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## Successful Proposal Preparation

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# SUCCESSFUL PROPOSAL PREPARATION

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## Introduction

All successful proposals, regardless of topic, have several attributes in common. These attributes are summarized:

- ♦ Clear, concise project objectives
- ♦ Strong motivation (need for research)
- ♦ Thorough analysis of state of the art (background)
- ♦ Clear research progression with definable milestones
- ♦ Adequate resources

This paper will address the significance of each of these attributes and how to successfully integrate them into a quality research proposal.

## Project Objectives

One of the biggest mistakes that an investigator can make is to be vague about their proposed contribution. The project objectives are the single, most important part of the proposal. Many investigators fail to state the project objectives clearly. This forces the reviewers to infer from the overall project description what the contributions of the project will be. This is not a good approach. The reviewer may infer incorrectly what the intended contributions will be, or may give the various aspects of the project different merit weightings than the investigator intends. Both of these may potentially lead to lower ratings. Many reviewers will subconsciously make a determination about their funding recommendation within reading the first couple of pages of the proposal. They will then use the remainder of the proposal to build their argument to support their recommendation. Therefore it is critical to be clear and concise about the intended objectives of the project.

A second common mistake is to bury the project objectives within the text of the project description. Although the project objective may be clearly stated, its importance or relevance may be missed. One method of highlighting the importance of a particular statement is to

- ♦ judiciously use **boldface font** to stress the relevance, or
- ♦ to use bullets to identify several important points.

In both cases, these methods should be used only sparingly, as the continued use of both methods can de-emphasize the importance of the statements (i.e. "the boy who cried wolf").

## Motivation

Each proposed project must be sufficiently motivated. The reviewers need to be informed as to the relevance or impact of the project. This section should describe the cause and effect of the problem. Why is there a need for this research? The investigator should clearly state what climate or environment is causing the problem and the effect that problem is having. This section is extremely important in convincing the reviewer that this is a worthy problem to be solved. If the cause is not significant or the effect is minimal, then regardless of the merit of the proposed approach, the impact is not sufficient to warrant funding.

## **Background**

Once the objectives of the project have been stated and the project has been sufficiently motivated, then the next step is to describe the niche that the proposed method has among other methods. This is often called the "literature survey," but it should be much more than that. Rather than simply a litany of other similar or dissimilar methods, this section should discuss the merits of existing methods, the advantages and the shortcomings of each existing method, and what the proposed method offers that the others lack. The investigator should never write disparagingly of others' works, but should clearly point out how the proposed method improves upon earlier works.

Any previous work on the topic by the investigator should be presented in detail in this section as well. This should include promising results, and preliminary development of the proposed research direction.

## **Research Progression**

After the proposed project has been motivated and the background sufficiently presented, the next step is to develop an outline, or research progression for the project. One method that is effective is to develop a "top-down pyramid" of the project objectives. The top of the pyramid is the main project objective. The layer immediately below the pyramid top contains all of the sub-goals that must be accomplished before the main objective can be achieved. The next layer contains those goals preliminary to the sub-goals, and so on. The bottom of the pyramid contains the initial project tasks. Once an investigator has clearly laid out the research progression in his/her own mind, then the investigator can clearly present this to the reviewers. This presentation can be in timeline form or as a set of task descriptions.

## **Resources**

Finally, the investigator should describe any unique resources, such as laboratory facilities or expertise of co-investigators.

If each of these areas is clearly addressed, the proposal should be well received. Secondly, if the proposal is not funded the first time, by all means, resubmit it.