

The "Three Rs"

of ROI

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Oversimplification of cost justification processes is a real danger in calculating return-on-investment. Walk through this cost-benefit analysis for an EPSS project, which notes oft-forgotten ROI calculation details.

In This Story

- ▼ cost-benefit analysis
- ▼ EPSS
- ▼ return-on-investment

Two of the most important factors affecting any corporate investment decision are the time value of money and the inherent risk of the investment. Both of these factors are considered in the following overview of the basics of justifying investment in an electronic performance support system project.

Corporate Finance 101

Grand and glorious mission statements notwithstanding, the real mission of every for-profit company is to generate an acceptable return on invested capital. What constitutes an acceptable return varies with the risk of the investment, with the availability of other options for capital investment, and with the speed with which returns are generated. Returns on

invested capital come from free cash flow—whatever cash is left after the company takes what it needs for operations and investment for the future.

If an EPSS project, or any project, can generate free cash flow at least equal to other projects available to the company, it will normally be approved. (Of course, this assumes that the company has some acceptable projects to invest in.)

Many projects proposed in business only generate free cash flow indirectly. Such projects are proposed as activities that will increase market share, improve product quality, or accomplish some other purpose that management believes will, in the long run, generate free cash flow.

Those purposes that management believes ultimately lead to the generation of free cash flow are the ones that man-

agement values and pronounces in mission statements. The most dearly held values of many companies are widely known, even outside the business: 3M values innovation; Dupont, safety; and Federal Express, customer service. Values such as those may be referred to as “indirect measures.”

Direct and Indirect Measures

Both the direct, cash flow-generating contributions of projects, as well as the indirect measures valued by management, should be considered when investing in new projects. (See sidebar, page 28, for a generic worksheet for analysis of direct costs and benefits.) If possible, every EPSS project proposal should indicate measurable outcomes related to both types of criteria and should at least include the following:

1. *Identification of indirect measures or the values management holds most dear.* These are the values most talked about by management and frequently referred to in memos and other communications.

2. *Identification of the contributions expected from implementation of EPSS technology in the organization.* For specific EPSS projects, identify measurable contributions from the project—these are the evaluation criteria.

3. *Estimation of what each EPSS project will accomplish in terms of the predetermined evaluation criteria.*

4. *Documentation of this information both in the EPSS project proposal and the associated project plan.* Rank order the evaluation criteria: most to least significant indirect measure (by management’s standards), followed by most significant to least significant direct measures.

For example

- ▼ improve customer service by reducing length of service calls by 15 percent (indi-

Table 1: Project Cash Flows, Example 1

Year	0	1	2	3	4	5
Initial cost	\$(200)	—	—	—	—	—
Cost reductions	—	\$50	\$50	\$50	\$50	\$50
Net cash flow	\$(200)	\$50	\$50	\$50	\$50	\$50

The NPV calculation determines the present value of the return (\$50 over five years) and compares it to the initial investment:

$$\text{Present value} = \text{net cash flow YR}_1 / (1 + \text{discount rate}) + \text{net cash flow YR}_2 / (1 + \text{discount rate})^2 + \dots + \text{net cash flow YR}_n / (1 + \text{discount rate})^n$$

Or, if the net cash flow is constant for years 1 through n,

$$\text{Present value} = \text{net cash flow} * (1 - 1 / ((1 + \text{discount rate})^{\text{time periods}}) / \text{discount rate}$$

$$\text{NPV} = \text{initial investment} + \text{present value}$$

For our example:

$$\text{Present value} = \$50 * (1 - 1 / 1.15^5) / 0.15 = \$167.6$$

$$\text{NPV} = (\$200) + \$167.6 = (\$32.4)$$

Conclusion: The NPV is negative; it fails to return the 15 percent annual return required.

Decision: Reject investment in EPSS.

rect—no claim about associated reduction in head count or costs)

- ▼ improve customer service by reducing callbacks by 5 percent (indirect)
- ▼ reduce service documentation costs by 20 percent (direct)
- ▼ reduce warranty claim costs by 4 percent (direct)
- ▼ reduce field engineering costs by 2 percent (direct).

Purposes management believes ultimately lead to the generation of free cash flow are the ones it values and pronounces in its mission statements

Cost Justification

Justifying an EPSS application in financial terms is really no different than justifying an expenditure for capital equipment. Most organizations do this by calculating the net present value (NPV) of the discounted cash flow from the investment. If the NPV is positive, the investment is a good one.

A popular alternative to calculating NPV is calculation of the internal rate of return (IRR) on the investment. Both NPV and IRR calculations are similar and either one will work, but the following discussion will be limited to NPV.

Net present value is the difference between the cost of an investment and the return on an investment measured in today’s dollars.

For example, if an EPSS application costs \$200,000 and will save (or generate a return) of \$50,000 per year for five years, there is a \$50,000 net return on the investment. But the NPV of the investment is actually less than \$50,000 due to the time value of money.

NPV calculations account for money’s time value by discounting the future cash flow of the investment at some discount rate that varies with the risk of the investment.

NPV Calculation, Example 1

Using the scenario presented above, an organization is considering investing \$200,000 in an EPSS application that will save an estimated \$50,000 per year in training costs over the next five years. At face value, seems like a good deal,

Table 2: Project Cash Flows, Example 2

Year	0	1	2	3	4	5
EPSS development	\$(105)	—	—	—	—	—
Paper documentation costs	—	—	—	\$225	\$225	\$225
Warranty claims reduction	—	\$32.5	\$32.5	\$32.5	\$32.5	\$32.5
Field engineering reduction	—	\$30	\$30	\$30	\$30	\$30
EPSS maintenance	—	\$(15)	\$(15)	\$(15)	\$(15)	\$(15)
EPSS distribution	—	\$(45)	\$(45)	\$(45)	\$(45)	\$(45)
Net cash flow	\$(105)	\$2.5	\$2.5	\$227.5	\$227.5	\$227.5

Calculations:

Present value = $\$2.5/1.15 + \$2.5/1.15^2 + \$227.5/1.15^3 + \$227.5/1.15^4 + \$227.5/1.15^5$

Present value = $\$2.17 + \$1.89 + \$149.58 + \$130.07 + \$113.11$

Present value = $\$396.82$

NPV = $\$(-105) + \$396.82 = \$291.82$

Conclusion: The \$105,000 investment in EPSS is worth \$291,820 today.

Decision: Invest in EPSS!

The qualitative benefits of an EPSS application are usually intuitively obvious to those closest to the performance, and these are usually the driving reasons for managers to embrace EPSS technology. Implement EPSS for the qualitative reasons, but use quantitative analysis to validate your decision and to procure resources.

If the decision to implement EPSS is questionable, look for another application. Life is full of opportunities, and outstanding EPSS applications abound in most organizations. If you have to struggle to identify the qualitative benefits of an EPSS application or sharpen your pencil and play with numbers to come up with cost justification, you should be looking for lower-hanging fruit. ■

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Examples include reduction in head count in technical support functions, savings in printing of paper documentation, or reduction in the size of the training budget.

Savings in “blue” dollars are often cited by managers who are not financially savvy. A blue dollar is absorbed by the organization and not actually spent or saved—it never really makes an impact on a financial statement. Blue dollar savings typically occur when there is an expected (or actual) reduction in labor, but there is never a corresponding reduction in head count—the organization simply “absorbs” the savings, probably by doing other activities.

The qualitative benefits of EPSS technology are usually of greater value to an organization than the quantitative benefits. It’s difficult to attach a dollar sign to some of the most significant contributions of EPSS technology. For instance, the collective expertise of an organization is, for many companies, one of their most important assets. But expertise never shows up on a balance sheet. How do you put a value on the maintenance of expertise? What is the “green dollar value” of improved customer service?

