**MEDIUM Projects:** Medium projects, **with total budgets ranging from $600,001 to $1,200,000 for durations of up to four years**, are well suited to one or more investigators (PI, co-PI and/or other Senior Personnel) and several students and/or postdocs.

* Medium project descriptions must be comprehensive, well-integrated, and make a convincing case that the collaborative contributions of the project team will be greater than the sum of each of their individual contributions. Rationale must be provided to explain why a budget of this size is required to carry out the proposed work.
* Because the success of collaborative research efforts is known to depend on thoughtful coordination mechanisms that regularly bring together the various participants of the project, Medium proposals with more than one investigator must include a Collaboration Plan of up two pages as a Supplementary Document. The length of, and level of detail provided in, the Collaboration Plan should be commensurate with the complexity of the proposed project. If a Medium proposal with more than one investigator does not include a Collaboration Plan, that proposal will be returned without review. Please see *Proposal Preparation Instructions* Section V.A for additional guidelines on collaboration plans.
* Collaboration plans, budgets, and budget justifications should demonstrate that key personnel, and especially lead PIs, have allocated adequate time for both their individual technical contributions and the leadership of collaborative activities necessary to realize the synergistic effects of larger-scale research.

**BROADENING PARTICIPATION IN COMPUTING (Medium proposals only)**

CISE has long been committed to Broadening Participation in Computing (BPC). The underrepresentation of many groups in computing, including women, Blacks and African Americans, Hispanics and Latinos, American Indians, Alaska Natives, Native Hawaiians and Other Pacific Islanders, and persons with disabilities, deprives large segments of the population with the opportunity to be creators of technology, and it deprives the computing ecosystem of their potentially valuable contributions. Ending underrepresentation will require a range of measures, including institutional programs and activities as well as culture change across colleges, departments, classes, and research groups.

With this solicitation, CISE is continuing the pilot effort started in 2018 encouraging the research community to engage in meaningful BPC activities. This pilot builds on many of the programs, research, and resources created through CISE's past and ongoing investments in BPC, and it aligns with the recommendations of the Strategic Plan for Broadening Participation produced by the CISE Advisory Committee in 2012.

Specifically, each Medium project with a lead or non-lead organization (department, school, or institute) that primarily carries out research and education in computer science, computer engineering, information science, and/or other closely-related field, must, at the time of submission, include a BPC plan. CISE encourages the use of the resources available at the NSF-funded BPCnet Resource Portal (<https://bpcnet.org>). BPCnet provides BPC project and departmental plan templates, suggested activities, and opportunities for consultant services. BPC plans should be included as a Supplementary Document that is up to 3 pages long and include roles for all PIs and co-PIs. PIs from institutions with departmental BPC plans verified by BPCnet.org should refer to the Proposal Preparation Instructions for further guidance. CISE will also provide opportunities for PIs to share BPC experiences and innovations through program PI meetings.

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 in computer science, computer engineering, information science, and/or closely-related fields are expected to participate in BPC activities in a manner aligned with their personal contexts, interests, and talents. More information on individual and departmental BPC plans, including metrics for BPC activities and examples, can be found at the NSF-funded BPCnet Resource Portal (<https://www.bpcnet.org>).