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Frequently Asked Questions (FAQs) for CISE Broadening Participation in Computing (BPC) Pilot

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the initial submission?

1. **What is BPC?**

   BPC is about increasing the participation of groups or populations underrepresented or under-served in computing and closely related disciplines. The National Science Foundation's (NSF) Directorate for Computer and Information Science and Engineering (CISE) is committed to BPC and strongly encourages meaningful actions that address the longstanding underrepresentation in computing and closely related disciplines of various populations including women, minorities, and persons with disabilities (see #3 below for more details).

2. **Why did CISE initiate the BPC effort and why is it expanding?**

   CISE recognizes that BPC requires an array of long-term, sustained efforts, and will require the participation of the entire community. Efforts to broaden participation must be action-oriented and must take advantage of multiple approaches to eliminate or overcome barriers. BPC depends on many factors, and involves changing culture throughout academia—within departments, classrooms, and research groups. This change begins with enhanced awareness of barriers to participation as well as remedies throughout the CISE community, including among principal investigators (PIs), students, and reviewers. BPC may therefore involve a wide range of activities, examples of which include participating in professional development opportunities aimed at providing more inclusive environments, joining various existing and future collective impact programs to helping develop and implement departmental BPC plans that build awareness, inclusion, and engagement, and conducting outreach to underrepresented groups at all levels (K-12, undergraduate, graduate, and postgraduate).

   In 2017, CISE commenced a pilot effort to increase the community's involvement in BPC, by requiring BPC plans to be included in proposals for certain large awards [notably proposals to the Expeditions in Computing program, plus Frontier proposals to the Cyber-Physical Systems and Secure and Trustworthy Cyberspace (SaTC) programs]. By expanding the pilot to require that Medium and Large projects in certain CISE programs [the core programs of the CISE Divisions of Computing and Communication Foundations (CCF), Computer and Network Systems (CNS), and Information and Intelligent Systems (IIS), plus the SaTC program] have approved plans in place at award time in 2019, CISE hopes to accomplish several things:

   - Continue to signal the importance of and commitment to BPC;

- Stimulate the CISE community to take action; and
- Educate the CISE community about the many ways in which members of the community can contribute to BPC.

In 2020, CISE will continue to require that Medium and Large projects in the above programs include meaningful BPC plans at the time of award.

The long-term goal of this pilot is for all segments of the population to have clear paths and opportunities to contribute to computing and closely related disciplines.

3. **Which groups qualify as "underrepresented" in computing and closely related disciplines?**

Across the computing workforce at all levels, there is underrepresentation of various populations including women, minorities (African Americans/Blacks, Hispanic Americans, American Indians, Alaska Natives, Native Hawaiians, Native Pacific Islanders, and persons from economically disadvantaged backgrounds), and persons with disabilities. Further reading can be found at the CISE BPC website (https://www.nsf.gov/cise/bpc/).

4. **What is the difference between broader impacts and BPC?**

NSF's definition of broader impacts (https://www.nsf.gov/od/oia/publications/Broader_Impacts.pdf) covers an array of activities, including BPC. Proposers are always encouraged to discuss at least one of the many broader impact activities that pertain to their specific project, and do not have to restrict themselves to BPC exclusively.

5. **I already have other broader impacts in the proposal. Do I still have to have a BPC plan?**

In this expanded CISE pilot, for all Medium and larger-sized awards in the CCF, CNS, and IIS core programs plus the SaTC program, PIs will need to have a meaningful BPC plan in place by the time of award. If included at submission time (which is encouraged), the BPC plan is to be a separate, one- to three-page supplementary document (for separately submitted collaborative proposals, a single BPC plan spanning the project is to be provided). The eventual goal is for BPC to be integrated with the research activities specified in a proposal—but for now, BPC plans may be separate from the research activities.

6. **Is it acceptable to focus on inclusion rather than solely on BPC?**

Yes, inclusion is a component of BPC. According to the Association of American Colleges and Universities, inclusion is "the active, intentional, and ongoing engagement

with diversity—in the curriculum, in the co-curriculum, and in communities (intellectual, social, cultural, geographical) with which individuals might connect—in ways that increase awareness, content knowledge, cognitive sophistication, and empathic understanding of the complex ways individuals interact within systems and institutions" (https://www.aacu.org/making-excellence-inclusive). Thus, given its focus on increasing the participation of people from groups underrepresented in computing, BPC is not the same as inclusion, but inclusion is a key component of BPC.

7. **If I submit a BPC plan, then do I still need to write about broader impacts in my proposal?**

   Yes. NSF's Proposal and Award Policies and Procedures Guide (PAPPG) Chapter II.C.2.d.(i) requires a section on Broader Impacts in the Project Description of all proposals. In that section, PIs may discuss a range of outcomes that could result from the proposed research. The BPC plans submitted as part of CISE's pilot are to be described fully in the one- to three-page supplementary documents, but PIs may refer to those BPC plans within the Broader Impacts sections of their Project Descriptions.

8. **Does the BPC plan have to be three pages?**

   BPC plans may range from a couple paragraphs to three pages. Regardless of length, a strong BPC plan addresses at least the following five elements: (1) the context of the proposed activity, (2) intended target population(s), (3) plan of activities, (4) prior experience (if any) and/or intended preparation/training activities, and (5) plans for the measurement and dissemination of outcomes. All collaborators are expected to participate in BPC activities. More information, including metrics for BPC activities and examples, can be found at: https://www.nsf.gov/cise/bpc/.

9. **What BPC activities are considered in scope for this pilot?**

   CISE recognizes that individual PIs have different levels of experience with BPC, and that a variety of activities may be suitable depending on the PI, organization, and research context. BPC activities can span a wide range of activities at the individual, organizational, and national levels. CISE has historically supported a number of collective impact alliances and is in the process of expanding that set of activities to provide infrastructure so that PIs need not invent activities from scratch. Proposers should decide what sets of activities (not necessarily just one) will work best within the purview of their targeted population(s) considering local, regional, and cultural contexts.

   A proposer could start with participation in professional development activities aimed at providing more diverse and inclusive environments, and move on to helping develop a departmental BPC plan that builds awareness and engagement among faculty in mentoring students from underrepresented groups and/or outreach to such groups in

the community. The activities proposed in the BPC plan must be commensurate with the team composition as well as the size and duration of the award.

For more details, please visit https://www.nsf.gov/cise/bpc/; in particular, PIs are strongly encouraged to review (1) the BPCnet resource portal, which provides examples of ongoing BPC efforts and can assist CISE PIs to plain their own meaningful BPC activities; (2) a white paper that was developed by reviewers participating in this pilot in fall 2018; and (3) a very high-level getting-started guide describing the structure of BPC plans.

10. **Do I need to include the cost of BPC activities in my project budget?**

   CISE encourages PIs to select activities based on potential impact rather than their cost. During this pilot phase, PIs are encouraged to include estimates of the costs of the BPC activities within their one- to three-page BPC plans (but not in the NSF proposal budgets at the time of submission), along with the justification of these costs as they relate to the activities. The costs for the BPC activities are separate from the stated budget limits for proposals, and proposals recommended for award will be provided additional funding to carry out BPC activities if necessary. Any organizational resources that support BPC activities should also be described in the Facilities, Equipment and Other Resources section of the proposal [for additional information about Facilities, Equipment and Other Resources, see PAPPG Chapter II.C.2.i].

11. **Do I have to be a BPC expert or have a collaborator who is a BPC expert?**

   Having a BPC expert on the team to accomplish the BPC plan is not a requirement. At the same time, outsourcing the entire execution of the BPC plan to a BPC expert is counter to the goals of this pilot. BPC plans should help PIs develop their individual awareness, knowledge, resources, and skills in pursuing meaningful BPC activities. Having connections to researchers with BPC expertise may therefore help proposers generate a meaningful BPC plan. CISE welcomes creative BPC plans that develop interest, knowledge, skills, and activities in support of BPC at all levels.

12. **How does a Pi demonstrate that s/he can execute the proposed BPC activity?**

   CISE recognizes that individual PIs vary in their BPC skills and knowledge. Each PI will need to demonstrate that s/he has adequate resources to carry out his/her proposed activities and that the qualifications of the individual, team, or organization are consistent with the needs and goals of the plan. Past experience in such activities can be a way to demonstrate competence in the activity, but all plans must have a set of activities with clear identification of resources, timelines, and assessment/evaluation.

13. **Do I have to conduct new research on BPC as part of my BPC plan?**

No. Some PIs may choose to conduct research on BPC. However, for many PIs, the BPC plans will incorporate activities and best practices from previously successful research in BPC. The choice of whether to use existing BPC research and activities or to conduct new BPC research depends upon one's skills, knowledge, interests, and resources.

14. **Can mentoring(and hiring) students from underrepresented groups count as a BPC activity?**

    A BPC activity may include mentoring (and hiring) students from underrepresented groups, using appropriate mentoring models. PIs should have a specific plan regarding how (and from where) they would recruit students. For example, if a PI notes that a student will be recruited from a Minority Serving Institution, then the proposal should include documentation of a relationship with such an institution, for example, in the form of a letter of collaboration with the institution. Also required would be a statement of how the PI will support students' professional development through the educational pipeline (i.e., the education, inclusion, and research pathways) to the next step of the students' careers.

15. **How should BPC activities be evaluated and assessed?**

    This will vary according to the particular activities planned. Certain principles apply, however:

    - PIs should be intentional and objective about evaluating/assessing their projects' activities;
    - CISE recognizes that "moving the needle" will take time; PIs should treat BPC activities as ongoing and integral parts of their research projects, and evaluate them more or less continually; and
    - CISE is standing up resources to help PIs learn from the many activities CISE has sponsored to broaden participation in computing, as well as to share their experiences.

16. **How will NSF review and evaluate BPC plans?**

    For this pilot, BPC plans will be reviewed as part of NSF's merit review process. Feedback from reviewers will be shared with the proposers, and any deficiencies identified will have to be addressed by the proposers to the satisfaction of the NSF/CISE Program Director prior to any award. Also, grantees under this pilot will be asked to submit descriptions and assessments of their BPC activities and outcomes as part of their annual project reports.

17. **How will BPC plans figure in funding decisions? Will a meritorious proposal not**

be funded because of a poorly-rated BPC plan, or because a BPC plan was not included in the initial submission?

CISE recognizes that the community will need time to develop meaningful BPC plans, and CISE Program Directors will thus work with all PIs whose proposals are within the funding range to ensure they have such plans in place. CISE Program Directors will also work with PIs after reviewing their BPC activities as described in their annual project reports. In cases where a proposal is being considered for funding but a BPC plan was not included as part of the original proposal submission, proposers will be asked to submit a BPC plan. No Medium or larger awards will be made without approved BPC plans in place.

18. **Where may I learn more about the context for BPC?**

    Below are a few select references that can serve as a starting point:

    - "Broadening Participation at the National Science Foundation: A Framework for Action," available at https://www.nsf.gov/od/broadeningparticipation/nsf_frameworkforaction_0808.pdf;
    - "CISE Broadening Participation in Computing," available at https://www.nsf.gov/cise/bpc/, and in particular, the white paper and getting-started guide available on this page;
    - "BPCnet resource portal," available at https://bpcnet.org/;
    - "Biennial Report to Congress," Committee on Equal Opportunities in Science and Engineering, available at https://www.nsf.gov/od/oia/activities/ceose/index.jsp; and
    - "Making Excellence Inclusive," Association of American Colleges & Universities, available at https://www.aacu.org/making-excellence-inclusive.