How to Use Total Cost Assessment to Demonstrate Business Value of Your Safety Initiatives

Convincing senior management to invest in safety initiatives can be an uphill battle, especially when the initiative isn't specifically required by law. Of course, demonstrating that the initiative will cut costs and/or boost revenues is a great way to sell it to the business people who control the purse strings. But doing so is easier said than done.

So how *can* you demonstrate that a safety initiative will have a positive effect on your company's bottom line? One possibility is to use Total Cost Assessment (TCA), an accounting method that's designed to measure the true profitability of EHS investments. Although TCA is designed to evaluate environmental initiatives, the same principles apply to demonstrate the profitability—or lack thereof—of safety initiatives. Here's a look at how TCA works and some case studies showing how companies applied it to their environmental initiatives.

TCA BASICS

TCA is particularly useful for evaluating safety and environmental initiatives that, because of their nature, often produce financial savings that are overlooked in conventional financial analyses. Relative to conventional cost accounting and project evaluation approaches, TCA:

- Takes into account a wider range of direct and indirect costs and savings;
- Considers longer timelines that reflect the full economic or commercial life of a project;
- Uses financial indicators that incorporate the time value of money;

- Reveals “hidden” costs by relating them to the activities that cause them; and
- Considers uncertain or less quantifiable costs.

4 Steps for Conducting a TCA

Conducting a TCA involves complex calculations. The good news is that several groups prepared guidelines for using TCA to make the business case for pollution prevention projects for the province of British Columbia`s Ministry of Environment, Lands and Parks. These guidelines break the process into 4 basic steps:

Step 1: Defining the Decision

Depending on the project and the company, defining the decision may include:

- Determining the scope of the TCA, such as what will be included in the analysis;
- Clarifying how the project addresses core business objectives; and
- Identifying what internal approvals are required for the project.

Step 2: Identifying and Understanding Costs

There are four types of costs commonly associated with environmental initiatives (and many safety initiatives as well):

- *Direct or “conventional” costs*: costs that are usually identified in a conventional financial analysis, such as up-front capital costs, raw material inputs, labour, etc.;
- *Indirect costs:* costs that either aren’t allocated to individual products, processes or facilities at all because they’re part of general overhead or are lumped with several unrelated costs and allocated on the basis of some relatively arbitrary factor, such as square footage. This category may include up-front costs (e.g., siting, design, etc.); operating costs (e.g., regulatory, monitoring or compliance costs); and back-end costs (e.g., decommissioning, site clean-up, etc.);

- *Contingent costs*: costs that may—or may not—be incurred at some point in the future and can be quantified in terms of their expected magnitude, frequency and timing. Examples include compensation for future accidental chemical releases or spills, fines for future environmental and OSHA violations and remediation costs; and
- *Less-quantifiable costs*: costs that require some subjective interpretation to assess and quantify. They include a wide range of strategic considerations and are realized as changes in revenues or underlying costs. The most common are costs arising from changes in corporate image, customer relations, worker morale and government or regulator relations.

Step 3: Analyzing Financial Performance

True measures of profitability account for the time value of money. So TCA uses a discounted cash flow to recognize that costs, savings and revenues fluctuate over time. It also extends the timeline of the evaluation to account for costs and benefits that occur more than 3 to 5 years in the future. Particularly in the case of environmental and safety initiatives, these future costs and benefits—and their timing—can significantly affect financial performance.

Step 4: Making the Decision

Decision-making is about integrating all of the factors that are relevant to the profitability of an investment. Some factors may be monetized (e.g., in a net present value calculation); some may be quantified but not monetized (e.g., percentage increase in market share); and others may simply be identified and characterized qualitatively (e.g., "anticipated changes in future regulatory requirements are expected to increase compliance costs substantially"). The actual method of decision-making depends on the nature of the project and the magnitude of the potential costs and savings.

Using TCA to Sell Management on Safety: 3 Case Studies

Here are 3 examples of companies that successfully used TCA to win approval for EHS initiatives—and to identify and thus avoid initiatives that *weren't* financially sound. Although the case studies involve environmental initiatives, the financial issues they raise are also common to the evaluation of safety initiatives.

1. Circuit Company Gets Approval for Rack Switch

A circuit board manufacturer evaluated a project that would eliminate the use of nitric acid as a stripping agent by replacing stainless steel racks with plastic coated racks. Under a conventional cost analysis, only the purchase price of the new racks and the savings associated with eliminating the purchase and subsequent disposal of nitric acid were included; no labor, paperwork, permitting or analytical costs were included. This approach suggested that the project would just begin to yield a positive return in its fifth year. In contrast, a TCA of this project showed a five-year net present value of $33,000. When product quality improvements and worker health and safety benefits were also factored in, the project was easily approved.

2. Printing Company Uses TCA to Improve Profitability & Reduce Waste

A commercial printing company wanted to upgrade the wastewater treatment system at one of its facilities but the project didn't appear to be sufficiently profitable under a conventional financial evaluation. A TCA was conducted to ensure that *all* relevant direct and indirect costs were included in the analysis. The project's rate of return actually turned out to be 17.8% using TCA, as compared to 14.7% under a conventional analysis. And its 10-year net present value rose from $51,887 to $81,152, while payback dropped from 6.9 years to 5.6 years when TCA was applied. *Bottom line*: The TCA demonstrated that in addition to better immediate financial performance, the upgraded facility would generate less hazardous waste and produce a potentially marketable by-product.

3. TCA Reveals that an Environmental Initiative *Isn't* a Sound

Investment

The environmental management division of a large paper coating mill conducted a TCA on a coating conversion project that involved switching from a solvent/heavy metal base coat to an aqueous/heavy metal-free formulation. Expected environmental benefits included reductions in flammability and explosiveness, worker exposure to solvents, VOC emissions, hazardous waste and solvent/heavy metal usage. But when the TCA was conducted, it showed that previously omitted utility costs *outweighed* the waste management savings. The project's 15-year net present value, already negative at -$203,000, dropped to -$395,000 under TCA. Its rate of return dropped from 11% to 6% and the payback period rose from 7.6 to 11.7 years.

Conclusion

Standard accounting cost analysis doesn't always show the true value of a safety initiative. So by using a conventional analysis on a proposed safety initiative, you may actually be underselling the initiative's financial benefits—and effectively shooting yourself in the foot in your effort to get the backing of senior management. But by using a TCA, you can more accurately demonstrate how a safety initiative will ultimately benefit the company's bottom line and thus improve your chances of getting approval for the project. In addition, a TCA may weed out initiatives that *aren't* cost-effective, helping you avoid wasting time on projects that will never get off the ground.

Source: "Total Cost Assessment Guidelines: Preparing the Business Case for Pollution Prevention Projects," Compass Resource Management Ltd., Planit Management Inc. and The Sustainability Ventures Group Inc., April 1997.