

Research Proposals from A to Z

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Life Cycle of a Proposal

- Plan
- Develop
- Write
- Obtain Review
- Submit
- Revise
- Resubmit
- Implement
- Disseminate Results



Why do we write proposals?



What reviewers are looking for

- Significance
- Approach and Plan of Work
- Applicant and Co-applicants
- Environment and Institution
- Novelty and Innovation
- Broader Impact (NSF)



Reasons Reviewers Reject*

- Nature of the problem (18%)
- Approach to the problem (39%)
- Competence of investigators (38%)
- Conditions of the research environment (5%)

*Theodore A. Kotchen, MD; Teresa Lindquist, MS; Karl Malik, PhD; Ellie Ehrenfeld, PhD. NIH Peer Review of Grant Applications for Clinical Research. *JAMA*; 2004;291:836-843.



Nature of the Problem (18%)

- It is doubtful that new or useful information will result from the project (14%).
- The basic hypothesis is unsound (3.5%).
- The proposed research is scientifically premature due to the present inadequacy of supporting knowledge (0.6%).



Approach to the Problem (39%)

- The research plan is nebulous, diffuse and not presented in concrete detail (8.6%).
- The planned research is not adequately controlled (3.7%).
- A more thorough statistical treatment is needed (0.7%).
- The proposed tests require more individual subjects than the number given (0.7%).



Approach to the Problem (39%)

- **Greater care in planning is needed (25.2%).**
 - The research plan has not been carefully designed (11.8%).
 - The proposed methods will not yield accurate results (8.8%).
 - The procedures to be used should be spelled out in more detail (4.6%).



Competence of Investigators (38%)

- The applicants need to acquire greater familiarity with the pertinent literature (7.2%).
- The problems to be investigated are more complex than the applicants realize (10.5%).
- The applicants propose to enter an area of research for which they are not adequately trained (12.8%).

Competence of Investigators (38%)

- The principal investigator intends to give actual responsibility for the direction of a complex project to an inexperienced co-investigator (0.9%).
- The reviewers do not have sufficient confidence in the applicants to approve the present application, largely based on the past efforts of the applicants (6.8%).

Conditions of the Research Environment (4.8%)

- The investigators will be required to devote too much time to teaching or other non-research duties (0.9%).
- Better liaison is needed with colleagues in collateral disciplines (0.4%).
- Requested expansion on continuation of a currently supported research project would result in failure to achieve the main goal of the work (3.5%).



Learn from the mistakes of others. You can't live long enough to make them all yourself.

-Eleanor Roosevelt



Proposal Planning Exercise

-  What are the tasks involved in grant proposal development?
-  Who is involved at each step?
-  Write a timeline for developing your grant application on the worksheet provided.



Making it Happen



4 Key Ingredients

 Knowledge

 Goals

 Skills

 Resources



Goals: Make a long
range plan

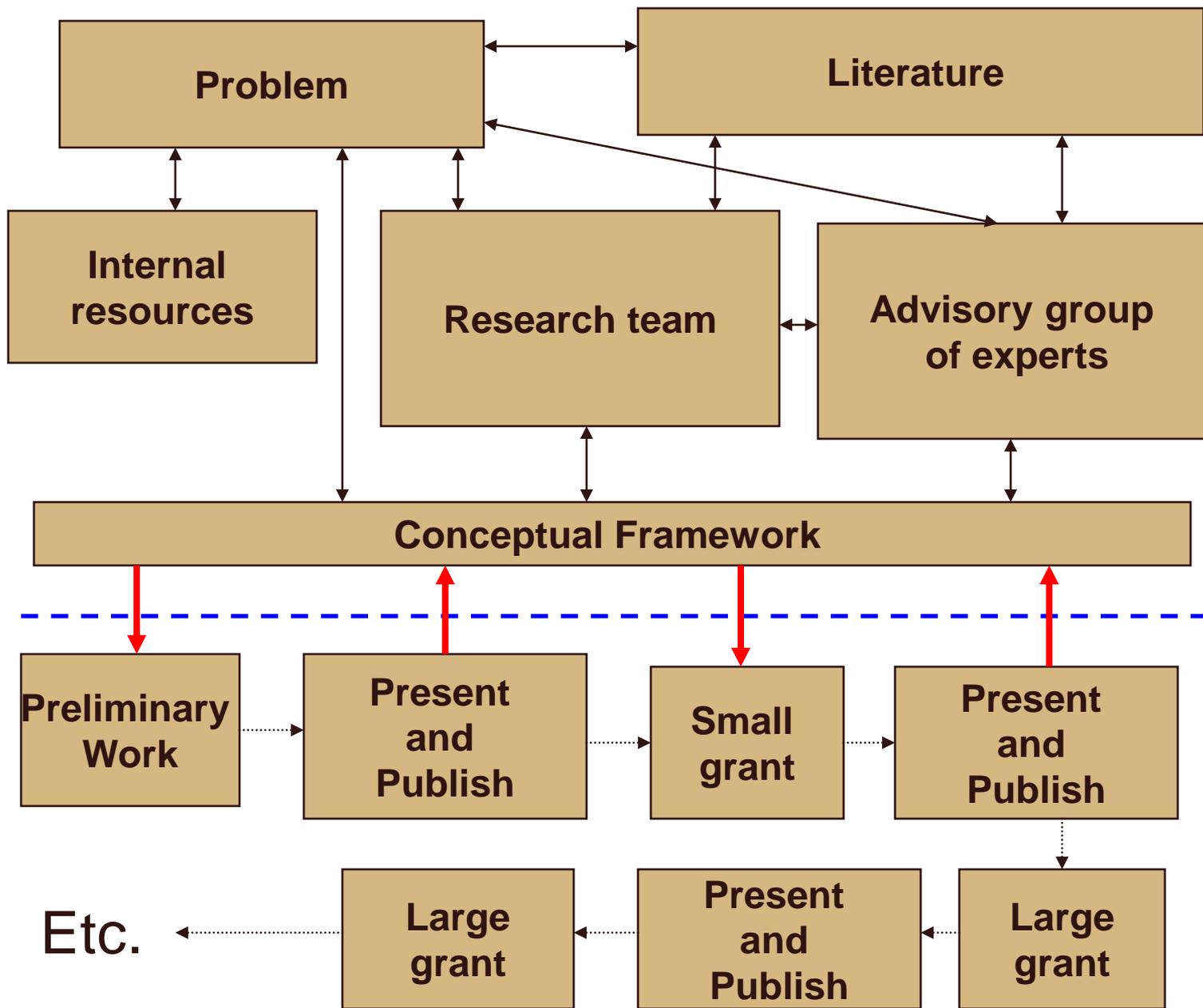


If a man does not know
what port he is sailing for,
no wind is favorable to him.

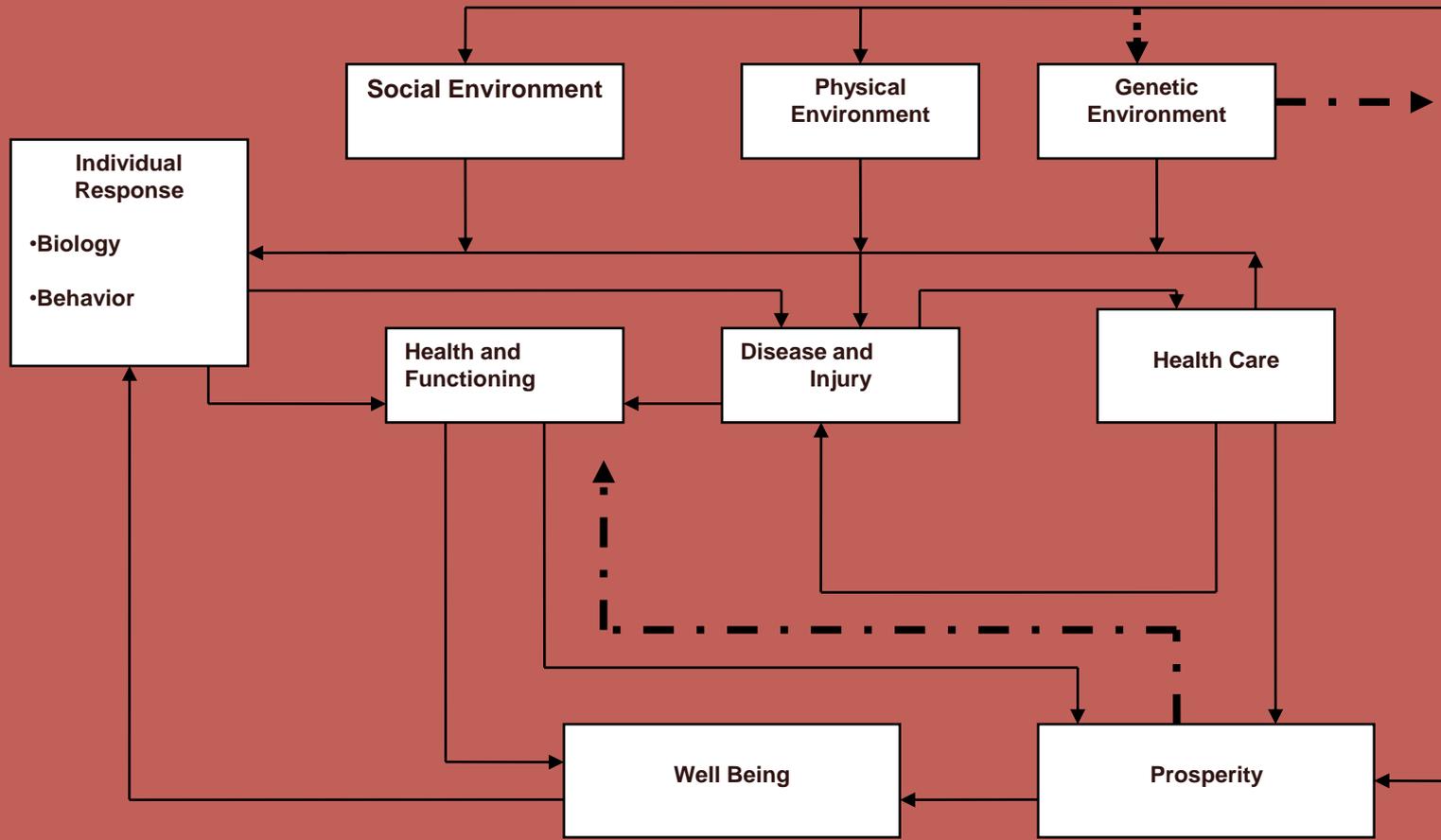
- Seneca

(Roman philosopher, mid-1st century AD)





Example of Conceptual Framework



Conceptual Framework Activity

- How can physicians be taught statistics effectively?
- What are the outcomes?
- What are the factors related to outcomes?
- How are outcomes and factors related to each other?



Goal Setting Exercise

 What are your one year goals?

 What are your five year goals?

 What are your ten year goals?



Skills

 Professional

 Organizational

 Communication

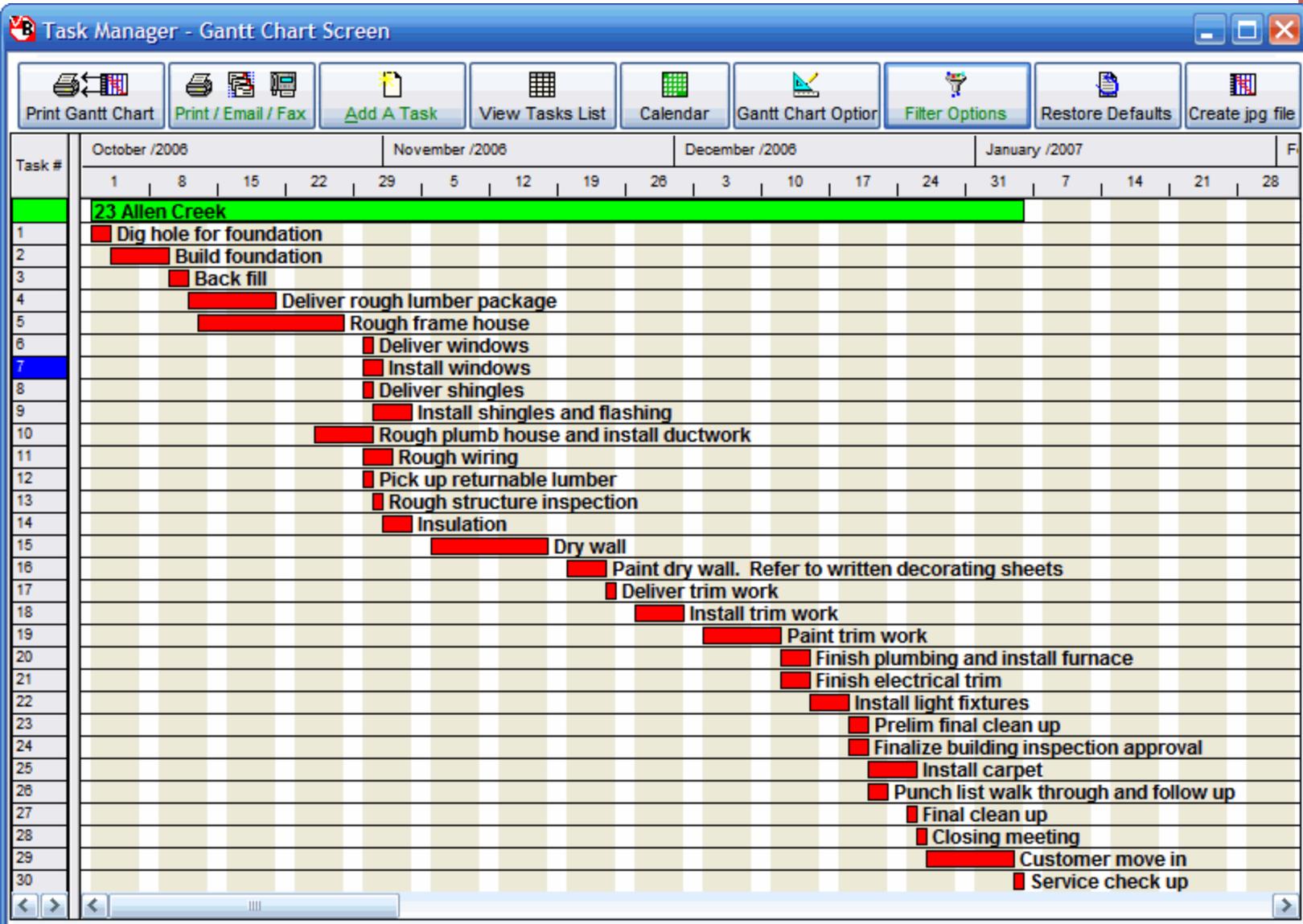


Strategies for Organization

- Keep contact information in one place
- Devise filing system
- Develop Gantt chart



Gantt Chart



I don't need time. I need
a deadline!

-Duke Ellington



Strategies for Communication

- Meet and communicate regularly with OER
- Hold regular team meetings
- Meet with advisors
- Make meeting records (with action plans)
- Set up Intranet/Share Drive



Resources: Have Them



Easy Proposal Planning PLUS

■ One Year and Earlier

■ Nine Months and Earlier

■ Six to Nine Months Before Proposal is Due

■ Four to Six Months Before Proposal is Due

■ Two to Four Months Before Proposal is Due

■ Six to Eight Weeks Before Proposal is Due

■ Two to Six Weeks Before Proposal is Due

■ The Submission Day



One Year and Earlier

- Make a long range career plan
- Schedule devoted time for proposal development
- Identify initial idea for proposal
- Get and learn how to use EndNote
- Focus research area for proposal and identify relevant literature



Getting a Great Idea Worksheet



One Year and Earlier

- Assemble advisory group
- Assemble research team
- Identify internal resources
- Read “The Grant Application Writer’s Workbook”
[\(<http://www.grantcentral.com>\)](http://www.grantcentral.com)
- Refine the main idea for proposal
- Name the proposal



Building a Team Activity



One Year and Earlier

- Develop conceptual framework and representative illustration or figure
- Identify two to four possible funding agencies
- Find the mission, application process, review criteria, and relevant program officer or organizational contact for each funding agency



Identify two to four possible
funding agencies



One Year and Earlier

- Identify and research the competition
- Identify and meet with statistician (if research has quantitative or program evaluation component)
- Conduct preliminary work with research team then present and submit findings for publication



Nine Months and Earlier

- Obtain application forms and instructions to applicants for each of the projected funding agencies for which you plan to submit a proposal
- Read the instructions to applicants and highlight relevant information
- Determine format requirements for font size and type, page limits, margins, etc.



Nine Months and Earlier

- Prepare a glossary of abbreviations, acronyms, and technical terminology that you may use
- Identify critical dates and prepare a Gantt chart for application writing and submission process
- Develop specific aims for proposal and present to research team, advisory group, and statistician for expansion of ideas and internal review



Nine Months and Earlier

- Write the Overview/Executive Summary of grant application and present to research team, advisory group, and statistician for expansion of ideas and internal review
- Write the Significance paragraph of grant application and present to research team, and advisory group for expansion of ideas and internal review



Six to Nine Months Before Proposal is Due

- Decide on project personnel
- Decide on whom to ask for letters of support
- Identify internal (i.e., department, college, and institution) proposal submission procedures and obtain necessary forms and critical dates



Six to Nine Months Before Proposal is Due

- Develop project and analysis (evaluation) plans with statistician
- Choose instruments for study measures, send out for internal review, and revise as needed



Six to Nine Months Before Proposal is Due

- Collaborate with statistician on writing statistical considerations portion of proposal (specific aims formulated statistically, study design, sample size justification (i.e., power analysis), statistical methods, and data management plan)
- Write Projected Approach/Plan of Work section of grant application and present to research team, advisory group, and statistician for expansion of ideas and internal review



Four to Six Months Before Proposal is Due

- Ask project personnel for updated NIH Biosketches
- Ask for letters of support
- Collaborate with relevant fiscal personnel to develop budget and write budget justification



Four to Six Months Before Proposal is Due

- Write Background/Needs Assessment section of grant application and present to research team and advisory group for expansion of ideas and internal review
- Write Preliminary Studies/Previous Experience section of grant application and present to research team and advisory group for expansion of ideas and internal review



Two to Four Months Before Proposal is Due

- Document qualifications of project personnel
- Obtain NIH Biosketches
- Obtain Letters of Support
- Obtain additional forms needed from project personnel (such as Conflict of Interest statements)



Two to Four Months Before Proposal is Due

- Put NIH Biosketches into same format
- Write Adequacy of Resources section
- Fill out personnel loading chart (if required)
- Write Budget and Budget Justification section



Six to Eight Weeks Before Proposal is Due

- Design face page of application
- Write Abstract and send for internal review
- Prepare Appendices
- Write Table of Contents
- Send complete application for review



Two to Six Weeks Before Proposal is Due

- Obtain all required signatures
- Make necessary number of copies



The Submission Day

 Send final versions to relevant parties



Thank You!

