NATIONAL SCIENCE FOUNDATION
2415 EISENHOWER AVENUE
ALEXANDRIA, VIRGINIA 22314

NSF 22-125

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

High-level summary of changes from last FAQ (NSF 21-118):

- Added more detail about which populations are considered "underrepresented" in computing
- Clarified the difference between Standalone and Connected Project BPC plans
- Included additional information about expectations for assessment and what should be included in Annual Reports
- Updated the language to reflect that BPC plans are now part of Solicitation-Specific review criteria

1. What is BPC?

2. Which groups qualify as "underrepresented" in computing and closely related disciplines for the purpose of this initiative?

3. Can BPC activities focus on low-income, rural, and other underserved populations?

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

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

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1. **What is BPC?**

   Broadening Participation in Computing (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, Blacks and African Americans, Hispanics and Latinos, American Indians, Alaska Natives, Native Hawaiians, other 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 for the purpose of this initiative?**

   Across the US, at all levels of the computing and information science and engineering workforce, there is a well-documented underrepresentation of various populations including women, Blacks and African Americans, Hispanics and Latinos, American Indians, Alaska Natives, Native Hawaiians, other Pacific Islanders, and persons with disabilities. This effort is focused on those populations.

3. **Can BPC activities focus on low-income, rural, and other underserved populations?**

   Yes, as long as the activities focus on populations that also include individuals that are from one or more of the groups described above (women, Blacks and African Americans, Hispanics and Latinos, American Indians, Alaska Natives, Native Hawaiians, other Pacific Islanders, and persons with disabilities). BPC activities must seek to increase the representation of these groups in the US computing and information science and engineering workforce. Further information 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/special/broaderimpacts/) covers an array of activities that impact society and may or may not include broadening participation. Computing and closely related disciplines have well-documented 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 as described in #2, while Broader Impacts will not necessarily address these groups underrepresented in computing.

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

   Yes. For all Medium proposals in the CISE core programs as well as the Secure and Trustworthy Cyberspace (SaTC) and Cyber-Physical Systems (CPS) programs (see solicitation for details), a BPC plan is required as a Supplementary Document at the time of submission, with a title clearly identifying it as such. PIs will need to have a meaningful BPC plan in place by the time of award (see #9).

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

   Yes. The BPC plan should not be utilized as a space to elaborate on other broader impact activities unrelated to addressing members of groups underrepresented in

computing. NSF's Proposal & Award Policies & Procedures Guide (PAPPG) Chapter II.C.2.d.(i) requires a section on 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 BPC initiative 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.

7. **Is BPC the same as diversity and inclusion?**

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.

8. **The call for proposals suggests there are two ways to write a BPC plan; how do I pick one?**

Each Medium project must include either a **Standalone** BPC plan or a **Connected** BPC plan per the following cases:

- Case 1: if none of the PIs or co-PIs are from departments with BPC plans that were verified by BPCnet.org, submit a Standalone BPC Plan.
- Case 2: if some (but not all) of the PIs or co-PIs are from departments with BPC plans that were verified by BPCnet.org, submit a Standalone BPC Plan.
- Case 3: if all PIs and co-PIs are from departments with BPC plans that were verified by BPCnet.org and will leverage those plans, submit a Connected BPC Plan
- Case 4: if all PIs and co-PIs are from departments with BPC plans that were verified by BPCnet.org but the PIs will not leverage those plans, submit a Standalone BPC Plan.

9. **What are the components of a meaningful BPC plan?**

For both Connected and Standalone Project BPC Plans, a meaningful BPC plan should answer positively to the following five elements:

1. Goal and Context: Does the plan describe a goal and the data from your institution(s) or local community that justify that goal?

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)?
4. Measurement: Is there a plan to measure the outcome(s) of the activities?
5. PI engagement: Is there a clear role for each PI and co-PI? Does the plan describe how the PI is prepared (or will prepare or collaborate) to do the proposed work?

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 for every PI. Please note that it is not necessary to try and solve all BPC needs in one 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 website (https://www.nsf.gov/cise/bpc/) and the NSF-funded BPCnet Resource Portal (https://bpcnet.org/).

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. 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 #21).

11. **What BPC activities are considered in scope?**

Individual PIs have different levels of experience with BPC; a variety of activities may be suitable depending on the PI, organization, and research context. BPC activities do not need to be related to the PIs' research area or the rest of the proposal and are often most effective if they are known best practices. CISE supports collective impact alliances that provide infrastructure so that PIs need not invent activities from scratch. 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, the local, regional, and cultural contexts, as well as the size and duration of the award. PIs are strongly encouraged to review the BPCnet resource portal, which

provides examples of ongoing BPC efforts and can assist CISE PIs in planning their own meaningful BPC activities.

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

No.

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

No. Steps to increase BPC readiness such as organizing or participating in trainings for faculty or administrators are also appropriate.

14. **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 from groups underrepresented in computing at your institution 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. Your plan should include demographic data for students at the department level because it may be different from those at the organizational level.

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

PIs should select activities for which they have sufficient preparation to be successful. In some cases, preparation might include a collaboration with a BPC expert but outsourcing the entire execution of the BPC plan to a BPC expert is counter to NSF's goals. 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 help proposers generate a meaningful BPC plan. CISE welcomes 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 are committed

16. **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. This should be described in the "PI engagement" section of the BPC Plan.

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

No. It is fine and even encouraged to build on proven methods. The choice of whether or not to use existing BPC research and activities 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/).

18. **Can I propose something BPC-related that I am already doing as my BPC activity?**

Yes. We want every PI to be engaged in BPC; explaining one of your ongoing BPC activities is sufficient, assuming it meets the other requirements of a BPC activity.

19. **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, including whether they have already developed a relationship with another institution from which they would recruit. Also required would be a statement of what that mentoring will entail (e.g., how the PI will support students' persistence and professional development).

20. **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 documenting the implementation of activities and assessing whether the stated goals of their plan are being met. Medium projects awardees must report BPC activities and outcomes in the Special Reporting Requirements section of annual reports submitted to NSF. That section of the annual report should include:

- A summary of what each PI did, including any changes to the plan.
- Numbers of events, participants, and participant demographics. If there are barriers to collecting this data, describe those limitations and provide the best estimates you can.
- A reflection (supported by data if available) on progress of the activity, any unexpected challenges or results, and anything you should change.

21. **How does a PI use a Departmental BPC plan in their proposal?**

For those projects where all participating institutions have Departmental BPC plans

verified by BPCnet, and the PI will engage in an activity in that plan, a **Connected Project BPC Plan** may be used. Please refer to the BPC section of the Proposal Preparation Instructions in the solicitation for details. 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 #22 of this FAQ and submit a 3-page Standalone BPC plan that includes all co-PIs

22. **How does a PI write a proposal without a Departmental BPC plan?**

    For those projects where one or more PI is doing an activity that is NOT in their verified Departmental BPC Plan, the entire BPC plan (including the descriptions of the activities engaged in by all PIs) is submitted as a single 3-page document (called a Standalone BPC Project Plan). This document must address all the components of a meaningful BPC plan (see #9), including components that might otherwise be found in a Departmental plan (see #21) such as the context and goals for each activity.

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

    You can still write a good plan. There may be resources at your institution. There are also resources to help with the development of a meaningful Standalone BPC plan available at the BPCnet resource portal (https://bpcnet.org/), including templates and sample activities. In a Standalone BPC Plan, the BPC activities of all PIs are listed in a single document that is up to 3 pages for the whole project and specifically addresses all five elements of a BPC plan described in #9. *This option must be used if one or more of the collaborating institutions do not have a Verified Departmental BPC Plan*.

24. **I am not from a computing department. Do I still need to have a BPC plan?**

    For CISE Core Programs: The PI's home department does not affect their participation in the BPC requirement. All CISE Core Programs PIs are engaging in CISE research and have many options for broadening participation in CISE disciplines. Different programs may have different guidelines; please check the solicitation.

25. **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 goal and context of the proposed activity, (2) intended population(s), (3) strategy, (4) measurement, and (5) PI engagement. Grantees are required to submit descriptions and assessments of their BPC activities and outcomes as part of their annual project reports in the Special Reporting Requirements section for evaluation by the cognizant NSF program officers

(see #20). In addition, CISE has contracted with a third party to conduct an evaluation of the overall BPC plan initiative. Grantees must provide information about project outcomes to support this evaluation.

26. **How will BPC plans figure in funding decisions?**

All medium proposals must include a BPC plan at the time of submission. BPC Plans will be reviewed as solicitation-specific criteria by a merit review panel of experts who will be asked to comment on whether BPC plans have the elements to make them meaningful, as identified in #9.

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

CISE has 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, 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 required that BPC plans be included in proposals for certain large awards, notably proposals to the Expeditions in Computing program, plus Frontier proposals to the Cyber-Physical Systems (CPS) 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), as well as the SaTC program.

Building on this experience, in FY 2022, CISE required 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:

- Stress the importance of 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.

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

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

- CISE Broadening Participation in Computing page, 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.