Project Management for Scientists

Proposals

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Outline

- Competitive Funding

- Proposal Lifecycle

- Successful Proposals

- Proposal Checklist

Proposals

- Most scientific projects are funded through competitive grants

- Competition to maximize return on investment

- Call for proposals:

  - open for any topic (NWO, ERC)

  - tailored to perceived knowledge gap

- Writing successful proposals is an important qualification

Proposal = Marketing

- Proposal advertises scientific idea(s)

- Audience: reviewers, funding agencies

- Some proposals rejected because of non-conformance with RFP

- Some proposals rejected because of bad ideas

- Most proposals rejected because they contain good ideas but are poorly organized and written

Proposal = project

Proposal efforts:

1. Exploratory work: makes proposal believable

2. Writing: defines scope, schedule and budget

3. Submission: fulfilling all administrative requirements

Space Project Lifecycle

- Pre-Phase A: Conceptual Study

- Phase A: Preliminary Analysis

- Phase B: Definition

- Phase C/D: Design and Development

- Phase E: Operations Phase

Proposal Planning

- Plan like a project

- Budget: about 1% of money asked

- Schedule: plan backwards from deadline, don't forget reviews and authorization

- Scope: limited by Call for Proposals

Initiate Proposal

What is the problem?

- Input: science vision, idea, initial requirements; Request for Proposal (RFP)

  - Top-down ➔ vision, strategic goal, project

  - Bottom-up ➔ collection of smaller ideas/projects

- Activities:

  - Determine key players and their roles and responsibilities in the proposal phase

  - Establish proposal document system (e.g. Word)

- Output: proposal charter

Example Stakeholder Issue

Email from funding agency to project director:

"X and I have been strategizing a bit more on ways to increase the chances of getting the Y proposal funded. We have concluded that it will help a lot for the Z role to be as prominent as possible and to be highlighted in the Directorate/Division that funds A. If B can sensitize his C Directorate as to the importance of A for B's long term benefit, that will be important."

Plan Proposal

How are we going to get it done?

- Input: proposal charter
- Activities:
  - Review Call for Proposals
  - Clarify roles and responsibilities of writers
  - Proposal kick-off meeting
  - Detailed proposal writing plan (table of content, schedule, outside reviews, authorizations)
  - Learn from successful proposals to similar Calls
- Output: proposal writing plan

Example Proposal Outline

1. Description of general design concept (1-2 pages)
2. Systems Engineering (4-5 pages)
3. Site Testing (5-10 pages)
4. Technical Description
5. Technical and Trade Studies
6. Preliminary Design (1 page)
7. Critical Design (1 page)
8. Preparation of bid packages

Execute & Control Proposal

Are we on track?

- Input: Proposal Writing Plan
- Activities:
  - Manage scientific ideas, requirements
  - Communicate writing status
  - Manage writing, schedule including reviews, authorizations
  - Control proposal content changes
  - Manage team
- Output: Proposal

Close Proposal

- **How did we do? What did we learn?**
- Input: Proposal
- Activities:
  - Submit
  - Learn from reviewers' comments
  - Celebrate if successful
- Output: happy team ready to do next proposal

Successful Proposals

- Present clear, well-motivated vision and objectives

- Address important problems that need to be solved now

- Have mpact beyond the lifetime of the grant

- Realistic methodology, schedule, budget

- Investigators are highly qualified

- Well organized and written

- Fulfill all requirements

Management support

- Proposed work embedded in larger entities (e.g. programs)

- Larger entity provides people, equipment, buildings, policies, etc.

- Larger entity often has to sign off on proposal (authorization, resource commitment)

- Impossible to write proposals without some help from larger entity

Proposal Org. Checklist

- ❑ Idea matching funding priorities
- ❑ Complete Call for Proposals
- ❑ Right people on proposing team
- ❑ Right people on proposal writing team
- ❑ Past, successful proposals for same/similar call
- ❑ Table of Contents
- ❑ Writing assignments and deadlines
- ❑ Internal reviewers
- ❑ Financial planning support
- ❑ Internal approval(s)

Write for Audience

- Very busy panel members, reviewers
- Easy to read
- Compelling
- Visually appealing

BIG Idea

Big idea should be:

- Clear

- Inspiring

- Engaging

- Possible

- Forward-looking

- Unique

- Important

- Timely

Typical Proposal Sections

- Abstract
- State-of-the-art
- Problem statement
- Objectives
- Approach, Methodology
- Impact
- Risk management
- Work program, personnel, budget and schedule
- CVs
- References

Bad Writing

- Various methods and models will be used ...

- A solution, which contains 10% saline, is used…

- … to have a tendency to ...

- No research has dealt with this topic…

- This will be discussed later in the proposal ...

- Despite many previous attempts in the past, this hasn't been tried ever before.

Bad Writing

"Despite many previous attempts in the past, this hasn't been tried ever before."

1. negative
2. vague
3. redundant
4. lack of citation
5. pronoun reference
6. contraction
7. ending with a preposition