

Calculating Return-On-Investment
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ROI Calculation:

The purpose of the ROI calculation is to compare the costs of an intervention with the value of its results, to determine if the result was worth the cost. This purpose, rather than any specific formula or magic set of factors, drives the determination of ROI.

Every organization views ROI differently, and ROI is different for different types of interventions. Therefore, what is presented below should be viewed as a set of possible guidelines to be modified to fit situations, organizational cultures and financial measures, and interventions as appropriate.

ROI Formulas:

There are four commonly used formulas to determine ROI. None of them is absolute gospel. Each is based on many different assumptions about ROI and organizations, and comes from a different author. Which you should use will depend on which your organization or client will believe and value.

Formula 1: ROI: The Costs were X; the Benefits were Y

Give Management information and let them make an intelligent comparison; the math obscures the magnitude and importance of the numbers in the ROI calculation

Formula 2: ROI = Benefits – Costs

Subtracting costs from benefits gives a simple number, while keeping the magnitude of the numbers in front of Management

Formula 3: ROI = $\frac{\text{Benefits}}{\text{Costs}}$

Give Management a ratio; it's what they are used to seeing – like Return on Assets and Return on Sales calculations

Formula 4: ROI = $\frac{\text{Benefits-Costs}}{\text{Costs}}$

Give a ratio, but use both formulas 2 and 3 to deflate the ROI so it does not make us look like we want too much credit

Calculating Costs:

Calculating costs is the easiest part of the process. A great deal has been written about it, and there is general agreement (with one exception) about what to include in the calculation.

Cost by Phase

You calculate costs by project phase. The general breakdown of phases for Cost Analysis is:

- Project launch
- Analysis
- Design
- Development
- Formative Evaluation
- Summative Evaluation
- Start-up (including new equipment & materials, training, decreased performance)
- On-going Implementation
 - First year (sometimes first quarter)
 - Second year on

Cost Categories

The following are the four general categories of costs, with subcategories involved in creating an intervention. Almost all organizations use the first three categories; some use the fourth. Within the first three categories, different organizations put different costs items in different categories. Be sure to know which categories/sub-categories your organization or client uses.

Salaries

- Direct salaries for all personnel involved in each phase of the project and intervention (includes all project team members plus those of students in training session, etc.)
- Benefits (usually between 25 and 50% of salary)
- Calculated as
 - $\text{salary} + \text{benefits per year, divided by \# work days per year} = \text{salary per day}$
 - $\text{salary per day} \times \text{number of days on that phase of the project or intervention}$

Overhead

- Costs associated with the people on the project, but not directly attributable to them or used only for the project
 - office and meeting facilities
 - utilities (electric, gas, light, phone)
 - supplies and equipment (e.g., computers and software)
 - general administrative (staff departments including legal, HR, marketing, IT)
- Calculated as a fixed percentage of salary (organizations can vary between 35 and 150%)

Direct Costs

- Expenses directly paid out for each phase of the project, including:
 - consultants
 - travel
 - materials and fees (training, job-aids, standardized personnel tests, software, etc.)
 - equipment (ergonomic keyboards, computers, redesigned equipment)
 - facilities (training rooms, meeting rooms, redesigned facilities)
- Calculated by simply tracking these expenses

Opportunity (or Lost-Opportunity) Costs [NOT used everywhere]

- Costs of a person project staff member or student in training) being involved in the project and/or the intervention as opposed to doing their regular jobs
- Calculated (in addition to salary which is included above) as value of contribution lost during time involved in the project or intervention (e.g., lost sales X \$ value of a sale)

Cost Matrix

Combing these two factors you develop a cost matrix:

Phase	Salaries	Overhead	Direct Costs	Opportunity	TOTAL
Project launch					
Analysis					
Design					
Development					
Formative Evaluation					
Start-up					
On-going Implementation					
Summative Evaluation					
TOTAL					

Calculating Benefits

Calculating benefits is the most difficult and controversial part of the ROI process. It is important to remember that this is **not** a precise process and that it is not research. It is based on what decision-makers consider to be benefits, rather than on any “objective reality” of what benefits are. Some **basic principles** to remember that under gird all that follows are:

- What clients consider to be valid data is valid data.
- Gather data for each of the elements of the formula from the clients themselves.
- Estimates are OK if they are acceptable to clients, and come from the clients.
- Different formulas lead to different results; whichever is valid for the client is correct.
- We compare performance gain to a performance criterion, not to past performance.

Formula:

$$\begin{aligned} & \text{Post-intervention productivity level} \\ & - \text{Pre-intervention productivity level} \\ & = \text{Gain} \\ & \times \text{Dollar value of a unit of performance OR Individual salary over a time period} \\ & \times \text{Percentage of time on job spent performing tasks impacted by the intervention} \\ & \times \text{Percentage of productivity improvement attributable to the intervention} \\ & \times \text{Number of participants involved in the intervention} \\ & = \text{Benefit Of Intervention} \end{aligned}$$

Explanation of Factors in the Formula:

Post-intervention and pre-intervention productivity levels

- Can be a specific quantity, quality or other customer or product related metric
- Can be a % comparing performance to a standard/exemplary performer (*not post/pre*)
- Data should be available and currently collected by organization; if not, it is likely this is not a key metric of the organization and the ROI will not hold much sway
- If the organization is not collecting it, but wants to use it, collect pre-intervention data, or have key stakeholders agree on an estimate of pre-intervention performance

Dollar value of a unit of performance

- Have key stakeholders assign a dollar value to every customer or product related metric

Individual salary over a time period

- Use if it is difficult to assign a dollar value to the metric you are have decided is important, or if the behaviors themselves are what counts.
- Use if comparing performance to a standard or an exemplary performer.
- This method usually produces a lower ROI than assigning dollar values to key metrics.

Percentage of time on job spent performing tasks impacted by the intervention

- Corrects for interventions affecting performance that makes up only a portion of the job.
- Have key stakeholders agree on what percent of the job is impacted by the intervention.

Percentage of productivity improvement attributable to the intervention

- Corrects for other factors that could also produce the increase in performance, and eliminates the need for “turf wars” comparing your intervention with others.
- Have client agree *before you start* on % improvement attributable to your intervention.
- If they will agree to approximately 50%, you are doing well.

Gathering the Data

You can get the data you need for the benefits calculation by looking at existing data. If it is not available, you use estimates made by all groups of project stakeholders. These estimates are valid because they possess face validity to the people who must accept your ROI calculations. Ask the four questions on the next page **before** and **after** the intervention and compare the results:

The Questions

1. What is the **performance level** of employees on the tasks affected by the intervention?
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
2. What is the approximate **dollar value** of the results of this performance?
\$100 \$500 \$1,000 \$5,000 \$10,000
3. What **% of their time** do employees spend on the tasks affected by the intervention?
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
4. What % of the performance improvement are your willing to **attribute** to the intervention?
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

An example of calculating the Benefit of an intervention

Data from organization/client:

- The number of workers involved in the intervention = 500.
- Time workers spend performing tasks impacted by the intervention = 80%.

- 100% performance (ideal world performer) level = 250 system sales per year.
- Pre-intervention performance = 50 system sales per year or 20 % of ideal performance.
- Post-intervention performance = 200 system sales per year or 80% of ideal performance.
- Performance gain = 60% (gain compared to ideal performance; *not* 200/50 = 400% gain).
- Agreed upon percentage of gain in performance attributable to your intervention = 50%.
- An average worker salary is \$80,000.
- Value of 1 system sale = \$1,000.

Note that the results of the 2 calculations are very different. Neither is "right;" they are just different ways of calculating benefits producing very different #'s. What is important is which the client considers valid.

Calculation 1 – using Dollar value of unit of performance

	200	Post intervention productivity	
-	50	Pre-intervention productivity	= 150
X	\$1,000	Dollar value of unit of productivity	= \$ 150,000
X	80%	% time spent on tasks impacted	= \$ 120,000
X	50%	% improvement attributed to intervention	= \$ 60,000
X	500	Workers	= \$ 30,000,000
=		Benefit of intervention	= \$ 30,000,000

Calculation 2 – using Salary

	80%	Post intervention productivity	
-	20%	Pre-intervention	= 60%
X	\$80,000	Salary	= \$ 48,000
X	80%	% time spent on tasks impacted	= \$ 38,400
X	50%	% improvement attributed to intervention	= \$ 19,200
X	500	Workers	= \$ 9,600,000
=		Benefit of intervention	= \$ 9,600,000

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