

Formulation and preparation of the research Proposal

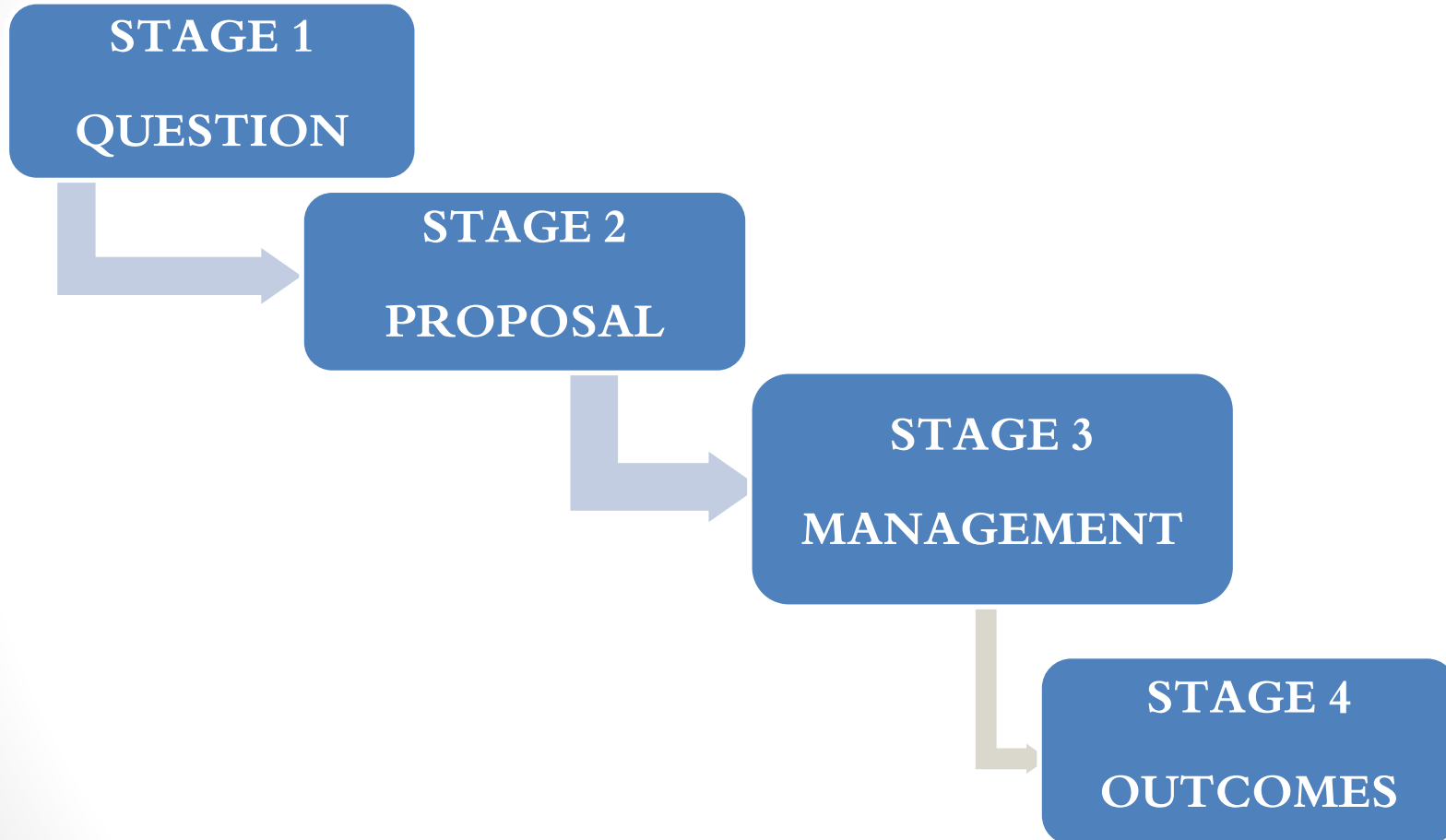
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RESEARCH STAGES



FIRST STAGE

- **THE PREPARATION OF THE RESEARCH QUESTION**

What is the definition of research?

- Research comprises "creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of human, culture and society, and the use of this stock of knowledge to devise new applications.

The Source of Research Questions

- Professional experience
- literature
- Media
- Recommendation in conferences.

Some Techniques can be used to generate ideas

- Rational thinking
- Creative thinking
- Searching the literature
- Scanning the media
- Brainstorming
- Notebook

FINER framework

F- Feasible.

Is the question answerable?

Do you have access to all the materials you will need to do the study?

Do you have access to enough subjects? Will you have enough time and money?

Do you have the expertise to do this study or can you collaborate with someone who does?

I- Interesting.

The question has to be interesting to the investigator, but should also be interesting to others.

N- Novel.

Has this study been done before? Does it add to the current body of medical knowledge?

E- Ethical.

Can the study be done in a way that does not subject subjects to excess risks?

Will an IRB approve the study?

R- Relevant.

Will it further medical science? Will the results change clinical practice, health policy or point towards further avenues of research?

If your question fails on any one of these 5 criteria, it is probably not worth putting much effort into

TIPS

- Share with colleagues
- Learn to accept feedback

The good features of the idea of a research

- Will the research still be current when you finish?
- Do you have sufficient financial and other resources?
- Will you be able to gain access to data?
- Are you fascinated by the topic?
- Do you have the necessary research skills?
- Can you complete the project in the time available?
- Are the research questions and objectives clearly stated?
- Does the research topic match your career goals?

Why the question is important?

- "Ask a poor question and you will get a poor research. A clear question also helps the investigator rapidly assess whether the study is relevant to his or her own...practice". (Counsell, 1997)

PICO PRINCIPLE

- A model can help to answer your question.
- Used to formulate research question.
- Breaks down the question into four key elements.

PICO

Population, Patient, Problem P

Intervention or Indicator I

Comparator or Control C

Outcome o

PEO

- **P**opulation, **P**atient, **P**roblem **P**
- **E**xposure **E**
- **O**utcome **O**

SECOND STAGE

- **Writing Research proposal**

Why and when Do we Need to Write a Research Proposal?

Why

- **To convince others that you research project.**
- **To prove your abilities**
- **To prove that you have a plan to accomplish**

When

- **If you need to take the approval of the Committee on Research Ethics**
- **For seeking fund.**

Proposal Structure

- Title
- Abstract
- Introduction
- Objectives/Aims
- Literature Review
- Design and Methodology
- Data Analysis
- Budget
- Researchers
- References

Title

- A good title will clue the reader into the topic but it can not tell the whole story.
- An effective title the reviewer's interest, but also predisposes him/her favorably towards the proposal.
- It should be concise and descriptive.
- It should clearly indicate the independent and dependent variables.

Abstract/ Proposal Summary

- It is a brief concise summary of the **WHOLE** project.
- Topic is important to address how you will do it,
- Show how your work fits into what is already known about the topic
- Specify the question that your research will answer, establish why it is a significant question,
- How you are going to answer the question,
- methods
- Do not include unnecessary detail

- **Read and read and write and rewrite and refine the abstract to maximize clarity.**
- **Give somebody to read it**
- **Correct all the mistakes**

Introduction

- The introduction provides a brief overview that tells a fairly well informed (but perhaps non-specialist) reader what the proposal is about. It might be as short as a single page, but it should be very clearly written, and it should let one assess whether the research is relevant to their own. With luck it will hook the reader's interest
- It should generally covers the following elements:
 - A. What has already been accomplished in the field?
 - B. Brief description of the proposed study.
 - C. What gaps would the study fill in the area of investigation?
 - D. What relevant work has been done by the investigators (or others) to indicate the expected productivity of the proposal?
 - E. Does the study address an important problem?

Objectives/Aims

Aims and Objectives should:

- Be concise and brief.
- Be interrelated; the aim is what you want to achieve, and the objective describes how you are going to achieve that aim.
- Be realistic about what you can accomplish in the duration of the project and the other commitments you have

Aims and Objectives should not:

- Be too vague, ambitious or broad in scope.
- Just repeat each other in different terms.
- Just be a list of things related to your research topic.

Literature Review

- The purpose of the literature review is:
 - To situate your research in the context of what is already known about a topic.
 - It need not be exhaustive,
 - it needs to show how your work will benefit the whole.
 - It should provide the theoretical basis for your work, show what has been done in the area by others, and set the stage for your work.
- In a literature review you should:
 - give the reader enough ties to the literature that they feel confident that you have found,

Design and Methodology

There are four main aspects of the research methodology:

- Design,
- instruments you will use
- Sampling,
- Data collection,
- Data analysis.

If inappropriate methodology is used, or if appropriate methodology is used poorly, the results of a study could be misleading.

Data Analysis

- This should explain in some detail how you will manipulate the data that you assembled to get at the information that you will use to answer your question. It will include the statistical or other techniques and the tools that you will use in processing the data. It probably should also include an indication of the range of outcomes that you could reasonably expect from your observations

EXPECTED RESULTS

- This section should give a good indication of what you expect to get out of the research. It should join the data analysis and possible outcomes to the theory and questions that you have raised. It will be a good place to summarize the significance of the work.
- It is often useful from the very beginning of formulating your work to write one page for this section to focus your reasoning as you build the rest of the proposal.

References

- This is the list of the relevant works.
- A numbered list of complete references, in order of appearance, should be included here.

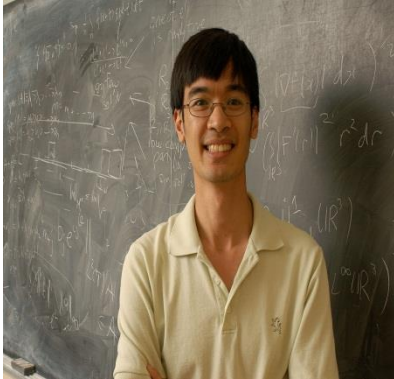
Characteristics of a Good Grant Proposal

- It should have new/novel/innovative ideas.
- It should be likely to advance an area of science.
- It should fill critical gaps in knowledge of a specific area.
- It should be "science-driven".
- It should have a thoughtful and up-to-date literature review.
- It should have well stated questions.
- It should be well written and succinct and follow the program guidelines.

TIPS

- Without excellent science there is no possibility of funding.
- Excellent science contains the following elements: ◦
 - A basic idea that is novel,
 - significant,
 - and based on sound logical principles.
- Use of the most current, specific, and sensitive methodologies, and efficient use of resources to achieve the goals of the grant.

Terence Tao



- **King Faisal International Prize in mathematics (2010)**

Terence Tao is an Australian mathematician working primarily on harmonic analysis, partial differential equations, and harmonics. He has one result which is the most famous.

تيرنس تاو هو عالم رياضيات أسترالي يعمل أساساً على التحليل التوافقي،
والمعادلات التفاضلية الجزئية، وتوافقيات. له نتيجة واحدة هي الأكثر شهرة،

*“There is no way to get
experience except through
experience.”*

THANK
YOU!