

NSF Proposal Writing: A 40 Year Perspective

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**National Science
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How to develop a proposal

Develop your bright idea

- Frame your idea as a question or puzzle
- Take stock of how other scholars have addressed (or neglected) your question
- Prepare a brief concept paper
- Discuss with mentors & colleagues
- Revise in light of feedback

How to develop a proposal

Take steps toward the project

- How will you tackle your question?
 - Refine your argument
 - Refine plans for evaluating argument
- What resources will you need?
- How can you make preliminary inferences about answers to your question (e.g., via a pilot study)?

How to develop a proposal

More steps toward the project

- Discuss with mentors & colleagues
- Contact PIs working on relevant projects
- Consult mentors, colleagues, SROs to identify potential funding sources
- Revise in light feedback
- Present to mentors, colleagues, students
- Revise again (& again)

What makes proposal review well: NSF Political Science

- Clear questions
- Argument speaking to scholarly debates
- Clear hypotheses
- Sound design for measuring concepts, gathering evidence/data
- Outline for analytic strategy & data analysis
- Pilots

How to turn work on the proposal into progress in the research itself

- Incorporate feedback at every step
 - Even when setbacks occurs
- Exploit lessons from preliminary findings
- Be willing to adapt and change ideas
- Obviously: use reading and writing for proposal as input into project itself

Targeting different funding sources

- Cast a wide net
- Use your SRO and funding search engines to identify funding entities
- Keep in mind diverse:
 - Rules
 - Sets of reviewers

What makes proposal review well at NSF:

Two review criteria

Intellectual Merit

- Importance
- Creativity & originality
- Transformative?
- Conception & organization
- Qualifications
- Access to resources

Broader Impacts

- Training
- Diversity
- Infrastructure
- Dissemination
- Societal benefits

Tips for preparing proposals that review well

- Discuss ideas with colleagues and mentors
- Contact PIs working on relevant projects
- Develop preliminary data
- Consult- & exploit- your institution's SRO
- Work with your SRO on budget
- Consult such NSF source as Grant Proposal Guide:

http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg11001

New implementation of long-standing policy

NSF policy:

“Investigators are expected to share with other researchers, at no more than incremental cost and within a reasonable time, the primary data, samples, physical collections and other supporting materials created or gathered in the course of work under NSF grants, Grantees are expected to encourage and facilitate such sharing.”

(p VI-8, Award & Administration guide, NSF 10-1)

New implementation: Data management Plans

- New implementation:
 - First step more comprehensive approach to data
 - Designed to address trends and needs in era of data-driven science
- NSF wants to avoid a one-size-fits-all approach to address the issue of data sharing
- As of Jan 2011, NSF is requiring that all proposals include a **data management plan** in the form of a Supplementary Document (maximum of 2 pages)

Data Management Plans (cont'd)

The DMP:

- Needs to address two topics:
 1. The data to be generated by the research
 2. The plan for managing the data
- May include only the statement that no detailed plan is needed, as long as the statement is accompanied by a clear justification

FAQs:

<http://www.nsf.gov/bfa/dias/policy/dmpfaqs.jsp>

Also: <http://www.nsf.gov/dir/index.jsp?org=SBE>

Data Management Plans (cont'd)

1. What are **data** for purposes of DMP?
 - May include, but not limited to: data, publications, samples, physical collections, codebooks, software and models
 - Will be determined by the community of interest through peer review and program management
2. What does **managing** & sharing data imply?
 - Immediate access?

“not necessarily. The expectation is that all data will be made available after a reasonable length of time, ... [as] determined by the community of interest through the process of peer review and program management.”

Data Management Plans (cont'd)

2. What does **managing** & sharing data imply?

- Access right after analysis completed?

“No... One standard of timeliness is to make the data or samples accessible immediately after publication. However, what constitutes a reasonable length of time will be determined by the community of interest through the process of peer review and program management.”

- Particular requirements for archiving?

“No. If appropriate, your DMP should describe... repositories for archiving and providing access to others. What constitutes reasonable archiving and accessibility will be determined by the community of interest through... peer review and program management.”

Data Management Plans (cont'd)

2. What does **managing** & sharing data imply?
 - Costs of implementing DMP in budget & its justification?

“Yes. As long as the costs are allowable in accordance with the applicable cost principles, and necessary to implement the DMP, such costs may be included...in the proposal budget, and justified in the budget justification.”
 - Human subjects?

Such “data must be maintained & released in accordance with appropriate standards for protecting privacy right & maintaining the confidentiality of respondents.”

Proposal Process & Timeline

