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# CHAPTER 7: CALCULATING RETURN ON INVESTMENT

Because ROI is so widely used to evaluate the business success of large, complex projects, like e-learning, this chapter is devoted to explaining the technique of calculating ROI. You will walk through a basic calculation of ROI for a training project.

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## The basic formula for ROI

The basic formula for calculating return on investment is quite straightforward. You just subtract costs from benefits, divide that difference by costs, and then multiply the result by 100.

$$\text{Return on investment} = \frac{\text{Benefits} - \text{Costs}}{\text{Costs}} \times 100$$

The part *benefits minus costs* represents the *return* on the project. The *investment* is the *costs* of the project, or at least the up-front costs. You multiply by 100 simply to convert the results from a fraction to a percentage.

Let's say you have a project that costs \$200,000 but has benefits of \$300,000. The return for such a project would be the benefits minus the costs, or \$100,000. Dividing this number by costs (\$200,000) yields a figure of 0.5, which, when multiplied by 100, gives you a ROI figure of 50%.

## The scenario

Let's look at the process of calculating ROI for training. This calculation is moderate in its complexity, and the numbers have been rounded to simplify the math. If you want an overview first, skip ahead to Page 50 where the entire calculation is summarized.

Gizbotics International has a problem. It needs to increase sales of higher-margin products. The chief executive officer has set a goal of increasing sales of such higher-margin products by 30% over the next two years. Increases in advertising and sales commissions have not worked. Focus groups of customers and sales representatives have identified the main reason for the failure. Sales representatives cannot translate the highly technical features of these higher-margin products into benefits that apply to individual customers.

This diagnosis is borne out by the observation that sales representatives who thoroughly familiarized themselves with the features and benefits of the high-margin products sell twice the average number of high-margin products and the same number of low-margin products.

The CEO requests that you evaluate the potential of e-learning and classroom training to solve this problem. The CEO expects detailed figures showing the return on investment for the project.

## Benefits of training

You decide to start by calculating the potential benefits of training. Unless they are high, there is no reason to proceed further. Your first step is to calculate the profit per high-margin unit sold. From Sales, you learn that each unit sells for \$500 USD and that "high-margin" means 30%. That means each unit sold returns a \$150 profit.

Price of high-margin products	\$	500	USD per unit
x Profit margin		30%	
= Profit per unit sold	\$	150	USD per unit

Also from Sales, you learn that sales representatives sell on average 100 units per year, except for the few very knowledgeable ones who sell at least twice that number. You set your training goal to making all sales representatives as effective as the most knowledgeable. By doing so you will increase the annual profit from high-margin products per sales representative from \$15,000 to \$30,000 for an increase of \$15,000 per sales representative.

	Before training	After training
Average sales	100	200 units per sales rep
x profit per unit sold	\$ 150	\$ 150 USD per unit
= Profit per sales rep	\$ 15,000	\$ 30,000 USD per sales rep

To calculate the total increase in profits, you multiply the increase per sales rep by the number of sales reps, which you learn from Sales is 100.

Increased profit per sales rep	\$	15,000	USD per sales rep
x Number of sales reps		100	sales reps
= Total profit increase	\$	<u>1,500,000</u>	USD

Because Gizbotics is constantly developing new products and because you want your figures to be conservative, you decide to consider profit increases for only the first year after training.

The potential of adding \$1.5 million to the bottom line seems impressive. But first you have to factor in the costs of providing the necessary training.

## Costs of training

As a training manager, you know that calculating costs for training is complex. You decide to divide the task into three separate kinds of costs: Per-course costs, per-class costs, and per-learner costs. Per-course costs are the costs associated with creating the course, regardless of how many times you teach it or how many learners take it. Per-class costs are the costs incurred in offering the course, regardless of how many learners take the course. Per-learner costs are those incurred for each additional learner who takes the training.

### Per-course costs

Per course costs are the one-time costs of creating the course. These are primarily the costs of developing the course. To calculate development costs, you start by estimating the length of training required. After some study, you conclude that an 8-hour classroom course could do the job.

But what length should you use for e-learning? Sizing e-learning in hours is not the best measure, but you choose to do so because you know that Gizbotic's management understands what you mean by so many hours of training. You know that several studies have found that e-learning can teach the same material in less time than classroom training, but you decide to ignore those potential savings. You want your estimate to be conservative, and you are concerned that your first e-learning project may need a little margin for error. So, you use the same 8-hour figure for e-learning as for classroom training.

The next factor in development costs is the development time rate. This is the number of hours of development time required for each hour of the course. From prior projects, you know that developing original courses requires about 50 development hours per hour of classroom training. For e-learning, you use a figure four times higher to account for the need for additional material and interactivity to do what the instructor does in the classroom.

One final factor is the development cost rate, that is, the cost of each hour of course-development. Past projects required \$50 per development hour of classroom training. For e-learning, you double this rate, realizing that e-learning will require more technical and media specialists, some with high hourly fees.

To calculate the total per-course costs, you just multiply the course length by the development time rate and cost rate.

Course length	8	8 hours
x Development time rate	50	200 hours devt/course hr
x Development cost rate	\$ 50	\$ 100 USD/hour devt
= Total per-course costs	\$ 20,000	\$ 160,000 USD

The \$20,000 per-course costs of classroom training looks quite reasonable compared to the \$160,000 for e-learning. Perhaps e-learning is not such a bargain. But let's calculate more costs before giving up on e-learning.

### Per-class costs

The next group of costs you want to include is the per-class costs. These are the costs of offering the course. The term "per-class" relates more to classroom courses, which are taken by groups of individuals as a class. For your e-learning, you decide to teach the course as one large class with learners working through the course at their own pace but with access to a facilitator.

Your first step in calculating per-class costs is to calculate the costs for each group of students to take the course. These costs do not include the costs such as travel and time off the job incurred by individual learners, just the costs of putting a group of learners through the training.

The first cost you consider is the salary for the instructor for the classroom course and the facilitator for the e-learning course. You decide to use a figure of \$800 for each classroom class. You estimate e-learning will require \$5000 of facilitator time over the period the course is offered.

Another significant cost is for travel by the instructor to the site of training. Since training will be conducted in hotel meeting rooms in the various sales districts by trainers based at headquarters, some travel will be required. You estimate an average travel cost of \$1500 per class to cover airfare, hotel, meals, taxis, tips, and other incidental expenses. No travel will be required for e-learning.

You must also add the costs of training facilities. Hotel facilities for training average about \$500 per day. For e-learning, the only facilities requirement is space on a Web-server. A local application service provider agrees to host your e-learning course for \$1000 over the period the course is offered.

Adding up these per-class costs tells you how much it will cost for each class you conduct. Since e-learning does not require travel or meeting rooms, its costs are significantly less than those for classroom training.

Instructor/facilitator salary	\$ 800	\$ 5,000	USD
+ Instructor/facilitator travel	\$ 1,500	\$ -	USD
+ Facilities	\$ 500	\$ 1,000	USD
= Subtotal (per class)	\$ 2,800	\$ 6,000	USD

To move toward a total, you calculate how many classroom classes you must conduct. You do this by dividing the number of sales representatives you must train by the class size. Past experience indicates that a class size of 20 has provides a good balance between economy and effectiveness. Therefore, you need 5 classroom courses. For e-learning, you already decided to structure the course as one large class.

Number of learners	100	100 learners
÷ Class size	20	100 learners
= Number of classes	5	1 class

To compute the total per-class costs, you just multiply the cost per class by the number of classes for each form of training.

Cost per class	\$ 2,800	\$ 6,000 USD/class
x Number of classes	5	1 classes
Total class-offering costs	\$ 14,000	\$ 6,000 USD

E-learning is \$7,000 less expensive than classroom training, but this amount doesn't do much to offset e-learning's higher development costs.

### Per-learner costs

The final group of costs to consider is the per-learner costs. These are the costs incurred for each additional learner you must train.

One of the main costs is that of work lost because the learner is not on the job while taking training. For sales representatives this figure can be quite high. The Sales department estimates that Gizbotics loses \$2000 in profits for each day a sales representative is not actively selling Gizbots. To get the time cost for each learner, you must multiply this figure by the amount of time the learner will require to take the training. Earlier you estimated that training would require 8 hours, or about one workday. For classroom training, however, you must add the time learners spend traveling to and from the training. You estimate that travel will add on average an additional day off the job for sales representatives. As a result, classroom training costs \$4000 per learner, twice that for e-learning which requires no travel.

Learner's time cost	\$ 2,000	\$ 2,000 USD per day off job
x Time required for training	2	1 days
= Time cost for each learner	\$ 4,000	\$ 2,000 USD per learner

To these time costs you must add additional per-learner costs. One such cost is the travel expenses for classroom training. Another is the additional time required of instructors or facilitators for each learner. Each learner requires the instructor or facilitator to answer questions, grade assignments, and perform administrative chores. For this additional time, you allocate \$25 per learner for classroom training. For e-learning, you double this figure because the sales representatives are new to e-learning and may require more encouragement and technical support.

Adding up these individual per-learner costs yields the additional costs per learner.

Time cost for each learner	\$ 4,000	\$ 2,000 USD per learner
+ Learner's travel	\$ 1,500	- USD per learner
+ Instructor/facilitator's salary	\$ 25	50 USD per learner
= Subtotal (per learner)	\$ 5,525	\$ 2,050 USD per learner

E-learning is significantly less, primarily because it does not require learners to travel to receive training.

To compute the total per-learner costs you multiply the per-learner cost for each learner by the number of learners.

Per-learner costs	\$	5,525	\$	2,050	USD per learner
x Number of learners		100		100	learners
= Total learner costs	\$	<b>552,500</b>	\$	<b>205,000</b>	USD

Wow, in this category e-learning is considerably more cost effective than classroom training.

### Total costs

You quickly add up the separate groups of costs to get a total for the two forms of training.

Per-course costs	\$	20,000	\$	160,000	USD
+ Per-class costs	\$	14,000	\$	6,000	USD
+ Per-learner costs	\$	552,500	\$	205,000	USD
= Total project costs	\$	<b>586,500</b>	\$	<b>371,000</b>	USD

Though more expensive to develop, e-learning is the less expensive way to conduct training, especially when training large numbers of people who would otherwise have to travel to take the training. But is either alternative inexpensive enough to yield an attractive return on investment?

### Return

Once you know the costs and benefits, calculating return on investment is just a few simple steps. First, you subtract costs from benefits to see whether either alternative has a net benefit.

	Classroom		E-learning		
Benefits	\$	1,500,000	\$	1,500,000	USD
- Costs	\$	586,500	\$	371,000	USD
= Return	\$	<b>913,500</b>	\$	<b>1,129,000</b>	USD

Both alternatives promise profitable results. To convert these figures to ROI, you just divide the return by the investment. In your case, the investment is the costs for each project.

	Classroom	E-learning
<b>Return on investment</b>	<b>156%</b>	<b>304%</b>

The return on investment for classroom training is impressive, but the one for e-learning is spectacular. Imagine getting 304% interest on your savings account?

**{Sidebar} Recap****Benefits**

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**Costs****Per-course costs**

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**Per-class costs**

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+ Class size	20	100	learners
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**Per-learner costs**

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**Return**

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**{Action icon} Your turn**

Calculating return on investment is a difficult skill, but a valuable one to have in your repertoire. Take a few minutes to practice calculating ROI for e-learning projects.

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**Play what-if**

Perhaps you disagree with some of the assumptions used in the example. Or, you would like to see the example more closely resemble your situation. Get out your calculator and have at it. Using the example as a starting point, alter figures to see what difference the changes make. If you want, you can download a spreadsheet containing the example from this book's companion Website <http://horton.com/evaluating/>.

Experiment with your model. Which factors have a big effect on the results, and which seem to matter little?

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**Calculate ROI for your project**

Evaluate the ROI of one of your projects. You can use the example as a model. You will need to change figures for costs and may need to redo the benefits calculation so they reflect your situation.

What kind of ROI does your project offer? How does this ROI compare to the ROI figures of other projects competing for corporate resources?