# SBIR Proposal Writing Basics: Our objective is to clear up what is meant by objectives

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Most SBIR/STTR agencies require that you specify objectives as part of your Phase I or II proposal. It is surprising how many applicants do not state objectives in this section, or state something different than what the agencies are looking for. Therefore, this month’s topic is the exciting world of objectives.

Part of the problem with inconsistent handling of the objectives section of an SBIR/STTR proposal is that there are not clear, universally held definitions in the literature regarding objectives, and how they relate to things like goals and aims. It also doesn’t help that some argue there are both general objectives and specific objectives. While we don’t claim to have “the” answer in terms of how each agency or reviewer would define this smorgasbord of terms, here are our definitions:

Goal is a general statement of a desired endpoint at the end of Phase I or II (depending on whether it is a Phase I or II proposal, respectively), not typically very quantitative or specific.

Objective is a step during the Phase I (or II) project towards reaching that goal. It is generally more specific and quantified.

So what about the term “aims?” This is what NIH likes to use; in the Research Plan of your NIH Phase I or II SBIR/STTR proposal, you are to dedicate one page to Specific Aims. We believe NIH uses this term in an equivalent fashion to what we are calling objectives.

And what is the difference between a general objective and a specific objective? As best as we can tell, general objective is another term for goal, or the general statement of a desired endpoint. A specific objective, then, is what we are calling an objective in our definition—a specific, quantified step toward reaching the goal (or reaching the general objective, if you prefer that terminology).

So, when the SBIR/STTR agencies ask you to specify the objectives (or aims) of your Phase I or II project, we believe they are asking you to define the specific and quantified steps in reaching the Phase I or II goal. This also leads nicely to what they usually ask for next, which may be worded something like “the relationship of the work effort to the stated objectives.” Our translation is that, for each of the objectives you state, you should define 1 or more tasks indicating how you will reach the objective.

Let’s try an example to see if we can make this muddy water a bit clearer: Suppose you have an unproven innovative idea that you think you can predict whether someone is a Democrat based on their DNA. In Phase I of this project, we will collect and analyze DNA and voter registrations for a statistically valid sample to determine if our innovation is feasible or not. Then this is how we might define our goal (or general objective), objectives (or aims), and tasks:

The goal of our Phase I SBIR project is to determine the predictability of a person being a Democrat based on their DNA.

The objectives are:

1. Collect data for DNA and voter registrations
2. Develop algorithms to predict being a Democrat based on DNA
3. Run data through program containing the algorithm, collect results
4. Determine if it is feasible to predict someone being a Democrat based on their DNA

Now, for each objective, we want to define some tasks as the specific things we need to do to reach that objective:

1. Collect data for DNA and voter registrations
	1. Decide sample size & diversity to yield statistically valid results
	2. Find a DNA databank with diversity of data by gender, age, ethnicity, geographic location, other variables
	3. Get voter registration data for individuals whose DNA is being collected
2. Develop algorithm to predict being a Democrat based on DNA
	1. Brainstorm several different algorithms, some just considering DNA and others looking at additional variables like gender, age or ethnicity
	2. Code the 3 algorithms that our consultant says have greatest chance of success
3. Run data through program containing the algorithm, collect results
	1. Finish coding the three algorithms from objective #2
	2. Input data collected in objective #1
	3. Collect output of predictions of who will be a Democrat
4. Determine if it is feasible to predict someone being a Democrat based on their DNA
	1. Compare predictions from algorithm coded in Objective #3 with actual voter registration data from Objective #1
	2. Conduct statistical tests to determine statistical significance and validity
	3. Conclude that our innovation is feasible if at least one algorithm accurately predicts who is a Democrat at least 75% of the time
	4. If our innovation is feasible, then prepare Phase II proposal
	5. If it’s infeasible, then write final report and conclude this SBIR project

OK, our example is a bit far fetched, but we think it’s useful in pointing out several important characteristics of goals/objectives/tasks:

First, notice how the goal is fairly broad, general, and lofty—but it’s also very important to state it in the proposal, so the reviewer clearly understands the purpose of this Phase I project.

Second, note the action words used in the objectives: “collect,” “develop,” “run,” and “determine.” And note that they are actions that get to an endpoint—“determine” means you have to make a decision and draw a conclusion, whereas action words like “study” or “investigate” don’t help you decide when you are done.

Third, notice how the four objectives are arguably logical steps you would take to get from the start of Phase I to the stated goal.

Fourth, note that there are tasks under each objective that help us describe what we have to do to reach the objective—therefore, the relationship of objectives to tasks/work plan is clear.

But at the same time, these task statements are not so detailed that they fully explain what is involved. For example, in Objective #1, we are not explaining in the tasks how we will protect the privacy of the “human subjects” for whom we are collecting DNA and voter registrations. These are important and non-trivial activities, and make the perfect textual discussion for each task. We can call them subtasks or activities or actions, but what is important is that we get into a level of detail that we are showing the reviewers that we know exactly what we are going to do in Phase I.

If you will start with your statement of the overall goal of the project, then define the objectives you have to accomplish to reach the goal, and the tasks that you have to complete to reach each objective, and then elaborate on those tasks, then you will have done yourself a world of good in the eyes of the reviewer. The reviewer can see your project from the “big picture” all the way down to your nitpicky details, with both being important (big picture helps them understand the importance of this innovative project, while nitpicky details give them confidence that you actually know how to do the work).