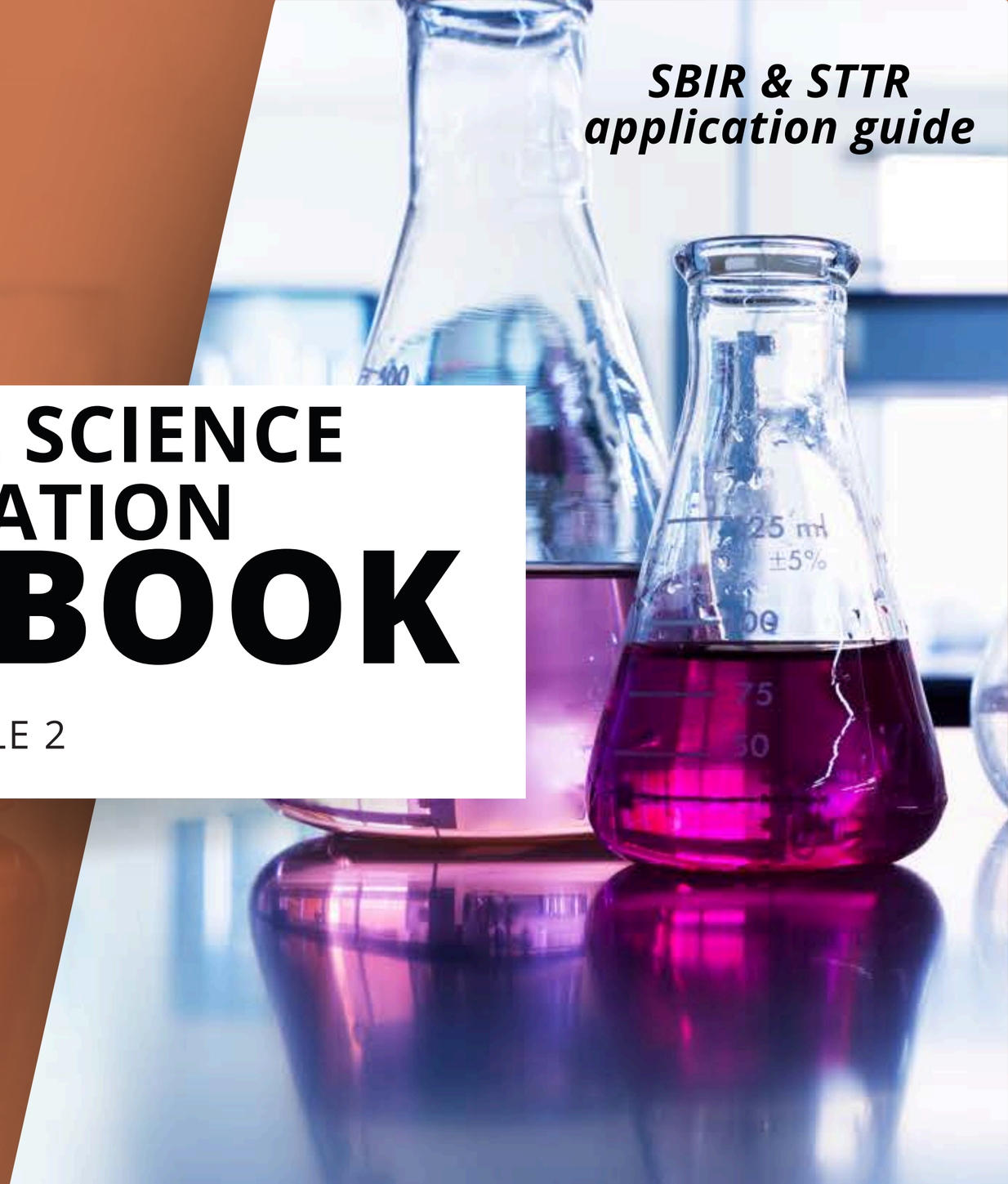
Center for Technology Commercialization

SBIR & STTR application guide

NATIONAL SCIENCE FOUNDATION WORKBOOK

MODULE 2



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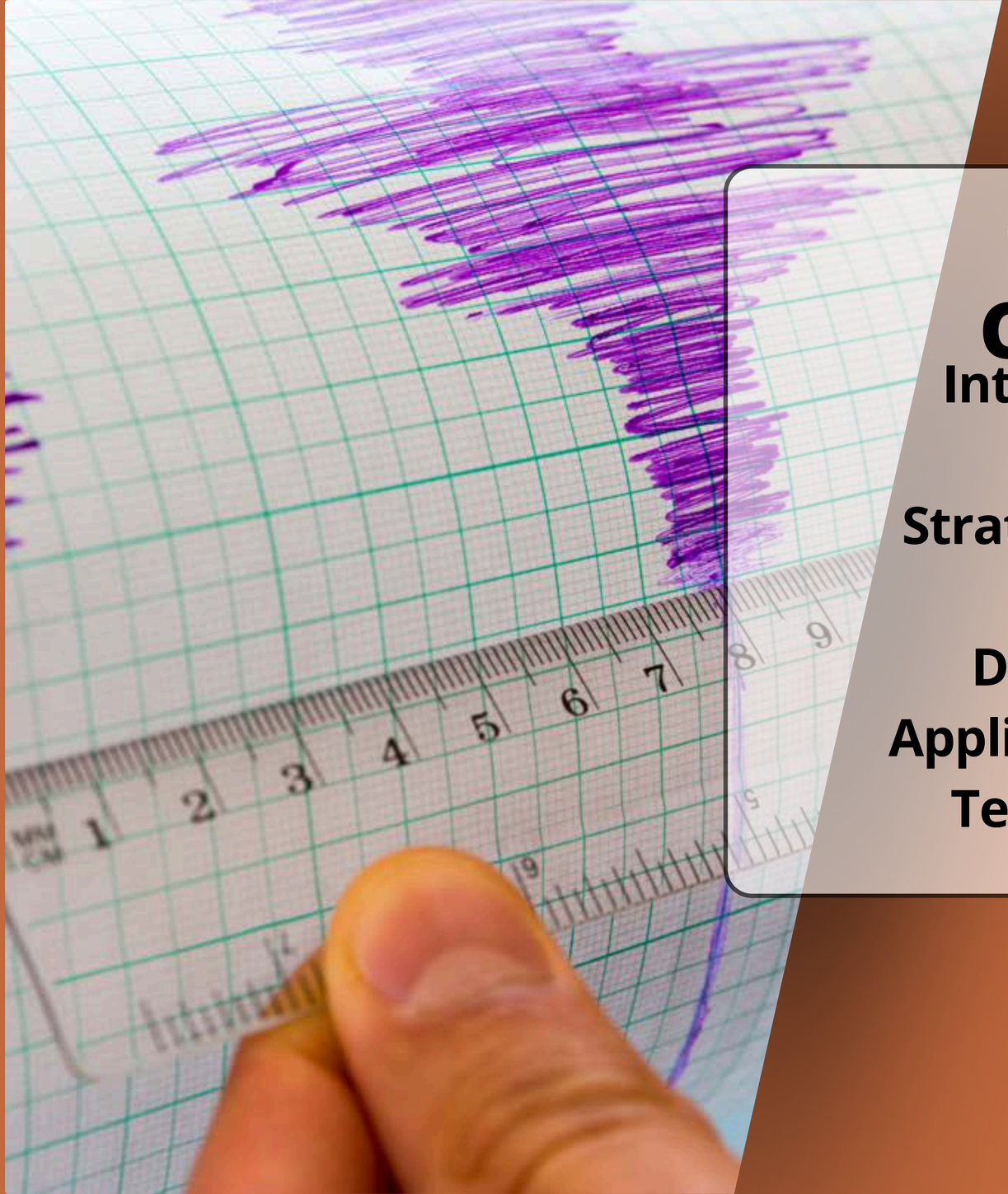

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OR

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Click it to open the link

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What are Technical Objectives?

These are the goals that you want to achieve, and essentially, why you need the funding. They are “What you want to achieve;” rather than “What you want to do.” Probably the most common error seen in proposals overall, is that the Aims or Objectives are weak and don’t have quantitatively measurable endpoints.

Think of the Specific Aims page as an abbreviated version of the full grant. By having this page well written and well-thought out, the remainder of the grant application will be easier to write. Put strategic thought into every sentence on the specific aims page.

The Specific Aims section is central to your grant proposal and should be the first section written to send to the program manager. This is the “first impression” reviewers get about your grant proposal. Eventually, it’s rewritten in its final form after the rest of the document is written.

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Feasibility

Determine the most difficult aspect of the proposed technology that must be overcome to show that it's technologically feasible. Proving feasibility is the point of Phase I. If there is only enough time and money to answer one question for Phase I, focus on feasibility.

Determine Aims by:

Working backwards

- What is your final product?
- What do you have to do in Phase II to have a prototype?
- What needs to be done in Phase I to enable Phase II?

Working forwards

- What are 2-3 research questions to reduce technical risk?
- What are the shortfalls in the state of the art?
- What do you do to address these shortfalls?

Check out related videos

- What's the point?
- What do you want to accomplish?
- List the objectives in bold type.
- What do you need to achieve?
- Make your milestones market-relevant.
- Proposal Roadmap and Pitfalls.

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TECHNICAL OBJECTIVES HOMEWORK

PROVIDE THREE TECHNICAL RESEARCH QUESTIONS BELOW

TECHNICAL OBJECTIVES EXAMPLES

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AIM

Construct a system to measure substance X in plasma to improve data simulations. We plan to use tool Y to measure because it has been shown to be most accurate.

MILESTONE

The future product must have a minimum sensitivity of X picomoles/mL, and have an accuracy of XY%. These specifications have been determined to be necessary by [insert market reason or standard benchmark justification].

TIPS

Try to make a simple statement with 1 or 2 sentences. Include quantifiable criteria in your milestones that demonstrates when you are done with this phase of Product Development.

Aims demonstrate product feasibility. These MUST BE successful to advance to Phase II.

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TECHNICAL OBJECTIVES HOMEWORK

FILL IN YOUR INFORMATION BELOW

#1: Goal and Quantifiable Milestone	
#2: Goal and Quantifiable Milestone	
#3: Goal and Quantifiable Milestone	

Tie Aims to Significance

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DRAFT PROJECT PITCH

The following pages will outline this 1500 word document to be submitted to NSF.

ELIGIBILITY

FAQS

SBIR

- Small business (SB) may work alone or with others
- SB must do 67% of work in Phase I
- SB must do 50% of work in Phase II

Both

- PI must be primarily employed (20 hrs./week) at SB.
- (Co)-Founders cannot be compensated through a subaward
- PI must commit at least one month's effort to the project
- Company must by US-owned and operated.
- Company may not be VC-owned.
- Company must not have more than 500 employees.
- NSF does not allow Direct to Phase II awards.

STTR

- SB must work with non-profit research organization
- SB must do 40% of the work
- Non Profit Research Institute must do 30% of the work

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HOMEWORK

FILL IN YOUR INFORMATION BELOW

How much of a difference your product will make?	
How will you scale up your business?	
Explain how it's a wholly new product not just an improvement.	

Move on to topic fit

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SMART TECHINICAL OBJECTIVES

Specific

- Clear & easy to explain
- Detailed so reviewers can see the technical challenge being addressed
- Simple to explain
- Relate to a risky scientific or technical objective
- NOT related to marketing or sales objectives
- Precisely defined

Measurable

- Quantified numerically
- Allow you to know how much you missed a milestone by
- Always preferable to subjective objectives because they make getting Phase II & Phase III money that much easier

Achievable

- Are realistic and grounded in preliminary work
- Are a natural extension of the work preceding this application
- Represent the next logical, technologically risky step

Relevant

- Matter to innovation's progress towards being realized
- Each brings you one step closer to product

Timely

- Can be achieved within the time constraints of the proposed grant period
- (6-12 months for Phase I, 2 years for Phase II)

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Outline of Specific Aims Page

CONSIDER THESE STARTER PHRASES WHEN WRITING

- Introduction
  - Company (One sentence): We are a X University startup formed to commercialize Y technology from the medical center.
  - Goal: The goal of this SBIR is to develop [product] to address [state problem].
- Significance:
  - Problem to be solved: The problem is … and as a result [defined group of people] suffer.
  - Gap in knowledge: Existing solutions fall short because…
  - Prelim Studies: We have discovered [1-2 sentences on innovation and promise to solving problem]
- Product: The product of this SBIR is ..(1 sentence)
- Long term impact: We envision [product] being used to…[1 sentence]
- Specific Aims: Include your drafted aims.
- Expected Outcomes: Completion of the above aims prove feasibility of product to [meet a market need] (2 -3 sentences)
- Plans for Phase II: Upon successful completion of Phase I, Phase II will focus on [1-2 sentences on scaling goals]
- Commercial Application: This product addresses the $XX market of [identified markets]. 1-3 sentences on market path, partnership, and regulatory milestones.

PAGE REQUIREMENTS

Introduction
- The Company
- The Goal

Significance
- Problem to be solved
- Gap in knowledge
- Prelim studies

The Product
- Technological Innovation

Long Term Impact
- Rationale for the goal

Phase I Project:
- Phase I Hypothesis
- Specific Aim 1…
  - Acceptance Criteria
- Specific Aim 2…
  - Acceptance Criteria
- Expected Outcomes
  - Proof of Feasibility

Plans for Phase II

Commercial Application

ONE PAGE!

Formatting

Single Spaced
11-point Font (Arial*)
4 point space between paragraphs*
Left aligned*
0.5" margins on all sides

*our recommendations

Tips:

- **Use these section headers.**
- **Inspire your reviewer to read the whole application with Specific Aims 1 page.**
- **Tell a compelling story about problem, need, your solution.**

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Introduction

Establishes that you are a legitimate for-profit company with the skills and resources to do the research. Immediately describes the problem addressed and describes the technology that is the subject of the research.

BASICS

- State the company name and status: startup, existing, etc.
- List relevant partners and licenses.
- Briefly state focus of research.
- Include home city & state like this: “Alpaca Biosciences (Milwaukee, WI) intends to commercialize…” This provides reviewers with info as to where the company is located.

TIPS

Potentially include the tradename of the product. “Alpaca Biosciences (Milwaukee, WI), has developed PANDA, a new at-home diagnostic test for UTIs.” Introducing the tradename early on can save space later, as you can simply refer to the tradename throughout instead of repeating “the at home diagnostic test for UTIs”.

STRATEGY

Short, concise and full of information.
Every word has a purpose.

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INTRODUCTION HOMEWORK

PROVIDE THE INTRODUCTION BELOW

Example:

XYZ LLC is a startup that is working to address lung cancer mortality using modified cytokine research licensed from the University of Wisconsin-Madison.

Application – Checklist of attachments

- Project Summary
- Project Description (10-15 page limit)
- References
- Budget(s) & Budget Justification(s)
- Facilities, Equipment, and Other Resources
- Senior personnel records
  - Biosketches
  - Current & Pending Support
  - Collaborators & Other Affiliation Information
- Data Management Plan
- Letters of Support (3)
- Letters of Commitment (if using consultants or subawardees)

Possible Link (solicitation): Heading

Checklist of attachments – Project Description

- Elevator Pitch (1 page) (Abstract)
  - About the business Motivation, Customer, Value Proposition, & Innovation
- Commercial Opportunity (1-3 pages)
  - Overview of the market, the customer, and how you validated it all
- Technical Solution (2-4 pages)
  - High level overview of the technology
- Company/Team (1-3 pages)
- Intellectual Merits: Technical Discussion & R&D Plan (5-6 pages)
  - Contains Technical Objectives & milestones
  - Details the technology (can be marked as proprietary)
  - Complete R&D plan with timeline
- Broader impacts (1-2 pages)

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HOMEWORK

FILL IN YOUR INFORMATION BELOW

Move on

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HOMEWORK

FILL IN YOUR INFORMATION BELOW

Move on to

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Review

Get feedback from as many people as you can. Have several people review your page including CTC. Remember, this is a page that should clearly outline your plan to reviewers. After reviewers chime in and you are satisfied with your page, submit your Project Pitch to NSF and wait for a response.

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Now What?

SBIR Assistance micro-grants are aimed at technology and research-based Wisconsin businesses who intend to apply for SBIR/STTR federal funds. The grants cover reimbursement of costs up to $4500.00, incurred by a business in hiring an independent, approved third-party to assist in the development of federal Phase I SBIR/STTR research and development proposal.

$4,500

CHECKLIST

At the end of module two you should have to following checklist completed.

- **Feasibility**
- **Specific Aims**
- **Draft of Specific Aims Page**

HAVE QUESTIONS?

Reach out to the CTC with questions or concerns here.

FINISHED WITH SESSION ONE?

It's time to reach out and check in with your CTC consultant to discuss the overview summary.

Todd Strother

Rob Baranowski

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Strategies for finding a topic

Find an internal Institute of NIH that fits your product or research HERE
Identify a target components likely interested in your future solution

- Which health conditions will your product address?
- Which institutes (CDC, FDA, etc.) ALSO care about those health conditions?
- Note special budget limits, clinical trial preference, and allowance of TABA (Technical and Business Assistance)

OR

Search by keyword HERE
Copy key words/phrases from Institute that indicates your solution addresses one of their chief concerns.

If your product is unique and doesn't fit current topics, search past topics HERE to indicate if NIH has ever had an interest.

Finding your agency and topic

Review Ombnibus

HOMEWORK

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FILL IN YOUR INFORMATION BELOW

List the topics that may fit your product.	
List the program manager of that institution and their contact information.	
How does your project advance the Institute's mission/goals? List exact website phrases that confirm your approach.	

Include evidence for each answer in the form of links or pdfs