1

A Brief Description of the ROI Methodology

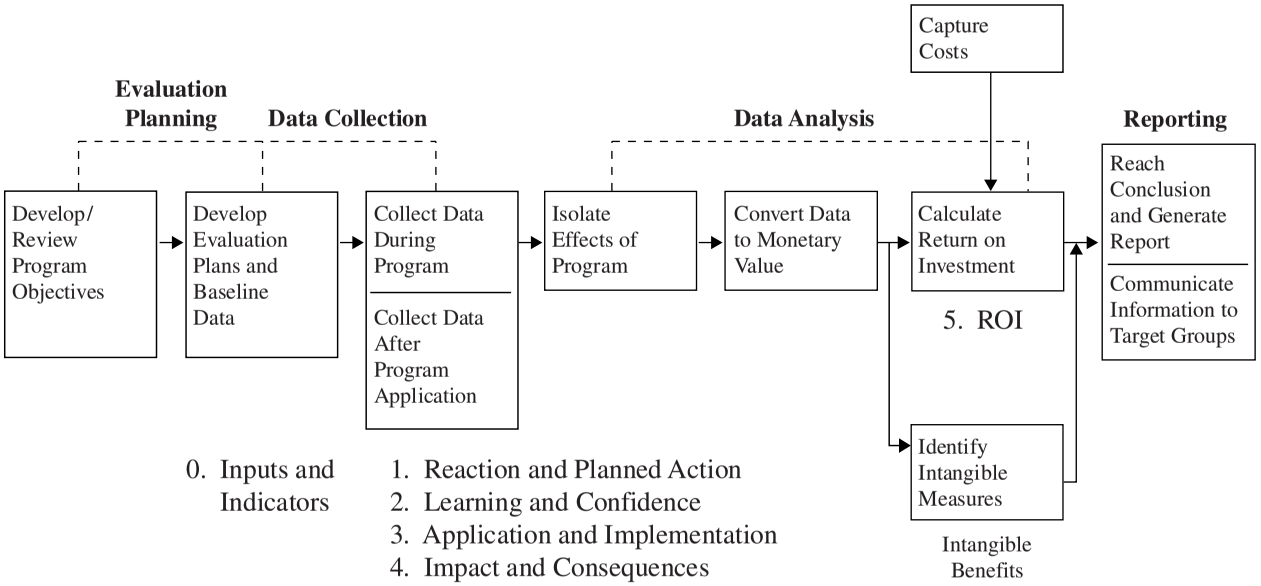
The ROI Methodology is represented by the basic model shown in Figure 1.1. This process model provides a systematic approach to ROI calculations; a potentially complicated process is simplified by breaking it into sequential steps. This step-by-step approach keeps the process manageable so that users can tackle one issue at a time. Applying the model also provides consistency from one ROI calculation to another. This chapter provides a brief description of the ROI Methodology and how it fits into a comprehensive process.

Evaluation Levels: A Beginning Point

The ROI Methodology collects and processes up to five levels of evaluation results. The process also considers what is referred to as Level 0, the initial data or inputs, which represent activities and investment associated with a program or project. Each level represents a different category of data; each category of data answers questions asked by various stakeholders.

For example, Level 0, Inputs and Indicators, represents the various inputs of the project or program. These data are collected for all programs; they include costs, efficiencies, duration (in hours or days), participants, and topics. These data are input only and do not necessarily correspond to the results; they merely represent

Figure 1.1. The ROI Process Model



activity. Specific questions answered by data categorized at Level 0 include

- What steps have been taken to implement the program?
- How many people are involved in the program?
- Who was involved in the program?
- How much time has been spent on the program?
- What did the program cost the organization?

Level 1, Reaction and Planned Action, represents reaction from participants as well as actions planned as a result of the program. This level of evaluation is the first level that represents results—results from the perspective of participants. Almost all organizations evaluate at Level 1, usually with a generic end-of-program questionnaire. Specific questions answered by data collected at this level include

- Was the program delivered successfully?
- Was the content relevant to participants' current work?
- Was the content important to participants' current jobs?
- Do the participants intend to apply what they learned?
- Did the content represent new information?
- Will participants recommend the program to others?

While this level of evaluation is important as a customer satisfaction measure, a favorable reaction does not ensure that participants have learned new skills or knowledge.

At Level 2, Learning and Confidence, measurements focus on what participants learned during the program; learning is assessed

through self-assessments, checklists, role plays, simulations, group evaluations, or other tools. A learning check is helpful to ensure that participants have absorbed the desired content and messages and know how to use or apply them properly. This level may also measure the number of new professional contacts made and the extent to which existing contacts were strengthened through networking that occurred during program implementation. Specific questions that are answered with Level 2 data include

- Do the participants "get it"?
- Do participants know what to do?
- Do participants know how to do it?
- Have participants' attitudes changed so that they are prepared to change behaviors or processes?
- Are participants confident in applying their newly acquired skills, knowledge, or information?

It is important to remember, however, that a positive learning measure is no guarantee that the learning or contacts acquired will actually be used.

At Level 3, Application and Implementation, a variety of follow-up methods are used to determine whether participants have applied what they learned. Completion of action items, behavior change, use of skills, and follow-up with contacts are important measures at Level 3. Questions answered by Level 3 data include

- Are participants applying their newly acquired knowledge, skills, or information?
- Are participants applying their newly acquired knowledge, skills, or information at the level of frequency expected?

- If participants are applying their newly acquired knowledge, skills, or information, what is supporting them?
- If they are not, why not?

While Level 3 evaluations are important to gauge the success of the application, they still do not guarantee that a positive impact will occur in the individual or the organization.

Level 4, Impact and Consequences, represents the actual results, or outcomes, achieved by participants as they successfully apply the content, messages, or contacts. Typical Level 4 measures include output, sales, quality, costs, time, and customer satisfaction. An important step taken during Level 4 data collection and analysis is isolating the impact of the program on these measures. Specific questions answered with Level 4 data include

- How does the application of newly acquired knowledge, skills, or information affect output, quality, cost, time, job satisfaction, employee satisfaction, or work habits?
- How does an organization know whether the program caused the impact?

Although the program may produce a measurable business impact, a concern may still exist that the program costs too much.

At Level 5, Return on Investment—the ultimate level of evaluation—the program's monetary benefits are compared with the program's costs. Although ROI can be expressed in several ways, it is usually presented as a percentage or benefit-cost ratio. The evaluation chain is not complete until the Level 5 evaluation is conducted. Here, the analysis should answer the most fundamental question: Do program benefits exceed program costs?

Table 1.1 summarizes the evaluation levels and the measures developed at each level. Readers should consider each level and

Table 1.1. Measurement at Each Level of Evaluation

Level	Measurement Category	Current Status in Your Organization	Evaluation Target for Most Organizations	Comments
0	**Inputs and Indicators** Measures inputs into programs, including the number of programs, participants, audience, costs, and efficiencies	100%	100%	This is being accomplished now.
1	**Reaction and Planned Action** Measures reaction to and satisfaction with the experience, ambience, content, and value of the program, as well as planned action after the program		100%	Most organizations evaluate 100% of programs at this level but need to focus more on content and planned action.
2	**Learning and Confidence** Measures what participants have learned in the program—information, knowledge, skills, or contacts (take-aways from the program)		80–90%	Simple learning measures can be integrated into the data collection process at Level 1.

3	**Application and Implementation** Measures progress after the program—the use of information, knowledge, skills, or contacts	15–30%	Progress has been made, but more follow-up measures are needed.
4	**Impact and Consequences** Measures changes in business impact variables (such as output, quality, time, or cost) linked to the program	10%	The link between the program and business impact is analyzed for select programs.
5	**Return on Investment** Compares the monetary benefits of the business impact measures to the costs of the program	5%	The ultimate evaluation.

note the percentage of programs within their organization that are evaluated at each level. They should compare the current status of their evaluations with the targeted percentages in the table. These targets were developed on the basis of the evaluation practices of organizations currently implementing the ROI Methodology. As shown, not all programs should be evaluated at each level. Selecting programs to be evaluated at the higher levels depends on a variety of factors, including

- Purpose of evaluation
- Need for the program
- Program profile
- Stakeholders' needs

Selecting Programs for ROI Evaluation

Evaluation at Levels 4 and 5 is reserved for programs that are

- Expensive
- High-profile
- Offered to a large audience
- Linked to business objectives and strategy
- Of interest to senior management

Even though data at the lower levels of evaluation do not necessarily predict success at the higher levels, data must be collected at the lower levels when evaluating at the higher levels. As participants take part in a program and react positively to it, acquiring knowledge, then applying that knowledge, business impact will occur as long as what was presented was needed and the right audience was targeted. If the business impact is as planned and program costs are less than the monetary benefits of program results, a positive

ROI will occur. This chain of impact provides the complete story of program success. Data important to all stakeholders are developed; together, these data can explain why the ROI is what it is and how it can be improved for future program implementations.

From the client's perspective, the value of information increases as evaluation moves up the chain of impact. The ROI Methodology is a client-centered process, meeting the data needs of the individuals who initiate, approve, and sponsor programs. Placing the client at the center of the evaluation process is consistent with the practices of benchmarking forum members of the American Society for Training and Development (ASTD) (Van Buren, 2002) and the best practices of corporate universities as identified in a study conducted by the American Productivity and Quality Center (Phillips, 2000).

Evaluation Planning

Planning is a critical phase in the ROI Methodology. A solid evaluation plan will foster successful execution as well as capture client buy-in before results are rendered. Several issues must be addressed when developing the evaluation plan for an ROI impact study. Five specific elements are important to evaluation success:

1. The evaluation purpose should be considered prior to developing the evaluation plan because the purpose will determine the scope of the evaluation, the types of instruments used, and the types of data collected.
2. The feasibility of a Level 4 or 5 evaluation should be examined. Feasibility is determined not only by the type of program undergoing evaluation but also by resources and time constraints.
3. It is imperative that objectives for different levels of evaluation be developed. Program objectives position the program for success as well as give direction to the evaluation.

4. Sources of data are an important consideration. While program participants will be the primary source of data in most cases, including other sources is also important to provide a balanced perspective and add credibility.
5. The timing of data collection is another consideration. In some cases, pre-program measurements are taken to compare with post-program measures. In other cases, measures are taken at intervals throughout the program. Sometimes, pre-program measurements are not available but post-program follow-up measures are still taken.

To complete the planning process, three simple planning documents are developed: the data collection plan, the ROI analysis plan, and the project plan. These documents should be completed before the evaluation project is implemented (ideally, before the program is designed or developed). Appropriate up-front attention will save much time later when data are actually collected.

The data collection plan outlines the major elements and issues involved in collecting data for evaluation at Levels 1 through 4. A target ROI (Level 5) is also established during planning. Table 1.2 shows a completed data collection plan for a program on interactive sales skills. The three-day training program was designed for retail sales associates in the electronics department of a major store chain (Phillips and Phillips, 2001). An ROI calculation was planned for a pilot of three groups.

The ROI analysis plan is a continuation of the data collection plan. It captures information on several key items that are necessary to develop the actual ROI calculation, including techniques to isolate the effects of the program as well as convert Level 4 measures to units of money. Along with these elements, cost categories, intangible benefits, and communication targets are identified. Table 1.3 shows a completed ROI analysis plan for the interactive selling skills program.

Table 1.2. Sample Data Collection Plan

Program: Interactive Sales Training **Responsibility:** P. Phillips **Date:**

Level	Broad Program Objectives	Measures	Data Collection Method and Instruments	Data Sources	Timing	Responsibility
1	**REACTION AND PERCEIVED VALUE**					
	• Positive reaction–4 out of 5	• A 1–5 rating on a composite of five measures	• Questionnaire	• Participant	• End of program (third day)	• Facilitator
	• Action items	• Yes or No				
2	**LEARNING**					
	• Learn to use five simple skills	• Pass or fail on skill practice	• Observation of skill practice by facilitator	• Facilitator	• Second day of program	• Facilitator

(*Continued*)

Table 1.2. Sample Data Collection Plan (*Continued*)

Level	Broad Program Objectives	Measures	Data Collection Method and Instruments	Data Sources	Timing	Responsibility
3	**APPLICATION AND IMPLEMENTATION**					
	• Initial use of five simple skills	• Verbal feedback	• Follow-up session	• Participant	• Three weeks after second day	• Facilitator
	• At least 50% of participants use all skills with every customer	• Fifth item checked on a 1–5 scale	• Follow-up questionnaire	• Participant	• Three months after program	• Store training coordinator
4	**BUSINESS IMPACT**					
	• Increase in sales	• Weekly average sales per sales associate	• Business performance monitoring	• Company records	• Three months after program	• Store training coordinator
5	**ROI**					
	• 50%	*Comments:* The ROI objective was set at a high value because of the store sample size; the executives wanted convincing data.				

Table 1.3. Sample ROI Analysis Plan

Program: Interactive Sales Training **Responsibility:** P. Phillips **Date:** _____

Data Items	Methods of Isolating the Effects of the Program	Methods of Converting Data	Cost Categories	Intangible Benefits	Communication Targets	Other Influences and Issues
• Weekly sales per associate	• Control group analysis • Participant estimate	• Direct conversion using profit contribution	• Facilitation fees • Program materials • Meals and refreshments • Facilities • Participant salaries and benefits • Cost of coordination • Evaluation	• Customer satisfaction • Employee satisfaction	• Program participants • Electronics department managers at targeted stores • Store managers at targeted stores • Senior store executives in district, region, headquarters • Training staff: instructors, coordinators, designers, and managers	• Must have job coverage during training • No communication with control group • Seasonal fluctuations should be avoided

The third plan that is developed in the evaluation planning phase is a project plan, which provides a description of the program and a timeline for the project, from planning of the evaluation to communication of the results. Exhibit 1.1 shows a sample project plan.

Collectively, these three planning documents provide the necessary direction for the ROI evaluation. Because most of the decisions about the evaluation process are made as these planning tools are developed, the remainder of the project becomes a systematic process of implementing the plan. Time allocated to this process will save precious time later.

Data Collection

Data collection is central to the ROI Methodology. Deciding how to collect the data, from whom to collect the data, and when to collect the data is fundamental to a successful ROI study. Both hard data (for example, output, quality, cost, and time data) and soft data (for example, job satisfaction and customer satisfaction) are collected, using a variety of methods:

- *Surveys* are administered to determine whether participants are satisfied with the program and to what degree, whether they have learned the desired skills and knowledge, and whether they have used various aspects of the program. Survey responses usually consist of perception or attitudinal data, often represented on a scale. Surveys are used to collect data at Levels 1, 2, and 3.
- *Questionnaires* are more detailed than surveys and can be used to uncover a variety of quantitative and qualitative data. Participants provide responses to

Exhibit 1.1. Project Plan

	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Decision to conduct ROI study								
Evaluation planning complete								
Instruments designed								
Instruments pilot-tested								
Data collected from Group A								
Data collected from Group B								
Data collected from Group C								
Data tabulation, preliminary summary								
Analysis conducted								
Report written								
Report printed								
Results communicated								
Improvements initiated								
Implementation complete								

several types of open-ended and forced-response questions. Questionnaires can be used to capture data at Levels 1, 2, 3, and 4.

- *Tests* are conducted to measure changes in knowledge and skills (Level 2). A wide variety of methods are used, ranging from formal (criterion-referenced tests, norm-referenced tests, performance tests, simulations, and skill practices) to informal (facilitator assessment, self-assessment, and team assessment).
- On-the-job *observation* captures actual skill application and use. Observations are particularly useful in customer service training and are most effective when the observer is unnoticeable to the participant being observed. Observations are appropriate for collecting Level 3 data.
- *Interviews* are conducted with participants to determine the extent to which learning has been used on the job. Interviewers can probe to uncover specific applications. Interviews are most often used for collecting Level 3 data but can also be used to collect Level 1 and Level 2 data. Occasionally, interviews are used to collect Level 4 data.
- *Focus groups* are conducted to determine the degree to which a group of participants has applied the program to job situations. Focus groups are usually appropriate for collecting Level 3 data, but are also used in making the link between business impact and the program.
- *Action plans and program assignments* are developed by participants during the program and are implemented on the job after the program is completed. Follow-up on action plans and program assignments provides

evidence of program success. Level 3 and Level 4 data can be collected using action plans.

- *Performance contracts* are developed by the participant, the participant's supervisor, and the facilitator. They all agree on job performance outcomes from the program. Performance contracts are appropriate for collecting both Level 3 and Level 4 data.
- *Business performance monitoring* is useful when performance records and operational data can be examined for improvement. This method is particularly useful for collecting Level 4 data.

Along with selecting the appropriate data collection method, consideration must be given to the source of data, which is primarily (but not always exclusively) the participant. Timing is a third consideration. Fundamental timing considerations include the time at which data are needed, the availability of data, and the availability of resources. These issues are covered in more detail in *Data Collection,* the second book of this series.

Isolation of Program Effects

An issue that is overlooked in most evaluations is how to isolate the effects of the program. In this step of the process, evaluation planners explore specific techniques for determining the amount of impact directly related to the program. Because many factors will affect performance data, this step is essential for increasing the accuracy and credibility of ROI calculations. The following techniques have been used by organizations to address this important issue.

- A *control group* arrangement is often used to isolate the impact of a specific program. One group participates in

the program, while another similar group (the control group) does not participate. The difference in the performance of the two groups is attributed to the program. When properly set up and implemented, the control group arrangement is the most effective way to isolate the effects of a program or project.

- *Trend lines* are used to project the values of specific impact measures before the program is undertaken. The projection is compared with the actual data after the program is conducted, and the difference represents an estimate of the impact of the program. Under certain conditions, this technique can accurately isolate the program impact.
- When mathematical relationships between input and output measures are known, a *forecasting model* can be used to isolate the effects of a program. The impact measure is predicted by using the forecasting model with pre-program data. The actual performance of the measure, weeks or months after the program, is compared with the forecasted value. The results are an estimate of the impact.
- *Participants* estimate the amount of improvement that is related to the program. Participants are provided with the total amount of improvement, based on a comparison of pre- and post-program measurements, and are asked to indicate the percentage of the improvement that is related to the program.
- *Participants' supervisors* estimate the effect of the program on the impact measures. The supervisors are given the total amount of improvement and are asked to indicate the percentage that can be directly attributed to the program.

- *Senior management* estimates the impact of the program. In such cases, managers provide an estimate of how much of the improvement is related to the program. Although it may be inaccurate, having senior management involved in the process has some advantages.
- *Experts* provide estimates of the program's impact on the performance measure. Because the estimates are based on previous experience, the experts must be familiar with the type of program and the specific situation.
- When feasible, all *other influencing factors* are identified and their impact is estimated or calculated; the remaining unexplained improvement is attributed to the program.
- In some situations, *customers* provide input on the extent to which the program has influenced their decisions to use a product or service. Although this strategy has limited applications, it can be quite useful for isolating the effects of customer service and sales programs.

Collectively, these techniques provide a comprehensive set of tools to address the critical issue of isolating the effects of a program. The third book in this series, *Isolation of Results*, is devoted to this important step in the ROI Methodology.

Data Conversion

To calculate the return on investment, Level 4 impact data are converted to monetary values and compared with program costs. This step requires that a value be placed on each unit of data connected with the program. Many techniques for converting data

to monetary values are available; which technique is appropriate depends on the type of data and the situation.

- *Output data* are converted to profit contribution or cost savings. When using this technique, output increases are converted to monetary values based on their unit contribution to profit or the unit of cost reduction. Standard values for these items are readily available in most organizations.
- The *cost of quality* is calculated, and quality improvements are converted directly to cost savings. Standard values for these items are available in many organizations.
- For programs in which employee time is saved, the *participants' wages and employee benefits* are used to develop a value for the time saved. Because a variety of programs focus on improving the time required to complete projects, processes, or daily activities, the value of time is an important issue. This is a standard formula in most organizations.
- *Historical costs*, developed from cost statements, are used when they are available for a specific measure. Organizational cost data thus establish the specific monetary costs saved or avoided by an improvement.
- When available, *internal and external experts* may be used to estimate the value of an improvement. In this situation, the credibility of the estimate hinges on the expertise and reputation of the experts themselves.
- *External databases* are sometimes available to estimate the value or cost of data items. Research, government, and industry databases can provide important information on these values. Although data are plentiful, the

difficulty of this technique lies in finding a specific database related to the program or situation.

- *Participants* estimate the value of the data item. For this approach to be effective, participants must be capable of providing a value for the improvement.
- *Supervisors or managers* can provide estimates if they are both willing and able to assign values to the improvement. This approach is especially useful when the participants are not fully capable of providing this input or in situations in which supervisors need to confirm or adjust the participants' estimates. This approach is particularly helpful in establishing values for performance measures that are important to senior management.
- *Soft measures are linked mathematically to other measures* that are easier to measure and value. This approach is particularly helpful in establishing values for measures that are very difficult to convert to monetary values—for example, data related to intangibles such as customer satisfaction, employee satisfaction, conflict, or employee complaints.
- *Staff estimates* may be used to determine a value for an output data item. The estimates must be provided on an unbiased basis.

The data conversion step is absolutely necessary in order to determine the monetary benefits of a program. The process is challenging, particularly when soft data are involved, but it can be accomplished by methodically using one or more of the listed techniques. Because of the importance of assigning monetary values to impact data, the fourth book in this series, *Data Conversion*, is devoted to this step in the ROI Methodology, along with identifying intangible benefits.

Intangible Benefits

In addition to their tangible monetary benefits, most programs will have intangible nonmonetary benefits. The ROI calculation is based on converting both hard and soft data to monetary values. Intangible benefits are program benefits that individuals choose not to convert to monetary values. Intangible benefits often include such measures as

- Increased job satisfaction
- Increased employee engagement
- Improved teamwork
- Improved creativity
- Reduced complaints
- Reduced conflicts

During data analysis, every attempt is made to convert all data to monetary values. All hard data, such as those related to output, quality, and time, are converted to monetary values. The conversion of soft data is attempted for each data item. However, if the process used for conversion is too subjective or inaccurate, the resulting values lose credibility; in such cases, the data are listed as an intangible benefit, with an appropriate explanation. For some programs, intangible nonmonetary benefits are extremely valuable, carrying as much influence as the hard data items.

Program Costs

The second part of a benefit-cost analysis is the program costs. Tabulating costs involves monitoring or developing all the related

costs of the program targeted for ROI evaluation. Among the cost components that should be included are

- The cost of the needs assessment (when conducted) prorated over the program's expected life
- The cost of designing and developing the program, possibly prorated over the program's expected life
- The cost of all program materials provided to each participant
- The cost of the instructor or facilitator, including preparation time as well as delivery time
- The cost of the facilities
- Travel, lodging, and meal costs of the participants, if applicable
- Salaries and employee benefits of the participants for the time that they are involved in the program
- Administrative and overhead costs of the functional unit, allocated in some convenient way

In addition, specific costs related to the needs assessment and evaluation should be included. The conservative approach is to include all these costs so that the total is fully loaded. Because of the importance of ascertaining program costs, the fifth book in the series, *Costs and ROI,* is devoted to this step, along with ROI calculation.

Return on Investment Calculation

The benefit-cost ratio (BCR) is calculated from the program benefits and costs. The benefit-cost ratio is the program benefits divided

by the program costs. In formula form, it is written like this:

$$\text{BCR} = \frac{\text{Program Benefits}}{\text{Program Costs}}$$

The ROI for a program is the program's net benefits divided by the program's costs. (Net benefits are the program's benefits minus the program's costs.) Thus, in formula form, ROI is as follows:

$$\text{ROI (\%)} = \frac{\text{Net Program Benefits}}{\text{Program Costs}} \times 100$$

This is the same basic formula that is used in evaluating other investments, in which ROI is traditionally reported as earnings divided by investment. The fifth book in our series, *Costs and ROI*, provides more detail on ROI calculations.

Reporting

The final step in the ROI Methodology is reporting. Reporting often does not receive the attention and planning that is needed to ensure its success. This step involves developing appropriate information in impact studies and other brief reports. The heart of the step is the different techniques used to communicate to a wide variety of target audiences. In most ROI studies, several audiences are interested in and need the information. Careful planning in order to match the communication method with the audience is essential, to ensure that the message is understood and that appropriate actions follow. The sixth book in the ROI Six Pack, *Communication and Implementation*, is devoted to this critical step.

Case Study

Table 1.4 shows the results from a sample case study. The table includes all the elements described in this chapter. The All-Inclusive Workforce Program explored diversity issues and targeted both

Table 1.4. Case Study of Program Evaluation Using ROI Methodology

Sprint/Nextel

Program Title: Diversity

Target Group: Managers and employees

Solution: All-Inclusive Workforce Program (AIW)

Results:

Level 1: Reaction and Planned Action	*Level 2:* Learning and Confidence	*Level 3:* Application and Implementation	*Level 4:* Impact	*Level 5:* ROI	Intangible Benefits
Composite rating: 4.39 out of 5 (for six items)	Averaged 4.28 out of 5 (for learning on six objectives)	*Managers*: Support AIW (87%) Address problems (81%) Encourage staff (78%) *Employees*: Support AIW (65%) Identify differences (63%) Encourage staff (60%) 91% of managers successfully completed action plans	Attrition rate improvement = 9.77%	BCR: 2.6 ROI: 163%	Employee satisfaction Communication Cooperation Diversity mix Teamwork

Technique for Isolating the Effects of the Program: Manager's estimate, adjusted for error

Technique for Converting Data to Monetary Values: Standard cost item ($89,000 per turnover)

Fully Loaded Program Costs: $1,216,836

Source: Schmidt, 2003.

managers and employees. All six types of data were collected, including the actual ROI. This summary shows all the types of data and also addresses the issues of isolating the effects of the program, converting the data to monetary values, and monitoring the program costs.

Final Thoughts

This chapter presents the basic process for calculating the return on investment for programs or projects. The step-by-step process breaks the complicated problem of calculating ROI into simple, manageable tasks and steps. When the process is thoroughly planned, taking into consideration all potential strategies and techniques, it becomes manageable and achievable. The remaining chapters focus on the major elements of this model and on ways to implement it.

References

Phillips, J. J. *The Corporate University: Measuring the Impact of Learning*. Houston, Tex.: American Productivity and Quality Center, 2000.

Phillips, P. P., and Phillips, J. J. *In Action: Measuring Return on Investment*. Vol. 3. Alexandria, Va.: ASTD, 2001. (See the chapter titled "Measuring Return on Investment in Interactive Sales Training.")

Schmidt, L. *In Action: Implementing Training Scorecards*. Alexandria, Va.: ASTD, 2003.

Van Buren, M. E. *State of the Industry*. Alexandria, Va.: ASTD, 2002.