to conduct research and gain experience in an industrial setting."*

8. **Does PFI fund medical research?**

PFI funding is not aimed at supporting clinical trials, clinical efficacy or safety studies, drug development or validation of pre-clinical or clinical-stage drug candidates, medical devices or information technologies, or activities performed for regulatory purposes. Limited studies that envision use of human subjects may be acceptable to the extent that they are performed to support initial proof-of-concept work consistent with the goals of PFI.

If more guidance is necessary to decide whether to submit a proposal, proposers are encouraged to contact the PFI Program Director (pfi@nsf.gov) following the instructions in Question 2).

## APPLYING TO PFI VS. THE NSF SBIR/STTR PROGRAM

9. **Is PFI part of the SBIR/STTR program? After completing a PFI project, do we automatically qualify for a SBIR/STTR Phase I award?**

The answer to these two questions is "no." The PFI and NSF SBIR/STTR are separate, but related, programs managed by the NSF Division of Industrial Innovation and Partnerships (IIP). PFI is considered a "pre-SBIR/STTR" award made only to eligible academic and non-profit organizations. One desirable outcome of PFI would be increased probability of obtaining SBIR/STTR funding. However, only eligible small businesses, which are legal entities separate from PFI awardees, can apply for and receive SBIR/STTR awards. Academic and non-profit organizations are not eligible to apply to the SBIR/STTR program.

The list of PFI eligible organizations is set forth by the American Innovation and Competitiveness Act of 2017 (Sec. 602; Translational Research Grants) and also available in section IV (Eligibility Information) of the PFI solicitation NSF 19-506.

For SBIR/STTR eligibility requirements, visit https://www.sbir.gov/faqs/eligibility-requirements.

For NSF SBIR/STTR program details, visit https://seedfund.nsf.gov/.

10. **Is there a "fast-track" option to transfer from PFI to a NSF SBIR/STTR II?**

There is no "fast-track" option from PFI to the NSF SBIR/STTR program because the types of organizations eligible for each program are different. PFI awards are granted to academic/research institutions, public or non-profit organizations whereas SBIR/STTR awards are made to for-profit small businesses. Small businesses that have licensed the PFI-funded technology must apply for and receive a Phase I award before applying for a Phase II award at NSF. See Question 9 for more details.

11. **Can PFI fund work at an Institution of Higher Education on a product that has already been developed under a license to a small SBIR/STTR-funded business or a large corporation?**

Under a mandate from the American Innovation and Competitiveness Act of 2017, PFI seeks to "*identify and support NSF-sponsored research and technologies that have the potential for accelerated commercialization*". PFI also follows the congressional mandate to "*support prototype or proof-of-concept development work by participants, including NSF I-Corps participants, **that because the early stage of development are not eligible to participate in a Small Business Innovation Research Program or a Small Business Technology Transfer Program***."

In practicality, this means that PFI seeks to fund "pre-SBIR/STTR" technology translation and development before such technology has entered a commercial stage of development under control of a SBIR/STTR-funded small business or has been licensed to an established corporation.

If the proposed idea has been already proven to be technically feasible and capital is required simply to perform analytical testing on the product, execute the business plan, and/or begin manufacturing, then project is NOT a good candidate for PFI funding. Projects that focus on incremental improvements of existing products are not appropriate for PFI funding.

If your technology is at a very early stage of development and you need additional assistance, refer to Question 2 on how to seek advice form the PFI Program Director.

12. **I am a faculty member with a prior NSF award and I also am part of a small business. Would it be better to submit to the PFI or SBIR/STTR programs? Can I submit to both?**

There is no prohibition on submission of a proposal to both programs; starting and growing a small business takes a lot of time and effort (if it is going to be successful), so it may not be a bad idea to split efforts between PFI and SBIR. However, PIs/co-PIs are very strongly encouraged to disclose the fact that the team is submitting PFI and SBIR proposals, and to outline the work to be performed in each project. The work proposed in those PFI and SBIR/STTR proposals cannot be overlapping, similar or equivalent. It is illegal to receive duplicate funding for the same work. Upon successful completion of a PFI award the team is strongly encouraged to apply for SBIR/STTR funding.

## QUESTIONS ABOUT ELIGIBILITY

13. **Do I need to submit a Letter of Intent prior to submitting a proposal? Do I need permission from NSF to submit the full proposal?**

Letters of Intent are no longer required in the PFI program. Principal Investigators (PIs) do not need prior approval from NSF prior to submission of a PFI proposal. However, if you are unsure whether your project fits the program objectives, you are strongly encouraged to first read the PFI solicitation NSF 19-506 and these FAQs and listen to a PFI Q&A webinar as they become available at https://www.nsf.gov/PFI.

If you need additional assistance, refer to Question 2 on how to seek advice form the PFI Program Director.

14. **Can small businesses or SBIR/STTR-funded companies apply for PFI grants?**

For-profit entities, including small businesses, start-up companies and SBIR/STTR-funded corporations, are not eligible to submit proposals to PFI. However, eligible U.S. for-profit corporations are encouraged to serve as the Industrial Partner of an academic team that engages in technology development of NSF-funded research results. In addition, for-profit corporations may also serve as vendors or service providers in PFI projects.

Please refer to section "Applying to PFI vs. the NSF SBIR/STTR Program" for more details.

15. **May an academic team and its affiliated small business submit identical or overlapping proposals to the PFI Program and the SBIR/STTR Program of NSF or another federal agency?**

Proposers may submit overlapping proposals to different agencies, but NSF will not make awards that duplicate research funded by, or anticipated to be funded by, other programs or agencies. It is very important to note potential overlap on the cover page of the NSF proposal. If a proposer fails to disclose that another Federal Agency has received this proposal (or an equivalent or overlapping proposal) on the proposal cover page, the proposer could be liable for administrative, civil, or criminal sanctions.

If a proposal is selected for award by NSF and another agency, the cognizant agencies will work together to determine which agency will fund the work. Sometimes, the project scope and/or budgets could be modified in both projects to ensure that no portion of the work receives duplicate funding. PFI does not currently co-fund proposals with any other agency.

16. **We are a non-profit organization "*directly associated with technology transfer activities*" as defined in the American Innovation and Competitiveness Act of 2017 (AICA). However, we do not have in-house research capabilities. Do we qualify for PFI?**

Non-profit organizations "*directly associated with technology transfer activities*", as defined in the American Innovation and Competitiveness Act of 2017 and in solicitation NSF 19-506, are encouraged to submit proposals to PFI.

When drafting your proposal, you must keep in mind that PFI supports the translation of prior NSF-funded research results in any field of science or engineering into technological innovations. In other words, the PFI project must entail a technology development or prototyping effort. In addition, the PI must have the technical skills required to lead and execute the proposed research project.

Because many eligible technology transfer organizations may not have in-house R&D capabilities, to strengthen the technical component of their projects NSF encourages them to partner with an Academic / Research U.S. institution.

PFI represents an opportunity to develop new modalities of partnerships between non-profit technology transfer organizations and NSF-funded academic innovators.

17. **We are a public institution that meets the definition of "Technology Transfer Organization" in the PFI solicitation NSF 19-506. We work with academic innovators to create multi-institutional, university-industry partnerships. Our business model is based on a competitive request for proposals (RFP) process to determine which projects we will support. Should we pre-identify projects in a PFI-RP proposal or can we decide which projects we will support after we receive NSF funding?**

The role of a "Technology Transfer Organization" in the PFI program is not construed as an open-ended, sub-awarding agency activity that decides which applied research projects should be funded. NSF identifies the most promising PFI projects by evaluating their intellectual merit and broader/commercial impacts using its Merit Review process.

Similarly, all proposals submitted to the PFI program must meet a NSF Lineage Requirement under one of the following two paths: (1) NSF-supported research results (generated by a NSF award that ended no more than seven (7) years prior to the full proposal deadline date or by a current NSF award), or (2) NSF-supported customer discovery results through the NSF I-Corps™ Teams Program (within the past four (4) years prior to submission). The NSF Lineage of PFI proposals is also evaluated by NSF using its Merit Review process.

Like any other eligible organization, Technology Transfer Organizations, as defined in the PFI solicitation NSF 19-506 are expected to focus their and their partners' efforts on the early prototyping and the demonstration of commercial potential of a specific NSF-funded research output.

18. **Can two-year colleges participate in the PFI program?**

    Yes.

19. **The funding that has supported my academic research came from an NSF-funded center. However, I am not listed as a PI or co-PI on the NSF center grant although I am considered a faculty member of the center. Am I eligible to apply to PFI?**

    Since your research was funded by an NSF award, your project appears to meet the NSF Lineage Requirement. To meet that requirement, your research should be either ongoing or have been completed within the last seven years prior to submission to PFI. The PFI proposal should document how the proposed work is derived from the center-funded research, and that you are a faculty member funded through the center.

    Non-limiting examples of NSF-funded centers are: Industry-University Cooperative Research Centers (IUCRC), Engineering Research Centers (ERC), Science and Technology Centers (STC), Materials Research Science and Engineering Centers (MRSEC) or Centers for Chemical Innovation (CCI).

20. **May our organization submit multiple PFI proposals to the same submission deadline?**

    There is no limit on the number of PFI-TT proposals an organization may submit to a deadline of this solicitation. However, an organization may not submit more than one (1) PFI-RP proposal to a deadline of this solicitation. This eligibility constraint will be strictly enforced.

In addition, any duplicate, substantially similar or equivalent proposal submitted concurrently for review will be returned without review. Finally, an organization may not receive more than two (2) awards from a submission deadline of this solicitation.

21. **I already have a current PFI award. Can I apply again?**

    Although you are not prohibited from submitting a new proposal, we request that PIs with currently active PFI awards complete their then-current project before submitting a new PFI proposal. This is to ensure fairness and equitable access to the program, in alignment with the limit of one award per PI or co-PI per submission deadline set forth in the Eligibility section of the solicitation NSF 19-506. PI/co-PIs who have received previous PFI funding are strongly encouraged to discuss the outcomes of previous PFI awards and how they inform their proposed project.

    Any duplicate, substantially similar or equivalent proposal submitted concurrently for review to the solicitation will be returned without review.

## THE NSF LINEAGE REQUIREMENT

22. **How do I know if the results of my NSF-funded research meet the Lineage Requirement?**

    Each year, NSF awards more than 11,000 research, education and training projects in all disciplines of science and engineering. The results funded by most NSF programs are eligible for technology translation funding under PFI. The Principal Investigator (PI) or a co-PI must have had an NSF award that ended no more than seven (7) years prior to the full proposal deadline date or be a current NSF award recipient. The proposed technology development project must be derived from the research results and/or discoveries from this underlying NSF award.

    Only a very small number of programs do not meet the NSF Lineage requirement: Workshops and conferences, Research Experiences for Undergraduates (REU), Research Experiences for Teachers (RET), the Graduate Research Fellowship Program (GRFP), SBIR/STTR, and any prior PFI award.

    If you plan to meet the NSF Lineage Requirement by claiming I-Corps training, please note that ONLY teams/projects can only claim that type of NSF Lineage that if they have completed the NSF I-Corps™ Teams program within the past four (4) years prior to the date of submission to PFI. The following programs do not convey lineage for the purposes of PFI: the I-Corps Nodes regional training, training at an NSF I-Corps Site, or any I-Corps-related training imparted by federal agencies or organizations other than NSF.

To seek more specific advice, use the guidance in Question 2 to contact the PFI Cognizant Program Officer.

23. **My NSF award is not necessarily a research award, but it is not explicitly excluded under the lineage requirements. Am I eligible to apply?**

    From a lineage perspective, you are eligible to apply if the NSF program that funded your previous work does not appear in the list of excluded programs provided in the Eligibility section of the solicitation NSF 19-506. Please note that your project must meet all other requirements in the solicitation.

24. **My NSF research award is currently ongoing, and the project has not yet ended. Can I apply to PFI?**

    Yes. The results of current NSF awards may meet the NSF Lineage requirement. PIs and co-PIs can apply to PFI while their NSF research awards are active and do not need to wait until their projects have ended.

25. **Will PFI only fund institutions that received prior NSF funding for any activity, or should they have received prior NSF funding for the technology for which they are seeking PFI funds?**

    The NSF Lineage requirement, stems from previous research funded by NSF, or from a previous NSF I-Corps™ Teams award. It does not necessarily apply to the institution that is submitting the PFI proposal. However, an institution, PI or co-PI cannot claim NSF Lineage from the NSF-funded work of an unrelated third-party. For that reason, the Eligibility section of the solicitation NSF 19-506 establishes that "*Principal Investigator (PI) or a co-PI must have had an NSF award that ended no more than seven (7) years prior to the full proposal deadline date or be a current NSF award recipient*".

    If your institution doesn't have a previous NSF-funded research project (or an NSF I-Corps™ Teams award), then you are encouraged to partner with another institution (e.g., an institution of higher education) that has such a NSF Lineage.

26. **I was the academic collaborator in a subcontract from an NSF Small Business Innovation Research (SBIR) or Small Business Technology Transfer (STTR)-funded company. Is this acceptable NSF lineage?**

    No. SBIR/STTR awards do not confer NSF lineage for the purposes of applying to the PFI program.

27. **Do all NSF I-Corps customer discovery programs meet the NSF Lineage Requirement for PFI?**

No. Only the NSF I-Corps™ Teams program meets the NSF Lineage requirement, provided that the PI or co-PI completed the NSF I-Corps training provided under the NSF I-Corps™ Teams award within the past four (4) years prior to the date of submission.

The following NSF I-Corps programs do not meet the NSF Lineage Requirement: the I-Corps Nodes regional training, training at an NSF I-Corps Site or any I-Corps-related training imparted by federal agencies or organizations other than NSF.

28. **Can I apply for PFI even if my NSF I-Corps project is ongoing?**

The NSF I-Corps training provides real-world, immersive learning about customer discovery and market fit. By taking that training prior to applying to PFI (or to the SBIR/STTR program), you gain a deeper understanding of the commercial potential of your proposed technology. It is expected that you will incorporate the lessons learned during the NSF I-Corps™ Teams program in the PFI proposal.

If you plan to apply to PFI but your NSF I-Corps™ Teams award is ongoing, please contact the PFI Program Director by following the guidance in Question 2.

29. **If a proposer was involved in the NSF I-Corps program for one project, can they request PFI funds for a different technology?**

No. The NSF I-Corps™ Teams award conveys NSF Lineage based on customer discovery results obtained on a specific technology. An NSF I-Corps™ Teams award does convey NSF Lineage to a different technology.

30. **According to the solicitation, even for the PFI-RP track, it seems at least one of the PIs should have prior NSF-funded projects. Did I understand this requirement correctly? This requirement was not present in the previous PFI solicitations.**

That is correct. The NSF Lineage requirement applies now to proposals submitted to both the PFI-TT and PFI-RP tracks.

## INDUSTRIAL AND RESEARCH PARTNERS

31. **May I apply for PFI funding if our team does not have an Industrial Partner?**

The PFI-Research Partnerships (PFI-RP) track requires the participation of an Industrial Partner in the proposing team. However, the PFI-Technology Translation (PFI-TT) path encourages, but does not require, the participation of an Industrial Partner. If you meet all other eligibility requirements specified in the solicitation NSF 19-506, but do not have an Industrial Partner, you are encouraged to apply under the PFI-TT track. PFI-RP proposals that lack an Industrial Partner will be returned without review.

32. **Why is PFI requiring a Collaborative Research Agreement (CRA) with my Industrial and Research Partners?**

    Partnerships are a critical component of the PFI program. PFI-RP projects must demonstrate the existence of a R&D collaboration with the mandatory Industrial Partner and with any proposed Research Partner. PFI-TT projects that elect to propose Industrial Partners and/or Research partners also must provide such evidence.

    If there is a possibility of joint development of intellectual property, it is the responsibility of the participating organizations/partners to discuss the appropriate intellectual property policies, including patent disclosures and filings. Proposal partners must agree prior to issuance of any award, how the intellectual property and publication rights will be handled.

    If applicable, an Industry-University Cooperative Research agreement or university-university agreement covering intellectual property rights including publication and patent rights must be submitted prior to issuance of an award.

    A letter of commitment from your Industrial / Research Partner is sufficient to submit a proposal. Should your proposal be considered for funding, signed Collaborative Research Agreement(s) (CRA) with your Industrial Partner and with each proposed Research Partner will be required as a condition for award. A service agreement or a simple Intellectual Property sharing agreement that does not set forth a collaboration between the parties is not sufficient.

    For informational purposes only, a sample CRA agreement is posted here: https://www.nsf.gov/eng/iip/pfi/apply.jsp.

33. **We will propose a collaboration with an Industrial Partner, but will not include a subaward in the PFI budget. Do we still need a Collaborative Research Agreement (CRA)?**

    Yes, the CRA is needed if a collaboration with an Industrial Partner or Research Partner is proposed. Please refer to Question 32 for additional information. For additional information on Industrial and Research Partners, see section II.D (Program Description) of PFI solicitation NSF 19-506.

34. **Can we include a technical service provider as the Industrial Partner in a PFI-RP proposal? Do we meet the multi-organization requirement by adding a service provider employee as co-PI?**

    No. You should include service providers under line G.5 of the PFI proposal budget if the need for their technical expertise is justified. However, paid service providers do not

qualify as an Industrial Partner. A valid Industrial Partner must have a strategic interest in your proposed technology, which may ultimately result in their commercialization of your technology as a service or product.

For additional information on Industrial and Research Partners, please see section II.D (Program Description) of PFI solicitation NSF 19-506.

35. **In my PFI proposal I plan to collaborate with a large corporation. The collaborator from that company who I would include in my project is involved in an unrelated PFI-RP award. Is the Industrial Partner also restricted to receive only one PFI-RP grant? If so, could the contact at the Industrial Partner be a different person?**

There are no restrictions on the number of PFI awards an Industrial Partner decides to support through a collaborative research agreement.

If the proposed Industrial Partner is a SBIR/STTR-eligible small business and it requests a subaward in the PFI budget, additional information regarding the collaboration may be requested during the merit review process.

36. **Are matching funds (cost sharing) from an Industrial Partner required in PFI-RP proposals?**

The inclusion of cost sharing from the Industrial Partner or any third party in a PFI project (Line M of the budget) is not permitted in accordance with NSF's cost sharing policy. See PAPPG, Chapter II.C.2.g(xii): *"inclusion of voluntary committed cost sharing is prohibited and Line M on the proposal budget will not be available for use by the proposer."*

In order for NSF, and its reviewers, to assess the scope of a proposed project, all organizational resources necessary for, and available to, a project must be described in the Facilities, Equipment and Other Resources section of the proposal (see PAPPG, Chapter II.C.2.i for further information). While not required by NSF, the grantee may, at its own discretion, continue to contribute voluntary uncommitted cost sharing to NSF-sponsored projects. As noted above, however, these resources are not auditable by NSF and should not be included in the proposal budget or budget justification.

Grantee organizations may continue, at their own discretion, to contribute any amount of voluntary uncommitted cost sharing to NSF-sponsored projects.

37. **What is the minimum time commitment of the personnel who will represent the Industry Partner in our PFI-RP project?**

The PFI solicitation NSF 19-506 does not prescribe a specific commitment of time and effort by the Industrial Partner's co-PI. Likewise, the PFI solicitation does not prescribe a

specific commitment of time and effort by the Technology Commercialization Expert in PFI-TT proposals. The Industrial Partner co-PI (in PFI-RP) or the Technology Commercialization Expert (in PFI-TT) should dedicate a meaningful amount of time and effort to ensure the success of the project.

38. **We previously spun-off a start-up company from our academic lab that has received a SBIR/STTR award from a federal agency. Can we use our SBIR/STTR company as the Industrial Partner in a PFI-RP proposal?**

    The PFI Solicitation establishes that Industrial Partners […] "*must be U.S.-based and have an established record of commercial revenues that include sales, services, or licensing*". In addition, "*Grants and government contracts may contribute to its revenues but may not constitute the entirety of its revenues. It is essential that the minimally qualifying Industrial Partner has experience in bringing a product, process, or service to the marketplace in the industry sector of the proposed technology application to ensure that the proposal team incorporates a meaningful commercial and industrial perspective.*"

    When considering an early-stage SBIR/STTR-funded small businesses as the potential Industrial Partner of your PFI project, you should carefully evaluate the company's track record in product development, launch and commercial revenue.

    If you plan to request a subaward to a SBIR/STTR company in its capacity as Industrial Partner, note that PFI solicitation NSF 19-506 states "*With regard to industrial partners, subawards can only be allocated to businesses that meet the Small Business Innovation Research (SBIR) program eligibility requirements: (https://www.sbir.gov/faqs/eligibility-requirements) and **in which the submitting organization or the participants in the proposed project hold no financial, ownership or controlling interest**.*"

    For additional information regarding SBIR vs. PFI, see section "Applying to PFI vs. the NSF SBIR/STTR Program" below and section II.D (Specific Requirements for PFI-RP Proposals) of the PFI solicitation NSF 19-506.

39. **Can a non-U.S. organization serve as an Industrial Partner in a PFI-RP proposal?**

    PFI solicitation NSF 19-506 states that the Industrial Partner "*…(i.e., either a for-profit or not- for-profit entity that fulfills the minimum requirement) must be U.S.-based and have an established record of commercial revenues that include sales, services, or licensing. Organizations that meet the definitions of Foreign Public Entity in 2 CFR § 200.46 or Foreign Organization in 2 CFR § 200.47 may not serve as an Industrial Partner.*"

40. **Does PFI support non-U.S.-based universities and their foreign partners or work that is performed abroad?**

No. PFI only supports work that is performed in the U.S. and its territories (including work performed by subawardees, subcontractors and consultants).

41. **Does the PFI-RP track require an investment partner?**

Investment Partners are not required in PFI-TT or PFI-RP proposals.

## EDUCATION AND LEADERSHIP DEVELOPMENT IN INNOVATION

42. **Can we meet the educational goals of the PFI program by hiring undergraduate students instead of master's, PhD students or postdoctoral researchers?**

The PFI program seeks to become a platform for education and leadership development in innovation and entrepreneurship of promising master's, PhD students and postdoctoral researchers who are committed to the commercialization of NSF-funded research in all disciplines of science and engineering.

NSF encourages the participation of undergraduate students in all PFI projects. However, graduate students and postdoctoral researchers cannot be replaced by undergraduate students to meet the educational and leadership development goals of PFI.

All recipients of PFI awards are strongly encouraged to request supplementary funding under the Research Experiences for Undergraduates (REU) program.

43. **Can I meet the educational and leadership development goals by sending my graduate student/postdoc to an NSF I-Corps Program?**

Participation in NSF I-Corps alone is not sufficient to meet the educational and leadership development goals of a PFI project. Entrepreneurial training of the participant graduate student or postdoctoral researchers -and their commitment to the project- are key factors in the success of any PFI award. For that reason, PFI requires an educational/leadership development plan for participant students/postdoctoral researchers and it must contain learning objectives, outcomes and an assessment plan. In projects that lack the NSF I-Corps™ Teams Lineage, the educational component should integrate the mandatory NSF I-Corps™ Teams training referenced in section II.C.4 of the PFI solicitation NSF 19-506 described above where the graduate student/postdoctoral researcher will act as the Entrepreneurial Lead.

## BROADENING PARTICIPATION

44. **We are trying to demonstrate the commercial potential of our NSF-funded research. Why is PFI asking for a broadening participation plan in the proposal?**

The need for a broadening participation plan in PFI proposals stems from a mandate set by Congress in Section 102(c)(a) of the American Innovation and Competitiveness Act of 2017 (Broader Impacts Review Criterion Update) to expand the participation of women, persons with disabilities, and underrepresented minorities in innovation, technology translation, and entrepreneurship.

45. **We want to partner with an organization that works on diversity in science, technology, engineering, and mathematics (STEM). How do we go about it?**

    Partnering with organizations that work on diversity and inclusion in STEM may be an effective way to meet the broadening participation goals of PFI. Proposers are encouraged to consider partnering with public or private organizations that work at the local, regional and national level, and are active in different STEM disciplines, industry sectors or demographic groups.

    Organizations funded by NSF broadening participation programs are strongly encouraged to submit proposals to PFI and to partner with other PFI proposers:

    NSF INCLUDES (*Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science*) is a comprehensive initiative to enhance U.S. leadership in science and engineering discovery and innovation by proactively seeking and effectively developing STEM talent from all sectors and groups in our society. By facilitating partnerships, communication and cooperation, NSF aims to build on and scale up what works in broadening participation programs to reach underserved populations nationwide.

    The NSF Broadening Participation Portfolio offers a non-exclusive list of NSF-funded programs that range from capacity building, research centers, partnerships, and alliances to the use of co-funding or supplements to existing awards in the core research programs.

## THE PFI TEAM

46. **I have long-term entrepreneurial/business experience. Do I need to include a co-PI or other senior personnel as a technology commercialization expert on my PFI-TT proposal?**

    Yes. The team must include an active team member, in addition to the PI, who has explicit technology commercialization expertise in the targeted field of technology application or industry sector.

47. **Can we hire the CEO of a small business as the Technology Commercialization expert in a PFI-TT proposal? Should that person be a co-PI?**

NSF 19-506 requires that the PFI team include a technology commercialization expert as senior personnel or co-PI who brings technology commercialization experience in the targeted fields of application or industry sector. The technology commercialization expert must have an active role in the project. The CEO of a small business or a consultant could serve in that role so long all relevant solicitation requirements are met.

The technology commercialization expert cannot use NSF-funded time and effort to perform any "Objectives Not Responsive to this Solicitation" listed in section II.E of the PFI solicitation NSF 19-506. However, the expert should serve as a business mentor of the graduate students/ postdoctoral researchers in the team and may participate in any mandatory NSF I-Corps training that will be provided during the term of the PFI award.

48. **Can a postdoctoral researcher be designated as a co-PI in a PFI proposal?**

PFI encourages the participation of postdoctoral researchers on their own right, who must dedicate at least 50% of their non-teaching time to the PFI project. There is no need to name a postdoctoral researcher as co-PI or senior personnel unless, given their qualifications, the merit of the proposal would increase by giving them such a role. The role of a postdoctoral researcher as co-PI may be subject to policies of the submitting organization.

49. **Can a small business representative serve as the PI in a PFI-RP proposal?**

Small businesses are not eligible to submit PFI proposals on their own and a small business representative cannot serve as the PI in a PFI proposal. Assuming the proposal meets all other solicitation requirements, the small business representative may serve as co-PI or senior personnel in a PFI-TT proposal (fulfilling the role of technology commercialization expert) or as the Industrial Partner co-PI in a PFI-RP proposal.

## WRITING A PFI PROPOSAL

50. **We plan to apply for a PFI-RP with co-PIs from multiple organizations (research partners). Do we submit separate collaborative proposals through our respective organizations, or should we include these partners as subawardees on our proposal?**

Your organization can submit only one proposal on behalf of the partnership. The proposal budget must include a subaward budget and budget justification for each partner that is requesting funding under the partnership.

**No simultaneously submitted collaborative proposal submissions for a joint project – with each collaborator submitting a separate linked proposal, will be**

**accepted to the PFI program. No exceptions will be made to this requirement.**

51. **What is the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG)? Some guidelines in the NSF PAPPG are not spelled out in the PFI solicitation or conflict with information in the solicitation. Which policy document should I follow?**

   The *NSF Proposal & Award Policies & Procedures Guide* (PAPPG), found here: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg, contains NSF's general proposal preparation and submission guidelines. The PFI program solicitation includes several instructions that deviate from the general provisions of the PAPPG and, in such cases, the guidelines provided in the solicitation must be followed. When the PFI solicitation is silent on a specific issue, then the PAPPG must be followed.

52. **What are non-allowable uses of PFI funds?**

   Please see Question 5 and Question 8 for activities that are not supported by PFI (either as direct or indirect costs).

53. **The Industrial Partner in our PFI-RP proposal is a SBIR/STTR-eligible small business. What types of costs can be requested on a subaward budget?**

   A subaward budget may request funds in the same budget categories as the prime organization, but with one significant exception. The subaward budget may NOT request funds on Line K, which is used for a fee that may only be requested by the proposing small business in the prime organization's budget of a SBIR/STTR proposal.

54. **Please confirm whether the $250,000 for PFI-TT and the $550,000 for PFI-RP include indirect costs (overhead), or if indirect costs are added on top.**

   The proposal budget includes overhead and is up to $250,000 for PFI-TT and up to $550,000 for PFI-RP. Proposals with budgets in excess of these amounts may be returned without review.

55. **Do we need to include a budget for NSF I-Corps?**

   PFI awardees whose NSF Lineage does not stem from the NSF I-Corps™ Teams must budget $50,000 for a mandatory NSF I-Corps (customer discovery) training that will be provided during the term of the PFI award. Please refer to the budget instructions in section V.A.G of the PFI solicitation NSF 19-506.

56. **May I budget a subaward to a Federal Lab or Federally-Funded Research and Development Center (FFRDC)?**

   Yes, FFRDCs and Federal Labs are eligible to be subawardees. A master government List of FFRDCs is located at: https://www.nsf.gov/statistics/ffrdclist/.

## PFI AWARD AND BEYOND

57. **What are the Special Conditions of a PFI award?**

Several special award conditions in the PFI program are different from the NSF Research Terms and Conditions. Proposers should consider the following when drafting a PFI proposal:

1. During the award, NSF may organize a PI grantee meeting, reverse site visits, or a convening between PFI teams, investors and industry representatives. Proposers should budget travel for the PI and one student or postdoctoral fellow to attend (approximately $2,500 per person).
2. Based on project progress, grantees in the PFI-RP track may be requested to present a project status update via a webinar format to the NSF program officer and other NSF staff between 12 and 18 months after the start of the award. Details would be provided after award.
3. To attract and retain the most promising entrepreneurial students and postdoctoral fellows, the research efforts of master's and PhD students must be fully dedicated to the PFI award, and postdoctoral fellows must dedicate at least one half of their research efforts to PFI.
4. To foster an iterative customer discovery/technology development process, all teams without NSF I-Corps™ Teams lineage will participate in the NSF I-Corps™ Teams program (and the budget must allocate $50,000 to this effort).
5. Executed Collaborative Research Agreement(s) with an Industrial Partner and subawardee Research Partners must be provided to NSF as a condition for award.
6. For NSF to comply with Federal environmental statutes, the proposer may be requested to submit supplemental post-proposal submission information to NSF in order that a reasonable and accurate assessment of environmental impacts by NSF may be made. In addition, if an award is made, Principal Investigators must comply with all applicable statutory and regulatory requirements, including those related to Environment, Safety, and Health.

58. **Why are new PFI awardees without NSF I-Corps™ Teams lineage required to participate in the NSF I-Corps™ Teams program? Who pays for it?**

Through the NSF I-Corps™ Teams program, academic teams learn to identify valuable product opportunities that can emerge from academic research and gain skills in entrepreneurship through training in customer discovery and guidance from established entrepreneurs. The NSF I-Corps curriculum enables Teams to systematically identify and address knowledge gaps to understand the most appropriate path forward for their technology concept. New PFI awardees that take the NSF I-Corps™ Teams curriculum,

are able the to engage in an iterative customer discovery/technology development process. They can simultaneously test in the lab their commercialization hypothesis and incorporate the lessons learned from customer discovery in their technology development process.

All teams without NSF I-Corps™ Teams lineage must participate in the NSF I-Corps™ Teams program (the PFI budget must allocate $50,000 to this effort). For budgeting instructions, please refer to section V.A.G of the PFI solicitation NSF 19-506.

59. **If we receive a PFI-TT award, can we then convert it to a PFI-RP award, after we find an industrial partner?**

   To obtain a PFI-RP award, a separate proposal must be submitted under the solicitation. PIs with currently active PFI awards are requested to complete their then-current project before submitting a new PFI proposal.

60. **What if there are changes to the R&D strategy of a PFI project?**

   PIs and co-PIs should contact the PFI program director (pfi@nsf.gov) to discuss potential changes in their award's scope of work, R&D objectives or budget.

   Frequently, a PFI team and its partners identify the need for changes in project direction, particularly when the team has engaged in the NSF I-Corps customer discovery process after NSF awarded their PFI project. Changes in a PFI project may be due to technical or personnel reasons, or deemed necessary after the team has identified an unexpected product-market fit, target market sector, value proposition, etc. These issues should be discussed in advance with the PFI program director.

   However, changes to a PFI award that completely shift the focus of the project away from the initially proposed core innovation are generally not permitted, and the PI/co-PI are urged to seek the advice of the PFI program director. Additionally, PFI will not support alternative R&D if the work no longer meets the terms of the PFI solicitation and award conditions.