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How to Write a Successful NSF Proposal: Tips for Grant Writing and Understanding the Review Process

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Panelists

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Today

- Planning proposals; proposal evaluation cycle
- Tips for writing strong proposals
- Addressing broader impacts
- Audience Q&A

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The “Idea”

- Best posed in flexible terms
- Incremental vs. transformative ideas
- Preliminary support for the idea

Intellectual Merit and Broader Impacts

- **Intellectual Merit**: The Intellectual Merit criterion encompasses the potential to advance knowledge; and

- **Broader Impacts**: The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

http://www.nsf.gov/pubs/policydocs/pappguide/nsf15001/gpg_3.jsp#IIIA2a

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Intellectual Merit of the Idea

- Potential to advance knowledge/understanding within its own field or across different fields?
- Suggest and explore creative, original, or potentially transformative concepts?
- Well-reasoned, sound research plan?
- Qualifications of the individual, team, or organization to conduct the proposed activities?
- Adequate resources to carry out the proposed activities?

Two Strategies for Finding an NSF Home for the Idea

- Propose an idea that directly falls within the scope of a program
- Collaborate on an idea that falls within the scope of a program
  - Many directorates
  - More funding opportunities

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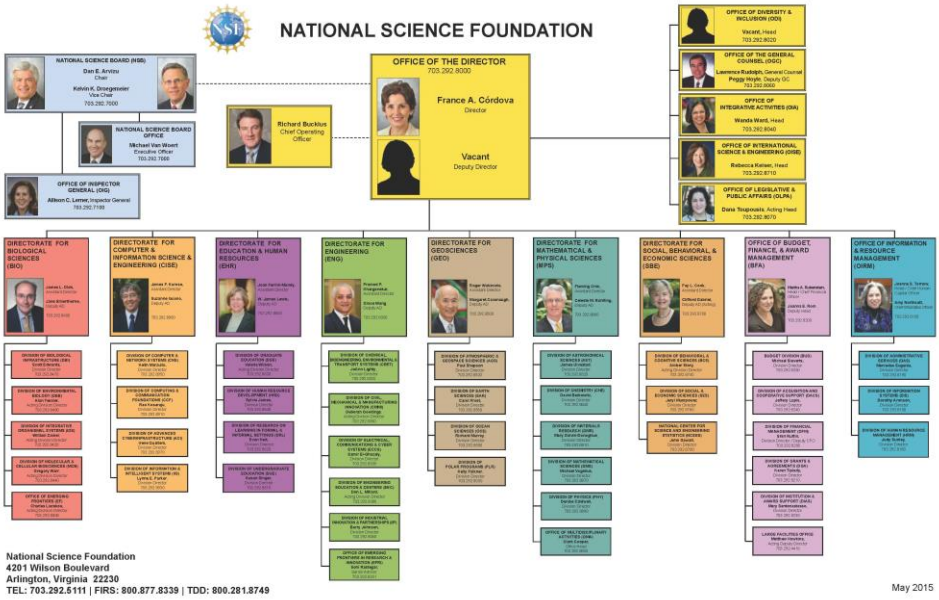

Examples

- Direct Approach
  - HCC: Small: Understanding and Supporting Communication Across Language Boundaries (IS)
- Collaborative Approach
  - HCC: Large: Social-Computational Support of Civic Engagement in Public Policymaking (Law, CS, IS, Communication)

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Finding an NSF Home for the Idea

- Read program websites and CFPs
- Talk to the program officers
  - Program officers are available for discussion by email, phone and in person (underused resource)
    - Early fall is often the best time to get them
    - Best strategy is to email a one-page summary and ask PO to comment on fit to the program
  - PIs can arrange individual or group visits to NSF to talk to the program officers
- Serving on a panel is the best way to learn about a program's review process

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Panel Outcomes

- Processes differ a bit across units, but always include intellectual merit and broader impacts
- CISE is using a four-category system:
  - Highly competitive
  - Competitive
  - Low competitive
  - Not Recommended for Funding by Panel (NRFP)
- Often there are limits to how many can be in the HC and C categories (20-30%)

Funding Decisions

- Panel outcomes are advisory only; program officers make final recommendations
- Available funding is generally much less than the amount needed to fund all high scoring proposals
  - Decisions are made based on consideration of the entire portfolio (topics, approaches, institutions, etc.)
- LC and C proposals are good candidates for revision and resubmission
  - PIs may want to talk to the PO before resubmitting

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Writing the Proposal

- Determine audience
- “Sell” the idea
  - Importance for society
  - Preliminary evidence that it will succeed
- “Sell” the plan of work
  - Clearly organized
  - Enough detail to show that you know what you’re doing
- “Sell” the research team
  - Expertise in topic area
  - Coordination plan, if multiple PIs

Common Problems: Proposal Content

- Failure to make the case that the work is really important – for the field and for society
- Failure to do a comprehensive review of the literature
- Too little, or too much, proposed work for the time period in question
- No preliminary work showing feasibility
- Writing for the wrong audience
- Lack of innovation

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Common Problems: Proposal Structure

- Wrong balance between background motivation and plan of work
- No timeline for the research activities
- No integration across activities
- No coordination plan (if multiple PIs are involved)
- Insufficient attention to broader impacts, or no details on how these impacts would be achieved
- Insufficient attention to educational impact

Broader Impacts

- Would this be good for society?
  - 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
    - 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?