
JOB AID: ANALYTICAL APPROACH PROBLEM-SOLVING MODEL

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Job Aid: Analytical Approach Problem-Solving Model

This job aid presents a detailed description of the analytical approach process, including checklists and worksheets. This analytical approach process involves five steps:

- Step 1: Identify the problem.
- Step 2: Explore alternatives.
- Step 3: Select an alternative.
- Step 4: Implement the solution.
- Step 5: Evaluate the situation.



Step 1. Identify the Problem

Problem identification is undoubtedly the most important and the most difficult step in the process. All subsequent steps will be based on how you define and assess the problem at hand.

What Is a “Problem”?

A problem is a situation or condition of people or the organization that will exist in the future, and that is considered undesirable by members of the organization.

Problem or Solution?

In carrying out Step 1, you must distinguish between a problem and its solution. The most common error in problem solving is defining problems in terms of their solutions. Sometimes people think that they are articulating problems when actually they are stating a potential solution.

Here's an example: Someone might say, “The problem is that we don’t have an EOC.” The problem, however, is not that there is no EOC. The problem is really that the emergency management community cannot coordinate communications adequately during the response phase. Establishing an EOC is a solution.

Delineating the Problem Parameters

Identifying the problem also involves analyzing the situation to determine the extent of the problem. Problem parameters include:

- What is happening (and is not happening)?
- Who is involved?
- What are the stakes?

The checklist on the following pages presents a set of questions that can help you define a problem accurately.

Checklist for Identifying, Defining, and Analyzing Problems

Question		
1. Is this a new problem?	Yes ☐	No ☐
2. Is the problem clearly and precisely stated?	Yes ☐	No ☐
3. What assumptions am I making about the problem? Are they true?	Yes ☐	No ☐

4. What would happen if nothing was done about this problem?

5. Can the problem be restated in other terms? If yes, how? Yes ☐ No ☐

6. What data are known that bear on the problem?

Checklist for Identifying, Defining, and Analyzing Problems (Continued)

Question		
7. Is the information accurate?	Yes ☐	No ☐
8. Are there any precedents or rules about other procedures that apply to the problem? If so, what precedents or rules apply?	Yes ☐	No ☐
9. What additional facts are needed to analyze the problem? (List.)		
10. Is it possible to interpret the facts differently? How would that affect the problem's solution?		
	Yes ☐	No ☐
11. Do I have to make this decision, or does someone else? If this decision is someone else's to make, whose is it?		
	Yes ☐	No ☐

Step 2. Explore Alternatives

The second step in the decision-making process is to explore alternative solutions to the problem identified in Step 1. This step really consists of two parts:

- Generating alternatives
- Evaluating alternatives

Techniques for Generating Alternatives

- **Brainstorming** can be done individually or in a group. Brainstorming requires an environment in which the participants (individuals or group members) are free to “think out loud.” Participants blurt out as many ideas as possible within a specified time period. No evaluation of ideas is permitted so as to encourage the free flow of creative ideas. These ideas are recorded. When the specified time period ends, then evaluation of the ideas begins.
- **Surveys** economically tap the ideas of a large group of respondents. Surveys present respondents with the problem and a series of alternative solutions.
- **Discussion groups** should consist of those who are directly involved in decision making. In generating alternatives, the group members should:
 - Be comprehensive.
 - Avoid initial judgments (as in brainstorming).
 - Focus on the problem, not on the personalities of the people involved in the decision-making process. (But be sensitive to the impact of personalities on the process.)

Criteria for Evaluating Alternatives

After you have generated alternative solutions, you must have some means of evaluating them. The table on the following page lists criteria by which you can evaluate alternatives.

Another part of evaluation is identifying contingencies—what could go wrong. Think in terms of Murphy’s Law (“If anything can go wrong, it will.”) and identify what could get in the way of solving the problem you are facing.

Criteria for Evaluating Alternatives

Step	Questions To Ask
1. Identify Constraints	Do any of the following factors serve as a limitation on this solution? ▪ Technical (limited equipment or technology) ▪ Political (legal restrictions or ordinances) ▪ Economic (cost or capital restrictions) ▪ Social (restrictions imposed by organized groups with special interests) ▪ Human resources (limited ability of relevant people to understand or initiate certain actions) ▪ Time (requirements that a solution be found within a prescribed time period, thereby eliminating consideration of long-range solutions)
2. Determine Appropriateness	Does this solution fit the circumstances?
3. Verify Adequacy	Will this option make enough of a difference to be worth doing?
4. Evaluate Effectiveness	Will this option meet the objective?
5. Evaluate Efficiency	What is the cost/benefit ratio of this option?
6. Determine Side Effects	What are the ramifications of this option?

Step 3. Select an Alternative

The third step in the problem-solving model is to select one of the alternatives explored in Step 2 for implementation. Selecting an alternative is a critical step in the problem-solving process. After you have evaluated each alternative, one should stand out as coming closest to solving the problem with the most advantages and fewest disadvantages.

Implementing the solution may not be easy, however. There may be repercussions, and you should complete a reality check to identify and evaluate the possible consequences of implementing the solution. Carefully consider how the solution will be implemented before selecting an alternative.

When selecting an alternative, you will encounter factors that affect your decision making. These factors may include:

- Political factors.
- Safety factors.
- Financial factors.
- Environmental considerations.
- Ethical factors.

Not all of these factors may be readily recognizable. As you examine the situation and apply the problem-solving model, be alert for these potential limits on the solutions that you can implement.

Selecting Alternatives: Best Solutions

Solution:
Limiting Factors:
Political:
Safety:
Financial:
Environmental:
Ethical:
Other:

Solution:
Limiting Factors:
Political:
Safety:
Financial:
Environmental:
Ethical:
Other:

Solution:
Limiting Factors:
Political:
Safety:
Financial:
Environmental:
Ethical:
Other:

If you have more than one clear solution, can any be combined?

Step 4. Implement the Solution

The fourth step involves five subparts.

- **Develop an action plan.** Implementation requires a series of steps to:
 - Articulate who has to do what, with what resources, by what time, and toward what goal.
 - Identify who must know about the decision.

The Action Planning Checklist on the following page will help you to plan the details needed for implementation.

- **Determine objectives.** Objectives are measurable targets that are:
 - Used to monitor progress and establish priorities.
 - Based on analysis of the situation and contingencies.
- **Identify needed resources.** Resources include people, information (data), and things. Ask yourself:
 - What resources do I need?
 - Where will I get them?
 - How long will it take?
 - What can others offer?
 - Are there any special requirements?
- **Build a plan.** Your plan should state:
 - Who ...
 - Will do what (and with whom) ...
 - By when
 - Where
 - How

Remember: Communicate the plan to all parties involved!

- **Implement the plan.** Use the action plan to put the decision in place.

Action Planning Checklist

Use the following questions to help you develop any details needed to plan for implementation of the decision.

Question

1. Will the decision be implemented as it stands or will it have to be modified?

☐ As it stands

☐ With modifications (list)

2. Does the decision fit the problem and conditions specified earlier? Yes ☐ No ☐

3. Is this action still the best option? Yes ☐ No ☐

If no, what has changed?

4. What are the side effects of this decision?

5. Who is responsible for taking action?

Action Planning Checklist (Continued)

Question

6. Are the specific targets to be accomplished and the techniques for accomplishing them defined? Yes ☐ No ☐

If no, what targets and techniques require further definition?

7. What specific activities must take place to implement this decision? In what sequence?

8. What resources will be needed to implement this decision?

9. What is the schedule or timetable for implementation of each step in the action plan?

Step 5. Evaluate the Situation

Evaluation involves two parts, as described below:

- **Monitoring progress.** Ask:
 - Has the situation changed?
 - Are more (or fewer) resources required?
 - Is a different alternative solution required?

Monitoring the success and results of a decision is an ongoing process that is critical to fine tuning a course of action.

- **Evaluating the results.** Use the following checklist to help you evaluate the decision.

Evaluation Checklist

Use the questions below as a guide for evaluating the results of your decision making.

Question	Yes	No
1. How will you know if the proposed decision has worked?		
Is it measurable? If yes, how?	☐	☐
2. Do the decision and the action plan make use of existing channels of communication to generate feedback?	☐	☐
3. Will the feedback test the effectiveness of the decision?	☐	☐
4. Will the feedback be sufficient to reflect changing circumstances and conditions that might occasion the need to modify the plan?	☐	☐
5. Is the solution achieving its purpose?	☐	☐
6. Is timely information generated so that it can be supplied to operational, administrative, and policy units in the jurisdiction?	☐	☐

Notes