

Estimating Return on Investment (ROI) for a Behavior Change: An Evaluation Tool for Extension Programs¹

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Introduction

Extension professionals can benefit from knowing the value of a program's outcomes compared to how much it costs. One way to estimate a program's value relative to cost is through a series of calculations, known as Return on Investment (ROI). ROI essentially measures performance by assessing the efficiency of an investment. This document was developed for Extension professionals working in any field, and the purpose of this article is to provide an overview of the process of estimating ROI, with suggestions for application to Extension programming. This approach can help to identify cost-effective programs, determine the proper allocation of resources, and communicate results to stakeholders (Jayaratne, 2010).

ROI is useful in program planning because it provides an estimation of the costs and benefits of a program, as well as the non-monetary values that are associated with change. It can be included in grant proposals to demonstrate feasibility and to determine how resources and funding should be allocated. More importantly, ROI values help communicate the worth of Extension programs to key stakeholders and show the net return on investments (Jayaratne, 2010). ROI is a way to assign a dollar value to the behavior change that results from a program (Stup, 2003). Social marketing and other approaches to behavior change applied by Extension may use ROI as an evaluation outcome (Lee & Kotler, 2011; Lee, 2010). ROI provides the practitioner with a valuable evaluation measure that can be used to assess the effectiveness of a given program. For example, ROI can be used to 'justify' investments in Extension programs that help clients to develop life skills, improve their health, or protect the environment. Internally, ROI can provide a means for deciding how to allocate resources by informing decision-makers if benefits outweigh costs (Kotamraju & Mettill III, 2012). Externally, ROI can provide funders with a demonstration of accountability and justification for continued funding. In terms of a program evaluation, continued funding can be justified if performance standards are met. It is important to note that successive ROI evaluations can be compared to determine if the program was successful over time.

Additionally, Social Return on Investment (SROI) can be used to measure an investment's ability to produce a social value in a community or broader society. SROI considers the value of social units (or changes that result from a program). It converts social value into monetary value, which measures the financial impact on society, or those receiving the benefit (Nicholls et al., 2009). In an Extension context, for example, SROI can be used to measure the social value to a community that results from a water conservation program that succeeded in creating a behavior change (conserving water).

Figure 1 shows an overview of the various stages of a project. Five program evaluation phases are identified (needs assessment, feasibility study, process evaluation, outcome evaluation, and cost analysis), as well as items included under costs and benefits.

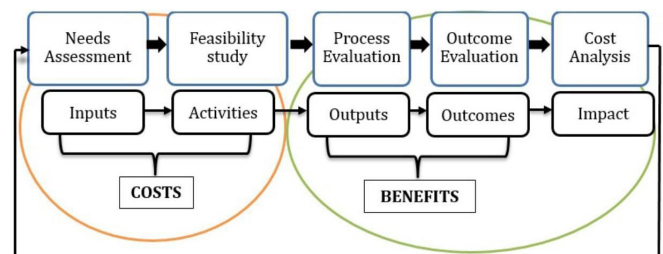


Figure 1. A Logic Model for ROI.

Credit: Adapted from Kotamraju & Mettill III (2012)

Guidelines to Follow when Calculating ROI for an Extension Program

The following are guidelines to consider when estimating ROI and communicating the results (Jayaratne, 2010):

- Identify the desired outcome.
- Source relevant information regarding cost of the program and make it easily accessible to those assessing the program.
- Identify outcomes and impacts of the program being evaluated.
- Convert outcomes/impacts to monetary values.
- Clearly state any assumptions.

- Provide proper justifications.

Overview of the Process for Calculating ROI for a Behavior Change

There are numerous methods for calculating ROI for a behavior change (Stup, 2003). The following is a summary of this process as described among social marketers. ROI may be calculated with the use of seven values as described below (Lee & Kotler, 2011; Lee, 2011).

1. *Money spent.* Money spent is the total cost of a program, which includes the value of personnel time spent on the project, direct costs of the research, design, implementation, and evaluation of the program. This is the monetary cost of all the inputs used to encourage behavior change.
2. *Behaviors influenced.* Behaviors influenced is the number of people who adopted some specific behavior because of your program.
3. *Cost per behavior influenced.* Cost per behavior is calculated by dividing the total money spent (#1) by the number of people influenced to adopt the behavior (#2). This value is the cost borne when a desired behavior change takes place.
4. *Benefit per behavior.* Benefit per behavior explains the value of the behavior change. Often this must be an estimate, and it may refer to costs avoided by the influenced behavior. Examples include the projected cost of an avoided watershed cleanup or the money saved on a fixed utility bill because of water conserved. This benefit is considered a saving.
5. *Gross or total economic benefit.* Gross economic benefit is calculated by multiplying the number of behaviors influenced (#2) by the economic benefit (#4).
6. *Net benefit.* The net benefit is calculated by subtracting the money spent (#1) from the gross or total economic benefit (#5). That is, total benefit minus total cost.
7. *Return on Investment.* Return on investment is estimated by dividing the net benefit (#6) by the money spent (#1) and multiplying this number by 100. This value is a percent. Recall that this value can be compared with similar evaluations of the program over time to determine whether it was successful. Table 1 provides a summary of each formula and its respective meaning.

An Example of Calculating ROI for a Behavior Change in a Water Conservation Landscape Program

1. *Money spent.* Suppose the Extension program 'Water Conservation' is focused on encouraging clients to engage in water conservation practices. The total monetary cost (including personnel time and labor

costs, such as salaries) to implement and evaluate this program was \$1,000.

2. *Behaviors influenced.* Upon implementation of this program, 35 people adopted proper irrigation techniques.
3. *Cost per behavior influenced.* The cost per behavior is $\$1,000/35 = \28.57 . Therefore, the cost to influence a person to adopt water conservation practices was $\$28.57/\text{person}$.
4. *Benefit per behavior.* By engaging in proper irrigation practices, participants had an average of \$30 monthly savings on their water bills. This amount is the **monthly** benefit of adopting water conservation behaviors. Note that when a savings is recurring, it is important to identify the appropriate time-frame. In this example, we consider the return on investment at one month following the program. To further the example, the benefit per behavior can also be determined six-months after the program was implemented when the benefit could be greater.
5. *Gross or total economic benefit.* The gross economic benefit is the number of people influenced (35 individuals) * benefit per behavior (\$30). This is, therefore, $35 * \$30 = \$1,050$.
6. *Net benefit.* The total money spent on the program was \$1,000 and the gross economic benefit was \$1,050 (calculated in step 5). Therefore, the Net Benefit is $\$1,050 - \$1,000 = \$50$.
7. *Return on Investment.* In this case, the ROI is $(\$50/\$1,000) * 100 = 5\%$. Suppose in the following year, the same evaluation process was done and the ROI was 20%. The Extension professional could report that the 'Water Conservation' program is improving based on a comparison to the ROI of 5% in the previous year.

Conclusion

The calculations discussed in this publication generally apply to short-term investments. Discounted benefits and costs are used in any other situation where inflation may change the value of money over longer periods of time. These situations, where inflation changes the value of money, and benefits and costs are discounted using the interest rate, require more complex analyses and are outside the scope of this publication.

Evaluating complex Extension programs and communicating their value both internally and externally can be challenging. ROI provides a means of demonstrating the cost of changing behaviors associated with social marketing and Extension programs. The formulas provided in this document can be used to quantitatively assess the behavior change of implementing a program. This type of approach is useful in the allocation of resources, both tangible and intangible. Good evaluation methods such as ROI can help Extension professionals to make decisions about changing, continuing, or ending their Extension programs.

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Table 1. Summary of Calculations.

Calculation	Formula	Meaning
Money spent	Total cost	total monetary cost to implement and evaluate project
Behaviors influenced	# of people influenced	# of people who adopted the behavior promoted by the program
Cost per behavior influenced	Total cost / # of people influenced	the amount of money it costs for a person to adopt the behavior change
Benefit per behavior	Amount of money saved	the monetary value saved by a person as a result of engaging in the behavior change resulting from the program
Gross economic benefit	# of people influenced * benefit per behavior	the overall economic benefits gained by engaging in the behavior change
Net benefit	Gross economic benefit – Total cost	total monetary benefit gained
Return on Investment	Net benefit / Total cost * 100	an evaluative percentage that indicates the efficiency of investing in a program

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