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

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1. What is BPC?

BPC is about increasing the participation of groups or populations underrepresented 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 of various populations including women, African Americans, Hispanics, American Indians, Alaska Natives, Native Hawaiians, Pacific Islanders, and persons with disabilities in computing and closely related disciplines. All levels within these groups are relevant, from K-12 to workforce. (See #2 below for more details.)

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

Across the US, computing and information science and engineering workforce, at all levels, there is underrepresentation of various populations including women, African Americans, Hispanics, American Indians, Alaska Natives, Native Hawaiians, Pacific Islanders, and persons with disabilities. BPC activities may include low-income, rural, and other underserved populations in addition to (not in place of) the populations described above. BPC activities must seek to increase the representation of these groups in the US computing and information science and engineering workforce. Further reading can be found at the CISE BPC website (<https://www.nsf.gov/cise/bpc/>).

3. 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 that impact society, and may or may not include broadening participation. Computing and closely related disciplines have specific and acute longstanding issues of underrepresentation that traditional efforts to advance broader impacts have not sufficiently addressed. Broadening participation will address members of groups underrepresented in computing described in #2, while Broader Impacts will not necessarily address these groups underrepresented in computing.

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

Yes. In this expanded CISE pilot, for all Medium and larger-sized awards in the CISE core programs plus the SaTC program, a BPC plan is required as a Supplementary Document, at the time of submission, with a title clearly identifying it as such. Collaborative proposals should submit a BPC plan for the entire project, as described in the proposal preparation instructions in current solicitations. PIs will need to have a meaningful BPC plan in place by the time of award (see #7).

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

Yes. The *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) Chapter II.C.2.d.(i) requires a separate section labeled "Broader Impacts" in the Project Description section 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 supplementary documents, but PIs may briefly summarize those BPC plans within the Broader Impacts sections of their Project Descriptions.

6. Is BPC the same as diversity and inclusion?

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. What are the components of a meaningful BPC plan?

Regardless of length, a meaningful BPC plan can answer positively to the following five elements:

1. Context: Does the plan describe a goal using institutional or local data?
2. Intended population(s): Does the plan identify the characteristics of participants from an underrepresented group listed above, including school level (e.g., African-American undergraduates or female high-school students)?
3. Strategy: Does the plan describe activities that address the goal(s) and intended population(s)? Is there a clear role for each PI and co-PI?
4. Preparation: Does the plan describe how the PI is prepared (or will prepare or collaborate) to do the proposed work?
5. Measurement: Is there a plan to measure the outcome(s) of the activities?

All PIs and co-PIs are expected to participate in BPC activities in a manner aligned with their personal contexts, interests, and skills. More information regarding BPC can be found at <https://www.nsf.gov/cise/bpc/>.

For Collaborative Proposals, all PIs are expected to participate in BPC activities, but these activities do not have to be the same in every organization.

Please note that it is not necessary to try and solve all BPC needs in a given proposal; strong plans will prioritize doing things well over doing more things. More information, including metrics for BPC activities and examples, can be found on the BPC pilot website (<https://www.nsf.gov/cise/bpc/>) and the NSF-funded BPCnet Resource Portal (<https://bpcnet.org/>).

8. **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 will work best within the purview of their intended population(s) considering local, regional, and cultural contexts. More is not necessarily better; plans may focus on a small set of activities and do them well. The activities proposed in the BPC plan must be commensurate with the team composition as well as the size and duration of the award. The smoothest path to meaningful BPC efforts is to leverage existing successful programs. You can start with participation in professional development activities, or with ongoing programs and organizations within your department or at your university that would facilitate reaching out to groups underrepresented in computing. You can also join an existing BPC program by

partnering with a BPC provider.

For more details, please visit the CISE BPC pilot website. In particular, PIs are strongly encouraged to review the BPCnet resource portal, which provides examples of ongoing BPC efforts and can assist CISE PIs to plan their own meaningful BPC activities.

9. Does my BPC plan need to be related to the technical content of my research proposal?

Not necessarily. The eventual goal is for BPC to be integrated with the research activities specified in a proposal—but for now, your BPC plan does not need to relate to the research in your proposal and does not itself need to include new research.

10. Do my proposed activities have to be student-facing?

Not necessarily. Steps to increase BPC readiness such as organizing trainings for faculty or administrators are also appropriate.

11. My university is a Minority-Serving Institution or a Women's College. Does my BPC Plan need to focus on a different underrepresented group than the ones that are common at my institution?

No. A BPC program that works with students underrepresented in computing at your organization or in your community would be appropriate. You must still clearly explain how your BPC Plan is designed to increase participation of such students in computing and closely related disciplines, and it should also include a justification (i.e., with national data) about why it is important to increase the representation of that population, even if they are not in the minority at your organization. Your plan should include demographic data for students at the department level because it may be different from those at the organizational level.

12. 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. The costs for the BPC activities are separate from the stated budget limits for proposals, and proposals recommended for award may be provided additional funding to carry out BPC activities, if necessary. At award time, PIs will submit for review, a budget for the cost of any BPC activities with justification. 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) or could be described in a linked departmental plan (see [#18](#)).

13. 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. When partners are included, the plan should be clear about what their roles will be and if they have existing relationships or commitments.

14. How does a PI demonstrate that they 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 they have adequate resources to carry out the proposed activities and that the qualifications of the individual, team, or organization are consistent with the needs and goals of the plan. If available, include evidence of relevant prior BPC experience and any lessons learned. If not available, describe how PIs will get the needed training and/or collaborate with a partner who has prior BPC experience.

15. Are my BPC activities encouraged to have novelty as the other parts of my proposal are?

Not necessarily. It is fine and even encouraged to build on proven methods. 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. Research summaries of best practices can be found on the BPCnet resource portal (<https://bpcnet.org/>).

16. Can mentoring (and hiring) students from groups underrepresented in computing count as a BPC activity?

A BPC activity may include mentoring (and hiring) students from groups underrepresented in computing, 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 organization, for example, in the form of a letter of collaboration. Also required would be a statement of how the PI will support students' persistence and professional development through the educational pipeline (i.e., the education, inclusion, and research pathways) to the next step of the students' careers.

17. 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 the outcomes of 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 (<https://bpcnet.org/>) to help PIs learn from the many activities CISE has sponsored to broaden participation in computing, as well as to share their experiences.

18. How does a PI use a Departmental plan in their proposal?

For those projects where all participating institutions have Departmental BPC Plans verified by BPCnet: You may include a 1-page project plan and an associated verified departmental plan (per institution). The 1-page project plan must describe the specific roles of the PI and co-PIs, their preparation and what aspects of the Departmental plan their strategies focus on. If your institution has a verified Departmental Plan but you want to propose BPC activities that do not align with that plans goals, that is allowed. In those cases, you must follow the instructions in item #7 of this FAQ and submit a 3-page BPC plan that includes all co-PIs.

19. My department doesn't have any BPC activities going on. What should I do?

You can still write a good plan. There are resources to help with the development of strong BPC plans, available at the BPCnet resource portal (<https://bpcnet.org/>), where one can learn how to write a project plan, including templates and sample activities.

20. How will NSF review and evaluate BPC plans?

Submitted BPC plans will be evaluated by reviewers with expertise in computing and broadening participation as appropriate for the proposal. Reviewers will be asked to comment on whether the Broadening Participation in Computing (BPC) plan meaningfully addresses the five elements of a BPC Plan: (1) the context of the proposed activity, (2) intended population(s), (3) strategy, (4) preparation, and (5) measurement. Grantees under this pilot are required to submit descriptions and assessments of their BPC activities and outcomes as part of their annual project reports in the Special Report Requirements section for evaluation by the cognizant NSF program officers. In addition, CISE plans to conduct an evaluation of the overall BPC pilot. This may be conducted by a third party. Grantees under the BPC pilot must provide information about project outcomes to support this evaluation.

21. 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?

All medium or larger proposals must include a BPC plan at the time of submission. Reviewers will be asked to comment on whether BPC plans have the elements to make them meaningful, as identified in #7. CISE will continue to support the community in developing meaningful BPC plans, and CISE Program Directors will work with all PIs whose proposals are recommended for funding to ensure they have meaningful plans in place. CISE Program Directors will also work with PIs after reviewing their BPC activities as described in their annual project reports. No Medium or larger awards will be made without approved BPC plans in place.

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

CISE has had a long-standing commitment to BPC (see <https://www.nsf.gov/od/broadeningparticipation/bp.jsp>). 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 groups underrepresented in computing at all levels (K-12, undergraduate, graduate, and postgraduate).

In 2017, CISE announced a 3-year pilot effort to increase the community's involvement in BPC. CISE required that BPC plans were 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. CISE also encouraged for certain other projects, the inclusion of BPC plans in proposals and required the inclusion of BPC plans in awards, notably Medium and Large projects in 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.

Building on this experience, in FY 2022, CISE will require that Medium projects in the

above programs include a BPC plan at time of submission; and have a meaningful BPC plan at the time of award.

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.

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.

23. **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/>
- "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>.