NSF CENTERS: PLATFORMS FOR INNOVATION

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OIA URL: http://nsf.gov/od/oia

Center Programs

- Large, long term research activities = Centers
- There are five large center programs at NSF
  - Engineering Research Centers
  - Material Research Centers
  - Science of Learning Centers
  - Nanotechnology Centers
  - Science and Technology Centers: Integrative Partnerships
- Their Current Funding Level - approximately US $ 300 million/year
- NSF budget – approximately US $ 7 billion/year

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Science and Technology Centers: Integrative Partnerships

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PROGRAM GUIDELINES

Solicitation 08-580

As announced on May 21st, proposers must prepare and submit proposals to the National Science Foundation (NSF) using the NSF FastLane system at http://www.fastlane.nsf.gov/. This approach is being taken to support efficient Grants.gov operations during this busy workload period and in response to OMB direction guidance issued March 9, 2009. NSF will continue to post information about available funding opportunities to Grants.gov FIND and will continue to collaborate with institutions who have invested in system-to-system submission functionality as their preferred proposal submission method. NSF remains committed to the long-standing goal of streamlined grants processing and plans to provide a web services interface for those institutions that want to use their existing grants management systems to directly submit proposals to NSF.

Issues Related to Centers Programs

- What is a center (vs. a large project) ?
- How much should NSF prescribe regarding centers operations?
- How best to oversee centers activities?
- What is appropriate duration for center support?
- What is appropriate funding level?

Senior Management Integration Group
June 21, 2005
Principles of National Science Foundation Research Centers

The "centers" mode of support has been validated as appropriate for basic research by the National Science Board, the National Academy of Sciences, the National Academy of Engineering, and the National Academy of Public Administration. Our vision for NSF Centers is based on the NSF Strategic Plan, and uses multiple core NSF Strategies in order to foster knowledge creation, knowledge integration, and knowledge transfer. All NSF Centers are merit-reviewed, with one of the review criteria being the added value of supporting frontier research using the center mode of support versus the individual investigator mode.

Critical elements of major NSF Centers have evolved over time and these Centers embrace the following principles:

- **Centers exploit opportunities in science, engineering and technology in which the complexity of the research problem(s) or the resources needed to solve the(se) problem(s) require the advantages of scope, scale, change, duration, equipment, facilities, and students that can only be provided by an academic research center.**

- **Centers focus on investigations at the frontiers of knowledge, at interfaces of disciplines and/or incorporate fresh approaches to the core of disciplines. They are bold and transformative with an ambitious vision.**

- **Centers demonstrate leadership in broadening participation through focused investments in a diverse set of partner institutions and individuals, drawing upon, and contributing to the development of, the Nation's full intellectual talent.**

- **Centers focus on integrative learning and discovery and the preparation of students for a diverse set of career paths by providing integrative learning environments at all levels, considering workforce development issues, and fostering the public understanding of science and engineering.**

- **Centers incorporate global thinking about the research and education enterprise; have organizational connections and linkages within and between campuses, schools and other sectors (i.e., public, private, international, national labs); and require a concerted management effort specified in a cooperative agreement that details both the institutions' commitment and the oversight commitment of NSF staff.**

- **Centers create a legacy in people, ideas, promising new instrumentation and innovative technologies that transcend the life of the NSF support.**

- **NSF's support for Centers is on the order of $2-5M annually, for a maximum of 10 years, with a built-in phase-out period.**

Centers… A Very Risky Business

- Risk in research outcomes
- Risk in educational goals
- Management Risk

Science and Technology Centers: Unique Features

- All areas of science supported by NSF
- Award duration up to 10 years
- Level of funding US $1.5-5 mil/year
- Required components: research, education and knowledge transfer
- Awards managed by a cooperative agreement
- Awards co-managed by STC program and appropriate discipline
- Required positions in a center: Director, managing director, education director
- Required: an independent external advisory board
- Yearly site visits, and more frequent videoconferencing

The program is evolving, and each class has somewhat different requirements (based on lessons learned)

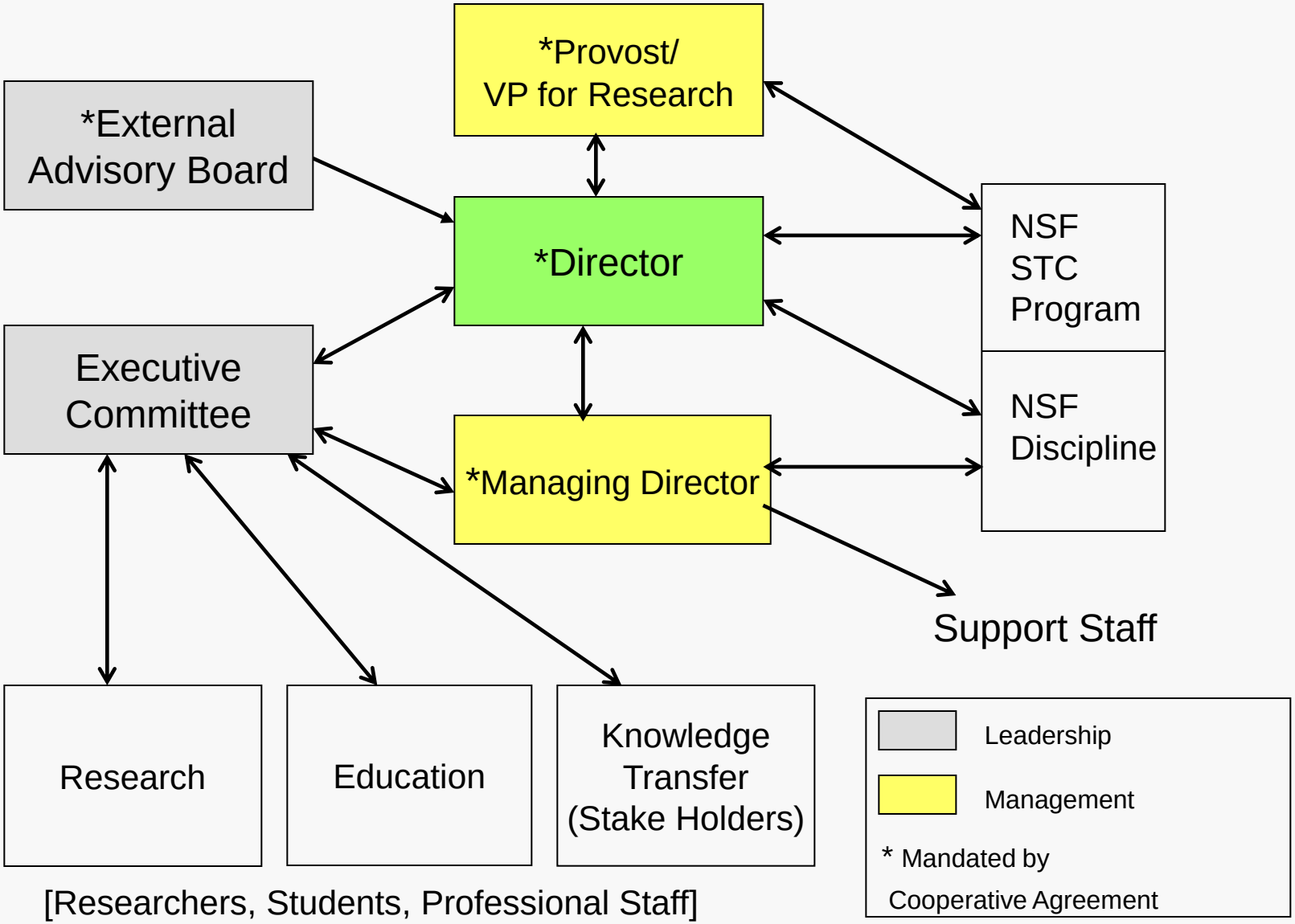
STCs: Typical Center Profile

- Multi-institutional, 5-10 major partners
- 15-70 Senior researchers
- 20-140 graduate students
- Overall budget US $ 5.2-12 mil/year
- 5 full/part time support staff

Centers: Management/Leadership Lessons Learned

- A Center is a small business
- A Center needs sound external advice
- It is best to institutionalize education and diversity issues
- Communications within the center, among partner institutions, with NSF and stakeholders are the key for success

Centers: The Business Concept

- Good management principles
- Communications considerations
- Strategic Planning
- Accountability Issues
- External Advisory Board

STC Leadership and Management Structure