GRANT WRITING FROM THE GROUND UP

DAMON W. DIEHL

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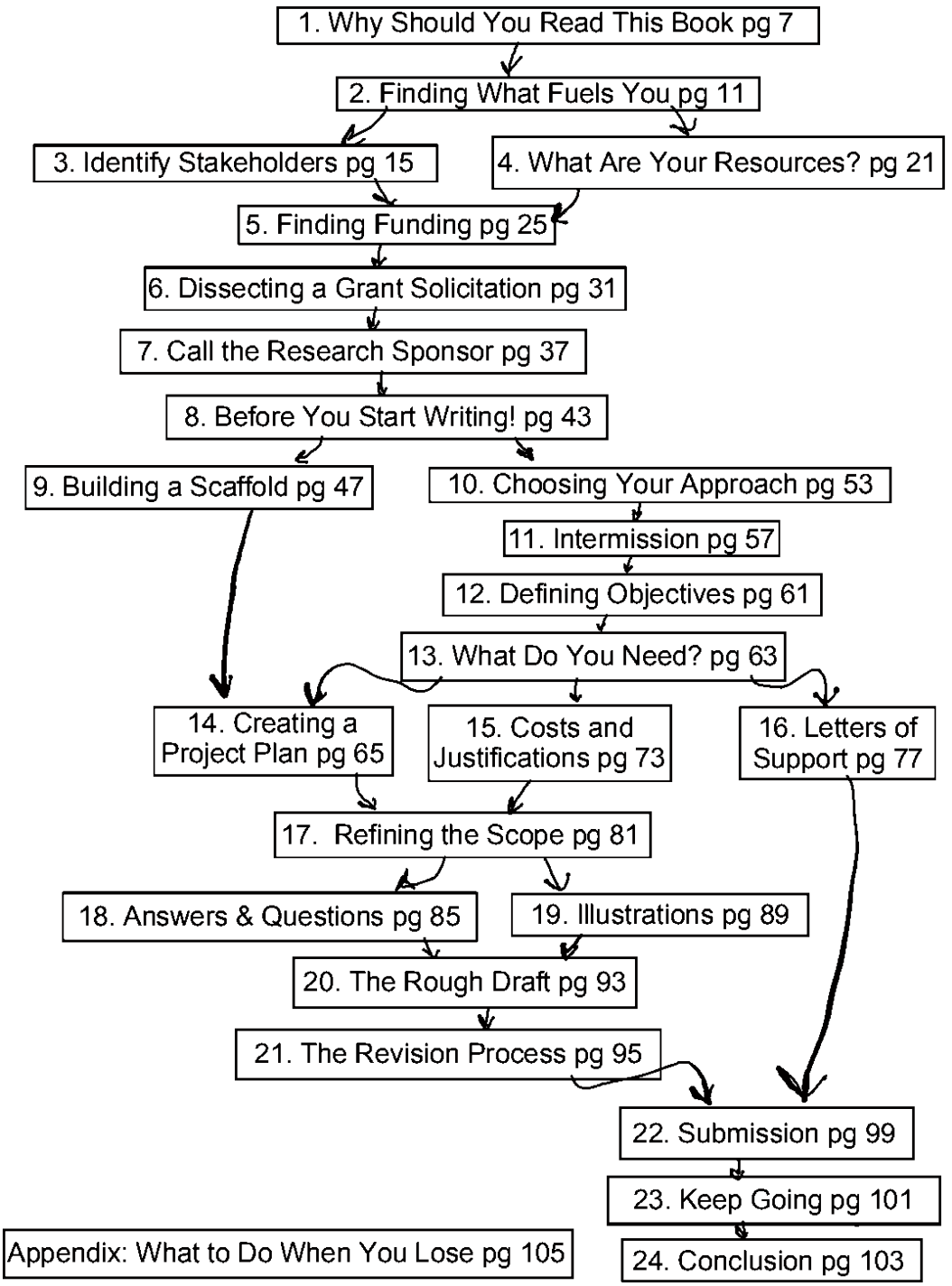
MAP OF CONTENTS



Chapter 1: Why Should You Read This Book?

Every epic project known to humanity, from Stonehenge[1] to CERN, has begun as a research proposal. You simply cannot have a scientific career without developing the skills to convince strangers to give you enormous sums of money.

The problem is that smart people (and specifically smart people just out of graduate school) frequently write *terrible* research proposals.

Why?

As an undergraduate, you learned:

`If you write an understandable,` **`lab report`**`, then the` **`professor`** `will reward you with` **`a good grade`** `as long as your results are` **`correct`**`.`

[1] Yes, Stonehenge. It was an extraordinarily convincing druid who proposed, "I would like to study the solstice, and all I need is for you guys to drag dozens of enormous boulders to this spot from hundreds of kilometers away without wheels—I am still prototyping the circle."

Chapter 3: Identifying Stakeholders

If you are reading this book, you probably do not have the personal resources to pay for the research you want to do,[1] and you have made the utterly sensible decision that someone else should pay for it.[2] While working your way through Chapter 2,[3] you worked out a list of things *you* would like to accomplish. You must find a significant group of other people [4] who share your goals—otherwise, your research isn't fundable. I will call people who share an interest in your research objectives "stakeholders."[5] Fundable research is the intersection of "things that you *want* to do" and "things that other people *will pay* you to do."

[1] Perhaps you *do* have your own money but are reading this book to figure out how to use someone else's money. I tip my hat to you.

[2] I have my economic bases covered here because this is true for both capitalists and socialists.

[3] Have you come crawling back to this chapter because you haven't been doing the assignments, and then you reached Chapter 5 and weren't prepared? I told you this would happen! Now you've gone and created a time loop that threatens the existence of the entire universe. Catch up quickly before you accidentally kill your grandparents and create a paradox by voiding your existence. (If you are reading this footnote in confusion, then the space-time continuum has been saved!)

[4] with money

[5] `[terrible vampire joke redacted]` -editor

Chapter 4: What Are Your Resources?

Before you request funding for more resources for a project, you need to catalogue what resources you already have. **Your resources are your nouns: people, things, places.**[1] More specifically, your resources are your:

- team
- equipment
- facilities

[1] OK, if you want to get fussy, "ideas" are also nouns, but you're missing the forest for the trees. This entire book is about your ideas.

Your Team

IMPORTANT!

People are your most important resources.

Reviewers must believe that your team can carry out the work. Although the research sponsor will probably only require biosketches from the major contributors, it is just good practice for everyone to have one on file. Different research sponsors prioritize different skills, experience, and backgrounds. Therefore, be thorough—it is easier to trim what isn't needed than to scramble for information when the deadline is looming.[2,3]

Gather a curriculum vitae or resume for each person on the team.

Your Equipment

Equipment comprises all of the things you own or have access to that enable you to take on a project. You do not necessarily *own* those things—at a university, you technically don't own much of *anything*.[4,5] Take note of things to which you have unique access. Unique resources can give you an edge in grant decisions that come down to a comparison of capabilities.

Gather a list of the equipment you use for your research as well as their key capabilities.

Your Facilities

In your proposal, you will need to demonstrate that you have someplace suitable to carry out the work. Include shared places you have access to if you are at a university or startup incubator. Find out the wait time and associated costs of using the shared facilities.

[2] You can include "wanted" posters if the information is relevant to the funding opportunity. Some reviewers may be impressed by the extent of your criminal activity, particularly if it is on an interplanetary or galactic scale. Be wary about including trans-dimensional travel, though, as it can raise concerns about from which timeline you originate.

[3] Fun fact: Every single research sponsor will want your biosketches formatted in a different way! And the format requirements can even vary among departments of the same agency! And the requirements change all the time! What fun!

[4] More on this in Chapter 8.

[5] I have become increasingly distressed that, at academic institutions, the differentiation between people and equipment has become blurred. I am genuinely concerned that the term "human capital" began replacing "human resources." A "resource" is a thing that you can use, whereas "capital" is a thing that you own. Universities have always treated graduate students as a commodity, but I'm worried that universities are only a few years away from affixing inventory stickers to the backs of students' heads.

Chapter 6: Dissecting a Grant Solicitation

IMPORTANT!

IF YOU SKIP THIS CHAPTER YOU ARE MISSING THE ENTIRE POINT OF THIS BOOK!

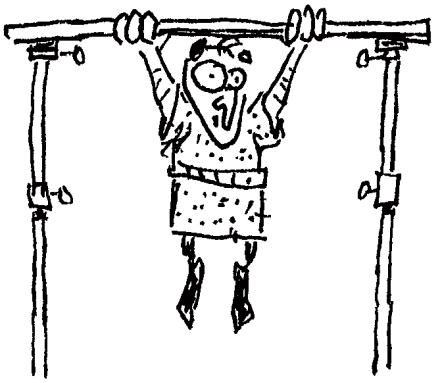
At least 50%[1] of grant applications fail because the author didn't study the solicitation thoroughly.

This chapter will teach you how to dismantle a grant solicitation and study all of the parts to extract every piece of essential information before you start writing. Dissecting a solicitation does two things:

1. It ensures that you won't make a fatal mistake in preparing your proposal.
2. It gives you a tremendous advantage over people who don't read instructions.

[1] This is a number I made up, but if it's still here, then either none of the reviewers disagreed with me, or none of them read this footnote.

Chapter 9: Building a Scaffold



IMPORTANT!

You can complete this chapter while you work on Chapters 10 through 16, but it must be completed before Chapter 18.

In this chapter, I will teach you to build a "scaffold"—a correctly formatted, empty proposal that you will populate with all of the questions you gathered in Chapter 6.

You will need to format the proposal at some point, and you have a choice: (a) do it now or (b) procrastinate because it is boring and try to do it the day you submit the proposal. Don't choose (b). As the deadline approaches, you will have *plenty* of things to stress over, and you don't want to discover on the day your proposal is due that it is a page too long

Chapter 12: Defining Objectives

I want you to admit something to yourself. You don't have to tell anyone else this. I just want you to know that *I* know.

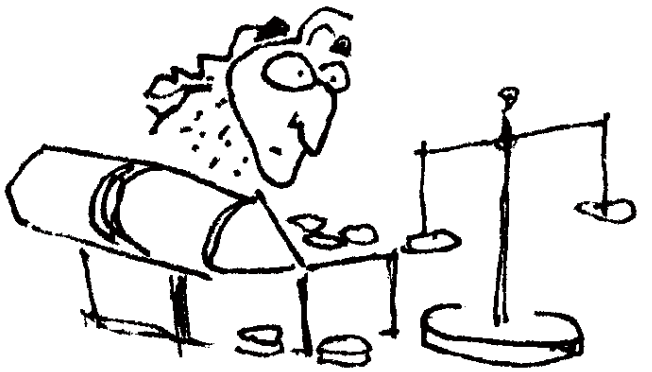
Secretly, you fear that your project will fail. You cram those concerns into a corner of your mind, but they keep you up at night.

At this point, you have defined the problem you want to address and articulated why the research sponsor should care. In addition, you have identified the technical approach you believe is most likely to succeed, given your resources and capabilities.

That's not a "project," though—it's a wish.

For the project to succeed, you need to break it down into achievable objectives. To accomplish this, you need to let your paranoia run free for just a few minutes. You have to ask, "What's the worst that could happen?" Asking this question is terrifying, and therefore I encourage you to give in to ridiculous hyperbole. Imagining worst-case scenarios in a *controlled setting* and *limited doses* can be effective when

Chapter 15: Costs and Justifications



IMPORTANT!

Every project failure comes down to running out of resources.

Projects fail for one of three reasons:

1. Running out of time
2. Running out of money
3. Being impossible

Chapter 16: Letters of Support

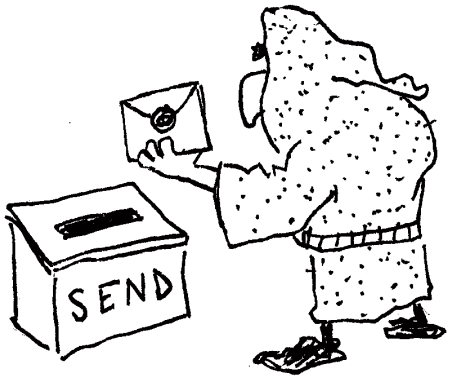
Generally speaking, your good word is insufficient to convince a research sponsor to trust you.[1] Frequently, you need someone else to attest that you are capable of enacting your vision. Hence, letters of support. There are three types of letters of support:

- Letters of commitment
- Letters of endorsement
- Letters of interest

Getting these letters can be time consuming, especially if you are asking for a letter on behalf of an organization and not an individual. The larger the organization, the longer the list of people who must sign off on the letter. It is therefore critical to request letters early and set a deadline for receiving them. This chapter provides guidance on what each kind of letter should include.

[1] Embedding neural override software into electronic documents may seem like an effective form of remote mind-control, but more than one would-be evil genius has been done in by proofreading their own work.

Chapter 22: Submission



Ideally, submitting a proposal is wonderfully anti-climactic.

You upload all the pieces of your proposal to a server, mash the submit button, and hope for the best.[1]

Once upon a time, people mailed proposals, and by "mailed" I mean frantically stuffed the proposal into a next-day delivery envelope while driving to a pick-up point.[2]

At least one week before the proposal is due, pull out the list of rules you compiled during the dissection process of Chapter 6 and confirm that you haven't missed anything. Of course, there shouldn't be any surprises since you've been tracking your progress as you went along, but it never hurts to check.

Now is the time to make a final plea for letters of support.[3] Passive aggression is one way to shake a letter loose, but it's more effective to offer to write the letter yourself.

[1] It's kind of like dropping your kids off at a lovely summer camp where only 10% of the kids survive the week.

[2] Or, in the case of one friend, literally flying from Buffalo to Baltimore to hand-deliver the proposal a few minutes before the closing time.

[3] If the person did not return the letter right away, then, trust me, they haven't even started.