Writing Effective Project Summaries for Grant Proposals

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First, let’s define our terms—
a project summary is

a stand-alone document
in a formal multi-part proposal
that explains the goals, methods,
and expected outcomes of the project

A project summary is NOT a scientific article—

Emphasize meaning, not technical details, in the summary.

Image taken from Physical Review 43, 491 (1933).
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A project summary is NOT a scientific article—
think of it as a prospectus*

*why the funding agency should invest in your research

Different agencies call this document different
names (abstract, executive summary), and
they all have their own rules

A prospectus is a document provided by a business to potential shareholders that explains why it’s a good idea to invest money in the business.

Use all three elements of persuasive argument—logic, authority, and passion—in your project summary.

For more about the role of persuasion in science, see
http://people.physics.illinois.edu/Celia/Persuasion.pdf.
An effective project summary includes all the elements of the full proposal—the motivation, the methods, the expected results, the significance of the work, and the benefit to the funding agency.
Funding agencies are increasingly using panels to review proposals; not everybody on the panel may read your proposal in detail.
A truly astonishing number of proposals are returned without review every funding cycle because of “technicalities.” The science might be brilliant, but no reviewer ever even sees it because the proposer failed to comply with the most basic instructions on how to prepare and submit his or her proposal.

Different agencies have different rules for project summaries, and individual program announcements trump general rules.

Make sure you know what the rules are. And don’t just assume you know what they are, or that if you got away with doing it this way the last time you submitted a proposal, you can do it again without checking.

If you don’t know what the rules are, look them up. If you’re sure you know what the rules are, look them up anyway—you will learn humility.
The project summary must “stand alone”

No figures
No tables
No references
No complex equations
No unfamiliar acronyms
No jargon

The project summary may be separated from the rest of the proposal and read independently.
It may have to be submitted via a form interface that accommodates text only.
It is often character-, word-, or line-limited.

Eschew jargon. Write the project summary for a generalist. Emphasize the meaning, not the technical details.

Rule #1 of George Heilmeier’s catechism for proposers:
“What are you trying to do? Articulate your objectives using absolutely no jargon.”

For the rest of the catechism (superb advice for proposers):
http://en.wikipedia.org/wiki/George_H._Heilmeier or
http://people.physics.illinois.edu/Celia/Heilmeier.pdf
Quiz Question #1

How important is the project summary to the success of your proposal?

a) Not as important as the technical description
b) Not as important as the overall budget
c) Not as important as having a novel method
d) Not as important as having a well-qualified team
Answer: None of the above

An effective project summary is critical

You may be able to recover from a poorly conceived, badly written summary, but you’ll have a big hole to climb out of

If your summary is not compliant with agency rules, your proposal may not get reviewed at all
To whip up a perfect project summary...

Celia’s Project Summaries

...follow the recipe!
Celia’s Foolproof Project Summary

Ingredients:

What problem will you study and why is it important?
What methods will you use and why did you choose them?
What results do you expect and how will you analyze them?
How will funding your project benefit the agency?

Assemble ingredients in this order. Don’t add ingredients or omit any. Measure carefully.
Taste frequently and adjust seasonings.
Allow to rest before serving.

Control the length of the summary by the length of the answers to the four questions. Don’t omit any of the questions, and don’t add superfluous information.

Short summary?—one-sentence answers
Longer summary?—several-sentence answers

“Measure carefully” in two dimensions:
1. Be sure your summary complies with length limits, font sizes and types, and margins.
2. Make your summary as specific and quantitative as possible.

Don’t expect to whip up a good summary** at the last minute. Write it, put it aside for a day or two, and look at it again with fresh eyes.

**or anything else
Don’t write a partial summary

Describe the *entire* project:
goals and objectives
methods, data analysis, metrics
qualifications of the team
unique resources
benefit to the funder
significance to science and society

Omissions and ambiguities in the project summary
raise immediate questions in reviewers’ minds
about the whole project
Don’t assume all reviewers will be an expert in your narrow field—some will, but some won’t, and they may all have equal votes.

Advice from NIH:
“
This section should be informative to other persons working in the same or related fields and insofar as possible understandable to a scientifically or technically literate reader.”

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Get rid of irrelevancies; eliminate introductory fluff*

Project summaries are always constrained by word or page limits; make every word count

Don’t waste precious space on any idea that is not directly relevant to your project, no matter how “interesting” it might be

Delete, rephrase, clarify, quantify

*In fact, eliminate all fluff; reviewers appreciate conciseness

For more information on eliminating fluff in scientific writing, see http://people.physics.illinois.edu/Celia/Lectures/Fluff.pdf.
If your project is funded, the summary may be made public

Do not include any confidential or proprietary information

Don’t put anything in the project summary that you wouldn’t want the whole world to see on the agency’s website

The summary should represent your best, clearest, most thoughtful, most persuasive writing

For most proposals, you may include confidential or proprietary information in the technical narrative if it is essential to understand and evaluate the project being proposed. If you include confidential information, the cover page must be so marked, and the confidential text on each page must be set off from the rest of the narrative and identified as such. The government will then redact the confidential information before sending the proposal out for external review.

Note that only the project description may contain confidential or proprietary information—the project summary must not.
To recap...

Follow the rules—witlessly
Use the four-ingredient recipe
Aim for the three C’s: clear, concise, compelling
Write for a generalist—emphasize meaning
Leave out proprietary information
Plan for time to revise and polish—your summary must be perfect!

Sources of good advice and further reading/watching:

NIH Grant Review Process YouTube Videos
“NIH Peer Review Revealed” provides a fly-on-the-wall perspective of an NIH review panel meeting.
“NIH Tips for Applicants” offers practical advice for both novices and veterans.

NIH Center for Scientific Review “Answers for Applicants”
http://public.csr.nih.gov/FAQsRelated/Pages/ForApplicants/Answers-for-Applicants.aspx