

**WHAT IT IS**[Return to Table of Contents](#)

Cost-benefit analysis is a process used to aid managers in making decision choices between strategies. Through definition and evaluation of costs and perceived benefits associated with particular alternatives, reasonable decisions can be made about whether to proceed with a given strategy. Cost-benefit analysis can also apply to the audit process as a way to determine which audit technique would be most appropriate.

Cost-benefit analysis is similar to cost effectiveness analysis, though some distinctions exist. While cost-benefit is primarily concerned with economic efficiency, cost effectiveness focuses on technological efficiency. Cost-benefit would more likely inform long-term public sector decisions, such as whether to commit capital to a new project. Cost effectiveness has a more narrow short-term focus, such as in determining an existing program's resource priorities.

Distinctions between the two are less pronounced now that cost-benefit analysis is less used in global situations where potential benefits and costs are not easily expressed in dollars. Such circumstances are quite common in the public sector. Thus, this discussion treats cost-benefit analysis and cost effectiveness as essentially synonymous. (Cost-benefit analysis also relates to the Competitive Cost Review Program established by the Legislature in 1987 which encourages entity management to periodically review the accountability, efficiency, and productivity of overall operations.)

**WHEN TO USE IT**

Cost-benefit analysis is most commonly used to determine which of a series of alternative actions will be most economically efficient. As noted earlier, many real-world situations have benefits and costs which may be difficult to quantify. For example, the legislature may be considering several strategies for lowering the crime rate. One strategy might target more dollars toward substance abuse prevention, another might seek longer prison sentences for criminals, while a third might advocate boot camps for youthful offenders.

In reality, more than one strategy might be appropriate. What criteria, then, should one use for this decision? If all strategies were expected to reduce crime by equal amounts, it would seem that the decision hinges on the financial cost to implement the strategy. Yet, this is an unlikely assumption. It is more probable that actual decision criteria would be more complex. Even so, cost-benefit analysis in this example could be used to inform the policy decision.

Audit applications also exist for cost-benefit analysis. For example, when determining the nature and extent of internal controls, auditors must weigh the cost of controls against the benefits of having the controls in place. This is necessary since resources available for implementing controls are limited.

Similarly, cost-benefit analysis can help justify recommendations for adding or eliminating internal controls. Auditors can also use the process to evaluate the cost effectiveness of prior management decisions. Finally, cost-benefit analysis can facilitate quantifying findings. (See also the *SAO Fiscal Impact Manual*.)

**HOW TO PREPARE IT**

The following can serve as an outline for the preparation of cost-benefit analysis:

- Establish assumptions and constraints related to the strategy or project.
  - **Assumptions** typically deal with the economic life of a project and the period of comparison for various alternative strategies. The economic life of a project generally deals with the amount of time during which benefits continue to accrue. The end of a project's economic life is marked by its obsolescence. The period of comparison should allow for comparability of the costs and benefits of the different alternatives.
  - **Constraints** can be classified as:
    - ... administrative, including available management expertise
    - ... distributional, as in provision of services and assistance
    - ... legal, as in laws, rules, and rights
    - ... political, as with the public acceptability of a strategy
    - ... resource, in terms of staff, budget, time, and technology
    - ... social, including religious and cultural concerns
    - ... technological, as in what is technically possible at the time
- Set the objectives of the analysis. Determine the desired results or effects that should be brought about by the strategy or project.
- Identify the possible alternative approaches.
- Identify the costs associated with each alternative. Costs can include:
  - **initial costs** such as research and development, planning, training, land or building acquisition, etc.
  - **recurring costs** such as salaries, benefits, materials, rent, maintenance, overhead, etc.
- Consider the time value of money. Future costs should be reduced to present value. Inflation should also be considered.
- Identify potential benefits and consequences associated with each alternative. Benefits and consequences include:
  - **tangible benefits**, i.e. additions to and subtractions from social welfare which can be expressed as dollar values
  - **intangible benefits** which can be valued only through subjective or qualitative interpretation
  - **negative effects**, i.e. undesirable consequences resulting from alternatives which can be both tangible and intangible
  - **spillover effects**, i.e. indirect and/or unintended ripple effects which may or may not be directly expressed in the analysis
- Establish criteria for making the decision and select the most desirable alternative.

Note that when both costs and benefits can be quantified, benefits and costs can be expressed as a ratio (e.g. benefits/costs). A common decision rule is to proceed with the strategy if this ratio is greater than 1. Conversely, if costs outweigh benefits, other alternatives should be considered.

Identification of effects and consequences can be influenced by the definition of the community affected by the strategy or project. For example, assume the community is a particular neighborhood, and the strategy is a neighborhood watch program. In this case, one might not be concerned about how the program affects those outside the neighborhood. Perhaps crime would rise outside the neighborhood area as a result of criminals moving out. But if the community were defined as the whole city, such effects would have to be considered.

**SAMPLE APPLICATION**

The following exemplifies using the above process in the case of an actual urban renewal project:

- The project objectives are to:
  - establish a superior pattern of resource allocation
  - derive social benefit by eliminating blight
  - enhance local financial position
- Costs associated with the project are summarized below:

| COSTS  | AMOUNT<br>(PRESENT VALUE) |
|--|---------------------------|
| Surveying and Planning   | \$ 113,000                |
| Project Execution  |                           |
| Administrative, Travel, Furniture, etc.                                    | 174,000                   |
| Legal Services   | 101,000                   |
| Acquisition Expenses, Salaries of Relocated Staff, and Other Related Items | 345,000                   |
| Site Clearance   | 81,000                    |
| Disposal, Lease, and Retention Costs                                       | 43,000                    |
| Project Inspection   | 26,000                    |
| Cost of Improvements Demolished  | 2,000,000                 |
| Site Improvements  | 509,000                   |
| Public and Supporting Facilities   | 327,000                   |
| Relocation Payments  | <u>73,000</u>             |
| <b>TOTAL TANGIBLE COSTS</b>  | <b>\$3,792,000</b>        |

In this case, costs and benefits were determined after the fact. If costs occurred over time, the center of the time interval was used to determine the present value. Land acquisition is not included because land purchased for the project was later resold at a profit. In an actual situation, these figures would be less accurate and would be based on forecasts and estimates. (Note that these costs reflect conditions in the early 1960s when this specific project was undertaken.)

The next table summarizes expected project benefits, both tangible and intangible, and includes negative consequences as negative benefits. Increase in the value of project area land represents the profit to the redevelopment agency from the resale of acquired land. Increase in the value of neighborhood

properties represents that portion of the increase believed to arise from urban renewal. This was accomplished by comparing property value increases in areas adjacent to the project with those of areas assumed to be too geographically distant to be affected. Public improvement benefits were estimated at cost. Reduction in municipal services costs was based on assuming that neighborhood costs for such services would become comparable to the citywide average.

| BENEFITS  | AMOUNT<br>(PRESENT VALUE) |
|---|---------------------------|
| <b>TANGIBLE BENEFITS</b>                              |                           |
| Increase in Project Area Land Values                  | \$ 209,000                |
| Increase in Neighborhood Property Values              | 302,000                   |
| Value of Public Improvements, Schools,<br>Parks, etc. | 532,000                   |
| Reductions in City Service Costs                      |                           |
| Fire Protection                                       | 523,000                   |
| Health and Sanitation                                 | 317,000                   |
| Police Protection                                     | <u>872,000</u>            |
| <b>TOTAL TANGIBLE BENEFITS</b>                        | <b>\$2,755,000</b>        |
| <b>INTANGIBLE POSITIVE BENEFITS</b>                   |                           |
| Enhanced Quality of Life for Residents                |                           |
| Decreased Risk of Crime or Fire                       | *                         |
| Improved Health                                       | *                         |
| Improved Housing                                      | *                         |
| Better Schools  | *                         |
| Park Improvements                                     | *                         |
| Aesthetic and Cultural Value of Project               | *                         |
| <b>INTANGIBLE NEGATIVE BENEFITS</b>                   |                           |
| Disruption from Relocating Residents                  | *                         |
| <b>TOTAL BENEFITS</b>                                 | <b>*</b>                  |

Tangible costs outweigh tangible benefits by approximately \$1.03 million (\$3.79 million minus \$2.76 million). However, intangibles make completing the calculation difficult. Thus, it is up to planners and decision-makers to determine whether intangible benefits are sufficient to compel selection of this project. Such outcomes are not unusual in cost-benefit analysis.

**ADVANTAGES**

Cost-benefit analysis can:

- allocate resources to strategic objectives
- take the economic efficiency of strategies into account
- specify assumptions, costs, and benefits of strategies more fully
- focus on the outcomes and effects of strategies
- help gather data on and quantify objectives and outcomes
- show where intangibles and uncertainties exist
- posit and compare alternate approaches to the same policy objective
- highlight long-term effects of policy decisions on population segments
- summarize a great deal of information
- encourage factoring intangibles and politics into strategic decisions

**DISADVANTAGES**

Cost-benefit analysis can:

- be constrained by problems in quantifying key variables
- become confusing on complex projects
- be challenged as subjective, particularly with respect to intangibles
- lend itself to political or bureaucratic manipulation
- appear to be more precise and comprehensive than it really is
- be seen as a prescription for decision-making rather than as one tool among many

**RESOURCES**