

# *Academic Writings and Presentations*

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# Proposals

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# Venues of Writing

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- **Abstracts**
- **Journal articles**
- **Conference proceedings**
- **Workshops / Presentations**
- **Research reports**
- **Proposals**
- **Patents**
- **Books**
- **Emails**
- **Resume**
- **...**

# What is a Proposal?

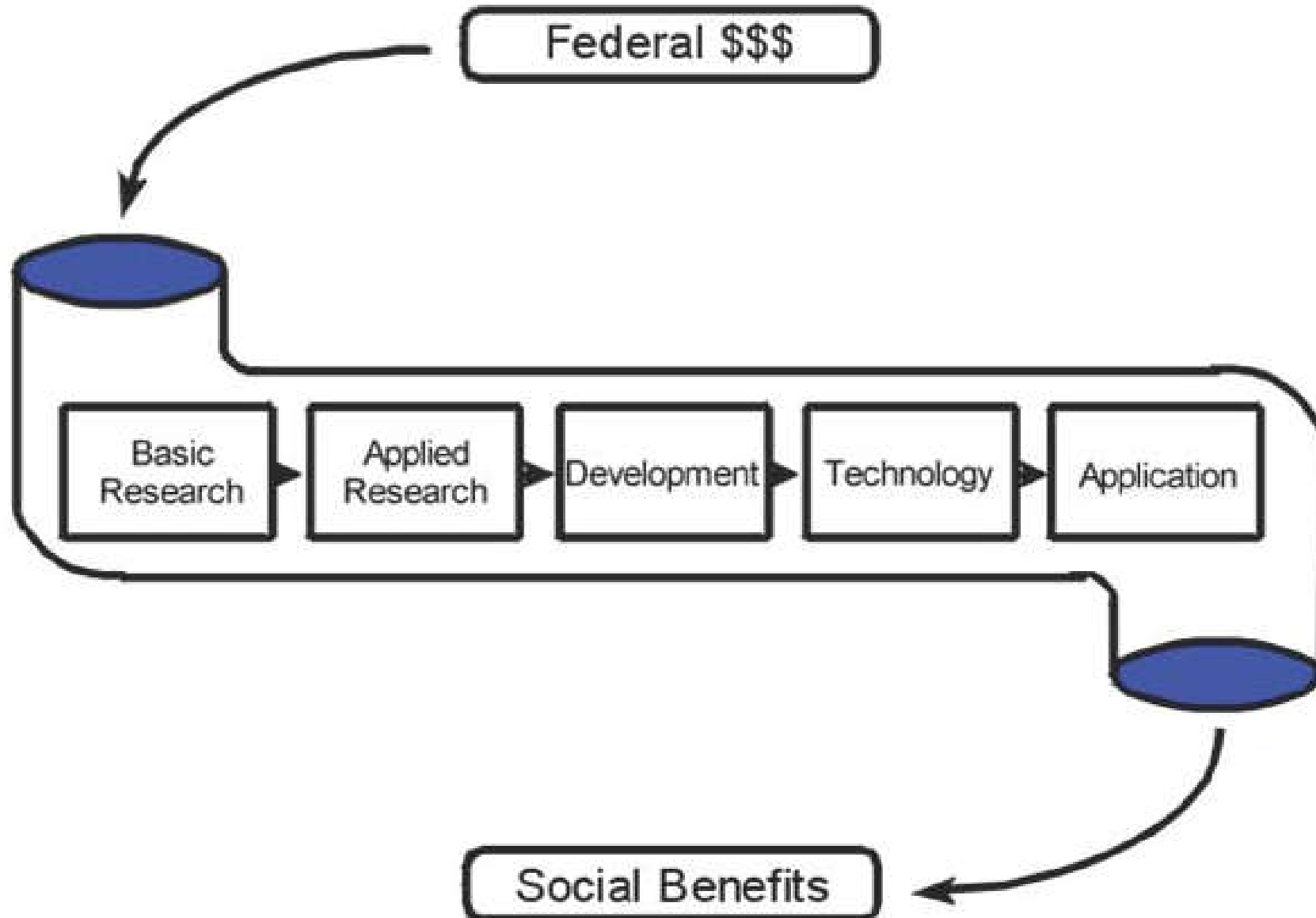
## ■ Definition

- an action to state something for consideration



*"Spare a dollar for some lab consumables, buddy?"*

# Why to write proposals?



# Why to write proposals?

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- **Get resources**
  - money, students, lab space, ...
- **Foster collaboration**
- **Improve your visibility**
  - recognized by peers

# How to write proposals?

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- Heilmeier's Catechism



**George H. Heilmeier**



**Defense Advanced  
Research Projects Agency**

# How to write proposals?

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## ■ Heilmeier's Catechism

- 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's new in your approach and why do you think it will be successful?
- Who cares? If you're successful, what difference will it make?
- What are the risks and the payoffs?
- How much will it cost? How long will it take?
- What are the midterm and final "exams" to check for success?

# National Science Foundation, USA

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- **Title**
- **Summary**
- **Objectives**
- **Background**
  - introduction, motivation, references, ...
- **Research**
  - plans, methods, timeline, ...
- **Impact**
  - fundamental, economical, educational, ...



# 自然科学基金

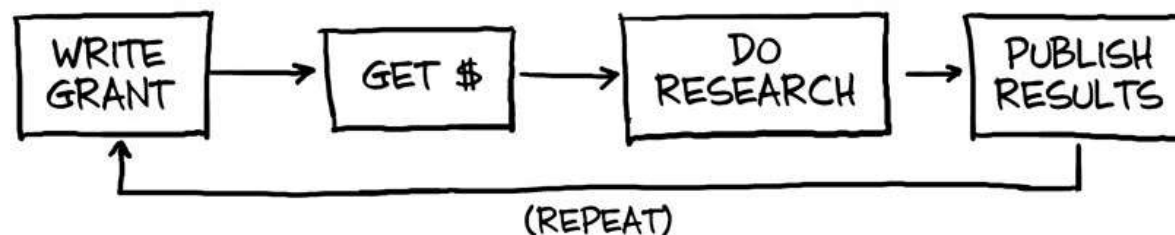
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- 标题
- 摘要
- 立项依据
  - 意义, 现状, 应用前景, ...
- 研究内容
  - 内容, 目标, 科学问题, ...
- 研究方案
  - 技术路线, 实验方法, 可行性, ...
- 研究计划
  - 计划安排, 预期成果, ...
- 研究基础
  - 学术成绩, 单位条件, ...

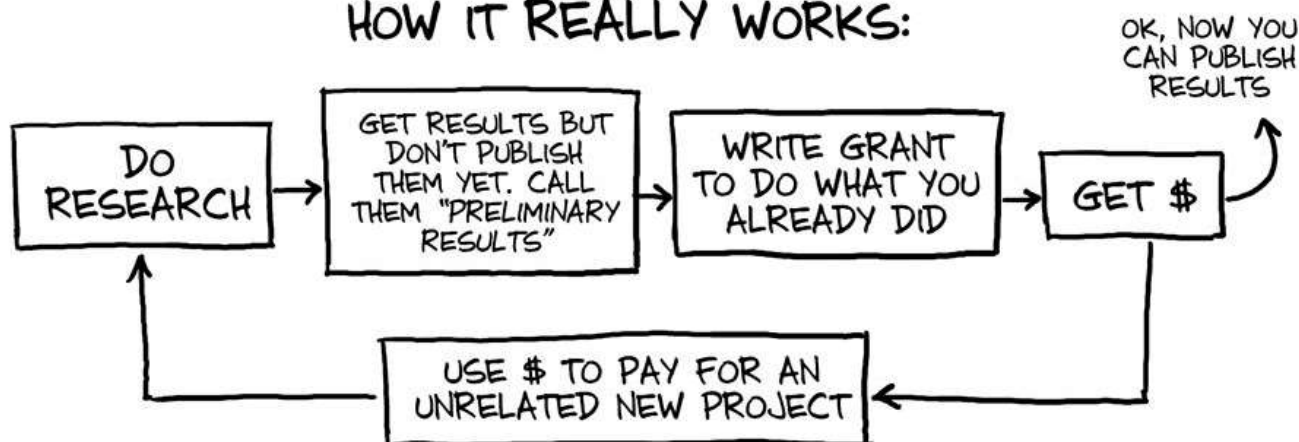
# Advices

## THE GRANT CYCLE

HOW IT'S SUPPOSED TO WORK:



HOW IT REALLY WORKS:



# Future

▼ nature

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## Science funders gamble on grant lotteries

A growing number of research agencies are assigning money randomly.

David Adam