
**OVERVIEW OF THE PFI PROGRAM AND THE
WORKSHOP**

The Partnerships for Innovation program was created in FY 2000 as a result of a Congressional appropriation of \$8.5 million to initiate a new innovation partnership effort.¹ On March 10, 2000, a PFI planning workshop was held to develop a shared understanding of the concepts of “innovation” and “partnerships for innovation” including specific examples; to provide guidance for the PFI solicitation; and to identify future actions, such as the workshop held in June 2001, to advance the PFI initiative.² The findings from the planning workshop, in addition to input from NSF staff, led to the creation of the PFI program solicitation shortly thereafter.

THE PROGRAM SOLICITATION

The program solicitation called for proposals for partnerships among universities, government, and the private sector that would explore new approaches to support and sustain innovation in the long term. Degree-granting academic institutions of higher learning were to serve as lead institutions or partners, in that they were responsible for the overall management of the proposed partnership. At a minimum, the partnership was to include an academic institution and a private sector organization. In addition, other academic institutions, private sector firms (including entrepreneurs and venture capital-

¹See NSF Section of Public Law 106-74, VA/HUD and Other Independent Agencies Act for FY 2000 at <http://www.nsf.gov/od/lpa/congress/106/106majorleg.htm>.

²From Bordogna (2000).

ists), state/local government entities, and nonprofit/trade/professional associations could be involved.

Eligibility limitations were such that degree-granting academic institutions of higher learning could participate in no more than two partnership proposals and could serve as the lead for only one. A senior institutional administrator (dean or higher) in the lead institution was to serve as the co- or principal investigator of the proposal. The proposed partnerships were to request total budgets ranging from \$300,000 to \$600,000 for the award's duration of two to three years.

THE REVIEW PROCESS

A total of 130 proposals were submitted for consideration in the first year (2000). The NSF solicited reviews of these proposals from peers with expertise in the substantive area of the proposed project, with the reviewers selected by program officers charged with the oversight of the review process. The NSF invited each applicant to suggest, at the time of submission, the names of appropriate or inappropriate reviewers. Care was taken to ensure that reviewers had no conflicts with the proposer. Special efforts were made to recruit reviewers from nonacademic institutions, minority-serving institutions, or adjacent disciplines to that principally addressed in the proposal.

Proposals were reviewed against the following general review criteria established by the National Science Board:

- What is the intellectual merit of the proposed activity? How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? To what extent does the proposed activity suggest and explore creative and original concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?
- What are the broader effects of the proposed activity? How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented

groups (e.g., women, minorities, the disabled, or those in particular geographic areas)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What will the benefits of the proposed activity to society be?

Principal investigators also were asked to address the following elements in their proposal to provide reviewers with the information necessary to respond fully to both of the above-described NSF merit review criteria:

- *Integration of Research and Education.* One principal strategy in support of the NSF's goals is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the diversity of learning perspectives.
- *Integrating Diversity into NSF Programs, Projects, and Activities.* Broadening opportunities and enabling the participation of all citizens—including women, underrepresented minorities, and persons with disabilities—are essential to the health and vitality of science and engineering. The NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

The following additional PFI-specific review criteria also were used:

- Responsiveness of the proposal to the goals of the PFI program;
- The degree to which the proposed activity will stimulate new innovation opportunities for the partner organizations;
- The potential effect of the proposed innovation activities on the economic or societal well-being of the region,
- Potential of the proposed partnership to foster and sustain innovation in the long term;

- The degree to which institutions that serve groups currently underrepresented in the science, engineering, and technological workforce participate in the proposed innovation activity; and
- The degree to which institutions that serve regions or sectors not yet fully participating in the innovation enterprise contribute to the proposed activities.

In addition to these criteria, in making the final award decisions the NSF also considered geographic distribution and diversity of lead institutions, the likely distribution of societal effects, and the distribution of technology or industry sectors served.

All proposals were reviewed by at least three reviewers outside the NSF who were experts in the particular field represented by the proposal. Reviewers were asked to formulate a recommendation to either support or decline each proposal. The program officer assigned to manage the proposal's review considered the advice of reviewers and formulated a recommendation.

THE PARTNERSHIPS

Of the 130 proposals submitted in the first year, the PFI program awarded grants to 24 promising partnerships that aimed to translate knowledge gained from basic research into new products, businesses, and services; to provide workforce education and training opportunities focused on innovation; and to develop infrastructure that would support future innovation.³

To provide a better sense of the composition of these partnerships, Table 2.1 shows that all 24 university awardees partnered with industry, although some also partnered with others from universities, or from government, from the venture capital community, or from incubators. And Table 2.2 reports that with 20 partnerships citing it as a major goal, technology transfer was by far the most frequently identified major goal in these partnerships, followed by education

³National Science Foundation (2000). Descriptions of these partnerships can be found in Appendix B. In its second year (2001), 109 proposals were submitted; the NSF recommended funding for 12 partnerships.

Table 2.1**Partners of the 24 University Awardees**

Institution	Number
Private sector	24
University	19
Government	16
Venture Capital	5
Incubators	4

Table 2.2**Goals for the 24 Partnerships**

Goals	Major	Secondary
Technology transfer	20	2
Education	8	3
Infrastructure	3	9

and development of infrastructure; infrastructure development was the most often mentioned secondary goal, followed by education and technology transfer.

THE WORKSHOP

The PFI workshop included a mix of formal presentations, panel discussions, breakout sessions to address specific topical areas, and plenary sessions where the fruits of these discussions could be shared and further discussed.⁴ Discussants included both members of the PFI's steering group and PFI grantees, as well as individuals, primarily from universities, who are interested in the topic of innovation.⁵

In the next two chapters, we report the viewpoints, discussions, and conclusions expressed by workshop participants regarding innovation (Chapter Three) and sustainable partnerships (Chapter Four). What follows are not, in the typical sense of the term, the proceed-

⁴See Appendix D for the workshop's agenda and Appendix E for the questions that were put to each breakout session.

⁵Appendix C provides a complete list of workshop attendees.

ings from the workshop; rather, we generally have sought to organize the viewpoints of workshop participants according to broad themes; in some cases, modest efforts also were made to add some context.