



Research Methods in Science in Engineering

## Business Proposals

Slide 1

## Outline

- The Heilmeier Catechism
- Winning Strategies

Slide 2

# The Heilmeier Catechism

## The Heilmeier Catechism



**George Harry Heilmeier, Ph.D.**  
 May 22, 1936 – April 21, 2014  
[https://en.wikipedia.org/wiki/George\\_H.\\_Heilmeier](https://en.wikipedia.org/wiki/George_H._Heilmeier)

George H. Heilmeier, a former DARPA director (1975-1977), crafted a set of questions known as the "Heilmeier Catechism" to help Agency officials think through and evaluate proposed research programs.

- What are you trying to do? Articulate your objectives using absolutely no jargon.
- How is it done today, and what are the limits of current practice?
- What is new in your approach and why do you think it will be successful?
- Who cares? If you are successful, what difference will it make?
- What are the risks?
- How much will it cost?
- How long will it take?
- What are the mid-term and final "exams" to check for success?

## Modified Heilmeier Catechism

1. What are you trying to do? Why is it hard?  
*Articulate your objectives using absolutely no jargon.*
2. How is it done today? What are the limits of current practice?
3. What is the new technical idea or approach?
4. Why do you think you will be successful?
5. Who cares? What is the impact if successful?
6. What are the risks and mitigations?
7. What will it cost? How long will it take?
8. What is your plan? How will the project be organized?
9. How will you measure your progress? How will intermediate results be generated?
10. What is your plan to commercialize the technology?

## Winning Strategies

## Best Proposal Advice Ever!

### Win the proposal before ever writing it.

Network with program managers and potential funders.

Build genuine relationships with them and develop a strong reputation.

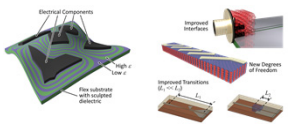
When money becomes available, they will think of you first and notify you.

Cold proposals rarely win.

## How to Divide Your Time Writing a Proposal

### First Page

**Stunning Figure 1**



**Answer Heilmeyer's Questions**

*Also address why you are the right person/team and what capabilities you offer to the project.*

### Everything Else

Background	Technical Approach	Scope	Objectives
Work Plan	Tasks	Schedule	Milestones
Metrics	Related Work	Facilities	Cost