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## **A Framework for Evaluating Return on Investment in Management Development Programs<sup>1</sup>**

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### **Abstract**

Return on Investment (ROI) is a financial metric that can be used to evaluate training and development investments. The objective of this research is to develop an evaluation process using ROI to assess the financial performance of management development programs. A three-phase model for ROI evaluation is presented. These phases include assessment planning, data collection, and data analysis. This model is then tested and applied to a management development program. This paper provides a template for ROI evaluation that can be used to evaluate a wide variety of training and development activities by food and agribusiness firms.

**Keywords:** Management education, training, assessment, evaluation, return on investment.

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## **Introduction**

Investment in managerial training and development by food and agribusiness firms represents both an important tool of strategy to build competitive advantage and a significant commitment of financial resources. As such, there is increased interest in evaluating the impact and effectiveness of such managerial development investments. However, few managerial training programs measure training effectiveness at the business impact level. The few companies that do evaluate training at this level use subjective information in the measurement effort (Catalanello and Kirkpatrick, 1968, 6; Schaffer and Keller, 2003, 17). Due to the increasing pressure on training costs and demands for training effectiveness in food and agribusiness firms, a method for assessing the economic impact of training is needed. The current trend is to evaluate programs using all levels of Kirkpatrick's 1959 framework. The large investments in training budgets and the need to show the value of the programs are the primary drivers for increased interest in evaluating return on training investment. This assessment can be obtained through the financial analysis of return on investment, ROI.

An important problem is that return on investment from training programs is typically unknown. More specifically, the results of training and development programs are not evaluated in terms of their effect on business results. The impact of training and development on organizational profitability is difficult to evaluate and often not attempted. The benefits of programs are often subjective and difficult to quantify in monetary terms. Benefits also accrue over time and the optimal point of time to evaluate is ambiguous. Because of the lack of evaluation, the effort put into developing human capital is often seen as an expense and not an investment.

The objective of this research is to develop an evaluation process using ROI metrics to assess the financial benefits of management development programs. The evaluation process is intended to be simple, easy to understand, and easy to use. The process is then applied to a case example, illustrating how to implement ROI analysis. The process presented in this paper for determining ROI can be used as a tool to strengthen the impact of management training and development programs.

## **Kirkpatrick's Four Levels of Evaluation Framework**

In 1959, Donald Kirkpatrick developed a four-level framework for measuring training effectiveness (Catalanello and Kirkpatrick, 1968, 2). These levels include reaction, learning, behavior, and results. Each level measures an important area and all levels should be completed in sequential order to obtain a complete evaluation of a training program.

Reaction refers to how well the trainees liked and responded to the program. Learning measures the extent to which the trainees learned facts, approaches, and

principles included in the training. The extent to which job behavior changed due to the training is the behavior level. The results level includes what was achieved and what was improved as a result of the training. Three areas evaluated within the results stage are perceptual, performance, and financial results (Schaffer and Keller, 2003, 8). Perceptual results are based on organizational benefits such as attitudes and initiatives. Performance results refer to measurable improvements within the organization such as increased efficiencies and reductions in absenteeism. Financial results are the financial costs and benefits, such as increased sales and reduced overhead.

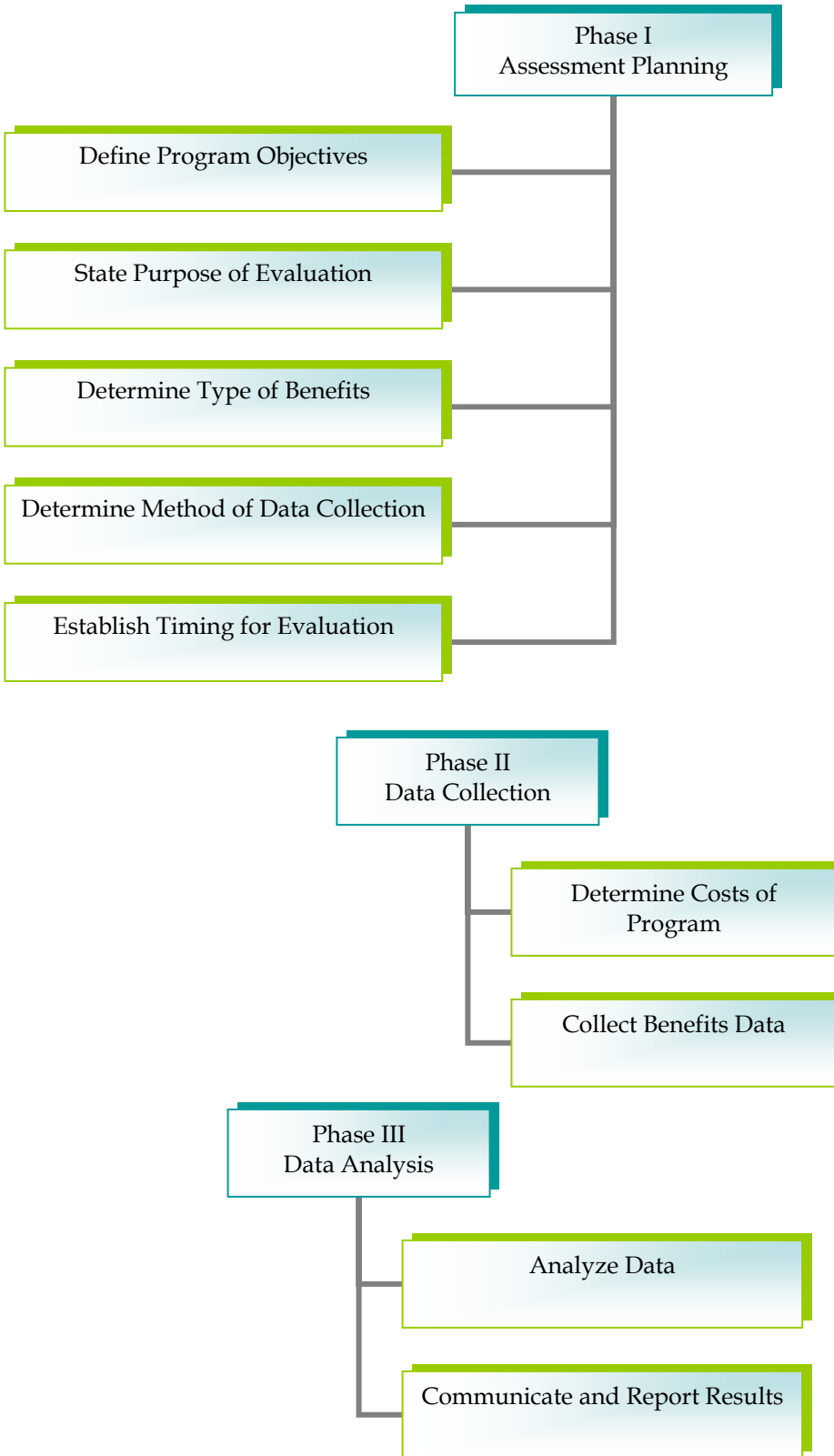
Both A.C. Hamblin and Jack J. Phillips propose a fifth level of evaluation. Hamblin refers to this level as the “ultimate value” or the “cost-efficiency” level (Hamblin, 1974, 21-22; Phillips, 1997, 5). Although not all authors acknowledge this fifth level, it can be viewed as an extension of level four. This level of evaluation specifically evaluates the monetary value of the training program. Level five evaluation converts the qualitative data from a level four evaluation into monetary values. At this level, both qualitative and quantitative data are used to determine the financial impact of the training program. The monetary benefits of the program are compared to the cost of implementation to determine the return on investment (Phillips, 1996, 11).

## **Overview of the Model**

The general objective of this study is to create a model for measuring return on investment in management education programs for food and agribusiness firms. This model is intended to be a template or process that can be adapted to fit a variety of training and development situations. The method integrates a three-phase process, incorporating both quantitative and qualitative data. These phases are assessment planning, data collection, and data analysis (Figure 1). Throughout the model, Kirkpatrick’s framework is incorporated and enhanced. The model expands Phillip’s fifth level method and provides insight on how to better apply the method and measure both costs and benefits. The general method developed can be modified and applied to any management education program.

### *Phase I - Assessment Planning*

The first phase of this model is assessment planning. This preparatory phase defines the program objectives, states the purpose of the evaluation, determines the types of benefits to be measured, determines the method of data collection, and establishes the timing for the evaluation. The assessment planning phase is a preparatory phase which coincides with training program design. This phase uses information on program/learning objectives that have been defined during program design. If program objectives have not been clearly specified, they need to be defined and developed before continuing further in this phase and before moving onto phase



**Figure 1:** Steps in an ROI Analysis

II. For a program with a predetermined design, this phase is relatively simple. It is important that the assessment planning phase be completed before the training program is presented to an audience.

Learning objectives are an important aspect of program design. Learning objectives are small reusable components used to build people (Shepherd). Robert Mager suggests that there are three specific elements of learning objectives. These elements are the specific performance expected, conditions under which this performance is expected, and the minimum acceptable level of performance (Singh, Singh, and Paul, 1, 2003). Learning objectives should be portable, durable, sharable, and accessible (Shepherd). Portability allows the learning objective to transmit from the training session to various aspects of the business organization. A learning objective that is durable has long-term effects, therefore durability focuses on training effectiveness in the evolving work and business environment. Sharable learning objectives focus on the ability of the trainee to demonstrate and express the purpose of the training in the workplace after the training has occurred. Accessibility refers to the ability of the knowledge gained from training programs to be applied in the work environment.

Two aspects of learning objectives are identifying the client needs and developing a set of specific objectives which will meet those needs. It is imperative to have a clear connection between planned program objectives and impact assessment. To obtain appropriate results, the learning objectives need to be directed towards the defined audience. The audience of the evaluation may encompass both the participants and the company/sponsor of the program. It is important to keep in mind whether the participant's or the company/sponsor's objectives (or both) are of interest for the evaluation.

Once the program objectives are defined, the next step of this phase is to define the overall need and use of the evaluation. There are four main objectives for evaluating training. These objectives are to validate training as a business tool; assist in improving the design of the training; aid in selecting training methods; and assess the cost-benefit ratio of the training. The reasons for evaluation are used in conjunction with program objectives as a guideline to define the success or failure of the training program. Based on what the client wants to measure and their objectives for the measurement, the level of evaluation that the client desires must be determined.

It is imperative that both the learning objectives and the purpose of evaluation address the same audience and the same needs. The learning objectives for the company and the learning objectives of the individual participant are not always consistent. In order to obtain an accurate return on investment analysis, it is important that the purpose of evaluation not overlook this issue.

The purpose of the evaluation should accomplish three things:

1. Determine what the client wants to measure with the analysis;
2. Define the audience based on these measurement decisions; and
3. Ensure that the program objectives include this audience and the measurement decisions.

The third step of the assessment planning phase is to identify the possible benefits of the training program. The benefits are assessed through a component approach. The components are program specific, based on the learning objectives derived earlier in this phase of the model. The components are geared to derive both long term and short term benefits of the training program. General categories for the quantitative assessment include output, time, costs, and quantity. The general categories for qualitative assessment include work habits/personnel data, new or improved skills, work climate, development/achievement, feelings and attitudes, and initiative. The learning objectives play a key role in determining the categories of benefits to be addressed in the evaluation.

In order to derive the benefits from the participants, probing questions need to be developed. These questions are based on the components identified and their pairing to learning objectives. The questions are used to uncover specific application issues. Three major categories of benefit classification are perception, actions, and results. Perceptions and actions tend to involve qualitative data and results are almost always quantitative data. Perception questions identify specific situations and applications with which the participants intend to use the skills from the training program. They may also address the signaling which can occur when training and development is intended and/or perceived to be a reward for the employee. The actions category includes questions which identify specific situations and applications with which the participants actually accomplished tasks using the skills acquired with the training program. Results questions focus on quantitative variables and are based on specific measurable variables which are less susceptible to opinion and bias.

Organization of the questionnaire (see Appendix A) begins with level 3 questions. These transfer of knowledge questions are used as leading questions. These questions focus on self-assessment of improvements in knowledge, and serve the purpose of reminding the participants of the course content and prompting the respondent to think about the program's content and its relation in their work environment.

After level 3 questions, ROI questions are addressed. The ROI questions are focused on specific situations and applications. Following each question pertaining to a specific situation/application, the participant is asked to answer financial questions related to the specific situation/application. The participant is asked to estimate the

impact in dollars of the situation/application and then the participant is asked to provide an estimate (percentage) as to how confident they are in their answer. This confidence level is used to ensure a realistic value to be used in the ROI analysis.

The fourth step of this phase is to determine how to use the questions developed in order to collect the data. The method of data collection can occur in various ways and will vary depending on the type of data needed and the target audience being addressed. Options include phone or personal interviews, email, mail, or fax. Companies can measure the outcomes themselves, or they may be evaluated externally. These measures can be completed through observed performance, or by surveying supervisors, co-workers, and/or customers. The four issues to consider for method of data collection are:

1. What kind of data needs to be collected?
2. Who will the data be collected from (who will be responding and answering the questions)?
3. What will be the most efficient and effective method of data collection for the respondents?
4. What method will achieve the highest response rate?

An easy, organized way to collect data is through a brief survey or questionnaire using both Likert scale questions and open-ended questions. Likert scale questions provide a relatively quick method to collect information from the respondents and the responses can be gathered in a standardized way. The open-ended questions allow for a broader range of data to be obtained from the respondents.

The last step of the assessment planning phase is determining the timing for evaluation. Specific timing needs to be defined for each program. This timing varies depending upon the program objectives, the expectations of the client, and should reflect the period of time in which the client expects to achieve full impact of the training program within the work environment. It is important to give the training the opportunity to be implemented and to affect the work environment. For this reason, the ROI evaluation should never be performed immediately after the training session. According to the U.S. Department of Labor, it can take up to two years for a training program to have an impact (Barker, 2001, 17). For this reason, the maximum recommended amount of time between the training and the evaluation is two years.

To summarize phase I, the steps to follow for developing an evaluation model for ROI analysis are:

1. Define the learning objectives for the audience;
2. Determine the purpose of the evaluation;

3. Ensure that the learning objectives and the purpose of evaluation address the same audience;
4. Define the benefits to be measured;
5. Determine the method for evaluation; and
6. Determine the timing for evaluation.

### *Phase II - Data Collection*

The second phase of the model is data collection. This phase includes determining the costs of the program and collecting the benefits data.

The first step of the data collection is to determine the costs of the training program. For every program, there are three types of costs: known/invoice costs, other known costs, and other/estimated additional costs. The known/invoice costs are the actual costs accrued through the development and implementation of the training program. Other known costs are participant costs which are not part of the “invoice” or “quoted” price of the program. The third costs to consider are other/estimated additional costs. This is a miscellaneous category that may include both internal (program provider) and external (participant) expenses.

Employee wages are not considered in this analysis. This may be a controversial decision because when the client is a company, the company is paying to have their employees trained; therefore the company is losing productive work time. But if the employees are not trained, then the organization is compromising the quality of the employee and forfeiting future gains from the training program. For this reason, the ROI will be calculated without the employee wages calculated as a cost. This point will need to be communicated with the results of the evaluation.

The second phase also includes the collection of data. This is accomplished through the specified method at the specified time, as defined in phase I. Follow-up with the participants/respondents may be necessary in order to ensure a high response rate.

### *Phase III - Data Analysis*

Phase III of this model includes evaluating the data and communicating and reporting the results. Determining costs is usually straightforward. To determine the benefits, it is necessary to convert the qualitative data into monetary values. For each question on a specific application, the respondent is asked to assign a financial figure (either increase in revenue or decrease in cost) for the application. The respondent is also asked for a percentage reflecting their confidence in the accuracy of the financial figure. This confidence factor is used to reduce bias by multiplying the estimate of benefits (in dollars) by the confidence percentage for each question. The benefit figures from all sources are then totaled. The ROI is then calculated using the simple financial ratio of:



$$ROI\% = \frac{(\text{benefits} - \text{costs})}{\text{costs}} * 100$$

Once the ROI ratio is calculated, the results can be communicated and reported. Communicating and reporting results aids in the improvement process for the program and demonstrates accountability for the program. Three important questions are answered with the reporting of the results:

- Did the training program achieve the learning objectives?
- Is the training program making a difference for the organization?
- Is value for money invested being obtained from the training program?

If the answer to all three questions is yes, the program has been successful. The success of each program is dependent on the purpose of the evaluation, as defined in phase I of this model.

## **Case: General Management Development for a Diverse Audience**

AMP, Agribusiness Management Program, is a leadership and management development program developed for an agribusiness. This non-degree program is intended to enhance general management skills and broaden understanding of the functional areas of business. The program is patterned after an MBA program and is presented in multiple seminars over an 18 month time span. This program is designed to increase knowledge in core business functions, including marketing, business strategy, finance, economics, supply chain and logistics, organization and human resources, and information technology. The AMP program also includes sessions on agriculture related issues such as farm policy and the Farm Bill, and emerging trends in the food economy. The program participants include a diverse audience of middle managers, all identified as emerging leaders within the business. There were 30 participants completing the AMP program conducted in 2002 and 2003.

### *Phase I: Assessment Planning*

#### **Define Program Objectives**

The objectives of this program are:

1. To diversify the participants' thought process and more effectively approach general management challenges.
2. To expand knowledge of the total food and agribusiness system.
3. To develop and improve the participants' network of professional colleagues.
4. To demonstrate leadership ability to top management and peers within the organization.

## **Purpose of Evaluation**

The purpose of the evaluation for this program is to determine the return on investment for the sponsoring firm. The evaluation uses level 3 transfer of knowledge questions with level 4/5 return on investment questions. The transfer of knowledge questions assist the respondent in recalling the full scope of the program content and in determining the value of the program and the ROI questions elicit the monetary benefits of the program. The evaluation is focused on the program participants.

## **Define Types of Benefits**

The components identified for the benefits of the AMP program include both quantitative and qualitative data. The components of quantitative data are in the categories of output and time; the components of qualitative data are in the categories of new/improved skills, feelings and attitudes, work climate, and initiative. Output is focused on tasks completed and time is focused on efficiency. New/improved skills focus on concepts and skills of the program. Work climate relates to teamwork and relationships with colleagues, feelings and attitudes relates to perceived changes in performance, and initiative relates to the implementation of new ideas.

The questionnaire (provided in the appendix) begins with a section on the importance of each core area for the participant's current position and future position within the organization. Section one helps understand the importance of the program content and it also reminds the participants of the full scope of a complex, multi-year program. Section two assesses increases in knowledge and understanding of each core area. Section two is a level two assessment of learning and again reminds the participants of the full program scope. Both of these sections are comprised of Likert scale questions. The third section of the questionnaire asks for specific examples and applications of the material learned and applied in the workplace. Section three also asks for specific financial data related to these changes/applications. The questionnaire concludes with value questions and suggestions for improvements to the program.

## **Determine Method of Data Collection and Timing of Evaluation**

Data were collected through a questionnaire (described above). The questionnaire was administered through the Internet with the Zoomerang online survey tool. The web link to the questionnaire was sent to the program participants. The questionnaires were returned to the evaluator through Zoomerang. The timing of the evaluation occurred six months after the final session of AMP; this is 24 months after the initial AMP program session.

<b>Cost Worksheet</b>	
<b>Invoice Costs</b>	
Program Development.....	30.9%
Enrollment Fee.....	_____
Facility.....	11.4%
Materials/Technology Fee.....	5.1%
Food/Beverage.....	7.3%
Salary of Trainer and Staff.....	10.7%
Post Program Evaluation.....	_____
Other.....	_____
Total Invoice Costs.....	65.4% A
<b>Other Known Costs</b>	
Lodging.....	10.7%
Per Diem.....	_____
Other.....	_____
Total Other Known Costs...	10.7% B
<b>Estimated Additional Costs</b>	
Travel Expenses.....	23.9%
Other.....	_____
Total Estimated Costs.....	23.9% C
<b>Total Costs</b>	
Sum of A+B+C.....	100%

**Figure 2:** Cost Worksheet for ROI Analysis for AMP

*Phase II: Data Collection*

**Costs of Program**

The costs of the AMP program are presented in percentage form in Figure 2. The actual costs of this program have been generalized to fit the categories of the cost worksheet. This program was developed for a specific agribusiness; and the program participants are all employed by this agribusiness. Individual enrollment fees are not applicable to this program; these costs are captured within the other categories of costs.

**Collection of Benefits**

To collect the data, an email with the URL link to the questionnaire was sent to all participants of the program. One week following the initial emailing, a second email was sent to all the participants of the program to encourage a higher response rate. Two weeks after that, a third email was sent as a reminder to complete the questionnaire.

**Table 1: Descriptive Statistics of Content Importance in Current Position\***

Current Position	Overall Mean	Adjusted Mean**	1*** (%)	2 (%)	3 (%)	4 (%)	5 (%)
Financial Management	4.32	4.21	0	0	9	50	41
Marketing Management	4.36	3.82	0	0	18	27	55
OHRM	4.27	4.24	0	5	5	50	41
Supply Chain & Logistics Management	3.59	3.50	0	9	41	32	18
Information Technology	3.55	3.40	0	9	45	27	18
Economics	3.73	3.73	0	5	32	50	14
Business Strategy	4.45	4.45	0	0	9	36	55
Agricultural Industry Issues	4.09	4.09	0	0	23	45	32
Policy & Regulation Arena	4.09	4.09	0	0	23	45	32

\*n=22 overall; Questions are based on a five-point scale, 1 strongly disagree, 2 disagree, 3 neutral, 4 agree, and 5 strongly agree.

\*\*Omits responses from individuals who have primary responsibilities within each respective category; n=15 finance, n=8 marketing, n=16 supply/logistics, n=18 otherwise.

\*\*\*The distribution is for the overall mean.

**Table 2: Descriptive Statistics for Content Importance in Future Position\***

Future Position	Overall Mean	Adjusted Mean**	1*** (%)	2 (%)	3 (%)	4 (%)	5 (%)
Financial Management	4.73	4.68	0	0	0	27	73
Marketing Management	4.55	4.18	0	0	9	27	64
OHRM	4.55	4.52	0	0	5	36	59
Supply Chain & Logistics Management	4.00	3.95	0	0	23	55	23
Information Technology	3.77	3.65	0	5	32	45	18
Economics	4.00	4.00	0	5	14	59	23
Business Strategy	4.91	4.91	0	0	0	9	91
Agricultural Industry Issues	4.32	4.32	0	0	14	41	45
Policy & Regulation Arena	4.32	4.32	0	0	5	59	36

\*n=22 overall; Questions are based on a five-point scale, 1 strongly disagree, 2 disagree, 3 neutral, 4 agree, and 5 strongly agree.

\*\*Omits responses from individuals who have primary responsibilities within each respective category; n=15 finance, n=8 marketing, n=16 supply/logistics, n=18 otherwise.

\*\*\*The distribution is for the overall mean.

### *Phase III: Data Analysis*

The AMP questionnaire was sent to 30 program participants. Twenty-two responses to the questionnaire were received; this is a response rate of 73 percent. Table 1 presents the descriptive statistics for content importance in relation to the participant's current position. The Likert scale questions on the AMP questionnaire are on a five point scale. All previous evaluations of the AMP program had been conducted on a five point scale; for consistency, the same scale was used for the ROI analysis. These questions specifically addressed the importance of the core course areas in relation to the participant's current job responsibilities within the company. This table presents the total mean of responses for each core area of the AMP program. It also presents an adjusted mean. The adjusted mean omits responses of participants who work in the respective topic areas; for example, a participant who works in Human Resource Management will not be included in the adjusted mean for the category "OHRM (Organizational and Human Resource Management)". Table 2 is similar to Table 1, but provides the descriptive statistics for the participant's next position (future job responsibilities) within the company. Both tables show high means with very few responses of "disagree" or "strongly disagree". These tables show that the participants feel the content of the AMP program is important for their careers both today and in the future. When the two tables are compared, little difference exists between current and future position importance, but the importance of the core areas is greater for all the future positions. The core area of business strategy has the greatest importance in both current and future positions within the company.

The descriptive statistics for improvements and advances in knowledge and understanding of the core areas of the AMP program are presented in Table 3. Like the two previous tables in this section, this table presents both an overall mean and an adjusted mean. This table shows high means in most of the core areas of the program. Information technology is the exception and has a relatively low mean; almost all of the responses were "neutral", "disagree", or "strongly disagree." The adjusted mean was higher for the financial management, marketing management, organizational and human resource management, and information technology areas. As expected, this suggests that there was more learning by those unfamiliar with a specific core course area. The adjusted mean for supply chain and logistics management was slightly lower than the full mean. The greatest differences between overall and adjusted means are in the area of marketing management. Half (eleven) of the respondents indicated that their primary job responsibilities are in marketing/sales.

Two questions addressed the issue of value; one question was directed to the value for the participant, the other question was directed toward the value for the company. The cost of the program was not provided with these questions, therefore the responses are the perceived value of the program to participants. None of the

**Table 3: Descriptive Statistics of Improvement in Knowledge and Understanding in Core Areas of the AMP Program\***

Knowledge and Understanding	Overall Mean	Adjusted Mean**	1*** (%)	2 (%)	3 (%)	4 (%)	5 (%)
Financial Management	3.50	3.68	0	9	36	50	5
Marketing Management	3.23	3.73	5	14	36	45	0
OHRM	3.27	3.29	0	23	27	50	0
Supply Chain & Logistics Management	3.23	3.20	0	27	27	41	5
Information Technology	2.36	2.40	18	32	45	5	0
Economics	4.00	4.00	0	0	18	64	18
Business Strategy	3.68	3.68	0	5	36	45	14
Agricultural Industry Issues	4.27	4.27	0	5	14	32	50
Policy & Regulation Arena	4.32	4.32	0	5	9	36	50

\*n=22 overall; Questions are based on a five-point scale, 1 no increase, 2 little increase, 3 some increase, 4 considerable increase, and 5 major increase.

\*\*Omits responses from individuals whose primary responsibilities are within each respective category; n=15 finance, n=8 marketing, n=16 supply/logistics, n=18 otherwise.

\*\*\*The distribution is for the overall mean.

respondents felt that the program did not create value for them or for the company. Of the 21 participants who responded to this question, 90.5 percent felt that the program either created slightly more value or far more value relative to the time they invested in the program. The remaining response was that the program created the same value as the time the participant invested in the program. Similar to the respondent's time, 90.5 percent of the respondents indicated that the program created more value for the company than the cost of the program; the response for 'slightly more value' was 42.9 percent, and the response for 'far more value' was 47.6 percent.

Two questions were directed towards ROI; this created 44 possible responses from the 22 completed questionnaires. Of the 44 responses for the questions related to increases in revenue and decreases in costs, twenty-nine respondents answered "no change." Five respondents provided examples of specific changes, but did not provide any financial information related to these changes. Ten respondents provided specific applications of program concepts and the financial information related to these applications. Themes of the examples of applications that either increased revenue or reduced costs for the company include (some responses have been dropped/edited to preserve confidentiality):

- Better management of outbound freight process;
- Improved program management;
- Adoption and initiation of new products;
- Strategic pricing adjustments;
- Improved inventory management; and
- Improved productivity.

The financial data for reduction in cost is adjusted by the confidence interval. The financial data for increases in revenue are adjusted by the confidence interval and by the return on sales for the company. The adjusted financial benefits of these applications ranged from 0.6% to 324% of the total program cost. Using these benefits in the ROI equation, the program resulted in a return on investment of 398%.

It is important to note that this evaluation did not account for any value of signaling. Recognizing superior employee performance through professional development can enhance the loyalty of the employee, improve the employee's attitude toward work, etc., and increase the value of the investment.

This evaluation shows that the value for the participant and the value for the company are greater than the time and cost of the program. This evaluation has also shown that concepts learned in the AMP program can be and are applied in the workplace and have a positive financial impact for the company.

## **Conclusions**

Measurement of ROI is a challenging and difficult issue confronting the human resource development field. The objective of ROI calculations with training programs is to determine program impact on organizational performance. The method developed and applied to the case example assesses the financial impacts of a management development program. This method helps to determine if the program objectives were achieved. This paper is intended to serve as a guide to the basics of evaluation and provide a template for ROI analysis that can be modified to fit the needs of specific training programs.

Some lessons were learned during the case application which will be useful to others applying this process. As pointed out earlier, benefits are very difficult to assess. Open-ended questions about financial impacts are difficult to ask, difficult to elicit responses, and difficult to assure the respondents that their answers will be kept confidential. In this study the open-ended questions and confidence intervals led to many examples and applications, but little financial data was provided. Using ranges for financial impacts may help gather more impact data. These ranges may be necessary in assisting the respondent to answer; the respondent may be more comfortable checking a range than in providing a point estimate of benefits. This is an area for future research to explore. A time dimension question also needs to be

added in order to properly assess the ROI. The intent would be to capture the total impact of the change - be it a one-time impact, or one lasting over multiple years. No cost information was provided with the value of the program questions. The participants answer these questions based on their perceptions. A different approach to the value issue is through use of willingness to pay (WTP) ideas. The WTP asks the participants what they are willing to spend on the training program. This figure can then be compared to the actual cost of the program.

In conclusion, the ROI evaluation method developed in this paper is a useful analysis tool. And, it is important to remember that while ROI is a good indicator of the value of a training program, it is not the only indicator. Repeated use of this method will lead to improvements in evaluating ROI and better evaluation of ROI may have long term implications for firm investment in training and development activities.

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## Appendix A: Questionnaire – Agribusiness Management Program

Please respond to the questions below based on your participation in the AMP management development program conducted by the Center for Food and Agricultural Business at Purdue University and (company’s name). Please complete the questionnaire by XXX. This is a blind, confidential questionnaire. Thank you for your help!

### Section I: Content Importance

How important are each of the following course content areas to you in your current position with (company)? How important do you believe they will be in your next position? (Circle the appropriate response.)

		Strongly Disagree	Disagree	Agree	Strongly Agree
My knowledge of:					
1.					
2. Financial Management	Is important in my current position	1	2	3	4 5
-tools, capital markets, cost of capital, etc.	Will be important in my next position	1	2	3	4 5
3. Marketing Management	Is important in my current position	1	2	3	4 5
-segmentation, target markets, pricing, etc.	Will be important in my next position	1	2	3	4 5
4. Organizational Behavior and Human Resource Management	Is important in my current position	1	2	3	4 5
-teamwork, negotiation, change management, etc.	Will be important in my next position	1	2	3	4 5
5. Supply Chain and Logistics Management	Is important in my current position	1	2	3	4 5
-inventory management, benchmarking, etc.	Will be important in my next position	1	2	3	4 5
6. Information Technology	Is important in my current position	1	2	3	4 5
-information management, infrastructure, etc.	Will be important in my next position	1	2	3	4 5
7. Economics	Is important in my current position	1	2	3	4 5
-interest rates, exchange rates, trade, etc.	Will be important in my next position	1	2	3	4 5
8. Business Strategy	Is important in my current position	1	2	3	4 5
-core competencies, market and firm evaluation, strategy implementation	Will be important in my next position	1	2	3	4 5
8. Agricultural Industry Issues	Is important in my current position	1	2	3	4 5
-changing farm structure, international trade etc,	Will be important in my next position	1	2	3	4 5
9. Policy and Regulation Arena	Is important in my current position	1	2	3	4 5
-policy process, agricultural commodity program, etc.	Will be important in my next position	1	2	3	4 5

10. Thinking about your current position, and your expected next position, what other topics/subject areas should be considered for inclusion in AMP?

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**Section II: Personal Impact**

Relative to your understanding of the following topics BEFORE you began the AMP program, how much did your understanding of the following areas change as a direct result of AMP. Circle the appropriate response.

No	Little Incr	Some Incr	Cons. Incr	Major Incr	Incr
11. Financial Management -tools, capital markets, cost of capital, etc.	1	2	3	4	5
12. Marketing Management -segmentation, target markets, pricing, etc.	1	2	3	4	5
13. Organizational Behavior and Human Resource Management -teamwork, negotiation, change management, etc.	1	2	3	4	5
14. Supply Chain and Logistics Management -inventory management, benchmarking, etc.	1	2	3	4	5
15. Information Technology -information management, infrastructure, etc.	1	2	3	4	5
16. Economics -interest rates, exchange rates, trade, etc.	1	2	3	4	5
17. Business Strategy -core competencies, market and firm evaluation, strategy implementation	1	2	3	4	5
18. Agricultural Industry Issues -changing farm structure, international trade, etc.	1	2	3	4	5
19. Policy and Regulatory Arena -policy process, agricultural commodity programs, etc.	1	2	3	4	5

20. Please select the area that best describes your field of primary responsibility within (company).

- |   |                             |
|---|-----------------------------|
| a. Financial Management                         | f. Information Technology   |
| b. Marketing/Sales Management                   | g. Business Strategy        |
| c. Organizational and Human Resource Management | h. Research and Development |
| d. Supply Chain and Logistics Management        | i. Other, please specify    |
| e. Government Affairs/Regulations               | _____                       |

21. Besides course content, what were some of the most important benefits of AMP to you personally?

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### Section III: Specific Applications of AMP Content

Please think about any specific changes/decisions you made in your position which were influenced in some way by the AMP program. These might include frameworks used in making a decision, course ideas that led you to change a process you are responsible for, etc. With any such changes/decisions in mind, please answer the following questions.

22. Describe one specific change/decision you made that was impacted by AMP which increased revenue for (company). (You may list more than one if desired.)

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\_\_\_\_\_ No specific change/decision which increased revenue comes to mind.

A. If you made a change/decision, list/estimate the increase in revenue as a result of this change.

\$ \_\_\_\_\_

B. I am \_\_\_\_\_% confident that this value is correct.

23. Describe one specific change/decision you made that was impacted by AMP which lowered costs for (company). (You can list more than one if desired.)

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\_\_\_\_\_ No specific change/decision which lowered cost comes to mind.

- A. If you made a change/decision, list/estimate the cost savings that resulted from this change.  
\$ \_\_\_\_\_
- B. I am \_\_\_\_\_% confident that this value is correct.

24. Overall, how much value did the AMP program create for you personally?
- a. Did not create value.
  - b. Created less value than the time I invested in the program.
  - c. Created about the same value as the time I invested in the program.
  - d. Created slightly more value than the time I invested in the program.
  - e. Created far more value than the time I invested in the program.

25. Overall, and in your opinion, how much value did the AMP program create for (company)?
- a. Did not create value.
  - b. Created less value than the cost of the program.
  - c. Created about the same value as the cost of the program.
  - d. Created slightly more value than the cost of the program.
  - e. Created far more value than the cost of the program.
  - f. No opinion/cannot answer.

26. Please describe any barriers you encountered in your workplace when trying to implement skills and/or concepts learned in the AMP program.

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27. Now that you have been away from the program for a while, and thinking about your overall experience with AMP, what suggestions do you have for us? How can we make the AMP program more impactful for you and (company)?

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**Thank you for your time!**