



# Significant and Innovative Proposals: Convincing Your Reviewers

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# IMPACT

- Convince funder to add your study to the research portfolio
- Return on investment
- Why should the funder invest in your research?
- Impact, Impact, Impact!!!

# Overall Impact

## Overall Impact:

- The likelihood for a project to exert a sustained, powerful influence on research field(s) involved
- To arrive at overall impact, five core criteria are evaluated:

Importance:	Significance Innovation
Feasibility:	Investigator Approach Environment

## Overall Impact:

The likelihood for a project to exert a sustained, powerful influence on research field(s) involved

Overall Impact	High	Medium	Low
Score	1 2 3	4 5 6	7 8 9

## Evaluating Overall Impact:

Consider the 5 criteria: significance, investigator, innovation, approach, environment (weighted based on reviewer's judgment) and other score influences, e.g. human subjects, animal welfare, inclusion plans, and biohazards

e.g. Applications are addressing a problem of high importance/interest in the field. May have some or no weaknesses.

e.g. Applications may be addressing a problem of high importance in the field, but weaknesses in the criteria bring down the overall impact to medium.

e.g. Applications may be addressing a problem of moderate importance in the field, with some or no weaknesses

e.g. Applications may be addressing a problem of moderate/high importance in the field, but weaknesses in the criteria bring down the overall impact to low.

e.g. Applications may be addressing a problem of low or no importance in the field, with some or no weaknesses.

# Overall Impact (NIH guidance)

<b>Importance:</b>	<b>Significance Innovation</b>
Feasibility:	Investigator Approach Environment

## High Impact (scored 1-3)

- **High importance** in the field addressed. May have no or minor weaknesses.

## Medium Impact (scored 4-6)

- **High importance** in the field addressed BUT weaknesses in the criteria reduce its impact.
- **Moderate importance** topic addressed. May have no or minor weaknesses.

## Low Impact (scored 7-9)

- **Moderate importance** but weakness reduces impact

# Overall Impact

<b>Importance:</b>	<b>Significance Innovation</b>
Feasibility:	Investigator Approach Environment

What drives the overall impact score?

- The importance of the research

What drives the importance of the research?

- Significance and Innovation

# Research Strategy

- ❖ Significance

- ❖ Innovation

- ❖ Approach

  - Preliminary Studies

  - Methodology

- Note: Research Strategy allocated 12 pages, but NIH gives no criteria how to divide them
- Suggestion: ~ 1-1½ page for Significance
  - ~ ½ page for Innovation
  - ~ 10 pages for Approach



# SIGNIFICANCE





# Significance **Assumes Success**

If your aims succeed, will your research exert a powerful influence on its field?

- Move science forward
- Translational
- Paradigm-shifting



## Significance

Moves science forward

- Research will address an issue or critical barrier to progress in the field

Translational

- Research will improve scientific knowledge, technical capability, and/or clinical practice, which will ultimately improve the health of the public

Paradigm-shifting

- Research will develop concepts, methods, technologies, treatments, services or preventative interventions that drive this field.

# Conceptualizing Significance Section

A strong significance section will answer these key questions.

- What is the gap this research will address between what we need to know and what we currently know?
- Why will this research will succeed?
- Why does this research matter?

Note: Tailor the flow of this section to most powerfully present your case. The order these questions are addressed will vary with your story.

# Constructing Significance Section: Defining the gap

What do we need to know?

Paragraph 1 Introduce the problem

- Present the problem you plan to solve
- State the magnitude of the problem
- Tie your problem to research priorities
  - NIH has identified reducing burden of XX as a major priority
  - Responsive to program announcement PAR-XX
- Present a gap and the importance of filling the gap

# Constructing Significance Section: Defining the gap

What do we currently know?

Paragraph 2 Premise

- Short critical analysis of salient, most important, relevant primary literature
- Highlight what your prior research contributes to the literature. Refer to your preliminary study section
- Clearly state the gap your research will address
- Give a one sentence summary of the PREMISE for pursuing this gap

# Constructing Significance Section

Why will this research will succeed?

Paragraph 3 How your approach will overcome challenges

- Restate the PREMISE supporting your idea
- Describe the approach succinctly emphasizing the RIGOR of your approach
- Explain why this approach will remove barriers or overcome challenges to solve the problem

# Constructing Significance Section

Why does this research matter?

Paragraph 4 How results will advance science

- Explain how your research will move science forward or change practice
- State your expected contributions:
  - If Aim 1 is successful then XXX
  - If Hypothesis 1 is confirmed then XXX
- Explain who will benefit and how
  - Will lives be saved or quality of life improved?
  - Will this work provide a new treatment rationale or less costly way to deliver care?



# INNOVATION

What is new?



# Innovation: What is new?

Innovation section should explain

- How application challenges and or shifts current research or clinical practice paradigms.
- New theoretical concepts, approaches or methodologies, instrumentation or intervention(s) to be developed or used.
- Advantages over existing methodologies, instrumentation or intervention(s).
- Refinements, improvements, new applications of theoretical concepts, approaches or methodologies, instrumentation or interventions.

# Innovation: Confirm your idea is new

Good Place to Begin:

Make Sure Your Research Question is Unique

Search research databases to see if anyone else has been funded to carry out similar research

- NIH Research Portfolio Online Reporting Tool Expenditures and Results (RePORTER)
- Community of Science

# Innovation: Think Broadly

Think broadly about what constitutes innovation

- Is your **hypothesis innovative**?
- Does your research **approach a question from fresh perspective**?
- Do you have **novel outcomes** or a new study design?
- Does your research employ
  - Novel method/technique?
  - New combination of technologies?
  - New application of technologies?

## Innovation: Be creative

What is new about your study?

- **Conceptually**, are you looking at the problem in a different way?
- Is the **resource** you are using unique? Does it provide insights that other resources do not provide?
- Does your research bring together **novel expertise**?

# Innovation: What is distinctive?

State why your study will be distinctive

This work is innovative because

- First study to investigate XX
- Characterizes XX in a rigorous way that will lead to XX
- Changes the XX paradigm OR extends the XX paradigm to XX
- First to use XX applied to XX
- Produces novel information to uniquely address the question of XX

# How to Write about Innovation?

## Be Straightforward!

Be Straightforward!

In 1 or 2 paragraphs

- Clearly state what is novel.
  - Bullet what is innovative
  - Do not be afraid to use the word **innovative**
- State the value from taking this approach
- Explain why you are positioned to succeed
  - Building on prior work or pilot study
  - Evidence from preliminary data
  - Track record

# Litmus Test

Interesting that journalists often investigate scientific news using 5 questions:

- ◆ What do we need to know?
- ◆ What don't we know?
- ◆ What is new?
- ◆ Why does it matter?
- ◆ Who cares?

Convincing Significance and Innovation sections will clearly answer these questions.

