



## Committee on Equal Opportunities in Science and Engineering

### A FRAMEWORK FOR IMPLEMENTING A BOLD NEW INITIATIVE TO ADDRESS THE GRAND CHALLENGE OF BROADENING PARTICIPATION

Despite decades of efforts to improve representation of women, underrepresented minorities, and persons with disabilities in science, technology, engineering, and mathematics (STEM), progress has been insufficient to meet increased needs and challenges. A new, bold effort is needed to meet growing demand for human capital and to increase the vitality, creativity and global leadership of the U.S. STEM enterprise.



Therefore, in its 2011-12 biennial report—representing the first of a planned three-part series of biennial reports—CEOSE recommended that: ***“NSF implement a bold new initiative, focused on broadening participation of underrepresented groups in STEM... that emphasizes institutional transformation and system change; collects and makes accessible longitudinal data; defines clear benchmarks for success; supports the translation, replication and expansion of successful broadening participation efforts; and provides significant financial support to individuals who represent the very broadened participation that we seek.”***



NSF can be the catalyst to help higher education take greater responsibility for a diverse STEM workforce, transforming STEM at all levels and educating STEM domestic talent that fully reflects and represents the US population. Indeed, this is the grand challenge of broadening participation in STEM: to transform the STEM enterprise at all levels to fully engage the nation’s human capital — including women, underrepresented minorities, and persons with disabilities.

In its 2013-14 report—the second in the planned three-part series—CEOSE reiterates its commitment to the 2011-2012 recommendation for a bold new initiative, and elaborates ***a framework of five essential components that will be needed for realizing the grand challenge of broadening participation and for successful implementation of the bold new initiative:***

1. Develop and implement an effective preK-20+ system of STEM pathways that significantly increases participation of underrepresented individuals at every stage of schooling and across all STEM fields;
2. Provide stable and sufficient direct support for individuals who represent the very broadened participation that we ultimately seek;
3. Support the further development of a science of broadening participation grounded in empirical research;
4. Conduct field experiments including assessment of interventions and outcomes to understand and mitigate the barriers to broadening participation; and
5. Recognize the field-specific nature of the broadening participation challenge by embedding and engaging the bold initiative within and across all fields and disciplines that NSF supports and across the nation.



In its next, third report in this series, CEOSE plans to articulate a set of recommendations for assessing the successful implementation of the bold initiative proposed and elaborated upon in the first two reports.



We hope that America COMPETES, as well as other legislation and appropriations, are informed by the CEOSE recommendation for a bold new broadening participation initiative. We also hope that Congress authorizes and allocates the necessary funding to NSF to effectively launch and carry out the bold new initiative. Indeed, CEOSE believes that NSF must serve as the ongoing catalyst for coordinated, multiple agency, national action. It is NSF's responsibility to provide the intellectual and scientific leadership if we

are to develop a truly inclusive STEM enterprise that fully and effectively engages all of our citizens.

NSF is encouraged to continue to work with other federal agencies and other partners to lead our nation in increasing the participation of underrepresented groups in our nation's STEM enterprise given the urgent issues that are highlighted in the 2013-2014 CEOSE report: the changing demographics of our nation, the changing nature of STEM, increased challenges to U.S. competitiveness, the creative advantage of achieving workforce diversity, and the drive to realize the United States of America's democratic principles by achieving America's promise of equal opportunities.

Images credit: Thinkstock.com and Jackson State University