Clarity Is Key!

I think you should be more explicit here in step two

Tips on Proposal Preparation

A Good Proposal

A good proposal is a creative, generally important idea, well motivated in theory, clearly expressed and justified with background data, and with appropriate methods for pursuing the idea, evaluating the findings, and making them known to all.

http://sev.lternet.edu/~bmilne/tencommands.htm

Bruce Milne’s 10 commands to proposal writing

Appropriate for the Program

Responsive to the Program Announcement

Valued Aspects

• Integrative:
  – Approaches (pluralistic, interdisciplinary)
  – Scales
  – Conceptual frameworks
• Risky – but feasible
• Potentially transformative to field
• Significant Broader impacts
• Quantitative
• Theoretically-driven

What Makes a Proposal Competitive?

• Compelling - clearly spells out the novel and exciting elements and general scientific importance
• Well-written and organized
• Knowledge of subject area, relevant literature
• Experience in essential methodology
• Succinct, focused project plan with sufficient detail
• Logical experimental design
• Sound scientific rationale and theoretical context
• Realistic amount of work
• Critical approach (considers alternatives)
• Likelihood of high impact
Typical Guidance Given to Panelists for Intellectual
Merit

➢ Is the motivation for this work conceptually well
grounded?
➢ Are the ideas bold and innovative?
➢ Are there compelling questions/hypotheses identified?
➢ Are the approaches and experimental design feasible
and logically linked to the central ideas?
➢ Are the PIs well-qualified to be able to conduct the
research?

Proposal merit review – 2 axes of risk

Risk - Boldness

Incremental – Innovate – Competing Innovate

Invite

Not Invite

Risk - Feasibility

Proposal Planning Tips

- Space Allocation – plan for a balance
  - Introduction and synopsis (within first page)
  - Background (scholarship) and conceptual framework
  - Frame question(s) clearly and broadly
  - Work plan
    - Overall approach philosophy
    - Details of methodology and feasibility
  - Integration of results and analysis to address questions
  - Broader impacts
  - Timeline for work
  - Prospectus
  - Special sections

National Science Board conducted a year long study, including a survey of investigators and NSF staff, of Intellectual Merit and Broader Impact review criteria

Final Report - Dec. 2011

Five Review Elements

The following elements should be considered in the review for both criteria:

1. What is the potential for the proposed activity to:
   a. advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
   b. benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or institution to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home institution or through collaborations) to carry out the proposed activities?

Broader Impacts

- Will this work attract others in your discipline – might it change their research directions?
- Are there interdisciplinary implications?
- What are the educational impacts: on your career, on students, in formal courses?
- Will this project broaden participation of groups underrepresented in science?
- What collaborations (individuals) and partnerships (institutions), will be enhanced or created?
- Will this project improve the infrastructure of science?
- Does this project contribute to informal science education?
- Might the results have societal impact?
- Do you plan to leverage existing programs to broaden impacts?
Additional Program Considerations

- PI Career Point (tenured/"established"/"beginning")
- Scientific diversity in Program portfolio
- Other support for PI
- Impact on institution/state
- Special programmatic considerations (CAREER, RUI, EPSCoR)
- Diversity (including underrepresented groups)
- Educational impact
- Availability of infrastructure/community facilities

Don’t forget the little things

- Formatting requirements & readability
  - (density of text, white space, references, figures)
- Compliance check before submitting
  - (FastLane won’t do it for you!)
- Be available by email to fix compliance problems (proposals may be returned if NSF can’t contact you)
- Suggest reviewers (but avoid conflicts of interest)
- Include all conflicts of interest in your CV
- Respond explicitly to previous reviews
- (Panels may be asked to comment on this)
- Avoid verbiage, sloppiness & poor scholarship (numbered references can be annoying)
- Remember special need documents (e.g., ship time, animal use, permits, commitment letters, etc.)
- When in doubt on something – email or call your Program Director

Other Advice

- Contact the program officer with specific questions (but we can’t design your project)
- Collaboration is good, if appropriate
- Give yourself plenty of time
- Have a near final draft reviewed by two NSF funded PIs: An expert in your discipline & someone distant from your discipline (generalist).
- Discover alternative funding sources

If Declined

- Learn to accept rejection as part of life
- Study reviews carefully – be open minded
- Compare reviews and panel summary
- Talk to your Program Officer
- Revise – resubmit if reasonable
- Explicitly address prior panel criticisms in a constructive way
- Persist (but take review and program advice seriously)