

# Why Train?

Calculating  
the Return On  
Training  
Investment.



Return On Training Investment

## Foreword

In 2001, FuturEd set out to study how return on investment could be applied to training; that is, how can you assess both the dollar value of expenditures associated with training and also the benefits derived from that training to determine the real return on the training of personnel.

After having conducted numerous case studies across different industries, a method of calculating return on training investment (ROTI) was developed. This method was created as a starting point for further research into rationalizing training.

The step-by-step approach outlined in this workbook encapsulates the research that has been collected thus far. As you read this workbook, remember that calculating ROTI depends on good record keeping and requires you to start planning as soon as possible.

This is only a beginning. It is hoped that those interested in training will help expand our understanding and use of ROTI.

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FuturEd Consulting Education Futurists Inc.



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ISBN 0-7790-0325-X

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# Why Train?

You may manage or own a business. Or you may be a trainer. No matter what your role, if you are involved in training, the question of “Why train?” arises frequently. This question usually comes out of a need to justify the time and money expenditures involved in training. Naturally you want to demonstrate that there are measurable benefits and sound reasons to support your decisions.

Some possible reasons are:

- Cost savings
- Increased sales
- Improved productivity, competitiveness, and profitability
- Regulatory compliance

Sometimes the reasons do not appear to be connected to a monetary value. Perhaps they relate to:

- Improved customer satisfaction
- Improved technological expertise
- Increased understanding of your organization and markets
- Better staff morale and management-staff relations
- Greater staff flexibility and loyalty
- Enhanced decision making

Whether there is a clear monetary return or not, proceeding with training can be difficult to justify unless you can prove a good return on your investment.

## Concrete Support for Training

An effective argument for training is a simple proof of return on training investment— a **ROTI** analysis. The Return on Investment Training or **ROTI** equation is a simple calculation that compares costs to benefits:

$$\text{Value of benefits} \div \text{Cost of training} \times 100 = \text{ROTI}$$

ROTI provides an accurate picture by focusing on returns that can be measured and converted to dollar values.

ROTI analysis seeks to answer the question: “For each dollar spent on training, how many dollars are returned to the investor—the employer, the trainee, the government program, the union, or whoever paid for the training?”

Calculated as a percentage, ROTI enables you to identify the return on your training investment and provide concrete answers to the question, “Why Train?”



## Start Thinking about ROTI Now

ROTI analysis is based on good record keeping. If you haven't been keeping records, start now. It's not too late. Once you begin collecting data, you may find that this sets the ROTI process in motion.

## Calculating ROTI

Calculating ROTI begins with the selection of one form of training for analysis. The data to be gathered must relate to a specific training course or program. Such training may include:

- Self-study or instructor-led training
- On-the-job training; on site or distance delivered
- Individualized or group training
- Customized or off-the-shelf training
- Short or long term; once only or continuous
- Mandatory or optional training

Once you've decided on what training to measure, determine how you want to report your analysis. ROTI can be reported either per person, per training program, or per year. You decide what is most meaningful for your purposes.

If your purpose for calculating ROTI is to compare one form of training to another, then calculate per training program. If you want to justify annual training budgets, you may want to calculate per person, per year. The unit of time can vary depending on the purpose of analysis. It is important that you identify the form of training and the method of reporting for an accurate ROTI analysis.

## Five Steps

ROTI calculation is based on five steps. Refer to Appendix B for help in calculating steps three and four.

### Five Steps to ROTI Calculation

1. Identify & describe the training under analysis.
2. List the reasons for training.
3. Calculate the costs of training.
4. Calculate the benefits of training.
5. Calculate the Return On Training Investment.



Each step is outlined for you in this workbook. Before you examine each step closely, take a moment to read the National Sea Products case study. The data in this case study provides concrete examples for each of the ROTI steps.

Another good example of ROTI analysis is the GWIL Industries case study found in Appendix A. You will also find a checklist to help you perform a ROTI analysis in Appendix B. Appendix C provides you with your own set of ROTI worksheets.

You may notice that not all the indicators listed for each step have been used in the example. This is normal. It is important that you use only the indicators that apply to the training you are measuring.

### Quality Check Your ROTI

After you have completed your own ROTI analysis, ask yourself: *Does my analysis stand the test of credibility, effectiveness, and efficiency?*

#### ROTI analysis **must be**:

- Accurate—is it based on actual data or professional estimates?
- Ethical—is it respectful of legal/business issues and research standards?
- Effective—is the information what you need and will use?
- Credible—is it verifiable, defensible, and objective?
- Well-planned—have you gathered baseline data before the training begins?

#### And it **should be**:

- Inclusive—did you use a variety of measures and information sources?
- Efficient—did you make use of the best evaluation sources?
- Logical—is it clear and understandable to the reader?

#### It **can be**:

- Collaborative—are there a variety of stakeholders involved?
- Responsive—have you allowed for unintended outcomes?
- Balanced—have you included both monetary and non-monetary measures of success?



# Before you start... **5** key points

- 1** You do not need to measure every indicator of success. Two or three are enough. However, the more you use, the better your analysis.
- 2** Be sure to include all costs to get accurate ROTI data.
- 3** Focus on the tangible benefits or returns that you can measure, but note those that you can't.
- 4** Be honest. If you are estimating, be conservative and give reasons for your estimate so that the calculations can be replicated.
- 5** Talk with the people involved in training — employers, supervisors, workers, and trainers. Numbers will emerge for a more detailed picture.

Please refer to the checklists in Appendix B for more guidelines.

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## CASE STUDY EXAMPLE

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Please review the brief case study below. It will serve as our model for calculating ROTI.

### **Chargehand Training at National Sea Products Arnold's Cove, Newfoundland**

National Sea Products (NatSea) is a division of High Liner Foods Incorporated<sup>1</sup>—one of the largest Canadian deep-sea fishing companies. In Arnold's Cove, Newfoundland, NatSea operates a modern seafood processing plant that employs 430 individuals in this small and remote community and harvests over 24 million pounds of seafood annually. Faced with critical industry challenges, NatSea is open today because it undertook to redesign the production process with technology and training.

Although the general economy has been growing steadily in the last 12 years, the seafood processing industry has declined in landed volume. The major issue driving change has been the decline of the domestic ground fishery on the East Coast and similar problems on the West Coast. As a result, Canadian seafood processors have engaged in significant downsizing, and many seafood processing plants have closed. A number of notable human resource and training issues have emerged over the years: the implementation of new regulations, the aging workforce, and increased automation requiring fewer unskilled and semi-skilled workers.

In the past, training in this industry has been almost entirely on the job. However, there is a trend toward a smaller, more professionally trained seafood processing workforce, supported by levels of government, major unions, and associations such as the National Seafood Sector Council.<sup>2</sup>

Beginning in 1993, NatSea used government funding available under a restructuring program over a three-year period to bring about organizational changes, to implement the use of advanced technologies, and to increase productivity at the Arnold's Cove seafood processing plant. Working with a consultant, management and labour leaders at NatSea created a curriculum that focused on teamwork skills, communications, shared responsibility, and decision making.

In the new plant that NatSea had in mind, all employees needed training for the new production processes and organizational structure, but not all employees were able to make the necessary attitudinal changes. With few preliminaries, the plant was temporarily shut down and all the supervisors were laid off. Ninety workers were selected for training, based on their predisposition to accept change even though some faced significant literacy challenges.

<sup>1</sup> For more information: <http://highlinerfoods.com>

<sup>2</sup> This case study was sponsored by the National Seafood Sector Council (NSSC) – a non-profit, industry-driven organization. Established in 1995, the NSSC works on behalf of the entire seafood processing industry to provide up-to-date training programs and information services. Complete information is available at [www.nssc.ca](http://www.nssc.ca).





## CASE STUDY EXAMPLE

### Chargehand Training at National Sea Products, cont'd

The new plant features flow lines and computerized technology with progressive management practices to ensure efficient production, and operates 46 weeks per year, moving well beyond being the "seasonal" operation it once was. The organizational structure at NatSea is "almost level." At present, there are 24-25 teams with 5 to 20 members each and a "team leader," a term that NatSea uses for "chargehand."<sup>3</sup> The training under analysis is the Chargehand Training, for the period 1993-1996. While this training took place before the NSSC *Chargehand Training Course*<sup>4</sup> became available, the purpose of this training curriculum was to provide the skills and knowledge to be able to:

- Identify the roles and responsibilities of the chargehand position.
- Describe core personal skills of a successful chargehand, including leadership, communication, problem solving, decision making, teamwork, and stress management.
- Describe and apply basic skills for employee supervision, including human relations, motivation, and training.

Training was delivered in an off-site "classroom" in a local community centre with external experts as innovators and instructors. Instruction took the form of instructor-led groups with subsequent training of others in the newly formed, self-directed work teams. Training took place over 3 years, in an intermittent and continuous fashion, but was not repeated. Participation was mandatory for individuals who wished to maintain employment in the business. Ninety individuals participated in the training. The actual number of training hours totaled 22,612.

For NatSea, determining training costs required going into back files; however, good records had been kept. Over the three years, the following costs were incurred.

COST ITEMS	TOTAL COST
Needs assessment and training plan	\$500
Trainer and consultant fees	\$120,000
Materials and equipment	\$500
Facilities	\$2,500
Travel costs - food, transportation, lodging	\$5,000
Salary for employees while in training: 22,612 instructional hours x average hourly rate of \$14.70	\$332,396
<b>Total training cost over 3 years</b>	<b>\$460,896</b>

<sup>3</sup> The chargehand is a senior employee who assumes some leadership or supervisory responsibilities while remaining a production or working employee. In some regions, the chargehand may be called a leadhand or, in this case, a team leader.

<sup>4</sup> The NSSC developed the Chargehand Training Course with input from an industry advisory committee. NatSea provided input to this course.

## CASE STUDY EXAMPLE

### Chargehand Training at National Sea Products, cont'd

While there were many tangible outcomes to this training, NatSea acknowledged that it was impractical to determine specific returns such as retention and safety rates. In the view of management, the tangible outcomes were reflected in increased productivity and in the sustainability of the business. At NatSea, productivity is carefully measured and reported on a daily basis through computerized measurements. Teams know at all times what their productivity rates are and are first to identify problems and solutions.

The overall goal of the three-year training program had been to implement self-directed work teams, for which the two NatSea measurements are (1) less time required to perform operations and (2) less supervision needed. Therefore, for NatSea, over the three years, the following returns were accrued.

TANGIBLE RETURN CATEGORIES	CALCULATIONS	TOTAL
<b>1. Time /cost savings</b>		
Less time required to perform operations (hours saved over three years x salary dollar amount)	24,000 hours x 3 years = 72,000 hours x \$13.80 average salary	\$993,000
Less supervision needed (hours saved x supervisory salaries)	10,400 hours x 3 years = 31,200 hours x \$24.00 average salary	\$748,800
	<b>Total Returns</b>	<b>\$1,741,800</b>

Based on the figures above, the Return on Training Investment to this employer, over three years, was 378% ( $\$1,741,800 / \$460,896 \times 100$ ). For each dollar spent on the training over three years, the employer accrued a return of \$3.78 in terms of decreased costs and increased productivity.

Why train? At NatSea, management is convinced that this training "secured the future for 90 people and created the base for another 340." While this long-term ROTI analysis is undertaken from the employer and industry perspective, it clearly reflects returns to residents of Arnold's Cove, individually as well as collectively.

*"What if I train my staff, and they move on? "*  
 A better question might be,  
*"What if I don't train my staff, and they stay on?"*



## ROTI Calculation

### Step 1. Identify and describe the training under analysis

Consider these factors in order to identify your training needs:

**WHAT Curriculum**

skills and knowledge, and source  
e.g., professional standards

**WHERE Delivery and rationale** if applicable

e.g., classroom, e-training, on the job

**HOW Instructional approach**

e.g., individualized or group, self study  
or instructor-led

**WHEN Duration, timeframe, and incidence**

e.g., short term or long term; once-off  
or continuous; dates;  
actual hours of training

**WHO Participation**

e.g., voluntary or mandatory,  
number of trainees.

**ROTI Unit of ROTI analysis**

e.g., per person, per session, per year

Notes:

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## ROTI Calculation

### Step 1. National Sea Products Example

**WHAT** is the curriculum? *Chargehand Training Course developed by an industry advisory committee with NatSea input.*

**WHERE** does training take place? *Off-site classroom with external experts as instructors.*

**HOW** is the training delivered? *Instructor-led groups with subsequent training of others in self-directed work teams.*

**WHEN** is the training to take place? *Continuous, long term (3 years). Total training hours – 22,612.*

**WHO** are the participants? *90 participants, mandatory participation.*

**ROTI:** what is the unit of ROTI analysis? *Cost returns per overall training effort.*

**Think about this:**

Not all benefits or returns can be attributed to training. Try to draw a direct connection between what you are measuring as training success and the training itself.

Refer to the GWIL Industries case study in Appendix A for a good example of identifying and describing the training under analysis.

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## ROTI Calculation

### Step 2. List the reasons for training

Consider these factors to identify your reasons for training:

**Business and industry context**

e.g., challenges and/or opportunities

**ROTI analysis perspective (if applicable)**

e.g., employer, employee, government

**Tangible outcomes**

e.g., decreased costs, increased volume and time savings; increased retention and decreased absenteeism

**Intangible outcomes**

e.g., acknowledging benefits that cannot/will not be measured

**External circumstances**

e.g., events that directly impact on the perceived benefits to training

**Payback period**

e.g., immediate, short term, or long term

Notes:

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## ROTI Calculation

### Step 2. National Sea Products Example

*Business and industry context: Decline in the seafood processing industry; downsizing and closures of seafood processing plants; trends towards smaller, professionally trained seafood processing workforce*

*ROTI analysis perspective: Employer and industry*

*Tangible outcomes: Increased productivity and decreased costs*

*Intangible outcomes: Many intangible benefits recognized but not the focus of the study*

#### **Think about this:**

Any evaluation requires a comparison of “before and after.” You can’t conduct a good evaluation or ROTI analysis if you can’t describe the circumstances that existed before the training took place, e.g., production rates, supervisory costs. Because this is challenging, you don’t need to use every possible measure of returns.

Notes:

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## ROTI Calculation

### Step 3. Calculate the costs of training

Not all of these items will be applicable in every case.

Cost Item	Total Cost/Unit of Analysis <sup>1</sup>
Needs assessment and training plan	
Curriculum and materials development	
Registration or tuition fees	
Trainer and consultant fees	
Materials and equipment	
Facilities	
Refreshments	
Travel costs: food, transportation, lodging	
Assessment and certification fees	
Salary replacement cost	
Other	
<b>Total training cost</b>	

<sup>1</sup>Unit of ROTI analysis (e.g., per person, per session, per year)

Notes:

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## ROTI Calculation

### Step 3. National Sea Products Example

Cost Item	Total Cost
Needs assessment and training plan	\$500
Trainer and consultant fees	\$120,000
Materials and equipment	\$500
Facilities	\$2,500
Travel costs	\$5,000
Salary replacement cost (22,612 instructional hours x average hourly rate of \$14.70)	\$332,396
<b>Total training cost</b>	<b>\$460,896</b>

#### Think about this:

Employers and businesses can use ROTI to:

- Make informed choices between training options.
- Compare the cost of training to other investment options, e.g., new equipment.
- Compare the cost of training/retraining to recruiting employees.
- Project training costs.

Notes:

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## ROTI Calculation

### Step 4. Calculate the benefits of training

Measure those returns most important to you and for which you can gather data—actual or informed estimates.

Tangible Returns Categories	Calculation	Total
<b>Time savings</b> (e.g., reduced supervision, absenteeism, downtime) <ul style="list-style-type: none"> <li>• Hours x wage x number of employees</li> </ul>		
<b>Productivity increase</b> if applicable (e.g., quality/quantity changes due to training) <ul style="list-style-type: none"> <li>• Reductions in complaints</li> <li>• Increase in sales, customer satisfaction</li> </ul>		
<b>Personnel savings</b> (e.g., reduced recruitment costs, grievances, accidents) <ul style="list-style-type: none"> <li>• Cost of individual interventions x incidence</li> </ul>		
<b>Other</b>		
<b>Total returns</b>		

Notes:

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## ROTI Calculation

### Step 4. National Sea Products Example

Tangible Returns Categories	Calculation	Total
<b>Time savings/cost savings</b> <ul style="list-style-type: none"> <li>Less time required to perform operations (hours saved over 3 years x salary dollar amount)</li> </ul>	$24,000 \text{ hours} \times 3 \text{ years} = 72,000 \text{ hours} \times \$13.80 \text{ average salary}$	\$993,000
<b>Time savings/cost savings</b> <ul style="list-style-type: none"> <li>Less supervision needed (hours saved over 3 years x supervisory salaries)</li> </ul>	$10,400 \text{ hours} \times 3 \text{ years} = 31,200 \text{ hours} \times \$24.00 \text{ average salary}$	\$748,800
	<b>Total returns</b>	\$1,741,800

**Think about this:**

Keep in mind that not all training can or should demonstrate ROTI. Not all benefits are tangible or easily measured, but they may be very important to your organization.

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## ROTI Calculation

### Step 5. Calculate the Return On Training Investment

Total benefits in dollar value	
Total costs in dollar value	
Divide the benefits by the costs and multiply by 100 for a percentage	

$$\text{Value of benefits} \div \text{Cost of training} \times 100 = \text{ROTI}$$

Notes:

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## ROTI Calculation

### Step 5. National Sea Products Example

<b>Total benefits in dollar value</b>	<b>\$1,741,800</b>
<b>Total costs in dollar value</b>	<b>\$460,896</b>
<b>Divide the benefits by the costs and multiply by 100 for a percentage</b>	<b><math>\\$1,741,800 \div \\$460,896 \times 100 = 378\%</math></b>

Based on these figures supplied by National Sea Products, **the Return on Training Investment to the employer over three years was 378%** ( $\$1,741,800 \div \$460,896 \times 100$ ). For each dollar spent on the training over three years, the employer accrued a return of \$3.78 in terms of decreased costs and increased productivity.

**Think about this:**

In general, ROTI analysis can be used to:

- Demonstrate that training is an investment.
- Maximize returns on training budgets.
- Document positive change in individual or organizational performance.
- Measure the effectiveness of training.
- Demonstrate accountability for training expenditures and policies.

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## Appendix A • GWIL Industries Study

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### **Crane Operator Apprenticeship at GWIL Industries Burnaby, British Columbia**

GWIL Industries, Crane Service Division, with head offices in Burnaby, BC, provides specialized mobile crane operations to the construction industry in Western Canada. GWIL employs journeyman crane operators, i.e., workers who have completed a 3-5 year apprenticeship to become proficient in all aspects of crane operation.

GWIL employs apprentices for the following three reasons. First, GWIL is planning for the future—they know that the industry is important and growing but that there are impending shortages of skilled workers. Second, there are cost savings to the firm in employing apprentices, as they are paid a percentage of the journeyman wage while they are in training. And third, GWIL is required by its collective agreement with the union to provide an employment and training opportunity for 2 – 8 apprentices in construction industry mobile crane operation each year. In this endeavor, GWIL is associated with the International Union of Operating Engineers, Local 115 (IUOE 115), through the Operating Engineers Joint Apprenticeship and Training Plan (OEJATP), and the Industry Training and Apprenticeship Commission (ITAC) of BC<sup>1</sup>.

Human resources training, employment rates, and management in the construction industry face several challenges. First, employment demand in construction trades is typically volatile, susceptible to cyclical swings in the economy. A second challenge is a declining supply of trade workers due to aging. In BC, approximately 15,000 skilled workers in major construction trades are projected to leave the workforce between 1998 and 2008, mainly due to retirement. This attrition indicates that the sector will lose 28% of 1998 employment in the trades by 2008.

At the same time, total job openings, from both attrition and industry growth, are projected at 22,400 between 1998 and 2008 – an increase of 41% from the 1998 employment. Increasing demand, together with the high attrition rate, poses a dual challenge to the construction sector, not just in BC but across Canada.

Training for most of the construction trade occupations is accomplished through an apprenticeship system. Apprenticeship is an industry-based training system, normally characterized by a tripartite agreement between the employer, the worker, and the Provincial government. The agreement provides for the apprentice to be paid for work performed throughout a specified time period, during which the apprentice learns a technical trade. The employer's role is to make available practical and theoretical training of an established length and scope,

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<sup>1</sup> Complete information about ITAC is available at <http://www.itac.gov.bc.ca/>

## Appendix A • GWIL Industries Study

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### Crane Operator Apprenticeship, GWIL Industries, cont'd...

during which time every effort is made to keep the apprentice employed. The government's role is to establish training standards, manage the technical training aspect of the system, and maintain registration.

Mobile crane operators, typically employed in construction, are trained through apprenticeship. Numbers of apprenticeships are decreasing at a time when there is the prospect of increased employment opportunity. In BC, the Mobile Crane Operator program had 53 apprentices at the end of 2001, with an average of 51 each year since 1996. The program attracted 14 new apprentices in 1999. Employment in crane operation was estimated at 1,270 in 1998. This represents less than 0.1% of total provincial employment.

The average age of crane operators is greater than that of the overall labour market. Mature workers (age 50 and older) in the trade represent 43%, higher than the 31% observed market wide. Attrition is projected at 320 between 1998 and 2008. This is equivalent to 25% of the 1998 employment, marginally higher than the 21% projected market wide, but lower than the attrition levels projected in other heavy industries, such as Piping (44%) and Construction (28%). Total job openings in this trade between 1998 and 2008 are projected at 460 — a 36% increase from the 1998 employment, which is about the same level projected market wide (38%).

The completion of the Mobile Crane Operator apprenticeship takes three years, plus specific job experience ("seat time") in the trade. For practical purposes, this case study analyzed the ROTI for one apprentice. An individual apprentice must participate in formal classroom training for a total of 16 weeks over three years: 8 weeks in Year 1 (Y1), 4 weeks in Year 2 (Y2), and 4 weeks in Year 3 (Y3). In addition, the apprentice must complete 1800 hours of actual crane operating time over the course of his/her apprenticeship on a variety of equipment.

A typical apprenticeship takes 3-5 years. For the purposes of this case study, it will be assumed that the apprentice completes in Year 4 (Y4). For the training component, the employer, GWIL, pays \$36/hour to the training plan. The salary of an apprentice is a percentage of that of a journeyman crane operator, which is approximately \$40 per hour. The percentage increases each year: 65% in Y1, 75% in Y2, and 85% in Y3 and Y4 (or until completion of apprenticeship).

Therefore, in Y1, 35% of the salary can be assumed to be a "training benefit" spread over the various benefit items, such as lead time, to reach proficiency. GWIL and IUOE have concluded that there is a mitigation of the 65% Y1 cost,



## Appendix A • GWIL Industries Study

### Crane Operator Apprenticeship, GWIL Industries, cont'd...

when apprentices are not skilled or knowledgeable, in Y3 and Y4 where there is a 15% return while the apprentice is much more proficient and being paid only 85% of full salary. As the percentage of salary increases, the “training benefit” decreases; therefore, a complete ROTI analysis would be conducted for each year of 4 years. For practical purposes, however, it was decided that the four years could and should be averaged.

At GWIL, all employer training costs are covered by \$.36 per hour remittance, i.e., \$.36 per hour worked by each Operating Engineer employee is remitted to the OEJATP by the employer. GWIL estimates that, on the basis of 60,000 hours per crane operator, \$21,600 is paid for overall training, including apprenticeship. Since GWIL averaged 3 apprentices per year at the time of writing, the cost for one apprentice is estimated to be \$7,200 per year. In addition, for each apprentice, the province pays \$9,400 (\$235 per training day). Added to the employer's cost, a typical apprentice costs \$16,600 in training costs. However, the direct cost, for ROTI purposes, is the \$7,200 figure; it is paid directly to the OEJATP, which conducts the apprenticeship training that is subsequently certified by ITAC.

COST ITEMS	TOTAL COST PER APPRENTICE PER YEAR
Needs assessment and training plan	<b>\$7,200</b>  (paid to OEJATP for all cost items)
Curriculum and materials development	
Registration or tuition fees	
Trainer and consultant fees	
Materials and equipment	
Facilities	
Travel costs - food, transportation, lodging	
Assessment and certification fees	
<b>Total training cost</b>	<b>\$7,200</b>

In this case study, the employer felt that many of the “benefits” did not apply. For example, reduced absenteeism and tardiness were not considered to be issues because the industry won't tolerate it. In addition, some of the “benefits” that GWIL perceived could not be made tangible; for example, GWIL knows it



## Appendix A • GWIL Industries Study

### Crane Operator Apprenticeship, GWIL Industries, cont'd...

is able to charge a 10% premium because of the quality of its people, but this doesn't translate into a measurable figure for one apprentice. Therefore, for purposes of this case study, the partners agreed that the benefit accrued takes the form of cost savings to the employer.

At GWIL, a crane operator works approximately 2000 hours per year at an average wage of \$27.50 per hour plus benefits; therefore, each crane operator "costs" approximately \$45 per hour. Apprentices are paid an average of 75% of the journeyman wage over three years; however, benefits are the same as for journeymen crane operators. An apprentice averages 1750 hours per year at an approximate cost of \$40 per hour. Therefore, the "wage savings" from an apprentice amount to \$5 per hour times the 1750 hours for a total of \$8750, and this constitutes the cost savings or benefit of the apprenticeship training for each apprentice crane operator for the employer.

TANGIBLE RETURN CATEGORIES	CALCULATIONS	TOTAL
<b>Personnel /cost savings</b>		
<ul style="list-style-type: none"> <li>Wage savings for trainee in place of journeyman crane operator.</li> </ul>	1,750 hours per year x \$5.00 per hour	\$8,750
	<b>Total Returns</b>	<b>\$8,750</b>

On the basis of these figures, the Return on Training Investment to the employer for an apprentice crane operator at GWIL Industries is 122% ( $\$8750 / \$7200 \times 100$ ). For every dollar spent on the apprentice in training over three years, the employer accrues a return of \$1.22 in terms of cost savings.





## Appendix B • Checklists

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Use these checklists to help you identify the costs and benefits that may apply to the training under your ROTI analysis.

### Training Costs

- Cost of needs analysis/surveys
- Course design, development, or purchase
- Salary of instructor and/or consultant
- Offsite travel, lodging, and meals
- Facilities rented or allocated
- Equipment and hardware
- Instructional and testing materials
- Course/training evaluation
- Other

### Tangible Benefits

- Increased sales
  - Improved overall quality
  - Improved competitiveness
  - Improved productivity per staff
  - Improved profitability
  - Improved customer satisfaction
  - Improved personnel relations
  - Improved safety record
  - Compliance with regulations
  - Broadening the range of workers' tasks
  - Meeting a shortage of qualified labour
  - Implementation of new ideas
  - Other
- 



## Appendix B • Checklists

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### Intangible Benefits

- Improved understanding of new technologies
  - Remediation of workers' inadequate pre-employment preparation
  - Improved understanding of markets
  - Improved staff morale
  - Greater co-operation amongst staff
  - Better management-staff relations
  - Better staff understanding of the organization
  - Greater staff flexibility
  - Greater staff loyalty
  - Improved staff work ethic
  - Improved staff motivation
  - Improved staff perceptions of job responsibilities
  - More problems solved
  - Conflicts avoided
  - Increased use by staff of performance measures and standards, benchmarking, and quality control methods
  - Other
- 



\* These pages are for you to do ROTI analysis based on your own situation.

## Appendix C • Work Sheets

### Step 1. Identify and describe the training under analysis

**WHAT** is the curriculum?  
\_\_\_\_\_  
\_\_\_\_\_

**WHERE** does the training take place?  
\_\_\_\_\_  
\_\_\_\_\_

**HOW** is the training to be delivered?  
\_\_\_\_\_  
\_\_\_\_\_

**WHEN** is the training to take place?  
\_\_\_\_\_  
\_\_\_\_\_

**WHO** are the participants?  
\_\_\_\_\_

**ROTI:** what is the unit of ROTI analysis?  
\_\_\_\_\_

Notes:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



## Appendix C • Work Sheets

### Step 2. List the reasons for training

Consider these factors to identify your reasons for training:

Business and industry context: \_\_\_\_\_

\_\_\_\_\_

ROTI analysis perspective: \_\_\_\_\_

\_\_\_\_\_

Tangible outcomes: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Intangible outcomes: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

External circumstances: \_\_\_\_\_

\_\_\_\_\_

Payback period: \_\_\_\_\_

\_\_\_\_\_

Notes:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



## Appendix C • Work Sheets

### Step 3. Calculate the costs of training

Not all of these items will be applicable in every case.

Cost Item	Total Cost/Unit of Analysis <sup>1</sup>
Needs assessment & training plan	
Curriculum and materials development	
Registration or tuition fees	
Trainer and consultant fees	
Materials & equipment	
Facilities	
Refreshments	
Travel costs: food, transportation, lodging	
Assessment & certification fees	
Salary replacement cost	
Other	
<b>Total training cost</b>	

<sup>1</sup>Unit of ROTI analysis (e.g., per person, per session, per year)

Notes:

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## Appendix C • Work Sheets

### Step 4. Calculate the benefits of training

Measure those returns most important to you and for which you can gather data  
—actual or informed estimates.

Tangible Returns Categories	Calculation	Total
<b>Time savings</b> (e.g., reduced supervision, absenteeism, downtime) <ul style="list-style-type: none"> <li>Hours x wage x number of employees</li> </ul>		
<b>Productivity increase</b> if applicable (e.g., quality/quantity changes due to training) <ul style="list-style-type: none"> <li>Reductions in complaints</li> <li>Increase in sales, customer satisfaction</li> </ul>		
<b>Personnel savings</b> (e.g., reduced recruitment costs, grievances, accidents) <ul style="list-style-type: none"> <li>Cost of individual interventions x incidence</li> </ul>		
<b>Other</b> <ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> </ul>		
<b>Total returns</b>		

Notes:

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## Appendix C • Work Sheets

### Step 5. Calculate the Return on Training Investment

Total benefits in dollar value	
Total costs in dollar value	
Divide the benefits by the costs and multiply by 100 to get a percentage	

$$\text{Value of benefits} \div \text{Cost of training} \times 100 = \text{ROTI}$$

Notes:

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This project benefited from the expertise of:

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Grant Trump - Canadian Council for Human Resources in the Environment Industry, Calgary, AB

Grete Rasmussen - Human Resource Development Canada, BC Yukon region

Stacey Huget - Literacy BC

Tom Rankin - Forestry Continuing Studies Network, Kamloops, BC

Donna Mason - University College of the Cariboo, Kamloops, BC

#### **Government and Industry Partners**

Bill Walters - Industry Training and Apprenticeship Commission (ITAC), BC

Wendy Swedlove - Canadian Tourism Human Resources Council (CTHRC), Ottawa

Johanna Oehling and Heather Stronach - National Seafood Sector Council (NSSC), Ottawa

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Dr. Kathryn Barker, FuturEd

#### **References**

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Produced for and available from the BC Centre for Curriculum, Transfer and Technology ([www.c2t2.ca](http://www.c2t2.ca)), National Literacy Secretariat of Human Resources Development Canada ([www.nald.ca](http://www.nald.ca)), BC Forestry Continuing Studies Network ([www.fcsn.bc.ca](http://www.fcsn.bc.ca)) and Cariboo College ([www.cariboo.bc.ca](http://www.cariboo.bc.ca)); also at [www.futured.com](http://www.futured.com)

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This project has been funded by



Human Resources  
Development Canada

Développement des  
ressources humaines Canada

National Literacy  
Secretariat

Secrétariat national à  
l'alphabétisation



*Canadian Tourism  
Human Resource Council  
Conseil canadien des  
ressources humaines  
en tourisme*



National Seafood Sector Council  
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produits de la mer



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