

Preparation of a Research Proposal

Workshop on Effective Proposal Writing

National Science Foundation

27th June 2019, Colombo

Kamini Mendis

Research

- Is a systematic approach to investigating a problem
- Meant to expand our knowledge and understanding – or move us towards solving a problem – the why and the how.
- Must be original and not a repetition of what is already known
- May be qualitative or quantitative or both

Initial preparation

★ Clarity on the project

- ✓ The research question you would like to address
- ✓ Why you want to address this question ?
- ✓ How you wish to address this question ?

★ The goals and objectives of the funding agency

- ✓ Find out what the goals and objectives of the funding agency are
- ✓ Read the 'vision', 'mission' statements, of the potential funding agency, and their instructions and guidelines for receiving proposals
- ✓ Is your proposal consistent with the funding agencies goals?

NATIONAL SCIENCE FOUNDATION

COMPETITIVE RESEARCH GRANT APPLICATION

The NSF supports R & D activities in **all fields of Science & Technology** that the output and outcome of the research will ultimately be **benefited by the Sri Lankan Society**.

Accordingly, Competitive Research Grants Scheme facilitates and encourages the scientists to carry out good research and to strengthen research base and R & D activities directing **towards socio-economic development of Sri Lanka**.

The scheme also provides assistance to supplement the resources in universities, science and technology institutions by supporting basic and applied scientific research.

Guidelines for Applicants - NSF Competitive Research Grant

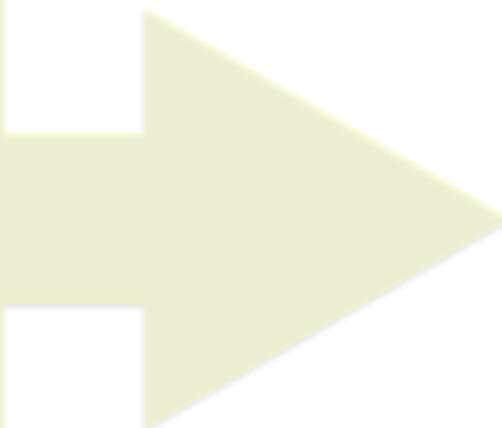
The proposed research projects should necessarily be original investigations.

2. The problem to be tackled or new knowledge to be generated should be clearly identified.
3. A comprehensive literature survey should be done and all details should be included.
4. Maximum project period should not exceed more than 03 (three) years.
5. The period of investigation should be justified.
6. The budget should be justified in detail.....
7. Only well formulated research proposals will be considered.....

Research Grant Application Form

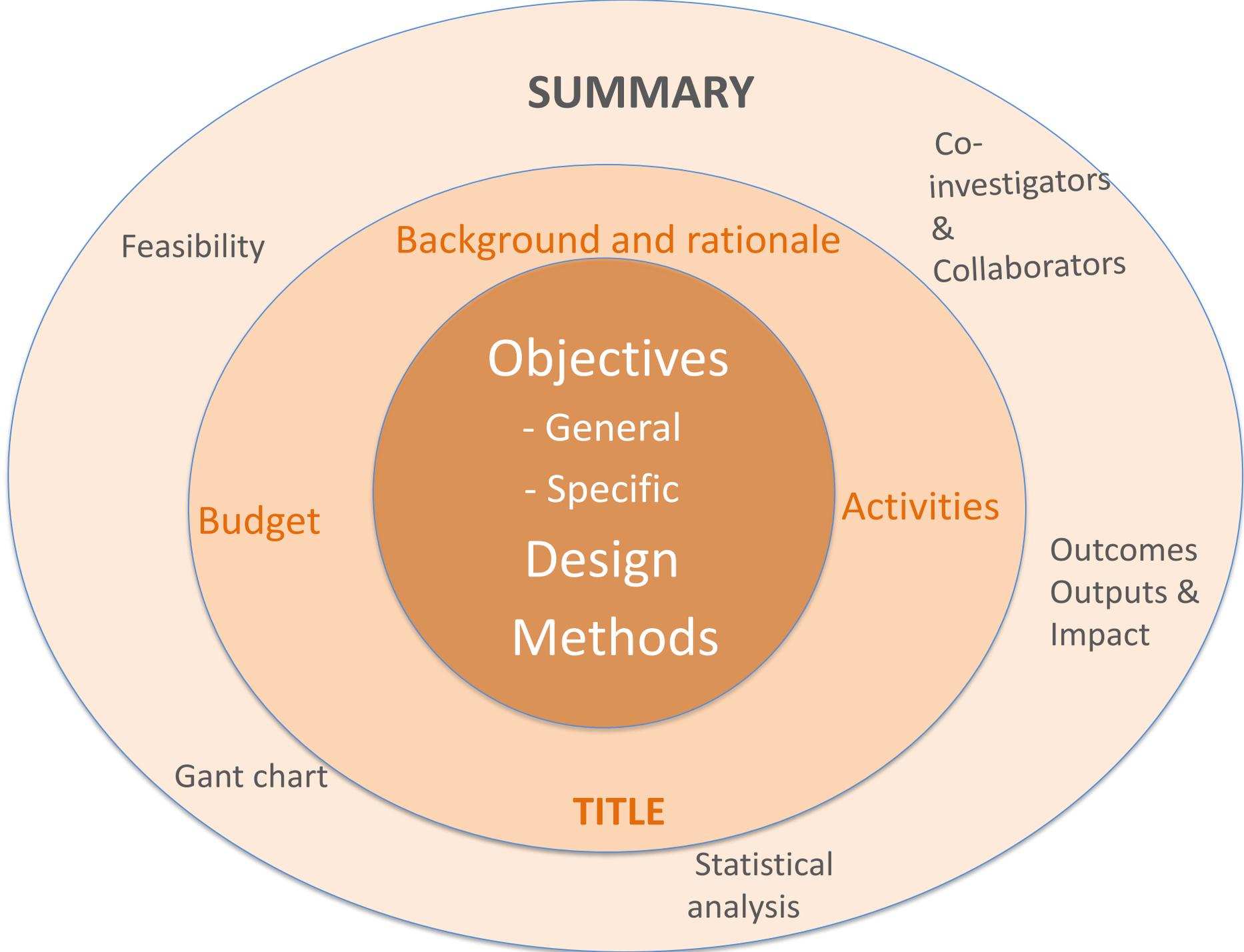
- Section A – administrative information
 - Title, institutions, PI, co-investigators, collaborators
- Section - research outcomes
 1. relevance and impact
 2. significance of the research outcomes
 3. Analysis of the problem and rationale for the research question
 4. Literature survey
 5. Originality and innovativeness
 6. General and specific objectives of the proposed work
 7. Methodology – design, activities, data analysis
 8. Feasibility – workplan, indicators, milestones
 9. Ethical considerations
 10. Budget

Key components and sequence of proposal preparation

- Objectives
 - General
 - Specific
 - Design
 - Methods
- 

CORE

- Background and rationale
 - Activities
 - Budget
- 



Title of the Project

- Should be precise and accurate
 - Portray the research question accurately and realistically
 - Avoid alluding to over-optimistic remote applications of the proposed work –
 - ✓ eg., isolation and characterisation of toxoplasma proteins as potential vaccine targets”
 - x Development of a toxoplasma vaccine
- Unambiguous
- Concise – up to 8-10 words ideal, but could be longer, or subtitled if necessary

7. Summary

(Not exceeding one A4 page, font type Times New Roman, size 11, single space)

The summary demands both completeness and brevity.

....to capture the most **essential elements** of each component of the proposal, in a **condensed style**--yet in a way that will **capture the reader's attention** and distinguish this proposal from the rest.

- Identify the **key points** in each section of your proposal and include only those points in the summary.
- Emphasize the key points that you know are **important to the funder**. Highlights those points that fit with the **grantmaker's own priorities**.
- Be consistent. **Don't introduce new information** at this point. Only use information that has already appeared in some part of your proposal.

7. Summary

(Not exceeding one A4 page, font type Times New Roman, size 11, single space)

- Use these questions to flesh out your summary:
 - What is your organization's identity and mission? Identify yourself clearly.
 - What are the proposed programs' title, purpose, and target population? Describe the specific need that will be addressed and how the objectives to be achieved.
 - Why is the project important?
 - What will the project or proposal accomplish by the end of the time period specified?
 - Why should your organization do this program (as opposed to any other organization) and its feasibility in terms of human resources?
 - How much will the total project cost? How much are you requesting from this funder?
- Make sure the summary is brief...no more than one page.
- Thank the proposed funder for considering your request.

3. Analysis of the problem/s & rationale for the research question

This section needs to explain the background and issues of your proposed research - how you came to be interested in this subject.

Most importantly, you must make a convincing case as to why your research would create valuable and useful knowledge.

This section should,

- Orient the reader towards the topic
- Explain the importance and relevance of the topic
- Justify the choice of the research question

4. Comprehensive Literature survey in the relevant area

(Attach additional sheets if necessary)

- Summarise what you know of the existing literature in this area, perhaps identifying where it does and does not provide insights into what you are interested in.
- Provides a concise overview of the relevant literature to make the proposal sound.
- Gaps in the literature review can lead to a very negative review.

6. General and specific objectives of the proposed work

- Objectives summarize what is to be achieved by the study. It should clearly define the question for which a solution is being sought.
- Objectives are,
 - ✓ To be clearly related to the statement of the problem.
 - ✓ To cover the different aspects of the problem.
 - ✓ To be clearly phrased in operational terms specifying exactly what you are going to do, where and for what purpose.
 - ✓ To be realistic considering local conditions and available resources.
 - ✓ To use specific action verbs such as "to determine, to identify, to verify, to describe, to calculate".
 - ✓ To avoid vague non-action verbs such as 'to study', 'to appreciate', 'to understand.'

6. General and specific objectives of the proposed work

- General objectives: these will define what is expected to be achieved by the study in general terms. For example, if the research problem chosen is “domestic violence against women”, the general objective could be “to identify the reasons for domestic violence against women in the Area X so as to suggest optimum solutions”.
- Specific objectives: Here the general objective is broken down into smaller and logically connected units to address the various aspects of the problem and the key factors that are assumed to cause or influence the problem. The specific objectives of a research proposal should focus on:
 - a. To identify the distribution and patterns of a problem.
 - b. To examine the possible factors that may influence the problem.
 - c. To indicate how the research results will be used.
- Returning to our example on domestic violence, the specific objectives could be,
 - i. To determine the prevalence of domestic violence against women in the Area X.
 - ii. To identify the demographic characteristics of the abused women and the abusers.
 - iii. To identify the patterns of the violent episodes against the women in the Area X.
 - iv. To identify the immediate causes of violent episodes against the women in Area X.
 - v. To identify the socioeconomic and cultural factors that may influence domestic....

7. METHODOLOGY

7.a Describe the Study Methodology

(Attach additional sheets if necessary)

This informs the review panel how you plan to tackle your research problem.

It is your workplan and describes the activities necessary for the completion of your project.

Should consist of a description of how you intend to go about the research.

Demonstrate your knowledge of alternative methods and make the case that your approach is the most appropriate and most valid way to address your research question.

Explain about the data you will collect; how you will collect it and how you will analyse it.

Explain what skills you will need and whether you have them or how you will acquire them.

Practical issues: are you intending to undertake fieldwork, where and for how long?

Consider questions of access to time, field sites, documents.

Ethical Considerations, statistical analyses: give consideration to issues of power and confidentiality. Consult appropriate ethical guidelines.

Time Scales

Map out a reasonable schedule of work so that you can monitor your own progress and manage your project effectively.

5. Originality & innovativeness of the proposed work

- Clearly describe the originality of the proposed work by
 - Has not been done before
 - Or if it has been done before, why it needs to be done as proposed
 - Why it is innovative – the approach, the method, the question?

A good quality proposal will comprise the following

- Informative title;
- Convincing abstract;
- Clear research question;
- Scientific background and rationale;
- Good selection of research methods;
- Ethical considerations;
- Realistic budget and time table.

An important last step is to put the proposal in style and layout that is reader-friendly. This can assist the reviewer-reader to absorb and understand the information in your proposal easily

In proposal writing.....

- Be clear in your mind
- Write in simple, straightforward language
- Avoid using long, convoluted sentences
- Use a logical sequence, and paragraph text, and use sub-headings as appropriate
- Use flow charts, diagrams, schematic drawings if they could help explain better

Common reasons for rejection

- Not economically viable and hence does not generate outcomes that lead to National Development.
- Similar research has been carried out elsewhere and published.
- Does not attain the level of competitiveness as compared to other projects.
- Scientific quality of the above project proposal needs improvement in following aspects:
 - Inadequate literature review
 - Lapses in methodology
 - Objectives not being focused
 - Originality of the proposed work
 - No relevance between the objectives and out comes

“The formulation of a problem is far more often essential than its solutions, which may be merely a matter of a mathematical or experimental skill. To raise new questions, new possibilities, to regard old problems from a new angle requires creative imagination and marks real advance in science....”

A Einstein and L Infeld
in *The Evolution of Physics*, 1938