

# Funding, Funding

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**Abstract:** We show herein how to develop fundable proposals to support your research. Although the proposal strategy we discuss is commonly used in successful proposals, most junior faculty (and many senior scholars) in political science and other social sciences seem to be unaware of it. We dispel myths about funding, and discuss how to find funders and target funding programs. We then outline how to write a proposal; and detail how to respond to reviews.

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## Introduction

We show herein how to develop fundable proposals to support your research. This process was made clear over a decade of writing proposals, assisting others to write them, teaching seminars on proposal development, and regularly participating in the review of proposals for the National Science Foundation, National Institutes of Health, and other funders. Although this proposal writing strategy is commonly used in successful proposals, most junior faculty (and many senior scholars) in political science and other social sciences seem to be unaware of it.

Social scientists harbor many myths regarding research funding. Of these, four are particularly common, persistent, and important: Grants are something for nothing. Grants are few and huge. Writing and submitting a grant proposal is mysterious and agonizing. And, to get a grant, you need to know someone in the funding organization and be affiliated with a prestigious institution.

In fact, grants are rational agreements among funding institutions, research institutions, and individual researchers that support the mission and goals of all parties. There are numerous funders of research, and

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many small or medium size awards, as well as a few huge grants. Obtaining a grant does not require making a personal connection with a funder – instead it requires that you understand the funders’ mission, the program goals, and the funders’ submission and review processes. Nor does obtaining an award require that you be affiliated with an prestigious institution – rather, it requires that your institution is in a category (such as non-profits) generally eligible for that type of award, and that the investigator demonstrate that they are capable of successfully carrying out the research described. Finally, writing and submission requires time, planning, and careful attention to detail, but need not be unpleasant.

A strong proposal communicates successfully to your reviewers that the project will solve a significant part of an important problem; that the approach is both sound and innovative; and that you are likely to be able to bring the project to a successful conclusion from the funder’s point of view. Obtaining funding for your research involves four fundamental steps: First, develop an original idea for a research project that *solves some part of an important problem*. (It is better, but not required, when your project involves a clever approach to solving the problem.) Second, identify a funder that is interested in funding research and target a program interested in solving that problem. Third, write a proposal *that states clearly for the reviewers* what the problem is, why the piece you will solve is important, what you intend to do, and how that approach makes sense (include the general scientific rationale, and your prospects for successfully completing the project). Finally, be persistent, systematic, and meticulous in writing, in collaborating, in following submission procedures, and in responding to review. What follows is a succinct summary of how to prepare, target, write, submit, and revise an effective proposal.

## **Preparation**

### **General Preparation**

General preparation should precede the planning of a specific proposal. First, consider your research program as a whole: What are the goals of your research program – what broad problems does it aim to solve? What are its internal strengths and weaknesses? Are there external conditions or events that create opportunities or threats for the project? Also, think about your research program from a future reviewer’s

point of view: What other active efforts exist to solve the same problem, and how does your approach compare to these? Have you collected preliminary data that demonstrate progress or suggest interesting puzzles? Is there other demonstrable evidence of your capability to advance your long-term goals?

A proposal with a rigorous approach and solid rationale can succeed at many funders without preliminary data. Nevertheless preliminary data can strengthen a proposal, and some funders, most notably NIH, make this a practical requirement. Social scientists have an advantage with respect to pilot studies and preliminary data. In our discipline it is often feasible to run a trial experiment with students, create a pilot survey using a convenience sample, or engage in “action research” by conducting empirical analysis during the course of teaching or practice. This preliminary data can then be used to suggest interesting puzzles, show something substantially differing from conventional wisdom, establish the feasibility of the approach, or demonstrate mastery of particular research methods.

Second, consider how funding can make the most difference in your program. Particularly, ask yourself: Where are resources necessary to the impact of an ongoing project? Where are resources necessary to enable a successful project to continue longer into the future? Where are they necessary to open up a new approach, radically alter the scope of a project, or test a new set of solutions? Where is funding necessary to exploit a timely opportunity? Conversely, might the opportunity expire before funding can arrive; or can the project proceed successfully without additional funding?

Third, take stock of your institutional position. Keep in mind that most awards are made to institutions under the direction of an investigator, rather than directly to the individual researcher. Thus, most funders have requirements for institutional eligibility. You should check with your sponsored research office, to confirm that your institution permits you to submit proposals as a “principal investigator”. Your sponsored research office can also provide information on institutional eligibility for funding, including general eligibility for federal funding, degree granting status, non-profit status, and eligibility for special (e.g. geographic and minority based) programs.

Consult with your department chair, dean, office of sponsored research, and human resources offices.

You should consider these questions:

- What incentives does your institution offer for obtaining research funds? Unlike the natural sciences, most social science departments do not require a history of grant funding for tenure. Nevertheless, fundraising can be useful for tenure and promotion. In addition, some institutions allow research funds to be used for summer salary, or to fund a reduction in teaching load.
- What internal resources are available to support research proposals? Is help available with proposal writing, development and targeting, project planning, or statistical consulting? Is seed money available for pilot studies?
- Who will need to sign off on the proposal, and (later) on the funded project? What are the policies, review, and approval processes within your institution for the grant proposal itself, any space required for personnel or equipment, cost sharing, hiring related to the project, contract or consultant use, and approval of human subject protocols?

### **Locating a Funder**

The basic principle of targeting is to locate a funder that is already interested in the problem you are proposing to solve. Unless the funder is interested in the problem you are going to solve, even a shining proposal for a brilliant research project will not succeed. Although the lion's share of research funding goes to the natural and life sciences, social scientists do have two advantages in seeking funders: First, social science can be used to improve research in other fields, by understanding the human impact, social dynamics, and organizational behavior in any other field. Look for opportunities for collaborative and trans-disciplinary projects with other scientists and engineers. Second, social scientific methods can be used to analyze the politics and policy of (and within) other fields – subjects that are also of interest to a diverse range of funders.

To locate funders, you should start with the websites of well-known major funders in the discipline.<sup>2</sup> The National Science Foundation, National Institutes of Health, and Department of Education are major sponsors of social science research, and provide a wealth of description of their funding programs on their websites. Many more funding programs are listed on the “Grants.Gov” (<http://grants.gov>) a comprehensive clearinghouse of federal grant programs. You should also consider foundation funding. The Foundation Center ([foundationcenter.org](http://foundationcenter.org)) and Guide Star provide useful directories of foundations and corporate funders along with searchable descriptions of their fields of interest. The Foundation Center also publishes reports and funding statistics that shed light on trends in funding.

Foundations are far more numerous than government funders, but are smaller and harder to find. In 2006, the top 10 foundation funders of social science were The Starr Foundation, Ford Foundation, Bill & Melinda Gates Foundation, William and Flora Hewlett Foundation, Charles Simonyi Fund for Arts and Sciences, Freeman Foundation, Andrew W. Mellon Foundation, John a Hartford Foundation, John D. and Catherine T. MacArthur Foundation, and the W.K. Kellogg Foundation. But this is only the tip of the iceberg – foundation funding is spread across many more funders. The top 50 foundations gave \$393M for 1309 social science projects. In contrast, NSF alone awarded \$242M for 1801 projects

Many forms of social science research do not require huge outlays to conduct, and you should consider whether your research project can be advanced by a grant of *resources*.<sup>3</sup> A number of organizations provide grants in the form of in-kind computing support, software, survey support, and advertising. These awards are often easier to obtain than the equivalent cash award, and can significantly benefit your project *if* you would have needed to purchase the resources anyway.

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<sup>2</sup> The AAAS and COSSA are good sources of information on funding trends and major federal funders. See, for example AAAS 2008, and COSSA 2008.

<sup>3</sup> The resources website listed at the end of this article contains links to many of these.

When assessing the fit between your project and a particular funder it is useful to read the program description closely. (We discuss this in detail in the next section.) It is also useful to examine related award statistics and previously awarded proposals. Major federal funders such as NSF at NIH provide statistics on the success rate (percentage of proposals awarded), duration, and average award amount for each of their programs, as well as the abstracts of awarded proposals (The full content of awarded proposals also constitute public records under FOIA, but are not as easily obtained.).<sup>4</sup> In addition, many large foundations publish funding statistics and/or award descriptions on their websites. The foundation center is also a good source of information on foundation awards, including copies of the tax filings of foundations that give a rough description of their funding history. However, when approaching smaller foundations you may need to obtain information directly from the program officers.

### **How to Read a Program Description**

It pays to review closely the description of the program (also known as, “request for proposals”, “program announcement”, etc.). In many cases, it is useful to review the program description *four times*. In the first reading, you should identify the eligibility requirements for the program: What are the restrictions on the substantive scope of the proposal? What types of institutions are eligible? Who is eligible to be a principal investigator? Are there geographical limitations on institution, investigator, or subjects? When is the deadline for submitting a proposal? Are there explicit requirements for budget, duration, and cost sharing? Are there limits on the number of investigators or institutions per proposal, or vice-versa?

On the second reading, you should identify what specific structure and content the proposal requires. Does the proposal require that certain topics be covered, or particular questions answered? Does it specify particular sections for inclusion? Does it require technical additions, such as a project-management plan, an evaluation plan, or a data-sharing plan? Does it require additional forms of documentation?

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<sup>4</sup> See respectively, [dellweb.bfa.nsf.gov](http://dellweb.bfa.nsf.gov) and [report.nih.gov](http://report.nih.gov) for statistics, and [nsf.gov/awardsearch](http://nsf.gov/awardsearch) [report.nih.gov/crisp](http://report.nih.gov/crisp) for award summaries.

On the third reading, identify the proposal's intellectual foundations, intellectual referents and major citations. Is there an implied theoretical foundation for the program? Does the program description cite foundational reports or findings? Do key ideas or key terminology recur within the program description?

On the final reading, you should search for unstated requirements. What is the general mission of the funder, and how does the program serve this mission? What forms of review are conducted for the program, and how are the reviewers selected? Are there particular topics (or particular language) to which the funder might be particularly sensitive for political or ideological reasons? Is there an expectation of cost-sharing? What are the funder's expectations regarding salary levels? For example funders may prefer funding certain budget categories, such as graduate students assistants and summer salary and may have implicit or explicit limits on other budget items such as the percentage of investigator time, secretarial, or administrative support time spent on a project.

If after researching the funder you are still unsure, contact the program officer. For some funding agencies, such as NSF and NIH, it is often useful to send the program officers a very brief summary of your proposed research plan, and get their advice early.

### **Elements of the Proposal**

In most cases, you should focus your proposal on the expected outcomes of the project and why they are important. When the outcomes are uncertain or less definitive, the methodology innovative, or the outcomes of relatively minor significance compared to the methodology, you may choose to focus on the methodological advances in the project.<sup>5</sup>

Most successful proposals contain sections addressing these four areas:

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<sup>5</sup> And for those rare proposals for research infrastructure, general operating support, and other funding not specific to a project, you may focus on your organizations recent accomplishments, awards, and present and future research programs.

1. The central research goals, objectives, and questions of the project.
  - What are the broad long-term goals – the broadest use of the research findings, the “vision”?
  - What are the research objectives – the problems to be addressed?
  - What are the specific hypotheses? Or specific, definitively answerable research questions?
2. The significance of the research objectives and project.
  - How are these important scientifically, how do they fit in the broader theoretical context of the discipline?
  - What is the broader impact of the project for education, science, and society.
3. What you plan to do in the project. For most research proposals, this is the longest section. It should be detailed enough for the reviewers to determine exactly how you will evaluate each stated hypothesis, and to evaluate the appropriateness of the methods.
  - What is the research design? If it is experimental, quasi-experimental, observational, or interpretive (etc.) What are you expecting to find?
  - Are specific hypothesis being tested? What counterfactuals are implied by these hypotheses? What evidence constitutes a falsification of the hypothesis and how will your design detect this? What are possible alternate explanatory theories, and how is the research designed to distinguish among them?
  - How will data be collected? What are the characteristics of the population (of people, events, etc.) under study? How will you observe the population, and what sampling mechanisms are involved? Where cases are studied, why are the selected cases the *most* appropriate for testing your hypotheses? What measurements will you make for each observation? What instruments or special measurement methods will you use? What is the measurement level, accuracy, validity and reliability of each measurement? What are the risks to data collection (such as attrition and nonresponse) and how will you ameliorate these? How will data be cleaned and processed? How will it be safeguarded and archived?
  - For each hypothesis, what analysis will you perform on the data? What statistical models and methods will you use? What do you expect to see in the analysis, and how will you interpret this as a test of the hypothesis? What is the smallest effect that your research design could detect, and what are the power and significance levels of the tests you expect to conduct?

4. The rationale for the plan. This should make clear to the reviewers the intellectual merits of the project, justify the research methodology design and approach, and state why the project is timely.
- Why is this project timely? Why is it important not to put it off until later? Why is external funding *essential* to achieving the project goals?
  - How do the hypotheses flow from a coherent theory? How does this theory fit into the literature?
  - How is each component of the research design supported by the literature? Is the design supported by preliminary data?
  - How have you demonstrated mastery of the necessary data collection and analysis methods?
  - Are there alternative approaches, and if so, how did you select your approach?
  - What could go wrong, and what are your contingency plans?

In addition to these four sections, most proposals include a budget, a literature review, a list of references, and the professional biographies (or c.v.'s) of the investigators. Finally, in your proposal, you should also address explicitly each requirement (or suggestion) contained in the program description. Usually these should be addressed in the same order they were raised in the program description.

Anything that you include in a proposal -- whether or not it is in a different section, format, or appendix -- should be used to strengthen one of these four primary proposal areas: The literature review and citations serve to support the significance and rationale of your proposal. The bios support your rationale. The budget, timeline, and deliverables serve to support your research plan (these can be considered to *be* the research plan, from alternate points of view).

When writing, keep the following principles in mind:

*Focus* on the most important parts of the research question, significance, plan, and rationale.

*Funnel* readers from the big ideas driving your research to the specifics of solving the research problem.

Use the “inverted pyramid” writing style of journalism – in which as summary of the most important

information is presented first, followed by a somewhat longer and more detailed summary, and include the most (and least important) details at the end.<sup>6</sup>

For example, your title should summarize the proposal in one line; the abstract in one paragraph; the introduction, in a page. After reading the abstract, introduction, or summary statement, the reviewer should be able to state the project's primary method, data, and hypothesis in a sentence.

*Highlight*<sup>7</sup> elements that you want to ensure the readers remember: the central research question, the connection to a significant problem, the clever insight behind the research design, and the answers to key questions posed in the program description.

*Write forcefully, be inclusive, positive and concise.* Use an active tense, specificity in language, and strong action words. Include reviewers as your audience, the research community as beneficiaries, and funders as part of the solution. Be positive about outcomes, but don't exaggerate.

*Write clearly.* Use a topic outline format where the first sentence of each paragraph conveys the main point of that paragraph, and read in sequence, these sentences convey the argument in the section, and the entire proposal. Do not assume common knowledge with the readers. Use lists, avoid long paragraphs, and avoid sentences that have multiple dependent clauses. Avoid unnecessary jargon, and explain necessary technical terms. Avoid synonyms, acronyms and abbreviations. Use style, terminology, and organization. *Write as you should speak.*

## **What Happens Next...**

### **Review**

After a proposal is submitted, it will go through one or (typically) more stages of checks and reviews. The full review process requires time. Federal funders typically require six months, and foundations and other

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<sup>6</sup> Also known in some circles as the “reverse mullet” – party in the front, business in the back.

<sup>7</sup> Here we borrow from Friedland and Folts (2000) terminology: focus, funnel, and highlight.

organizations may take longer. (You should keep this in mind, and formulate projects well in advance, so that you do not have to depend on it being funded on the first try.)

The first stage usually includes a clerical check to ensure that the proposal, the investigators, and the proposing institution meet the basic eligibility & submission requirements. If something is amiss, you may be given a short time to correct it, or the proposal may simply be returned without further review. Pay meticulous attention to submission requirements so that you do not get rejected at this stage. If there is any ambiguity in the requirements, contact the program officer directly, in advance of the deadline.

Typically, what happens next is that:

1. The program officer reads the abstracts (and perhaps more) from submitted proposals, and assigns these proposals to reviewers.
  - Some combination of standing reviewers (who are assigned to a panel for a period of time) and ad-hoc reviewers (invited especially for that proposal) read proposals, draft reviews, and assign preliminary scores.
  - Other panelists may read the proposal at this stage, but more often will not.
  - Proposals receiving preliminary scores below a cutoff may be flagged at this stage to be returned without further review.
2. A larger panel of reviewers meet to score the proposals.
  - These reviewers read the detailed draft reviews before meeting.
  - The primary reviewers summarize the proposal for the panelist, and may establish a recommended range of scores.
  - The panelists question the reviewers, may quickly refer back to the proposal, discuss the proposal, and assign an overall score.
  - Often this yields an overall categorical score, such as “highly competitive”, “competitive”, “not competitive”.
3. The program officer makes recommendations to fund particular proposals.
  - Non-competitive proposals are not recommended.

- For the remainder, the program officer may consider program budget, diversity of topics, geographic diversity of awardees, or other criteria, in addition to scores
4. A board, director, or other decision maker makes final funding decisions.
- By determining a score threshold for fundability.
  - By reviewing the list of recommended proposals (often using title and abstract).

Note that your proposal will be evaluated by a variety of reviewers; and while some reviewers will have specialized knowledge of your discipline, others will not. Although primary reviewers will read your entire proposal, others evaluating your proposal may read only the abstract, title, and other reviews.

So, to facilitate review, you should provide titles and abstracts that effectively summarize your proposal, why it is important, and what is innovative about it. Your proposal should follow the conventions that reviewers expect, so that it is easy for them to quickly check any aspect of it. Your proposal should be understandable by a non-specialist.

Moreover, successful proposals must inspire enthusiasm in at least one of the readers. That reviewer must convey their enthusiasm, and be able to quickly summarize your proposal to the panel in using non-technical language. The proposal should be aimed at converting a reviewer into your “champion”.

### **Revision**

Often, your proposal will not be funded the first time it is submitted. It is natural to feel disappointed, but try to simply put aside the proposal and reviews for a few days. After you have let a few days pass, read the reviews and ask a colleague who is not involved with the project to read them. When you first read reviews, aim to understand how the reviewers perceived the overall significance and fit of the project: Does the reviewer indicate that the proposal connected strongly with program or sponsor goals? And did the reviewer recognize the significance of the problem and the originality of the research?

Re-read the reviews for more detail. Did the reviewers find the research plan clear, focused, sufficiently detailed, scientifically supported, and realistic? Did the reviewers point out other relevant work not included? Did they raise questions about your ability to carry out the project or use essential methods?

You may receive some high scores, but still fail to be funded because of gaps in the proposal. Focus on the negative reviews to identify potential gaps.

Be wary of faint praise – this may signal that the reviewers did not believe the problem being solved was significant. If the reviewers understood the project but still didn't feel it was sufficiently significant (or connected to the program) you should consider targeting a different program.

If the reviews are unclear, you may arrange a call with a program officer. This should be for information only -- do not argue, rebut or clarify your proposal. Ask for a summary of reviewer concerns: Did the proposal fit with the organizational and program goals? Did it fail to address particular guidelines? Is there a problem with the proposal, or could it just not be funded for other reasons? Would the program officer suggest you apply again? Are there any other suggestions for improvement?

If the reviews reveal what you believe to be a critical weakness in the project you should rethink it. Consider whether to find another approach to the problem, to conduct a pilot study to determine feasibility, collaborate with someone who fills a gap in expertise, or collect more preliminary data.

Most often, however, the flaws pointed out by reviewers are reparable. Then, it is often appropriate to revise the proposal and resubmit it to the same funder. If the sponsor has an official "revise and resubmit" procedure, then you should follow it. Where no formal revise and resubmit process exists, you need not provide a detailed list of changes or a response. Nevertheless, each comment should be considered carefully, and at the least, you should clarify the corresponding sections of the proposal. You will strengthen your proposal most by focusing revisions to address the negative reviews. In no case should you dispute the reviewers, even if a formal process to do so exists – it is better to resubmit.

When formally responding to reviews, quote each substantive comment verbatim, in order, and respond to every one. Reinforce positive comments, correct all errors, and add any suggested citations (after reading them, of course). Where possible, use change tracking to show all revisions, and note on which pages changes were made to respond to a comment. Where a reviewer suggests that you do something you

believe is incorrect, do not simply rebut or argue, but treat this as an underlying miscommunication in your proposal. Respond by clarifying your meaning, or find another way to explain what you are doing.

### **When You are Funded**

Congratulations! Now notify all of your collaborators on the project. Prepare thank you letters and press releases as appropriate. It has probably been some time since you wrote the proposal, so re-read it. Identify any deadlines, reporting requirements, deliverables, dissemination activities, and milestones mentioned. Make a list and review these: Are they still relevant? Have new risks or opportunities arisen since the proposal was submitted that would change them? Is there something major that was left out?

Don't start spending the money yet... There are a slew of administrative details to consider first, including any final budget adjustments negotiated with the funder; setting up of the financial accounts and record keeping for the project; and internal approvals for space and personnel.

Remember that a funded project requires ongoing management not only of the research effort, but also of personnel, finances and administration. Talk to your human resources representatives, finance officers, and office of sponsored research to understand which reports the funders require, and who is responsible for these. Establish any internal monitoring that you need to ensure that you are confident that grant finances and administration are on track. Having solid administrative procedures and reporting in place at the beginning will help to ensure smooth operation and keep you focused on *research* during the project.

### **Suggestions and Resources**

We have covered the essential principles of and process for creating a research proposal. Nevertheless, there are many sources of information that are useful for targeting, and many important writing and submission details that cannot be covered in a brief article. Before you write a proposal, we recommend that you find your targeted funder's websites, and carefully read all of the information about their program and submission procedures. We also recommend the following books:

- *Guide to Effective Grant Writing*. In this book, Yang (2007) provides a concise and pithy summary of the content of every section of an effective NIH research proposal. And in *Research Proposal: A*

*guide to Success*, Ogden and Goldberg (2002) provide unvarnished insiders' insights into the NIH proposal writing and review process. While targeted at NIH, these books can be used, with minor modifications, for most research proposals.

- *Applying for Research Funding*. In this book, Ries and Leukefeld (1995) provide careful guidance on the planning and preparation that goes into preparing and submitting a research proposal, in addition to the organization and content of the proposal itself.
- *The Complete Idiot's Guide to Grant Writing*. This is much smarter than the dozens of other basic guides to grant writing (apparently idiots are smarter than dummies). And while it does not concentrate on writing research grants in particular, Thompson (2007) provides a broad, well organized, and up to date guide to writing grant proposals in general.

In addition, to complement this article, and the seminars that we've taught, we've developed a website that provides links to many funders, funding opportunities, detailed guidelines, and sample proposals:

<http://maltman.hmdc.harvard.edu/funding/>

Remember that success is the result of the combination of an original research idea, thoughtful targeting, clear writing, meticulous preparation, and persistence. In addition, we wish you good luck.

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