

Perspectives on Writing Scientific Proposals

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Code 614.1



A Quote from a Senior Scientist

“When I was a young scientist, I was convinced that the proposal review process was arbitrary and unfair”

“Now that I am older, I am convinced that it’s just arbitrary”

We need to take steps to stack the odds in our favor

Critical Elements

- A great scientific idea
 - A testable hypothesis or demonstrable outcome
- Results of high value
- Very clear links to NASA goals and objectives
- Very strong links to Solicitation
- A clear path to achieving objectives
- Well articulated
- Easy to read

Do not assume ideas speak for themselves

3 Critical Questions

- Why NASA?
- Why Now?
- Why You?

Well Structured and Articulate

- Abstract
 - Clear, concise, and complete overview
 - Everybody's First impression
 - Some people's only impression
- Introduction
 - Value and context
- Objectives
 - Clear, concise and targeted
 - By now the value of should be obvious
- Approach
 - Clear, focused and targeted at achieving objectives
- Expected Results
 - Summary of what the program/community will have at the end of the project
 - Bullet points are valuable

Well Structured and Articulate

- Summary
 - Re-enforce the value
- Management Plan
 - Leave no question that you can do what is proposed within the time and budget
- References
 - Be complete (authors may be on your panel)
- Budget
 - Be confident that the work is worth the cost
- Biographical Sketches
 - Highlight what is relevant to work proposed

Review Process Considerations

- Program manager will look at dozens of proposals
- Panel may review a hundred proposals
- Each Panel member may review 15 proposals
 - Make it easy on them
- Panel members are your peers
 - competent
 - open-minded (usually)
- Panel discussion is usually constructive and focused
 - Think how your proposal will be discussed, and provide strong input for the advocates
- Panel dynamics tend to escalate negatives

Recommendations

- Provide clarity and structure
 - Write for the **5-minute read**
 - That is all some people will do
 - Easy refresh
 - Write for the 30-minute read
 - Middle level scrutiny
 - People looking for certain things
 - Write for the 2-hour read
 - Proposal should stand up to rigorous review
- Do your homework
 - Know the current status of the research and use complete references (consider panelists)
 - Know what your colleagues are doing along similar/complementary lines
 - Articulate how your work fits in to broader framework and other efforts (especially within GSFC)

Recommendations

- Know your proposal's weaknesses and meet them head-on
 - Better to have thought about and have plan to address than to ignore
- Don't rely on your reputation
- Develop relationships
- Use bullets where possible
- Follow the guidelines
 - Words, fonts margins, page limits, etc.
 - Clear and easy to understand figures
 - Edit carefully for grammar, typos, etc.
- Have a colleague read your proposal critically
- Volunteer to serve on a review panel

At the end of the day you need to convince the panel that:

- The research is very important
- It is directly relevant to NASA's mission
- It is directly relevant the solicitation
- You will deliver valuable results
- It is well worth the investment
- It is better than nearly all of the other proposals under consideration