

# *Supporting* the Mission

*The National Science Foundation (NSF) is an agency that works seamlessly across disciplinary, organizational, institutional and national boundaries to promote global leadership in advancing research, education and innovation.*

OneNSF is a comprehensive vision for the National Science Foundation (NSF) as it operates in partnership with the science, engineering, and education community for the benefit of society.

The OneNSF approach builds on the foundation's mission to support fundamental research and education. It seeks to empower NSF to respond to new challenges in a changing global environment, leverage resources and opportunities for maximum impact, and provide leadership to establish innovative practices, programs and paradigms that advance scientific knowledge and science, technology, engineering and mathematics (STEM) education. These capabilities—responsiveness, leverage and leadership—are the core characteristics of OneNSF.



Within the foundation, OneNSF identifies policies, strategies and practices to foster and sustain a culture and workplace environment based on cooperation and communication across organizational divisions and disciplinary boundaries. Externally, OneNSF encourages a heightened level of cooperation and consensus between NSF and its partners, and among NSF grantees and their collaborators in the science and engineering community around the globe. Following the principle that “good science anywhere is good for science everywhere,” OneNSF facilitates:

- Cross-fertilization and integration across directorates and also among disciplines, institutions and across borders, building on the rigor and expertise of core functions.
- Research to advance STEM learning and engage learners with science through the development of creative models.
- New pathways for innovative ideas to surface and proliferate so that the best can be amplified in scale, reach, scope and stature across the organization and throughout the community.
- Targeted strategies to leverage scarce resources—human and financial—for the greatest impact on knowledge creation and the solution to national and global issues and challenges.
- Openness and excellence through continuous improvement and innovation driven by the creativity, teamwork and integrity of the NSF workforce.

OneNSF allows NSF and its partners to anticipate and respond swiftly to opportunities for leadership and to pioneer more effective mechanisms that address complex societal problems and meet national and global grand challenges.

As the following examples demonstrate, NSF is already putting OneNSF into practice to strengthen organizational excellence.

## Innovation Corps

The NSF Innovation Corps (I-Corps) is a national activity to speed the translation of NSF-funded discoveries into useful technologies, products and processes.

**Responsiveness:** As discovery and innovation accelerate worldwide, pressures are mounting to reduce the interval between research results and the development of market-viable products, processes and services. Through the development of a virtual national network, I-Corps will create new opportunities for the vast majority of the NSF grantee community that now lacks full access to the nation’s innovation ecosystem. I-Corps also deploys new mechanisms for efficient and expedited evaluation and selection of fresh ideas for further development.

**Leverage:** Through strategic partnerships with academia, foundations and the private sector, I-Corps leverages NSF investments in fundamental research by accelerating the translation of research results into useful innovations for societal benefit. Recognizing that “innovation is a contact sport,” I-Corps uses NSF’s stature and convening power to engage private, nonprofit foundations, industry, the venture capital community and small businesses with NSF grantees.

**Leadership:** I-Corps builds an innovative bridge that links researchers with entrepreneurs, business leaders and venture capitalists who can provide critical support by sharing their expertise (or experiences). These networks create a stronger national innovation ecosystem, and help speed research with high potential for transforming scientific discoveries into useful technologies and economic value through strategic public-private partnerships.

### OneNSF: Supporting the Mission

For over 60 years, NSF has remained steadfast in pursuit of its mission: to promote the progress of science and engineering research and education for the advancement of the nation’s well being. OneNSF will revitalize and strengthen the foundation’s mission to:

Support fundamental research and education in all science and engineering disciplines.

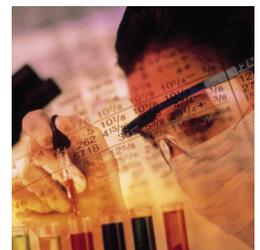
Address complex interdisciplinary challenges of national and global significance.

Spark greater innovation and opportunities for discovery in the science and engineering community.

Create new national and international partnerships, networks and infrastructure to address complex research problems and grand challenges.

Catalyze research and innovation in education at all levels to engage the nation’s full and diverse spectrum of talent.

Improve organizational efficiency to meet the challenges of a dynamic research landscape.



## Science Across Virtual Institutes

The NSF Science Across Virtual Institutes (SAVI) is a new approach to international collaboration that offers broader opportunities for U.S. researchers and students to engage colleagues from abroad in mutual discovery and learning.



**Responsiveness:** SAVI is a response to the accelerating pace and scope of international collaboration in science, technology, and education. SAVI allows U.S. researchers and students to join their expertise with the complementary strengths and resources of partners abroad to collaborate on problems of shared interest. Greater international engagement is essential to develop America's "collaborative advantage" as a preferred partner in international research activities and to provide students with the international experience needed to be future leaders.



**Leverage:** Through the integration of ideas, resources and infrastructure from both the U.S. and abroad, SAVI creates synergies that accelerate solutions. SAVI also lowers the entry cost for universities and NSF-funded researchers to engage more fully in international collaboration by creating broader opportunities for international exposure among faculty, postdoctoral fellows and students.

**Leadership:** The SAVI framework permits more effective international collaboration and learning based on shared interests and needs. As virtual organizations, SAVIs support flexible communities of interest with permeable boundaries that can evolve as groups expand and research interests shift to meet new challenges and opportunities; they can easily accommodate additional international partners. SAVI also establishes novel policies within NSF for support and co-sponsorship across units, and between NSF grantees and their global collaborators.

## Career-Life Balance Initiative

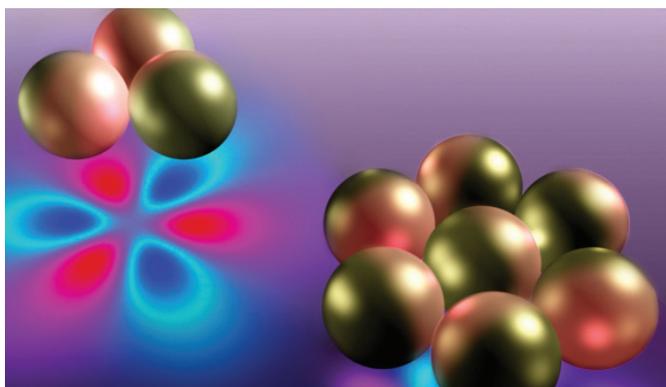
The NSF Career-Life Balance Initiative establishes a set of policies and practices to provide promising young scientists greater flexibility in timing career and family choices. The goal is to significantly enhance the development of the science and engineering talent that is essential to our nation's ability to retain leadership in science and engineering in the 21st century.



**Responsiveness:** Far too many of the nation's young scientists and engineers—particularly women—lose momentum in promising careers when they choose to devote more time to establishing or caring for their families. Many never reach their full career potential to contribute to society and the economy. The Career-Life Balance Initiative creates new pathways that mitigate the deleterious effects of career-family conflicts.

**Leverage:** Retaining highly trained talent in the science and engineering workforce is critical for the nation's economic growth. The country will benefit substantially from the full range and diversity of its talent by increasing the ratio of women in tenured faculty positions to a level that reflects their prevalence in the general scientific community.

**Leadership:** The Career-Life Balance Initiative pioneers innovative policies to give grant recipients—both women and men—more control over family and career timing. These policies, adopted in partnership with other federal agencies, universities and research institutions, help NSF address a critical national issue.



## Science, Engineering and Education for Sustainability (SEES)

SEES is a broad-based NSF platform to tackle the interdisciplinary research and education challenges at the intersection of the environment, energy and society. The simultaneous consideration of social, economic and environmental systems, as well as the long-term viability of those systems, is fundamental to the development of sustainable environmental, economic and societal practices.



**Responsiveness:** Recent international crises in food, water, weather and natural resources clearly show the need for a deeper understanding of the interplay among ecosystems, economic forces and energy production and use. New knowledge about these delicately balanced and interconnected systems can inform decision making by suggesting a wider range of options for the sustainable management of environmental, economic and societal interactions. There is also a need to develop a savvy workforce that is scientifically and technically knowledgeable about sustainability issues.

**Leverage:** Resolving major research challenges faster and more efficiently can bolster U.S. competitiveness. SEES brings complementary and interdisciplinary programs in energy, environment and society under one umbrella to increase research productivity, accelerate discovery and stimulate innovation. This strategy leverages current investments into substantial long-term returns to the economy and society for the U.S. and globally. SEES draws on the resources of other federal agencies, as well as international partners, to achieve economies of scale in fast-tracking sustainability science.

**Leadership:** SEES brings a dynamic, systems-based approach to understanding, predicting and reacting to change in the linked natural, social and built environment. This strategy capitalizes on recent interdisciplinary insight into the links among physical, biological, social and engineered systems. NSF has established new internal practices to coordinate and engage over 100 program officers in this activity. NSF will create innovative sustainability networks to establish broad communities of practice and engage students in discovery and learning.

## NSF IdeaShare

IdeaShare is an interactive, electronic forum to harness the foundation's innovative and collaborative spirit for sharing ideas and initiating conversations on important issues at all levels of the agency.



**Responsiveness:** Good ideas are often lost because there is no mechanism for sharing them with others at NSF. The opportunity costs of such losses are high.

**Leverage:** Ideas identified through IdeaShare can be ramped up to benefit everyone individually and NSF collectively. Improvements in business practices and processes can be suggested and refined through open dialogue, with substantial impact on NSF's productivity and effectiveness.

**Leadership:** IdeaShare is one step in building a broader NSF culture characterized by communication and collaboration. Open dialogue that empowers individuals to think creatively, share knowledge and solve problems together has a cumulative impact on NSF capabilities to be innovative and creative.

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