Science and Technology Centers: Integrative Partnerships Program

A Presentation to Site Visit Team

Office of Integrative Activities, National Science Foundation
http://www.nsf.gov/od/oia/

The NSF Mission

- To promote the progress of science;
- To advance the national health, prosperity and welfare;
- To secure the national defense;
- And other purposes.

Science and Technology Centers: Integrative Partnerships Program

Vision

The Science and Technology Centers (STC): Integrative Partnerships Program supports innovation in the integrative conduct of research, education, and knowledge transfer through partnerships.

Science and Technology Centers: Integrative Partnerships Program

- Support research and education of the highest quality;
- Exploit opportunities in science, engineering and technology where the complexity of the research agenda requires the advantages of scope, scale, change, duration, equipment and facilities, that a Center can provide;
- Support innovative frontier investigations at the interfaces of disciplines, and/or fresh approaches within disciplines;
- Engage the Nation's intellectual talent, robustly drawn from its full human diversity, in the conduct of research and education activities;

Science and Technology Centers: Integrative Partnerships Program Cont'd

- Promote organizational connections and linkages within and between campuses, schools and/or the world beyond (state, local, federal agencies, national laboratories, industry, international collaborations);
- Focus on integrative learning and discovery and the preparation of U.S. students for a broad set of career paths; and
- Foster science and engineering in service to society especially with respect to new research areas, promising new instrumentation and potential new technologies.

Science and Technology Centers: Integrative Partnerships Program Cont'd

STC History in Brief

- 1987
  - The STC Program was established at NSF.
- 1996
  - Program evaluation result: a name change to include "Integrative Partnerships"(enhancement of diversity and involvement of multiple partners).
  - Engineering was added;
  - Education was put on equal footing with research; and
  - The award period was reduced from eleven to ten.

Science and Technology Centers: Integrative Partnerships Program Cont'd

STC History in Brief

- NSB approved STC Program for competitions every 2-3 years if budget permits
- This competition – Maximum of $19 million per lead institution for five years

Science and Technology Centers: Integrative Partnerships Program Cont'd

STC History in Brief

- From the competition of 2003 – 4 new Science and Technology Centers expected in 2006
- Currently operating with NSF funding - 13 Science and Technology Centers
  - ✓ Competition of 2003 – 2 Centers in 2005
  - ✓ Competition of 2000 - 6 Centers in 2002
  - ✓ Competition of 1998 - 5 Centers in 2000

Science and Technology Centers: Integrative Partnerships Program Cont'd

The FY 2003 Competition

- 164 Preproposals received
- 159 Preproposals - Panel review held (September 2003)
- Announced Invited List and Informed Declines (October 2003)
- Invited 38 preproposals to full proposal round for *ad hoc* and panel review (March - May 2004)
- Held full proposal panel review and selected 12 lead institutions to be site visited
- Held site visits in September - October 2004 timeframe

Science and Technology Centers: Integrative Partnerships Program Cont'd

The FY 2003 Competition Continued

- NSF *Ad Hoc* STC Advisory Committee meeting held (December 2004)
- NSF Senior Management Team recommended Awards (December 2004-January 2005)
- Director's Review Board review held (February 2005)
- Recommended Awards Announced (March 2005)
- Two Awards made with effective dates of June 1, 2005
- First Site Visit for each STC funded in FY 2005 (March – April 2006)
- Four proposed Science and Technology Centers - currently under consideration

The NSF Merit Review Criteria

Criterion 1: 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 fields?
- To what extent does the proposal suggest and explore creative and original concepts?
- What will be the significant contribution of the project to the research and knowledge base of the field?
- How well conceived and organized is the proposed activity?
- Is there sufficient access to resources (equipment, facilities, etc.)?
- How well qualified is the team (the Principal Investigator, co-PIs, sub-contracts, etc.) to conduct the proposed activity?

The NSF Merit Review Criteria

Criterion 2: What are the broader impacts 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., gender, ethnicity, disability, geographic, etc.)?
- 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 may be the benefits of the proposed activity to society?

Evaluation Criteria

- What is the intellectual merit of the proposal activity?
- What are the broader impacts of the proposed activities?
- Integrating Research and Education.
- Integrating Diversity into NSF Programs, Projects, and Activities.
- Value-added of funding the activity as a Center.
- Proposed Leadership and Management Plan.
- Integrative nature of the Proposed Center.

Broadening Participation

- **To broaden the reach and effectiveness of our programs**
- **The NSF Strategic Plan**
  - Provide the S&E workforce for the 21st century
  - Individuals
  - Institutions
  - Collaborations
- **Catalyze the production of the S&E workforce for the 21st century**
  - That includes Americans
  - That is globally competitive
  - That is racially and ethnically diverse
  - That builds on and enhances the current and developing institutions

Complexity of the Project

- Why are we involved in this project?
- Why do we care about the issue(s)?
- What is the research community's expectation of NSF relative to this project?
- What does NSF expect of itself?
- What are the Congressional expectations?

National Science Board Report (2003) "Realizing America's Potential"

- Global competition for S&E talent is intensifying;
- The number of native-born S&E graduates entering the workforce is likely to decline unless the nation intervenes.
- Recommendations:
  - *Support to students and institutions in order to improve success in S&E study by American undergraduates;*
  - *Attract and retain well-prepared pre-college teachers of science, math, technology;*
  - *Retain international competitiveness with regard to research talent.*

Why does NSF Focus on Partnerships?

- Small Agency with a big mission,
- Use funds as a catalyst,
- Involve more individuals and institutions,
- Research and education is performed by our business partners: colleges; universities; non-profits,
- Integrate the activities of initial discovery through applications, and
- STC: Integrative Partnerships, exemplar.

Year One Site Visit Primary Focus

- Management
  - All Aspects of the STC Project
    - ✓ Good Management Principles
      - Research
      - Education
      - Knowledge Transfer
    - ✓ Communication Considerations
    - ✓ Strategic Planning
    - ✓ Accountability Issues
    - ✓ Board of Directors (External Advisory Body)
    - ✓ Research and Student Products

NSF & STCs

- Three Overarching Goals
  - world class science
  - promote discovery in service to society
  - excellence in science math and engineering education
- Four Core Strategies
  - strengthening physical infrastructure
  - integrating research and education
  - promote partnerships
  - developing intellectual capital
- Equal value for research and education.

Major NSF Expectation of STCs

NSF wants the STCs to be successful.