

How to Estimate and Calculate Return on Investment (ROI)

The Formula

$$\text{ROI \%} = \frac{\text{Net Present Value of Savings}}{\text{Initial Investment}} \times 100$$

How This Works

Let's pretend that a big company, Megacorp, has assigned a project manager to replace its outmoded e-commerce application with the latest and greatest package. Because this will cost the company a lot of money, the company's executive management asks the project manager to estimate return on investment first. The table below is what our sample project manager puts together as s/he quantifies several factors. In this sample ROI calculation, the ROI is 241 percent. This means that the financial benefits of going ahead with this project exceed the initial investment outlay by 141 percent. If the return on investment were 100 percent, that would mean that benefits equal the cost of doing the project, which means the project would break even.

Sample Scenario: Megacorp Calculates ROI to Replace Outmoded E-Commerce Applications

Cost with New Solution	Year 0	Year 1	Year 2	Year 3
	Project*	Support	Support	Support
Hardware	\$200,000			
Web Software	300,000	\$100,000	\$100,000	\$100,000
Project Implementation	550,000			
Support		300,000	300,000	300,000
Total	\$1,050,000	\$400,000	\$400,000	\$400,000
Cost with Current Solution	Year 0	Year 1	Year 2	Year 3
	Support	Support	Support	Support
Database Administrators	\$600,000	\$600,000	\$600,000	\$600,000
Operational Support	800,000	800,000	800,000	800,000
Total	\$1,400,000	\$1,400,000	\$1,400,000	\$1,400,000
Net Savings if Project is Chosen	**	\$1,000,000	\$1,000,000	\$1,000,000

Go on to the next page.

Calculate the Discounted Net Savings (assuming rate of 9%*)**

Year 1:	$\$1,000,000 \times 1/(1 + .09) = \$917,431.19$
Year 2:	$\$1,000,000 \times 1/([1 + .09] \times [1 + .09]) = \$841,679.99$
Year 3:	$\$1,000,000 \times 1/([1 + .09] \times [1 + .09] \times [1 + .09]) = \$772,183.48$
NPV Total:	\$2,531,294.66

Return on Investment (ROI)

Discounted Net Savings at 9%	\$2,531,294.66
Initial Cost of New Solution	\$1,050,000.00
Return on Investment (ROI)	241% (positive)

Assumptions Made to Arrive at These Calculations

*	The comparison of the initial cost of the new solution to the cost of the current solution is not appropriate, because the new solution will not be available until the end of Year 0. The comparison of the two solutions is not meaningful until the new solution is complete.
**	This assumes that the project will be completed by the end of Year 0 and will be available starting Year 1.
***	There are several options for choosing the discount rate, such as the cost of capital (e.g., what gets borrowed from a bank), the rate of return of alternative projects, or the investment yield rate.