How to Estimate the Cost-Benefit of Training

Calculating return on investment

John M. Keller,
Florida State University
FOREWORD

The application of business concepts and practices to training outcomes and other human resource development interventions requires the use of methods to determine the value of the intervention. One of these methods is cost-benefit analysis as measured by calculating training’s return on investment.

This booklet provides an overview of how to conduct cost-benefit analysis that focuses on return on investment calculations.

This booklet is a primer that contains brief explanations of cost-benefit analysis, the four levels of training evaluation, an explanation of the cost-benefit calculation process, and a worked example. This booklet provides adequate guidance to conduct a simple, straightforward return on investment study, but it is recommended that you supplement this booklet with other references if you are going to conduct a more complex study.

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**WHAT IS COST-BENEFIT ANALYSIS?**

Cost-benefit analysis (CBA) is used in both planning and evaluation. In planning it is used to predict whether the benefits of an innovation, an intervention such as training, or a capital investment will be equal to or greater than the costs of the intervention. For example, if you are trying to decide whether to hire a vendor to offer a leadership course, cost-benefit analysis can estimate whether the organizational benefits of the training will equal or exceed the training costs.

When used in evaluation, which is the primary purpose of this booklet, cost-benefit analysis (CBA) is used to estimate the actual organizational results. After the training or other type of intervention has been implemented, cost-benefit analysis can be used to determine whether there was any real benefit in comparison to the actual costs.

The most common approach is to calculate return on investment (ROI). This is accomplished by producing a financial estimate of both the benefits and the costs to determine whether the benefits exceed the costs.

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*Solutions to problems are like keys in locks; they don't work if they don't fit. And if solutions aren't the right ones, the problem doesn't get solved.*

R. Mager & P. Pipe
*Analyzing Performance Problems*

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ROI is like a measurement of how well training as a solution fits the problem for which it was designed. Why do training in the first place? Was the business purpose of the training program met? Often a training solution is decided upon without first thinking about how its effectiveness might be measured.

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**WHY USE COST-BENEFIT ANALYSIS?**

Cost-benefit analysis fills an important niche in the training evaluation process. Consider the situation in the following anecdote.

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In other words, by using cost-benefit analysis with an estimate of ROI, you can determine how well your training contributes to meeting your organization’s mission.

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**ROI for Impact**

There's a note on your desk from the HR Manager. He wants to know by tomorrow morning how effective the revamped aircraft inspectors course has been since it was overhauled last year. The new version uses multi-media and is more expensive to deliver than the old one. He would like some cost-benefit information to justify to management that this training is really worth it. He asks you to calculate the ROI of the course.

Being new to the training department, you scratch your head while thinking about this ROI concept. Just what does ROI stand for and how is it measured?

You sort through your training records. There is a summary of participant "smile sheets" from the last three courses. It shows a positive reaction to the training. Will that help? No, not really! What then? Perhaps the huge improvement in pre- and post-test scores. No!, they're OK as an achievement measure, but not so good as an indicator of impact. You decide that how well the training transfers to the job will tell you whether or not the training was effective. Ready to impress the boss with your timeliness, you tuck your file of results under your arm, knock, and enter.

He takes a cursory look over the report and hands it back. "Thanks, but it's not what I'm after. You've given me effectiveness data, but I need more. It does not tell the full story on ROI. Go talk to Dolores; she's just back from a workshop on Organizational Results Evaluation."

After an hour with Dolores you understand the concept of ROI a little better. You now know that training managers look for facts and figures to justify the investment of training dollars. They go beyond asking "Did the training have an impact on organizational results?" They seek an answer to "How much impact did it have on results?"
Cost-benefit analysis can also help you meet the requirements of Public Law 103-62, *The Government Performance and Results Act of 1993* (GPRA). When used as part of a total training evaluation plan, cost-benefit analysis can be a powerful tool in helping you validate training effects.

**CBA AND TRAINING EVALUATION**

As illustrated in the preceding anecdote, cost-benefit analysis is part of a complete, systematic evaluation model. This model, which was first promoted by Donald Kirkpatrick in 1957, contains four types of evaluation conducted by training departments:

<table>
<thead>
<tr>
<th>Levels of Evaluation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1 Reaction</strong></td>
<td>Did the trainees like the instruction? Uses attitude surveys, questionnaires, and debriefs.</td>
</tr>
<tr>
<td><strong>Level 2 Learning</strong></td>
<td>What knowledge, skills, and attitudes did they learn? Uses activities and tests to measure learner accomplishment.</td>
</tr>
<tr>
<td><strong>Level 3 Behavior</strong></td>
<td>Did changes in on-the-job performance result from the training? Uses performance data, observations, and surveys of ex-trainees and significant others to measure how well the training transferred to the job.</td>
</tr>
<tr>
<td><strong>Level 4 Results</strong></td>
<td>What was the organizational impact of the training? Uses perceptual, performance, and financial information to estimate organizational results. Measures cost-benefit using return on investment calculations.</td>
</tr>
</tbody>
</table>

Each level becomes progressively more difficult to conduct; however, the benefits are greater to the organization as you move from Level One to Level Four.

While Levels One, Two, and Three examine the effect of training on individual attitudes and performance, Level Four evaluation helps to identify what happens to the organization as the result of training. In other words, "what was the impact of training on organizational results?"

Of all the levels of training evaluation, Level Four evaluation, when it incorporates cost-benefit analysis, is of the greatest interest to those who have to justify budgets.

If trainers use only Levels One and Two evaluation, how do they know when training results in more effective or efficient job performance? For example, although participant test scores and reactions to training may have been very favorable, there are many non-training influences that might reduce the continued transfer of training over time in the workplace. These might include workplace habits, lack of support or incentive to continue with newly-acquired skills, non-use by influential others, etc. Thus, the real test of the impact of training is whether there is appreciable change in work behavior that improves organizational performance and results.

"OK, so your training is good? But, does it add value to the organization?" The major purpose for using cost-benefit analysis is to determine if there are resulting productivity benefits and whether they outweigh the costs of training. The data collected may be analyzed to obtain the ROI estimate. Other purposes include:

- Determining the extent to which training influences specific results or outcomes within the agency. For example, you may wish to determine whether middle managers are taking greater risks in the workplace as a result of outdoor management training.
- Determining whether similar operational results are being obtained in various parts of the organization or agency.
- Analyzing which new skills are having the greatest impact on business results. For example, you may want to know which set of skills taught in a management skills course are having the greatest impact on reducing the number of formal grievances lodged by staff.

Keys to successful Level Four evaluation are to establish a clear purpose for tracking results from the start, and to identify what results will give you the best indicators of training impact.
**WHAT IS MEASURED?**

There are three main measures for assessing the impact of training:

- **Perceptions.** Perceptions are opinions obtained when objective measures of business results are not feasible. For example, a course in Diversity might produce a more harmonious working environment. This is verified by co-workers expressing that they have a more positive attitude toward each other.

- **Performance.** These can be classified as productivity or quality measures. They can be stand-alone measures, or used when the cost of training is not available or is difficult to quantify. An example would be a 20% reduction in inspection errors by inexperienced employees as a result of OJT and closer supervision.

- **Financial.** The two types of financial measures are:
  - operational savings or decreased expenses (increased revenue would be included here in a revenue-generating organization), and
  - return on investment.

All of these measures can be used in cost-benefit analysis, but financial measures are required to calculate ROI.

**HOW IS ROI CALCULATED?**

Measuring return on investment can be a simple calculation. Basically, it is the dollar amount in organizational results (operational savings and/or the increased revenue generated as a result of training) divided by the actual cost to conduct the training. It can be expressed either as a ratio (benefit : cost), or as a percentage (if multiplied by 100).

\[
\text{Operational Savings} \\
\text{ROI} \% = \frac{\text{Benefit}}{\text{Cost of training}} \times 100
\]

For example, assume that the cost of training aircraft inspectors on an improved inspection process is $100,000. As a result of this training, there were savings of $250,000 due to the reduced cycle time required to inspect and certify aircraft. To calculate the ROI, divide the benefit ($250,000) by the cost ($100,000). This yields a cost benefit ratio of 2.5 to 1. Multiply the result (2.5) by 100, and you have a cost-benefit of 250%. In other words, for every dollar spent on training, there was a cost reduction of $2.50.

This simple formula can become more complex when trainers are asked to assign realistic dollar values to some intangible benefits of training, as may sometimes occur in “soft” skills courses. However, it is possible to make reasonable calculations, and some strategies for translating results into the hard language of dollars and cents are outlined in later sections.

**THE ROI APPROACH TO COST-BENEFIT ANALYSIS**

Training should be tied to organizational needs and be expressed in terms of organizational results. ROI provides an important tool for validating the impact of training effectiveness in meeting these organizational needs. Calculating ROI using actual results and costs of the training can confirm the benefits that were predicted during the planning phase.

Conducting a CBA requires three steps:

<table>
<thead>
<tr>
<th>Steps in CBA</th>
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</thead>
<tbody>
<tr>
<td><strong>Step 1:</strong> Determine the financial benefit to the organization.</td>
</tr>
<tr>
<td><strong>Step 2:</strong> Determine the total cost of training.</td>
</tr>
<tr>
<td><strong>Step 3:</strong> Calculate ROI and report results.</td>
</tr>
</tbody>
</table>
STEP 1: DETERMINE THE FINANCIAL BENEFIT TO THE ORGANIZATION

Benefits of training interventions can be demonstrated in terms of operational savings based on decreased expenses. Revenue generation is also a form of benefit, but it is not included in this booklet because it does not apply to government agencies. Therefore, the financial benefit is really the top line of the ROI calculation expressed in terms of dollars.

Operational Savings

\[ \text{ROI} \% = \frac{\text{Operational Savings}}{\text{Cost of training}} \times 100 \]

Training solutions are aimed at achieving specific organizational results. To track training results, first identify the links between training and organizational results. This involves determining what performance indicators best demonstrate training results and then placing some kind of financial value on these measures.

Some examples of performance indicators include:

**Productivity Improvement**
- Greater hours on-line
- More projects completed
- More forms processed

**Quality Improvement**
- Less rework/downtime
- Fewer errors
- On-time inspections

**Cost Reductions**
- Unit, training, program & material costs
- Turnover

**Work Habits and Procedures**
- Absenteeism
- Conflicts & grievances
- Improved safety record

**Time Savings**
- Less downtime
- Quicker repair time
- Reduced training time

Converting training results to organizational results can be a real challenge. Often the links between training results and organizational results are obvious. For example, the success of a course aimed at increasing safety awareness may be directly indicated by reduced accidents and costs of injuries. Sometimes, these indicators are more difficult to establish. Take the case of linking skills learned in a project management course to the success of a project.

The importance of identifying performance indicators cannot be overstated, because these become the measures for determining the benefits of the training solution. Some tips for identifying performance indicators are to:

- network with other people in your organization who have experience in this area (there are growing numbers of people who define outcomes in performance terms).
- review publications of national training organizations such as the National Society for Performance and Instruction (NSPI) and the American Society for Training and Development (ASTD). Their publications will contain articles about how people have solved similar problems.
- talk to your customer to find out what kinds of organizational and individual performance records they keep. Use established performance indicators whenever possible.

As mentioned earlier, benefits of training in government organizations can be demonstrated by operational savings. However, most operational savings do not result in actual dollars in the “bank”. They take the form of "cost avoidance".

Cost avoidance refers simply to costs that are avoided, usually by becoming more efficient at doing the same task which leads to decreased expenses. Cycle time savings is one of the simplest ways of showing dollar benefits through cost avoidance. It should be noted however, that if the time saved is not used productively elsewhere, it is not “cost avoidance".
In the example below, if the maintenance managers spent the time saved on extra-long lunches, there has been no cost avoidance. However, if the time is used productively, then the organization might require fewer people to accomplish the same amount of work. Thus, cost avoidance can result in real savings.

Another good way of showing cost avoidance is to reduce staff turnover. Recruiting and training new staff is a significant cost. Training which results in decreasing turnover, such as more effective coaching skills by supervisors, can have a big impact. Cost avoidance can also be used to highlight reductions in wastage, accident costs, equipment downtime, etc.

**Cost Avoidance**

Let's look at cost avoidance from a time-saved perspective. Multiply the time saved as a result of training (in hours or days) by the corresponding salary cost (hourly or daily rate). For example:

Ten maintenance managers making $75,000 per annum (not including benefits), spend six hours per week in planned maintenance meetings. A training workshop on conducting task-oriented meetings results in reducing meeting time by over a third.

In order to calculate the savings as a result of the workshop, the hourly cost of one meeting is calculated as follows:

- a. Weekly salary: $75,000 divided by 52 weeks = $1,442/week
- b. Hourly salary: $1,442 divided by 40 working hours = $36.00/hour
- c. Cost per week: (Hourly rate x number of managers x number of hours) $36.00/hour x 10 managers x 6 hours per weekly set of meetings = $2,160.
- d. Savings per week $2,160 x 1/3 (due to meeting time being reduced by 1/3) = $720.00

The workshop has saved 1/3 of attendance time at meetings which equals $720 per week. Over the course of a year this amounts to a considerable savings of $37,440 ($720 x 52 weeks). If the managers do something productive during this saved time, benefits may then be increased by this amount as well.

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**STEP 2: DETERMINE THE COST OF TRAINING**

\[
\text{Operational Savings} \times 100 \over \text{Cost of training}
\]

The second major component of the ROI calculation is the cost of training. Often trainers include only the costs of delivering training in their cost estimates. This will provide an unrealistically high ROI that may mislead management. To calculate the true cost of a training program, five categories of expenses should be considered.

- **Development costs.** All costs associated with developing the training package. Examples: video and CBT production, development of training materials and aids, front-end analysis costs, evaluation costs, etc.
- **Delivery costs.** Costs directly associated with a training program. Examples: course materials, instructors' salaries & travel, equipment rental, etc.
- **Overhead costs.** Costs not directly related to a training program but essential to training department operations. Examples: maintenance of training equipment, classroom heating and lighting, etc. Annual costs can be apportioned to particular training programs on the basis of duration and frequency of use.
- **Indirect costs.** Costs incurred in support of training. Examples: a pro-rated amount of staff support, administrator salaries, etc.
- **Trainee costs.** This includes participant travel, salaries, and benefits paid to participants for the time they are being trained.

**STEP 3: CALCULATE ROI AND REPORT RESULTS.**

\[
\text{Operational Savings} \times 100 \over \text{Cost of training}
\]
Introduction to Cost-Benefit Analysis

After you identify the costs and benefits, you calculate the ROI. (Refer to "How is ROI calculated?") If the ratio is greater than 1, or larger than 100%, there is a positive benefit to the organization. Anything less than a ratio of 1, or lower than 100%, indicates that the return to the agency was less than the money expended on the training solution.

When reporting the results of cost-benefit analysis, it is critical that you accurately present the outcomes whether they are positive or not. But, it is also important to consider the impact of your report, and be sensitive to the needs and feelings of those affected by the report.

Above all, the report should reinforce the notion that training is an investment in the agency's personnel (rather than a liability or expense) and highlight the realistic benefits of conducting appropriate training interventions. Many leading organizations report that training is their most important capital investment because it provides the highest rate of return.

**AN ROI EXAMPLE**

Following is an example of a cost-benefit analysis that includes a calculation of return on investment. It begins with a brief description of the situation and works through the three-step process outlined previously by covering the benefits, costs, and return on investment.

**Situation.** There has been a large turnover of supervisors in your organization. Also, there has recently been an increase in the number of grievances concerning inequities in promotion, who gets training, who gets overtime, and related problems. A needs assessment revealed that many of the newer supervisors (and some of the older ones) do not have adequate knowledge of policies and procedures pertaining to employee relations, and they lack coaching and listening skills. The decision is made to close the gap by conducting a coaching skills workshop for supervisors. The workshop will cover specific employee relations policies and procedures, practice in implementing them, and practice in counseling and coaching skills.

A four day off-the-shelf workshop is available. It will require an outside vendor and the supervisors to attend the course at a central location. The course will be offered twice and there will be 15 supervisors in each group. There is also a requirement for a small amount of development work to help the contractor customize the course for the organization.

**Benefit Analysis**

<table>
<thead>
<tr>
<th>Results Measure</th>
<th>Period</th>
<th>Results: Comparison Group</th>
<th>Results: Trained Group</th>
<th>Diffs (+ or -)</th>
<th>Cost Savings*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Grievances</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Filed</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jan.</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>15,000</td>
<td></td>
</tr>
<tr>
<td>Feb.</td>
<td>6</td>
<td>2</td>
<td>4</td>
<td>30,000</td>
<td></td>
</tr>
<tr>
<td>Mar</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>22,500</td>
<td></td>
</tr>
<tr>
<td>Apr.</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>15,000</td>
<td></td>
</tr>
<tr>
<td>May</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>15,000</td>
<td></td>
</tr>
<tr>
<td>Jun.</td>
<td>5</td>
<td>1</td>
<td>4</td>
<td>30,000</td>
<td></td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td>27</td>
<td>10</td>
<td>17</td>
<td>$127,500</td>
<td></td>
</tr>
</tbody>
</table>

* The average cost of a grievance is $7,500
**Step 1: Benefits.** In this example, the intended benefit of training to the organization is to reduce the number of grievances filed by employees. This is because each grievance is a cost to the organization, either directly or indirectly. Such costs occur from lost time, additional administrative procedures, disgruntled employees who may not work at their optimal level, and turnover.

Measurement of benefits in this example is based on the number of grievances that were filed before and after training. A period of six months before the training sessions began was compared with the same six months the following year. As indicated in the preceding table, there was a reduction from 27 to 10. At an average cost per grievance of $7,500 the total savings was $127,500.

**Step 2: Costs.** The following table contains a summary of the costs for this example. The development costs were relatively small as a result of hiring a contractor with an established course. The total cost of the course was $64,202.

**Step 3: Return on investment.** In this example it is

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### Cost Summary

<table>
<thead>
<tr>
<th>Development Costs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Development (Planning &amp; Adaptation)</td>
<td></td>
</tr>
<tr>
<td>Training Specialist</td>
<td>$ 360</td>
</tr>
<tr>
<td>Fringe Benefits</td>
<td>$ 90</td>
</tr>
<tr>
<td>Outside Contractor</td>
<td>$ 2,500</td>
</tr>
<tr>
<td></td>
<td>$ 2,950</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Delivery Costs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery (First Offering)</td>
<td></td>
</tr>
<tr>
<td>Training Specialist</td>
<td>$ 180</td>
</tr>
<tr>
<td>Outside Contractor</td>
<td>$ 2,000</td>
</tr>
<tr>
<td>Materials</td>
<td>$ 1,125</td>
</tr>
<tr>
<td>Travel &amp; Lodging</td>
<td>$ 12,000</td>
</tr>
<tr>
<td></td>
<td>$ 15,305</td>
</tr>
</tbody>
</table>

|                                         | (same as above) | $ 15,305 |
| Delivery (Second Offering)              |

<table>
<thead>
<tr>
<th>Indirect Costs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Clerical, Administrative</td>
<td>$ 625</td>
</tr>
<tr>
<td>Fringe Benefits</td>
<td>$ 156</td>
</tr>
<tr>
<td>Postage, Shipping, Telephone</td>
<td>$ 425</td>
</tr>
<tr>
<td>Equipment Rental</td>
<td>$ 300</td>
</tr>
<tr>
<td></td>
<td>$ 1,506</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Overhead Costs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10% of Direct &amp; Indirect Costs</td>
<td>$ 5,886</td>
</tr>
<tr>
<td>(General Organizational Support &amp; Top Management)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Trainee Costs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Trainee Costs (First offering)</td>
<td></td>
</tr>
<tr>
<td>Trainee Time</td>
<td>$ 9,480</td>
</tr>
<tr>
<td>Fringe benefits</td>
<td>$ 2,145</td>
</tr>
<tr>
<td></td>
<td>$ 11,625</td>
</tr>
</tbody>
</table>

|                                         | (same as above) | $ 11,625 |
| Trainee Costs (Second offering)         |

<table>
<thead>
<tr>
<th>Total Costs</th>
<th>$ 64,202</th>
</tr>
</thead>
</table>
assumed that training was the primary influence on the changes in grievances. There was no evidence of other influential factors such as policy or leadership changes.

The result indicates a positive ratio of 1.99 to 1. This means that the ROI was 199%, or $1.99 for every $1.00. It is important to note that the calculation is based only on the first six months of the year. As time goes by and the number of grievances remains low, the benefit will increase.

Return On Investment Calculation

<table>
<thead>
<tr>
<th>Operational Savings</th>
<th>$127,500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of training</td>
<td>$64,202</td>
</tr>
</tbody>
</table>

Return On Investment Calculation

\[
\text{ROI} = \frac{\text{Operational Savings}}{\text{Cost of training}} = \frac{127,500}{64,202} = 1.99
\]

\[
\text{ROI} = \frac{127,500 \times 100}{64,202} = 199\%
\]

WHEN NOT TO CONSIDER ROI

It may not be appropriate to do ROI calculations:

- when the training has been mandated by government regulations.
- when training is not directly tied to observable and measurable indicators such as productivity increases. For example, developmental training that aims at long range changes in employee capacity but not to specific organizational results.
- when there is no expectation of application on the job (e.g., when a primary purpose of a course is motivational to inspire employees or reward good service).
- when the cultural or symbolic aspects of a training program (e.g., orientation) may be more important than measurable results.
- when the desired outcomes are external to the training program itself. For example, training designed to impart organizational philosophy would best be measured by internal evaluation of changes in attitudes or knowledge.
- when objective (i.e., quantitative) data may not be available or may be inaccurate for a program. For example it would be difficult to directly observe performance appraisals conducted by supervisors. Observations of this process would be intrusive. Instead of direct observation, you would have to use interviews with employees or other types or more subjective follow-up data to estimate how well supervisors conduct performance appraisals.
• when the cost of conducting a cost-benefit analysis will be more expensive than the net benefit of the program being evaluated.

CHALLENGES IN CONDUCTING COST-BENEFIT ANALYSIS

The concept of CBA is widely known and accepted but does provide a number of challenges which can hinder its use. Some of these challenges include:

• the difficulty of separating training’s effect on organizational results from other factors that might have affected the outcomes. For example, reduced time for aircraft inspections may not be the result of a newly-introduced training package, but related to revised inspection procedures. Accordingly, it is important to eliminate as many non-training effects as possible.

• determining whether conclusions from CBA evaluations should be based on absolute proof or just evidence of impact. If absolute proof is required, the use of a control group is advocated to eliminate other variables.

• perceptions that the time and cost of doing cost-benefit evaluation and calculating ROI are excessive. In fact, there are various approaches to doing this type of evaluation, and when used properly they result in savings of time and money.

• insufficient skills by trainers concerning how to do cost-benefit evaluation. This level of evaluation can be challenging. After an organization conducts a few evaluations that can be used as models, it becomes much easier.

• determining the results of soft skills training. This commonly encountered challenge is discussed in detail in the following section.

MEASURING INTANGIBLES AND SOFT TRAINING

Some skills and values that are taught in training do not contribute directly to the bottom line in a measurable way, yet they are presumed to make a valuable contribution to performance. The results of teaching such skills, which are often found in “soft” skills training or in development programs, are called intangible benefits, and they are difficult to measure. Intangibles can include a range of behaviors, qualities, or conditions that have value but can be difficult to quantify. Although showing operational results usually means reporting outcomes in "hard" numbers, intangibles often have influential effects on the organization’s performance despite the difficulty in quantifying them.

A procedure for valuing intangible benefits called “shadow pricing” is described below:

1. Identify the intangibles. Example: More harmonious working conditions.

2. Determine what is required to implement the solution. Example: co-worker cooperation and teamwork as a result of a Diversity training course.

3. Determine the implications. Example: less workplace discrimination, increased job satisfaction, and a work environment that is more conducive to high productivity.

In the above example, the trainer and sponsor might agree that a 5% productivity increase in department output could be ascribed as a benefit from Diversity Training. This agreement between the trainer and the sponsor is important in setting the ground rules - what to measure and how it is to be measured - of shadow pricing. This imprecise method of measuring intangibles may help in providing an estimate of value.

Following is an actual example of how a cost-benefit prediction for Outdoor Management Training (OMT), based on intangibles such as initiative, confidence, teamwork, and trust turned into operational savings. It was a direct result of the comradeship, cooperation, and increased confidence developed by two of the participants who were teamed together during the...
Introduction to Cost-Benefit Analysis

Most of the training programs we come up with stem from a problem or a need. If the problem hurts enough, no one seems to talk about the money it costs.

A manager quoted in Cynthia A. Lombardo
Training & Development Journal

TIPS WHEN CALCULATING ROI

Trainers have claimed for years that a good training program adds tremendous value to an organization. Calculating ROI helps to identify the effectiveness of training and positive ROI results justify the impact of training on organizational needs.

Some tips for maximizing ROI calculations are:

• Think strategically about how you might demonstrate the value of training to management. That is, which results will provide realistic indicators of effectiveness. Obtain agreement from the sponsors.

• Determine in advance, with sponsors, the specific indicators for organizational results (e.g., time saved, quality improvement, productivity improvement, etc.

Case Example: Partnering For Improvement

Outdoor Management Training (OMT) is used as a means of developing character, self-confidence, and leadership among people. OMT programs typically consist of a series of high-risk activities or initiatives, most requiring teamwork and problem-solving skills. Interspersed with the activities are debriefing sessions in which participants analyze their feelings and experiences and share their learning with colleagues. Most programs also provide short lectures on management skills and action planning to help participants transfer their new-found knowledge and skills back to the job.

Individual participant reactions to such courses are typically very positive. The greatest benefit is the building of esprit de corps and networking among the participants who provide support and help to each other in the workplace.

However, getting “hard data” can be very difficult in this situation, particularly when an attempt is made to track changes in job performance in dollars, and the length of time the training effect can reasonably be expected to last. External evaluators hired by an aerospace company that conducted OMT were confronted with this particular problem. The ROI “formula” used by the evaluators, although based on reasonable assumptions and using conservative data, came up with a figure of the net benefit to the company of $510,731. The problem however with this sort of figure was that it would be “unbelievable”, and any accounting-oriented person would soon be asking when the half million would appear on the balance sheet because the figure was based on cost avoidance estimates, not actual savings or new revenue. However, the evaluators were able to cite an anecdote from one of the participants who volunteered a specific example of a results-oriented outcome for the OMT program as follows:

“The first week or two after returning to the job, my OMT partner and I as a team were able to influence past policy and implement changes in the quality discrepancy reporting requirements that saved a total of $800,000 to $1 million.”

The benefit in this case was an operational savings with the implementation of a more efficient reporting system. This anecdote floated throughout the company and was often cited as justification for the program.

• Develop and use a systematic technique to estimate how many dollars training is saving the agency.

• Whenever possible, use data that are readily available rather than creating new measures. Use existing agency records.

• If the costs of a training program outweigh the benefits, report findings as you would with a positive study. Willingness to be self-critical increases your credibility.

• Do not hide the costs of training to inflate the ROI calculations. After all, there may be a better or more effective way of achieving the organization's goals. If the results do not support the continuation of training and the problem still has not been solved, recommend other interventions to improve performance.

• Use the simplest and least expensive method possible for finding the information you require.

• Judgments on making “informed” estimates of the effects of training should be made in consultation with management. This will not only increase management participation in the cost-benefit analysis approach but ultimately will increase their support for the ROI approach.

• Trainers unfamiliar with ROI are best advised to initially attempt situations that are easily quantifiable, and only after they develop greater skill, move to more challenging problems with features such as shadow pricing.

calculations will not only help prove the worth of training to the agency but will also create new training opportunities.

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**CONCLUSION**

Most training evaluation is concerned with whether learners acquire course knowledge and skills and apply them to the job. ROI, on the other hand, is concerned about whether the training is benefiting the organization. The challenge is to identify and quantify what is valued, and then track the results. While objective measures, or “hard” data, are preferable, subjective data can prove credible in some circumstances. In these situations, listing assumptions and procedures from the very start increases their legitimacy.

As HRD professionals, being able to demonstrate the value of the training to management through ROI calculations will not only help prove the worth of training to the agency but will also create new training opportunities.

CBA (and its ROI derivative) can be helpful in setting priorities and in providing direction because it helps managers avoid the squeaky-wheel syndrome. Without some defensible basis on which to plan, organize, and control the distribution of training resources, managers are left at the mercy of those people who are most gifted at arguing their case, whether by power or by persuasive ability.

Cynthia A. Lombardo

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