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## **Return on Training Investment (ROTI)**

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Used in the strictest sense, Return on Training Invest (ROTI) answers the question: “For every dollar invested in training, how many dollars does the investor get back?” However, there is much more to the concept of ROTI depending on the nature and context of the training, the benefits or returns, the investments or costs, and the beneficiaries and stakeholders. There is no “one way” to conduct or demonstrate ROTI. This literature review attempts to cover the various aspects of ROTI from the most recent information sources.

### **1. Introduction to ROTI**

The concept of ROI in training, or ROTI, is gaining in importance, utilization, and complexity. Return On Investment in Training should concern whomever or whatever makes the investment – the employer/business, the employee/trainee, perhaps the agency or government that funded a portion of the training, perhaps the training agency or provider. The term ROTI is used most commonly by employers and businesses, and there is a limited amount literature on the concept of ROTI from the point of view of individuals, the trainers, or society. Therefore, much of what follows is clearly from the employer’s perspective, and particularly from traditional industries like manufacturing and sales where measurement is easiest.

## 1.1. Defining ROTI

Return on Training Investment (ROTI), strictly speaking, is an accounting-based method of comparing the costs and benefits of training by converting all costs and benefits to financial measures. It can be used, however, in a less stringent manner to include intangible costs and benefits, but this is a less common usage of the term.

The most common form of ROTI is accounting-based cost/benefit analysis. A thumbnail sketch of ROTI would start with typical training costs, which fall into these general categories:

- course development or purchase;
- instructional materials;
- equipment and hardware;
- facilities; travel, lodging, meals;
- salary (instructor and support staff); and
- lost productivity or temporary replacement costs.

Then, typical training benefits may fall into four categories:

- time savings (less time needed to reach proficiency, less supervision needed, etc.)
- better quantity (faster work rate, less down time, not having to wait for help)
- better quality (fewer rejects, lost sales, reduced accidents, lower legal costs)
- personnel data (less absenteeism, fewer medical claims, reduced grievances)

Both training costs and benefits are three kinds:

- one-time (e.g., needs analysis and design);
- cost per offering (e.g., facilities rental, consulting fees); and
- cost per participant (e.g., meals, notebooks).

Appendix A is an example of typical cost-benefit ROTI worksheet. There are many ROTI models that build on this basic framework, set out in Section 5 of this paper.

To amplify on the definition of ROTI, it may be helpful to understand the most common reasons for conducting ROTI:<sup>1</sup>

1. HR budgets can be justified and expanded when training can contribute to profit and is not seen as an act of faith or a cost of doing business.
2. Course objectives and content will become more lean, relevant and behavioral with focus on monetary results rather than on acquisition of information.
3. Trainees and their managers are more committed and take training more seriously.
4. Action plans, individual development plans, and managers' briefings are taken seriously, thus strengthening the trainee-manager partnership.

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<sup>1</sup> *Measuring Training's ROI* (Parry, 1996) in *Training and Development* (May, 1996) p. 72-77.

5. HR staff perform better at containing costs and maximizing benefits; they become performance managers and not just instructors.
6. HR staff have solid data about where training is effective and where it is weak, so that courses can be revised and fine-tuned to produce the best results.
7. The curriculum of courses offered can be determined on a financial basis and not just on popularity, rank of the manager requesting it, and so forth.
8. Course enrolments will be serious, with trainees aware of the expectations that follow completion.
9. By calculating ROTI on courses where possible (not all training can or should demonstrate ROTI), the ones which can't be assessed at this level may be more valued.

## **1.2. Linked Concepts and Synonyms**

The term "Return on Training Investment" is a label for a concept with many facets and synonyms.

### **1.2.1. Concepts Related to ROTI**

A theoretical exploration of ROTI reveals that it is linked to a large number of concepts, some of which are:

- formal financial accounting: investments, assets, capital, growth, risk and return in business
- HRD for "employees" and knowledge workers
- productivity measurement, industrial engineering, quality management
- organizational psychology and decision theory
- human capital assets, accounting, management
- evaluation (program, training, learning) for comparison of interventions and for accountability
- outcomes and impacts (training, learning, intended and unintended, short-term and long-term, positive and negative, different stakeholders)
- social costs and benefits of training as a form of human capital development

- competency-based training
- career development, higher education/training for the individual

Terminology from these conceptual areas served as descriptors contributing to the literature review.

### 1.2.2. Synonyms and Related Terms

Terminology is sometimes confusing and redundant, and ROTI is a term that is used almost synonymously with many other terms, such as:

- evaluation: the formal process of assessing the quality of a product or service against standards for acceptability and/or excellence
- validation: the process of ensuring acceptability for continuance of a program or service
- “proof-of-concept” – used, e.g., by the US Office of Veterans Affairs, to mean the process of seeking evidence to support or refute a new concept
- cost-benefit analysis or benefit - cost ratio
- cost-effectiveness, with effectiveness being defined as the extent to which the product/service does what it claims to or is intended to vis-à-vis the associated costs
- cost-utility analysis, with utility related to organizational or business objectives
- return on expectation ( ROE): examines the perceived market value of training compared to program costs
- value for money: the extent to which public funds are expended economically and efficiently and the extent to which the related programs are effective in meeting their objectives<sup>2</sup>
- training investment analysis: a forecast of monetary benefits that are likely to be gained from training, before the training is undertaken
- training transfer which may be part of the training plan or part of the intended outcomes/benefits

These terms also served, in part, as descriptors guiding the literature search or environmental scan.

<sup>2</sup> A proposed approach which appeared in their 1992 report, Value for Money in Training, based on the American Society for Training and Development's (ASTD) consensus accounting model for training.

## 2. The Importance of ROTI

### 2.1. The Importance of Training

The focus of this paper is "training" and it is important to acknowledge the following complexities surrounding training.

- Training delivery takes many, many forms:
  - self-study or instructor-led
  - on-the-job or in a classroom/training site
  - traditional on-site or distance delivered
  - computer assisted and/or computer managed
  - individualized or group instruction
  - actual, hands-on or using virtual reality
- Training attendance / participation may be voluntary or mandatory.
- Training duration may be short-term or long-term, once-off or continuous.
- Training focus may be hard or soft skills.
- Training impetus may be in response to training needs assessment at organizational, occupational and/or individual level.<sup>3</sup>
- The business context for training can be negative (e.g., high turnover or poor performance, absenteeism or conflict, compliance issues like sexual harassment) or positive (, e.g., rapid growth, merger/acquisitions, new product development, new business opportunities).

The following observations about training are relevant to ROTI.

- Traditional classroom training will normally have a lower development cost and a higher delivery cost; interactive and distance education training will normally have a higher development cost, but a lower delivery cost.<sup>4</sup> A further comparison of different training delivery methods is found in Appendix B, the purpose of which may be to incorporate costs and benefits depending on the specific nature of the training delivery under study.
- According to trainers at On With Learning, the training product is normally less than 5% of the overall course delivery cost.<sup>5</sup>

<sup>3</sup> For example, see: *Training Needs Assessment* at <http://cpol.army.mil/permis/710.html>

<sup>4</sup> According to an e-learning firm called Lets Talk Selling at <http://www.letstalkselling.com/>

<sup>5</sup> *And the Winner for Best Training Format is...!* at <http://www.videoed.com/etrform.html>

- It has been determined that the technology that delivers the course material has never been significant to the results achieved by the student (the “no-significant-difference phenomena”<sup>6</sup>). However, format is a factor in training effectiveness when the trainee is prejudiced toward one of the formats available or when the course engineering is substantially different.
- Most importantly, not all training can or should demonstrate ROTI.

### 2.1.1. The Business Perspective

For business, training may be seen as a tool to effect strategic change and a means to achieve a competitive edge; therefore, increasingly, training is seen as an investment that will provide beneficial returns, rather than a cost to be borne. Investment in human assets of a company may have the greatest potential for increased productivity: “the way employees are trained will determine in large extent their asset value to the company by measurable improvements in job performance and organizational change.”<sup>7</sup>

Both ISO 9000 and QS-9000 dictate specific training requirements for the corporate-training function.<sup>8</sup> So do the Malcolm Baldrige National Quality Award criteria.<sup>9</sup> In the US, the National Association of Manufacturers (NAM), the country’s largest industrial

<sup>6</sup> The “no significant difference” website from links at

<http://distancelearn.about.com/education/distancelearn/library/blpages/blnsd.htm>

<sup>7</sup> *Employee Training and Development – Investments that Pay Off* (Harder, 1998) at

<http://www.hronline.org/newsltr/nwsltr698/training.htm>

<sup>8</sup> ISO/QS 9000 training requirements: Section 4.18 applies to every kind of training for every employee whose work “affects quality.” Here is a brief summary of what you need to do:

- Identify your training needs. Maintain written descriptions of each job category in your company, listing what knowledge and skills are required to perform that job. Do all of your current employees meet the requirements for their positions? Do any new hires need to be brought up to speed? What skills will various people need in two years? Start planning now.
- Train your employees. Eliminate the gaps between what your employees know and what they need to know by providing them with relevant training. Keep a written training schedule.
- Qualify your employees. It’s not enough to shut your employees in a room with a trainer for a few hours. You need some way to check that they actually learned the necessary skills. Many training programs test the participants at the end of a session, and some issue certificates upon successful completion. You can also simply have a supervisor observe the employee on the job, then sign a document witnessing that the employee performs the required tasks correctly.
- Document your training procedures and activities. Keep written records for each of the above steps. Be prepared to show your process for determining training needs and qualifications, as well as the actual employee records, job descriptions, test results, and schedules.

In addition to ISO 9000’s basic requirements for training, QS-9000 adds two further stipulations. Training must be viewed as a strategic corporate issue, and the effectiveness of the company’s training programs must be evaluated periodically, preferably at least once per year.

<sup>9</sup> Criteria and information at <http://www.quality.nist.gov/>

trade association, recently approved a resolution to make worker training one of its top priorities.

Very large amounts of money and work time are spent on or invested in training. In the US in 2000:<sup>10</sup>

- Total dollars budgeted for formal training this year by U.S. organizations: \$54 billion.
- Of that sum, amount that will go to outside providers of training products and services: \$19.3 billion.
- Percentage of U.S. organizations that teach employees to use computer applications: 99%.
- Of all corporate and government training, 90% occurred on paid time;
- Training budgets accounted for direct costs only and not, e.g., for the salaries people were paid while engaged in training instead of working; therefore the real costs may be higher.
- Some estimates indicate that only about 20% or 30% of all training was being used on the job a month later, resulting in billions of wasted dollars.

Related Canadian statistics reveal the following.

- Despite an extended formal learning system, informal training accounts for the majority of training in most firms.<sup>11</sup>
- The majority of adult learners (71%) participate in job-related education or training. Among these learners, 70% receive employer sponsorship.<sup>12</sup>

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<sup>10</sup> *Industry Report 2000: A Comprehensive Analysis Of Employer-Sponsored Training In The United States*, reported in Training Magazine's annual Industry Report at <http://www.trainingsupersite.com/research/>

<sup>11</sup> *Reskilling Society (Phase I): Industrial Perspectives, 1993*. (Ekos Research, 1994).

<sup>12</sup> *ibid.*

Using data from the US National Employers Survey (Educational Quality of the Workforce) to examine human capital investment, and controlling for a wide variety of factors (e.g., size of business, labour and material inputs, experience of workers, industry),<sup>13</sup> it has been concluded that:

- Training that increases the educational level of employees in an establishment by one year raises productivity by as much as 8.5% in manufacturing plants and almost 13% in non-manufacturing establishments.
- Formal training done off-site increases manufacturing productivity.
- Training employees in computer skills greatly enhances the productivity of non-manufacturing establishments.

Studies indicate that, in Canada, the reasons for providing training, in order of importance are:<sup>14</sup>

- improved overall quality
- improved productivity
- improved competitiveness
- understanding of markets
- broadening the range of workers' tasks
- improving staff morale
- meeting regulatory requirements
- understanding new technologies
- orientation of new employees
- meeting jobs' changing skill requirements
- meeting a shortage of qualified labour
- remediating workers' inadequate pre-employment preparation

Canadian studies indicate that the perceived benefits of training for the firm, in order of importance, are:<sup>15</sup>

- improved customer services and client relations
- higher quality products
- higher productivity
- improved labour relations
- more flexible workforce
- more committed workers
- assured supply of skilled labour
- increased profitability

In many cases, however, training is seen as a cost rather than an investment.<sup>16</sup>

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<sup>13</sup> *Generating Productivity Growth: A Review of the Role of Workplace Practices and Computers.* (Office of the Chief Economist, US Department of Labour) at <http://www.dol.gov/dol/asp/public/programs/history/reich/reports/grow.htm>

<sup>14</sup> *Survey of Employers on Training and Employment Issues* (Ekos Research, 1993)

<sup>15</sup> *Survey of Employers on Training and Employment Issues* (Ekos Research, 1993)



### 2.1.2. The Individual's Perspective

As with businesses, training requires resources from the individual; however, Canadian adults largely feel that training is important.

- 28% of adult Canadians take part in learning, and their numbers grow by about 2.5 million per year.<sup>17</sup>
- In 1993, approximately 50% of training and almost 84% of educational programs were paid for by the individual, sometimes with funding subsidies from government programs.
- Annually, between 20% and 30% of Canadians take some form of job-related training; and investments in training have increased over time.<sup>18</sup>
- The HRDC Adult Education and Training Survey indicates that workers most likely to participate in employer-sponsored training are full-time, white-collar workers with a post-secondary education and earning an annual income of \$35,000 or more. This is consistent with studies that show that the employers less likely to offer formal training are those more inclined to offer less stable, lower skilled employment.<sup>19</sup>
- On average, Canadian adult learners participate in 1.6 learning activities or 103 hours per individual annually.<sup>20</sup>
- For workers, research on training impacts is clear and generally positive.<sup>21</sup> Training almost always produces more positive attitudes to training; impacts on employability and wages are often positive; and wage gains are greater for formal than for informal training. Impact on job turnover is mixed.
- Canadian studies indicate that the perceived benefits of training for workers, in order of importance, are:<sup>22</sup>
  - greater job satisfaction
  - more portable skills and job mobility
  - improved morale
  - greater job security

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<sup>16</sup> *Making Sense Out of the 'Bottom Line': The Dollars and Cents (Sense) of Training and its Measure* (Terry, 1999; p. 31) -- a literature review submitted to University College of the Cariboo.

<sup>17</sup> *Canadian Adult Learners and Learning Technologies*. (Office of Learning Technologies, 1998) available at [http://olt-bta.hrdc-drhc.gc.ca/download/adultpr\\_e.pdf](http://olt-bta.hrdc-drhc.gc.ca/download/adultpr_e.pdf)

<sup>18</sup> *Survey of the Labour Force on Lifelong Learning, Training and Employment Issues, 1994-1995*. (Ekos Research, 1995).

<sup>19</sup> *Report on Growth, Human Development and Social Cohesion* at [http://policyresearch.schoolnet.ca/keydocs/oct96rep/07\\_market-e.htm](http://policyresearch.schoolnet.ca/keydocs/oct96rep/07_market-e.htm)

<sup>20</sup> *Adult Education and Training in Canada* (Statistics Canada, 1994) available at [http://www.hrdc-drhc.gc.ca/arb/research/rsctoc\\_e.html](http://www.hrdc-drhc.gc.ca/arb/research/rsctoc_e.html)

<sup>21</sup> *Lifelong Learning: A Summary of Recent Research* (Ekos Research, 1997)

<sup>22</sup> *Survey of Employers on Training and Employment Issues* (Ekos Research, 1993)

- better job opportunities within the company
- improved pay and benefits

Human Resources Development Canada (HRDC) creates industry profiles<sup>23</sup> that include, among many other things, the “incidence of training” and the “job relevance of training.” HRDC notes that *the relevance of training to employment as seen by employees who were given it is a good criterion for assessment of the appropriateness of the amounts spent for this purpose*, i.e., as a means of reducing the barriers to training which include financial factors, job-related factors, availability of courses sought, and personal barriers to acquisition of training sought.

### 2.1.3. A Societal Perspective

In addition to the importance of training to businesses and to individuals, there are acknowledged important social benefits associated with training and higher educational attainment.

- According to the OECD, education and training contribute to better public health, lower crime, the environment, parenting, political and community participation, and social cohesion.<sup>24</sup>
- The impact of public labour market training programs shows some impact on unemployment, as well as benefits to some individuals but possibly at the expense of others. Well-targeted programs providing market-relevant skills are more effective.<sup>25</sup>
- The OECD has concluded that the rate of return on investment in education/training - human capital investment -- is as favorable as that on physical capital investment.<sup>26</sup>

<sup>23</sup> Information is available at <http://www.hrdc-drhc.gc.ca/hrib/hrp-prh>

<sup>24</sup> *Counting Human Capital* (Healy, 1998) in the OECD Observer at <http://www.oecd.org/>

<sup>25</sup> *Human Capital Investment: An International Comparison*. (Centre for Educational Research and Innovation, OECD, 1998; p. 61).

<sup>26</sup> *Human Capital Investment* (OECD, 1998) in OECD New Issues at <http://www.oecd.org/>

## 2.2. Reasons for the Growing Interest in ROTI

Interest in or reasons for ROTI varies according to the needs of the stakeholder group: employers, trainers and HR personnel, employees, non-employer funders such as government, i.e., society at large.

### 2.2.1. From the Employer / Business Perspective

From the literature, some of the reasons why employers and businesses are increasingly concerned with demonstrating ROTI are the following.

- Economic pressures to increase effectiveness of training programs.
- Increasing the financial worth of employees to result in improvements in job or organizational performance.
- Linking to competitive business strategies, e.g., as a critical part of TQM.
- Simultaneously demonstrating that training has a positive impact on the company and that training is a good investment compared to other investment alternatives available to the organization.
- Demonstrating the costs of mismanagement of human resources and of types of employee behaviour.
- Attracting attention to a particular problem, e.g., with productivity.

Work done by Statistics Canada has linked training to innovation in business.<sup>27</sup> The study used a measure of firm performance defined as an average of the growth in market share, productivity and profitability of a firm relative to other firms in an industry. It concluded that the more successful firms tended to place a greater emphasis on R&D capability and R&D spending; developing new technology; and using new materials and implementing aggressive new strategies like process control and just-in-time inventory control. In short, while human resources were important, other factors were more important to innovation and business success. However, in some sectors – retailing, wholesaling, accommodation and food services – the more successful firms gave greater emphasis to skill labour, continuous staff training, and/or innovative compensation packages.

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<sup>27</sup> Baldwin, J. (1999). *Innovation, Training and Success*. Ottawa: Statistics Canada (paper prepared for the Expert Panel on Skills).

### 2.2.2. From the Trainer / HRD Perspective

From the literature, some of the reasons why HRD specialists and trainers are increasingly concerned with demonstrating ROTI include the following.

- Dealing with economic pressures to increase effectiveness of training programs.
- Gaining information useful in marketing training products and services.
- For HR professionals, an effective way of increasing influence within the organization, enhancing program results, and measuring the contribution of programs in terms that senior management can appreciate.
- Helping training staff contain costs and maximize training benefits.
- Trainers becoming performance managers and not just instructors.
- Giving trainers solid data about where training is effective and where it is weak, so they can revise and fine-tune courses for best results.
- Motivating trainers to do additional evaluations beyond the “smile sheet.”
- Evaluation becoming intriguing investigative work instead of administrative drudgery.
- Accounting internally, as most firms charge back the costs of internal training to line divisions using their products and services.<sup>28</sup>

In the context of "good practice," training providers such as agencies or colleges should incorporate the principles and practices of ROTI. For example, to win a Malcolm Baldrige Award for Excellence in Education,<sup>29</sup> the requisite core values and concepts that comprise excellence are visionary leadership; learner-centered education; organizational and personal learning; valuing faculty, staff and partners (i.e., providing training and professional development); agility; focus on the future; managing for innovation; *management by fact*; public responsibility and citizenship; *focus on results and creating value*; and a systems perspective.

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<sup>28</sup> *Getting the Most from Your Training Dollar: Outsourcing Trends in Corporate Training* (Conference Board of Canada, 1996) at <http://strategis.ic.gc.ca/SSG/bp00408e.html>

<sup>29</sup> At <http://www.quality.nist.gov/>

In as much as training and education are inter-related, numerous writers in the field of cost analysis in education make a strong case for increasing its use so that managers can make decisions about how resources can best be allocated and used. According to Woodhall,<sup>30</sup> for example, cost analysis in education can serve the following purposes:

- Testing the economic feasibility of expansion plans, proposals, or targets.
- Projecting future levels of educational costs.
- Estimating the cost of alternative policies and of educational reforms or innovations.
- Comparing alternative ways of achieving the same objective in order to select the most efficient or economical.
- Comparing the profitability of alternative investment projects.
- Improving the efficiency of resource utilization.

Cost analysis has wide applicability in the field of education but, unfortunately, has not been used extensively because its opponents argue strongly that education objectives are too indefinable, learning attainments too immeasurable, and educational benefits too imponderable to make any such analysis possible.

In the context of the competitive training marketplace, however, the best providers of training services attempt to ensure or guarantee ROTI. Few institutions make ROTI claims; however, in several provinces, students are urged to examine ROTI for their own purposes using the questions in *Choosing the Training You Need*.<sup>31</sup>

Yet other education/training providers are concerned with ROI to their institutions or agencies, i.e., the costs and benefits of new programs and approaches. For example, the TeleLearning Network of Centres of Excellence has funded studies assessing the costs and benefits of tele-learning for OISE, UBC and other universities.<sup>32</sup> The ROI analysis has not been for the learner, but for the institution given the significant resources required to move from the traditional classroom delivery to technology-assisted, web-based delivery.

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<sup>30</sup> *Cost Analysis in Education*. (Woodhall, 1987) In G. Psacharopoulos (Ed.), *Economics of Education: Research and Studies*, 1987, pp. 393-399.

<sup>31</sup> Developed by FuturEd with funding from HRDC, the guide is based on the recommended National Training Standards developed by the Canadian Labour Force Development Board. *Choosing the Training You Need* is printed and distributed by the governments of BC and New Brunswick; and it is available online at <http://www.futured.com/>

<sup>32</sup> *Assessing the Costs and Benefits of Telelearning: A Case Study from the University of British Columbia* (Bartolic-Zlomistic and Bates, 1999); *Assessing Costs and Benefits of Telelearning: A Case Study from the Ontario Institute for Studies in Education of The University of Toronto* (Bartolic-Zlomistic and Brett, 1999); *Cost Benefit Analysis of Web-Based Telelearning: Case Study of the Bell Online Institute Pilot Project* (Whalen and Wright, 1998)

### 2.2.3. From the Employee / Individual Perspective

From the literature, some of the reasons why individual employees and employee groups (e.g., unions) are increasingly concerned with demonstrating ROTI are the following:

- employment pressures to increase effectiveness of training programs, and
- increasing one's financial worth to an employer, perhaps a pay increase or promotion.

According to HRDC, *the decision to advance one's education is similar to the decision to invest in a financial asset*. From a recent study by the Applied Research Branch,<sup>33</sup> it has been concluded that:

- pursuing postsecondary studies is generally a financially profitable decision for individuals;
- profitability varies considerably with the economic cycle, the type of diploma earned, the field of study, and some individual factors; and
- individuals weigh both the benefits they will derive from postsecondary studies – higher anticipated earnings – and the costs – tuition fees, loss of earned income while studying.

In the US, the Department of Labour has investigated the wage returns to training.<sup>34</sup> Using both the National Longitudinal Survey for Youth and the Employer Opportunity Pilot Project datasets, the following conclusions were drawn.

- A worker's wage is positively related to past investments in his training.
- There are very large returns to formal training.
- The return to training is significantly higher in more complex jobs.
- The full effect of training occurs with a lag as long as two years.
- Training on previous jobs is a substitute for training on the current job.
- The return to training declines with labour market experience.
- An hour of formal training has a greater effect on wages than does an hour of informal training.
- In general, a lack of consistency in research/ROI design makes it difficult to compare rates of return.

<sup>33</sup> *Does It Always Pay to Invest in a Postsecondary Diploma?* (HRDC, 2000) is available at [http://www.hrdc-drhc.gc.ca/arb/publications/bulletin/vol6n1/v6n1\\_09e.shtml](http://www.hrdc-drhc.gc.ca/arb/publications/bulletin/vol6n1/v6n1_09e.shtml)

<sup>34</sup> Frazis, H. and M. Loewenstein. (1999). *Reexamining the Returns to Training: Functional Form, Magnitude, and Interpretation*. Washington, DC: US Department of Labor, Bureau of Labor Statistics, BLS Working Papers.

- Training is one of only a few variables affecting wage and productivity growth.

These conclusions are relevant at the individual, industry and societal levels. However, the Austin Business Journal notes that there is nothing more important than individual commitment to and accountability for training returns.<sup>35</sup>

#### **2.2.4. From Society's Perspective**

From the literature, some of the reasons why governments and society at large are increasingly concerned with demonstrating ROTI are as follows.

- Given current demographics and the changing nature of work, pressures on the infrastructure are intensifying to improve both the equity and effectiveness of investments in training.
- Parliamentarians need simple, balanced reporting to help them allocate funds
- According to the OECD,<sup>36</sup> public accounting systems lag behind in their ability to adequately demonstrate the importance of education and training investment

The OECD, in fact, calls training -- on the macro/governmental level -- an intangible investment, and it is conducting major efforts to measure intangible investment as it relates to the Knowledge-based Economy.<sup>37</sup>

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<sup>35</sup> *What is the Return on Investment in Training?* (Thompson, 1999) in the Austin Business Journal.

<sup>36</sup> *Human Capital Investment* (OECD, 1998) in OECD New Issues at <http://www.oecd.org/>

<sup>37</sup> *OECD Work on Measuring Intangible Investment* at <http://www.oecd.org/>

### 3. The Current State of ROTI

An examination of the current utilization of ROTI principles and practices reveals the limited extent to which ROTI practices and principles are applied, barriers to ROTI, and emerging themes and practices.

#### 3.1. Limited Evidence of ROTI

Given the importance of training and the amount of resources expended on it, it might be assumed that those who invest in training would be demanding evidence of ROTI at all times. The current state of ROTI indicates that this is not so.

- The Conference Board<sup>38</sup> has tracked the progress of training and development in large and medium-sized Canadian organizations in a number of surveys. An encouraging increase in both lower and higher level evaluation activities appears to be occurring. However, ROTI analysis is still uncommon. Firms reported the following use of evaluation techniques for assessing courses:

Kirkpatrick Model LEVEL	1993	1996
1 – Reaction	74%	84%
2 – Learning	30%	42%
3 – Behaviour	16%	23%
4 -- Results/ROI	5%	15%

- In a document prepared for HRDC, Ekos Research concluded in 1997 that “there is no comprehensive and consistent literature on the returns to training from either an employer or employee perspective.”<sup>39</sup> The bottom line impacts for firms are uncertain, although training seems to provide discernible positive effects in areas such as employee turnover, staff morale and product/service quality.<sup>40</sup> However, it is difficult to gauge the effects on productivity, and there are difficulties in establishing links between firm performance and training.

<sup>38</sup> The study is available at <http://www.conferenceboard.ca/>

<sup>39</sup> *Lifelong Learning: A Summary of Recent Research* (Ekos Research, 1997)

<sup>40</sup> *Reskilling Society: Industrial Perspectives* (Ekos Research, 1993)



- According to the Canadian Public Service Commission,<sup>41</sup> which conducted a review of training assessment practices, training assessment still occurs principally at the level of reaction, that is, assessment of participants' satisfaction with training/ learning events, and to a lesser extent at the level of impact on organizational objectives.
  - In terms of best practices, many organizations are using assessment to help support the achievement of corporate purposes. They link training and assessment to their strategic objectives, to self-managed competency standards that employees can upgrade. They use simple self-assessment tools to gauge transfer of learning to the job and to corporate objectives.
  - In terms of trends, budgetary restrictions and a focus on results are increasingly forcing organizations to demonstrate the effectiveness of their investments. Forward-looking organizations are viewing training/learning as a valuable investment to be monitored. In a knowledge age, intellectual capital is viewed as a means to acquiring the leading edge, and companies are striving to find simple, affordable, yet reliable, ways of measuring the results of their investments.
  - The current challenge is viewed as providing inconsequential reaction data, and costly and time-consuming outcome data. The field faces additional challenges in ensuring adequate assessment of "soft" training/learning and sometimes operates in a climate of weak management support for evaluation.
- The Applied Research Branch of HRDC undertook to identify key knowledge gaps in the area of adult education and training in Canada.<sup>42</sup> Among the important gaps identified was ROI for informal and nonformal learning and for adult learning in general. The report argues for more study of the outcomes of training in terms of overall benefits and costs in order to be able to judge the adequacy of adult learning in Canada.
- According to the American Society for Training and Development (ASTD), in 1996 in the US, only 2% of respondents to a business survey evaluated training for impact on the business (Level 4, Kirkpatrick).<sup>43</sup> The Training Journal's 1996 Industry Report of US organizations with 100 employees or more reported a higher percentage: 49% for business impact evaluations.

<sup>41</sup> *From Training Evaluation to Outcome Assessment: What Trends and Best Practices Tell Us* (Public Service Commission, 1997) from the Research Centre at <http://resapp.gc.ca/rescentr>

<sup>42</sup> Baran, J., Berube, G., Roy, R., and W. Salmon. (2000). *Adult Education and Training in Canada: Key Knowledge Gaps*. Ottawa: HRDC.

<sup>43</sup> *Boeing's User-friendly Training Evaluation* (Cunha, ) at Training Tools on <http://www.hale.pepperdine.edu/~cscunha/Pages/>

- A review of the literature on ROTI specific to workplace literacy programs,<sup>44</sup> conducted for the National Literacy Secretariat of HRDC, concluded that, although there is considerable "talk" about the merits of such programs, there is little evidence of ROI.
  - There is very little existing research on ROI from workplace literacy programs; and Canadian research is virtually non-existent.
  - Most ROI articles are descriptive and anecdotal.
  - With few exceptions, ROI articles present glowing reports but many studies would not meet academic research standards.
  - Empirical studies on the impact of workplace literacy programs are not common; indeed the whole area of evaluation of training is underdeveloped.
- According to the Australian National Centre for Vocational Education Research,<sup>45</sup> which commissioned a review of the state of evaluation in vocational education and training (VET):
  - the theoretical basis of evaluation in VET has not developed over the past decade, with many evaluations being unclear as their approach and theory base, evaluation reports not containing essential methodological descriptions, and reports not explaining the relationships with other approaches to evaluation;
  - evaluation has not been used to provide support for policy decisions, with evaluations often not being reported in a way that is useful for policy framing, or at a useful time; and
  - there has been relatively little evaluation of the "big" issues in VET. They recommended, among other things, a requirement that evaluations address cost-benefit issues and policy implications. A study is currently under way to research return on workplace training with a focus on micro-level analysis.<sup>46</sup> A second study due to report soon is of the relationship between training and small business performance<sup>47</sup> on the basis of profit, ability to make successful changes to practice, business plans, and length of time in business for both metropolitan and non-metropolitan SMEs.

In summation, while ROTI is considered to be important, even crucial, it is seldom studied or demonstrated in these three industrialized economies.

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<sup>44</sup> *Literature Review on the Return on Investment from Workplace Literacy Programs* (Long, 1996).

<sup>45</sup> *Stocktake of Evaluation in VET (Vocational Education and Training)* at <http://www.rcvet.uts.edu.au/projects/rp42.htm>

<sup>46</sup> *Return on Training Investment* at <http://www.rcvet.uts.edu.au/projects/rp68.htm>

<sup>47</sup> *The Relationship Between Training and Small Business Performance* at <http://www.ncver.edu.au/cgi-bin/gda.pl?id=101/research/proj/nr7019.htm>

### 3.2. Barriers to ROTI

From the perspectives of both providers and users of training services, there are a number of reasons, some more valid than others, why ROTI is not routinely studied or demonstrated. The following reasons are often cited for not doing ROTI.<sup>48</sup>

1. The costs of training are known and expressed in dollars, but the benefits may be soft, subjective and difficult to quantify for conversion to dollars.
2. It is difficult enough to get managers to send people for training without imposing additional requirements to collect data to document impact.
3. Costs are known up front, before training, but benefits may accrue over time; and it's difficult to determine when to assess the impacts or benefits.
4. Most trainers lack the time and accounting skills to do cost/benefit analysis.
5. Requests for impact data may disrupt productivity.
6. Many of the most popular training programs will be operated even if costs exceed benefits, so conducting ROTI may be a waste of time.
7. The outcomes of ROTI could be damaging to the HR staff and to budget support from top managers, so it may be better not to know.
8. It is difficult to attribute a person's behaviour to any particular reason, much less to a specific training event.
9. The very act of collecting data on the dollar value of performance will tend to bias information that is elicited, making it hard to present an accurate picture.

According to the ASTD, implementation of ROI or ROTI is inhibited by the following barriers – some of which are realistic and others myths based on false perceptions.<sup>49</sup>

1. Costs and time -- Course evaluations are viewed as inconsequential by some and assessment of impact as too time-consuming and costly.
2. Lack of skills and orientation for staff -- ROI requires a change in overall orientation, attitude, and skills of the HRD staff.
3. Faulty needs assessment -- Some training programs have been implemented for the wrong reasons (such as an effort to chase a popular fad or trend in the industry). Thus, an ROTI calculation for an unnecessary program will likely yield a negative value. Training won't help if the problem isn't lack of worker knowledge and skills. Sometimes training can even hurt the organization by

<sup>48</sup> *Measuring Training's ROI* (Parry, 1996) in *Training and Development* (May, 1996) p. 72-77.

<sup>49</sup> *Barriers to ROI Implementation* (Excerpted from *Info-line 9805, Level 5 Evaluation: ROI.*) at [http://www.astd.org/CMS/templates/template\\_1.html?articleid=21220](http://www.astd.org/CMS/templates/template_1.html?articleid=21220)

giving trainees expectations about the ways things are supposed to work, when the organization has no intention of working that way. According to a training specialist,<sup>50</sup> from 75% to 85% of problems identified as training problems for a certain group are not correctly diagnosed. This is a natural consequence of the fact that the skills and knowledge of the worker are only about 20% of the system that is involved in the problem.<sup>51</sup>

4. Fear -- A concern may exist about the consequences of negative ROTI. The ROTI process also stirs up traditional fear of change.
5. Discipline and planning -- A successful ROTI implementation requires much planning and a disciplined approach to keep the process on track.
6. False assumptions, such as: *Managers do not want to see the results of training and development expressed in monetary values.*

Others express additional barriers or ROTI issues.

- Assessing “soft” outcomes is complex and proof of impacts must be valid. Increasingly the products of training that will be assessed are "soft" or complex: values, ethics, attitudes, specialized knowledge. Measuring these intangibles pose methodological challenges: what are valid behavioural samples of a value? How long is the incubation period for a new corporate mindset? Can decision-makers be convinced to accept soft data as evidence of impact or outcome?
- Attention needs to be paid to the quality of the measurement instruments. Can they be assured to be providing valid and reliable information? Have they been validated in an acceptable manner?
- The key to achieving practical results through training is to focus on performance objectives rather than learning objectives, i.e., what employees should be able to do rather than what they should know.
- To encourage more ROTI analysis, it will need to be made more easy, by reducing the need for evidence of impact, using easily developed and administered tools, looking for built-in indicators, seeking ways to automate assessment.<sup>52</sup>

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<sup>50</sup> *What's the Problem?* at <http://qualitymag.com/articles/1998/nov98/1198tt.html>

<sup>51</sup> Other parts of the system, which could be the real source of the problem include:

- the process: Does it need reengineering?
- tools and references: Are they available? Are they adequate?
- standards for the outputs: Are they known? Are they measured?
- work environment: Is it conducive to productivity and attention to detail?
- rewards and punishments: What are the consequences of meeting or not meeting the output standards?
- feedback: Do managers and inspectors provide timely, clear, non-threatening comments?

<sup>52</sup> *From Training Evaluation to Outcome Assessment: What Trends and Best Practices Tell Us* (Public Service Commission, 1997) at <http://resapp.qc.ca/rescentr/fulltx/outpap.htm>

## 4. Training Costs and Returns

In the exploration of ROTI, it becomes clear that issue of potential costs and benefits is very complex. In addition to differing by perspective -- employer, individual trainee, trainer, society at large -- both costs and training returns may be:

- tangible / measurable and/or intangible / difficult to measure
- immediate / short-term and/or evolving / long-term
- positive and/or negative
- intended or planned and/or unintended but achieved
- once-off and/or ongoing
- targeted for new employees or long-standing employees
- of equal value or prioritized in importance
- essential and/or optional

In conducting ROTI, it is helpful to set out training costs and returns according to these criteria.

### 4.1. Training Returns

When attempting to determine ROTI, it is essential to be clear about the purpose or intended outcomes of the training, whether they are tangible / measurable or intangible / immeasurable.

#### 4.1.1. Potential Tangible Returns

From the perspective of the employer or business of traditional industries, some of the returns which are valuable, intended, and possible to measure are:

- productivity or output per employee
- reduced waste or scrap
- improved customer satisfaction (less complaints)
- improved safety record
- increased sales
- compliance with regulations
- reduced employee absenteeism and/or tardiness
- reduced employee visits to the dispensary and/or safety-rule violations
- reduced employee grievances
- reduced employee turnover
- reduced employee discrimination charges
- number of promotions or pay increases
- number of training programs attended
- number of requests for transfer
- performance-appraisal ratings

- implementation of new ideas
- successful completion of projects
- number of employee suggestions
- frequency of goal setting
- reduced supervision
- reduced help from co-workers
- reduced calls to help line
- reduced downtime
- worker hours saved
- reduced time to perform operations
- reduced overtime
- fewer mistakes
- fewer employees needed

#### **4.1.2. Potential Intangible Returns**

From the perspective of the employer or business, some of the returns which are valuable and intended, but which may be difficult to measure or convert to dollar values are:

- improved employee morale
- greater co-operation among employees
- better management-employee relations
- better understanding, by employees, of the organization
- greater employee flexibility
- greater employee loyalty
- improved employee work ethic
- less employee stress
- improved employee motivation
- increased employee self-confidence
- improved employee perceptions of job responsibilities
- improved decisions made
- more problems solved
- conflicts avoided

#### **4.1.3. Business Returns from Training**

Whether tangible or intangible, the more general returns from training for businesses may be:

- improved financial results, customer measures, internal business operations, and human resource learning and growth (from Balanced Scorecard);

- organizational excellence (Malcolm Baldrige National Quality Award, Criteria for Performance Excellence for Business);<sup>53</sup>
- business success: increased productivity, increased performance, increased profitability, increased success;
- a balanced approach to short- and longer-term organizational and employee needs, including development, learning and career progression;
- remaining current with business and individual needs;
- ensuring employees learn to use performance measurements, performance standards, skill standards, performance improvement, quality control methods, and benchmarking as appropriate;
- compliance with regulatory and safety issues;
- organizational learning (e.g., five disciplines of learning organizations: shared visioning, personal mastery, mental models, team learning, and systems thinking);
- for firms using knowledge workers, improved effectiveness, reduced rework, improved efficiency, improved focus, and work elimination;<sup>54</sup>
- quality benefits, e.g., quality improvements with fixed costs, fewer mistakes, fewer rejects;
- organizational benefits, e.g., reduced employee turnover, reduced grievances, reduced absenteeism or tardiness, morale improvements; and
- intangible benefits to providing training to employees:
  - employees may become acutely aware that training is essential to their own future marketability;
  - HRD systems are enhanced as individuals make career choices based on the opportunities made available through training;
  - competitive advantage is increased by improving recruitment of qualified and motivated employees; and
  - employees know that training is the quickest path to increased pay and responsibility.

<sup>53</sup> National Baldrige Quality Award at <http://www.quality.nist.gov/>

<sup>54</sup> *Evaluating a Performance Support Environment for Knowledge Workers* (Thomas, Baron and Schmidt, 1995) at [http://www.cecer.army.mil/kws/tho\\_know.htm](http://www.cecer.army.mil/kws/tho_know.htm)

Typical benefits that businesses anticipate include:

- Time savings: taking less time to reach proficiency, spending less time performing each operation, needing less supervision, spending less time reworking or correcting mistakes, and having better time management.
- Improved productivity: faster work rate, more units, or services produced.
- Labor savings: less overtime or temporary help required, downsizing, jobs eliminated.
- Improved quality: fewer rejects, less scrap, fewer returns, bigger sales, better products.
- Improved health and safety: fewer accidents, less lost time, reduced legal and insurance costs.
- Better morale: less turnover and absenteeism, fewer strikes and grievances.

What is considered valuable and marketable is also changing: what people and organizations know is becoming ever more important. Therefore, assessment will focus more on "intangibles", the impact on organizations of developing intellectual capital.

#### **4.1.4. For society**

In the broadest sense, the benefits of training, as a public policy alternative to economic and social change, may be increased industrial productivity and improved environmental factors / sustainability.



## 4.2. Training Costs

### 4.2.1. Direct Training Costs

Typical costs for a business include:

- cost of needs analysis/surveys
- course design, development, or purchase
- salary of instructor, consultant, and/or staff
- offsite travel, lodging, and meals
- facilities rented or allocated
- equipment and hardware
- instructional and testing materials
- course/training evaluation

Typical training costs for an individual might include:

- tuition
- childcare
- books and materials
- equipment, e.g., computer
- travel / parking
- special fees, e.g., library
- loss of income

### 4.2.2. Indirect Training Costs

Among indirect training costs, for businesses, may be the following items:

- loss of productivity while trainees are attending training;
- other employee time related to training, e.g., it is estimated by a sales training firm that it takes a typical manager between 6 and 8 hours to prepare for one hour of training. The result is that a manager is unable to spend adequate time to prepare for training and consequently provides inadequate training to the staff; and the manager that finds preparation to be too difficult ultimately postpones any training;
- missed opportunity cost (e.g., method of calculating in the context of sales training<sup>55</sup>);
- induction costs;
- cost of replacing the employee while s/he is attending the course;

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<sup>55</sup> Sales Training ROI Calculation at [http://www.saleessense.co.uk/return\\_on\\_investment.htm](http://www.saleessense.co.uk/return_on_investment.htm)

- maintenance costs, e.g., mail, transport, refreshments, record keeping, stationery, accommodation;
- higher wastage rates until the trainee is fully proficient;
- recruitment of training staff or selection of training package; and
- the risk that a more highly trained employee may then obtain another job.

#### 4.2.3. Calculating Costs

The process of calculating costs is made more complex by the fact that costs can or must be calculated per trainee and/or per trainee hour basis. A set of basic costing formulae can be found in Appendix C.

On a more theoretical level, two basic approaches to costing in education/training are:<sup>56</sup>

- the institutional-descriptive approach which relies heavily on the expertise of those actually involved in the institution being studied; and
- the statistical or econometric estimation of cost functions which seeks to collect paired observations of costs, one such pair for each establishment or training program under study, and which uses regression analysis to derive from these observations the parameters of the underlying cost function.

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<sup>56</sup> *Educational Cost Functions*. (Verry, 1987) In G. Psacharopoulos (Ed.), *Economics of Education: Research and Studies*, 1987, p. 400.

## 5. ROI / ROTI Models

ROTI is not a common term; ROTI models are essentially ROI models -- the more common term. Fundamentally, ROI and/or ROTI are mathematically based: costs and returns are expressed as numbers wherever possible.

### 5.1. Simple ROI Formulae<sup>57</sup>

#### 5.1.1. For one-time programs

$$\text{Program Benefits} / \text{Costs} \times 100 = \text{ROI}$$

#### 5.1.2. For prepared programs

Total cost of design, development, duplication, delivery and support  
(divided by) the number of students over the life of the course

#### 5.1.3. For a range of results

$$\text{ROI} = (\text{value of benefits} - \text{cost of training}) / \text{cost of training}$$

### 5.2. Basic Cost / Benefit Analysis

Cost / benefit analysis measures the impact of training on the organization in terms of dollars saved or earned. The manager/owner must make decisions on how often a particular cost category occurs (e.g., fixed costs vs. variable costs). As well, some costs should be determined on an organizational basis, while others should be determined on an individual basis. Another issue is to determine the period of time over which the organization benefits from the training (e.g., during the training, a year after, three years). This can only be determined by the owner/manager of the organization. Some organizations may want to count the salary paid to their employee while they are on training. Depending upon the nature of the organization, cost and benefit categories may be modified to meet a particular need.

Cost / benefit analysis is expressed as a ratio. To determine Benefit Cost Ratio (BCR), the total benefits are divided by the total cost.<sup>58</sup> ROI or ROTI is typically expressed as a percentage: the percentage of return or benefit for each dollar spent or invested. In this way it differs from straight cost-benefit analysis. To determine ROI, the costs are

<sup>57</sup> *Raise Your Training ROI* (Chase, 1997) in Quality On-line at <http://www.qualitymag.com/articles/1997/sep97/0997f3.html>

<sup>58</sup> *ROI: The Search for Best Practices* (Phillips, 1996) in Training and Development (February, 1996; p. 42-47).

subtracted from the total benefits to produce net benefits, which are then divided by the costs.

### 5.3. Training Utility Formula<sup>59</sup>

This formula still depends on estimates for several variables. The most obscure is the concept of "value," a statistic that is not readily available for most jobs. Training Utility is estimated on the basis of years of duration of effect on performance; number of employees trained; performance difference between trained and untrained employees; "Value"-the standard deviation of job performance in dollars; and cost per trainee.

### 5.4. Kirkpatrick Evaluation Model<sup>60</sup>

By far the most well-known method of training evaluation, Kirkpatrick's Four Levels,<sup>61</sup> was developed by Donald Kirkpatrick in the 1959 and still used today. The four levels of evaluation are:

1. Reactions: Did the participants like the program? Did they feel it was valuable? Did it meet their expectations? This is measured by having participants fill out evaluation sheets at the end of course.
2. Learning: Did the participants learn what they were supposed to learn? This is measured by comparing participants' scores on pre- and post-tests.
3. Behavior: Did the participants apply their new learning back on the job? This is judged by managers' observations and follow-ups to employees' action plans.
4. Results: Did the training have any measurable business impact? Did it produce any ROI? This is measured by doing a financial comparison of costs vs. benefits. Some trainers only evaluate business impact at level four, and add a fifth level for financial results. To the Kirkpatrick Model, in his *Handbook of Training Evaluation and Measurement Methods*, Phillips<sup>62</sup> calls level four "business results" and adds a fifth level: Return on Investment.

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<sup>59</sup> Put A Dollar Value On Your Training Programs. (Shepeck and Cohen, 1985) cited in *Evaluating the Effectiveness of Training Programs* (Boverie, Mulcahy, and Zondlo, 1994) at <http://hale.pepperdine.edu/~cscunha/Pages/KIRK.HTM>

<sup>60</sup> Kirkpatrick, D.L. (1979). *Techniques For Evaluating Training Programs*. Training and Development Journal, 33(6), 78-92.

<sup>61</sup> *Techniques for Evaluating Training Programs* (Kirkpatrick, 1959) at [http://www.astd.org/CMS/templates/template\\_1.html?articleid=20840](http://www.astd.org/CMS/templates/template_1.html?articleid=20840)

<sup>62</sup> *Handbook of Training Evaluation and Measurement Methods* (Phillips, 1991). Phillips relies on the Kirkpatrick Model, but also describes The Bell System Approach, the Result-Oriented HRD model, the Parker Model and the CIRO models.

Because the Kirkpatrick model is a cumulative model, each step of the model builds on the prior step. According to a training specialist,<sup>63</sup> the knowledge required to improve training lies in the formative program evaluation data obtained from measuring at the first 3 levels: Behaviour, Learning and Reaction; however, only through a complete evaluation using all 4 levels can a manager fully understand the value of training investments.

Evaluations do take planning, time, and money, and it's not necessary to evaluate every training program through all four (or five) levels. A good general rule of thumb might be to evaluate all training for reactions, but only 50% to 70% for learning, 30% for behavior, 10% to 15% for results, and 5% for ROI.<sup>64</sup>

### 5.5. The Bell System Approach

This model was developed by AT&T and the Bell Systems units. It is based on the four-level approach developed by Kirkpatrick:

- *Reaction Outcomes* - What are participants' opinions of the entire training program or specific parts of the program such as content, documentation, methods, or other general training activities?
- *Capability Outcomes* - What are participants supposed to know, think, accomplish, or produce at the conclusion of the training program (evaluated through classroom tests or exams)?
- *Application Outcomes* - What do participants know, think, accomplish, or produce in a workplace setting for which a training program has prepared them?
- *Worth Outcomes* - What is the value of training in relation to its cost? This represents the degree to which an organization benefits from training in terms of the dollars, time, effort, and/or resources invested.

The reaction and capability outcomes levels represent the short-term objectives of a training program. The application and worth outcomes levels represent the organization's long-term goals.

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<sup>63</sup> ROI: *Capturing the Big Picture* (Long, 1999) in Technical Training, p. 31-33.

<sup>64</sup> *ibid.*

## 5.6. Productivity Measurement<sup>65</sup>

The National Research Council defines productivity as the relationship between outputs to inputs used in production. If outputs and inputs are well quantified, this relationship might be defined and compared mathematically, as output divided by input. The goal of training productivity measurement, then, is to determine whether organizations can obtain the same output with fewer training resources, or increase output while holding training resource levels constant. The reasons for evaluating training productivity are to (1) identify potential improvements, (2) determine how to allocate resources, and or (3) to determine how well organizational goals are being met.

## 5.7. Value Added Analysis

Value added analysis measures the dollar value of a job, as well as improvements in performance that can be attributed to training. The cost of training is deducted from its total value to arrive at the value added. This method is not as reliable as others, as it requires subjective estimates, but it is useful in ranking the relative impact of different courses that the organization is considering offering, and prioritizing on the basis of value added.

## 5.8. Discounted Cash Flow

This ROTI model compares the annual savings as a result of the training with the annual outflow of cash required to design and deliver the training program. The expected savings and the outflow of cash is discounted each year by the current interest rate. If the present value of the savings is greater than the present value of the outlays, after discounting at a common interest rate, the training investment is considered to be a wise business strategy. While this method has the benefit of ranking investments, it can be complicated and difficult for the user.

## 5.9. Payback Period<sup>66</sup>

This method is a measurement of the years and months required to pay back the original investment in training. If the revenue/savings generated from a training program are constant each year, the payback period is determined by dividing the total original cash investment by the amount of the expected annual revenue/savings.

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<sup>65</sup> *Evaluating a Performance Support Environment for Knowledge Workers* (Thomas, Baron and Schmidt, 1995) at [http://www.cecer.army.mil/kws/tho\\_know.htm](http://www.cecer.army.mil/kws/tho_know.htm)

<sup>66</sup> *Handbook on Training and Evaluation Methods* (Phillips, 1998) p. 193

## 5.10. Information Economics<sup>67</sup>

Information Economics (IE) is defined as a collection of computational tools that allow rational comparison of benefits and costs of IT projects. It goes beyond cost-benefit analysis by providing an assessment of what the (training) project is worth to an organization, and whether the organization has the resources necessary to complete the (training) project.

IE focuses on value rather than limited concepts of benefit and hard dollar savings; it attempts to quantify intangible benefits and risks of both business and technical issues, e.g., increased knowledge worker productivity, improved communications, and enhanced quality. IE typically suggest six classes of value:

- Enhanced ROI – expanded to include additional methods such as value acceleration, value linking, and value restructuring; includes, e.g., cost avoidance, reductions in operating costs and performance improvements such as improved timeliness, quality and decision-making
- Strategic Match – a measure of how closely aligned the project is to the organizations strategic goals
- Competitive Advantage – estimates of the degree to which the project provides an advantage in the marketplace
- Management Information – reflects the value of the information or improved information to the organization/management; the more essential the information to the functioning of the business, the greater the value
- Competitive Response – estimate of the consequences of not implementing the project/training
- Strategic IS Architecture: assumes that there is some strategic plan for Information Systems in the organization, and is used to measure how the training/project fits into the overall plan in terms of long-term support requirements, disruption to business during the start-up period, and ongoing training requirements

A sample application of IE is found in the tool developed by Oracle Corp. called CB-90 – Cost Benefit for the Nineties. CB-90 breaks the analysis down into three factors: tangible cost/benefit analysis, intangible cost/benefit analysis, and intangible risk analysis.

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<sup>67</sup> *Evaluating a Performance Support Environment for Knowledge Workers* (Thomas, Baron and Schmidt, 1995) at [http://www.cecer.army.mil/kws/tho\\_know.htm](http://www.cecer.army.mil/kws/tho_know.htm)

### 5.11. Results Oriented HRD Model<sup>68</sup>

This model takes into account the total human resource development process, from needs analysis to communicating program results. It is based on an 18-step process, with 11 steps involving some form of evaluation. While the model may seem too complex for small and medium-sized organizations, it can be modified to meet specific needs. The model provides a comprehensive approach to designing, developing, and implementing a human resource development program at all levels. Determining training's contribution in organizational performance is an important part of this process.

### 5.12. Balanced Scorecard<sup>69</sup>

The Balanced Scorecard concept was introduced and expanded by Robert Kaplan and David Norton in three articles published in Harvard Business Review over the period of 1993 - 1996, and a book published in 1996. The BSC is a conceptual framework for translating an organization's vision into a set of performance indicators distributed among four perspectives: Financial, Customer, Internal Business Processes, and Learning and Growth. Through the BSC, an organization monitors both its current performance (finances, customer satisfaction, and business process results) and its efforts to improve processes, motivate and educate employees, and enhance information systems--its ability to learn and improve.

### 5.13. Measuring Intellectual Assets<sup>70</sup>

The following are techniques used to value intangible assets.

1. Relative value: progress, not a quantitative target, is the ultimate goal; e.g., have 80% of employees involved with the customer in some meaningful way.
2. Competency models: by observing and classifying the behaviors of "successful" employees ("competency models") and calculating the market value of their output, it's possible to assign a dollar value to the intellectual capital they create and use in their work.
3. Subsystem performance: sometimes it's relatively easy to quantify success or progress in one intellectual capital component such as patent assets.
4. Benchmarking:<sup>71</sup> involves identifying companies that are recognized leaders in leveraging their intellectual assets, determining how well they score on

<sup>68</sup> *Handbook of Training and Evaluation*, (Phillips, 1998)

<sup>69</sup> Information available at <http://www.balancedscorecard.org/>

<sup>70</sup> *Measuring Intellectual Assets* (Montague Institute, 1998) at <http://www.montague.com/le/le1096.html>



relevant criteria, and then comparing a company's performance against that of the leaders.

5. Business worth: centers on three questions. What would happen if the information/training now in use disappeared altogether? What would happen if the amount of key information/training available was doubled? How does the value of this information/training change after a day, a week, a year? Evaluation focuses on the cost of missing or underutilizing a business opportunity, avoiding or minimizing a threat.
6. Business process auditing: measures how information/training enhances value in a given business process, such as accounting, production, marketing, or ordering.
7. "Knowledge bank:" treats capital spending as an expense (instead of an asset) and treats a portion of salaries (normally 100% expense) as an asset, since it creates future cash flows.
8. Brand equity valuation: methodology that measures the economic impact of a brand (or other intangible asset) on such things as pricing power, distribution reach, ability to launch new products as "line extensions."
9. "Calculated intangible value:" compares a company's return on assets (ROA) with a published average ROA for the industry.

#### **5.14. Impact Comparison of Alternative Investments<sup>72</sup>**

This model is undertaken in two phases: a behavioural audit, and calculations of ROI. The results of the behavioral audit demonstrate the extent to which the trainee is using the skills presented in the training program. If s/he is not using the skills, it would be difficult to demonstrate a return on investment from the training program. The concluding question asks: Is this a good return on training investment? To determine whether it is a good investment alternative, compare the returns generated with corporate return on assets. If the return is greater than the corporate return on assets, it can be concluded that training has been a good investment. If the return is equal to or less than corporate return on assets, there are likely better investment alternatives.

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<sup>71</sup> More specific advice on benchmarking (*Ten Steps of Benchmarking*) is available at [http://www.strategis.ic.gc.ca/sc\\_mangb/strategy/engdoc/tsob.html](http://www.strategis.ic.gc.ca/sc_mangb/strategy/engdoc/tsob.html)

<sup>72</sup> *How to Measure Sales Training Return on Investment* (Goldner, 1997) at <http://salesdoctor.com/longterm/6train5.htm>

## 5.15. ROTI for Knowledge Intensive Industries

The American Army is working on an integrated Performance Support Environment (PSE), an integrated software program called KWS (Knowledge Worker System), designed to improve the performance of Army knowledge workers.<sup>73</sup> It includes a “toolkit” of five evaluation techniques:

1. Work Profile Analysis, the steps of which are to categorize the work, survey the employees, develop a matrix analysis, implement the system under study, resurvey employees, compile a second matrix analysis, and compare the baseline and second matrices to evaluate the impact of the information system.
2. Direct to Indirect Ratio, the steps of which are to track the amount of direct work time, the amount of indirect work time, the ratio of direct vs. indirect work time, and the ratio of direct to total work time to yield an indicator of the system’s effectiveness.
3. Time Saved Times Salary, i.e., gains in efficiency are multiplied by labor cost.
4. Activity Based Costing, attempts to allocate the actual cost of providing a service or product using traditional cost accounting rules for costs related to activities, activities related to resources, unit costs of activities, and unit cost of production (total direct labour cost plus overhead allocation equals total production cost).
5. Quality Assessment, including collection of customer feedback, supervisory feedback and opportunities for self-assessment.

Of these five tools, some are more data or time intensive, more or less expensive. The KWS<sup>74</sup> is intended to, among other things, meet the need for training requirements by providing institutional knowledge on an as-needed, individualized basis.

## 5.16. Concluding Observations

This section has set out a variety of ROTI models and approaches. It is not intended to be all-inclusive or a comprehensive list of every ROI model that could have applicability to training.

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<sup>73</sup> *Evaluating a Performance Support Environment for Knowledge Workers* (Thomas, Baron and Schmidt, 1995) at [http://www.cecer.army.mil/kws/tho\\_know.htm](http://www.cecer.army.mil/kws/tho_know.htm)

<sup>74</sup> KWS Implementation Scoresheet is available at [http://www.cecer.army.mil/kws/tho\\_know.htm](http://www.cecer.army.mil/kws/tho_know.htm)

## 6. Elements of a ROTI Analysis Plan

As stated earlier, ROTI is complex and there are many decisions to be made in determining how and why ROTI principles and practices should be applied in each case.

### 6.1. Timing

For some, conducting ROTI is a one-time-only processes, perhaps to evaluate a particular training program or to compare options and forecast costs to meet a training need.

A second option is to incorporate ROTI into business operations in as an ongoing strategy.

- Some ROTI proponents feel that organizations that are likely to achieve the best ROTI are those that embrace it as a decision-making strategy for reducing risk management.<sup>75</sup>
- Others feel that organizations should incorporate training and systematic ROTI as a human resources development strategy. Appendix D sets out the strategy recommended by the Canadian Labour Force Development Board.
- Some who incorporate ROTI as a business strategy utilize the 360 Assessment<sup>76</sup> Approach to integrate HR systems and demonstrate measurable improvement. An analysis of various 360 Assessment tools reveals that there are a lot of them; and they have different strengths and weaknesses.

### 6.2. Desirable Features

Logic would dictate that, at a minimum, choice of a ROTI analysis plan should ensure that it is:

- utility (practical and useful)
- feasibility (doable)
- ethical (respecting legal and ethical issues)
- accurate (honest and technically sound)
- acceptable (agreed upon by all stakeholders)

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<sup>75</sup> *When Computing ROI, Don't Forget the Intangibles* (Desai, 1998) at [http://www.data.com/business\\_case/roi.html](http://www.data.com/business_case/roi.html)

<sup>76</sup> *360 Assessments* (Morical, 1998) at [http://www.astd.org/CMS/templates/template\\_1.html?articleid=22086](http://www.astd.org/CMS/templates/template_1.html?articleid=22086)

According to the CLFDB,<sup>77</sup> the following are key characteristics of good ROTI processes.

- Cost effective - be cost effective relative to the cost of the training program.
- Timely - does not take a long time to conduct; this is especially an issue for small organizations.
- Adaptable - can be used in a variety of different training programs.
- Simple to Administer - easy to understand and interpret.
- Measures a Variety of Outcomes - addresses a range of quantitative and qualitative performance measures (e.g., productivity and loyalty)
- Flexible - can be used at any point in the training program (e.g., before, during, and /or after training program)
- Variety of Information - uses a variety of information sources; subjective information (soft data) and objective information (hard data).

### **6.3. Choosing a Model**

ROTI models have been developed for different reasons. For example, the objective of vendor-based models is to increase sales; the objective of academically-based models is often for publication and peer view feedback; the objective of organizationally-based models is internal justification.<sup>78</sup> In choosing an ROTI model, the pivotal question is "who needs to know what?"

### **6.4. Data Collection Methods**

As with all research, there are numerous ways to gather data, e.g., surveys, observation, document analysis, one-on-one interviews, focus groups, action planning, performance contracts, performance tracking. In the case of ROTI, a variety of data collection methods will be needed to encompass both tangible and intangible costs and benefits.

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<sup>77</sup> *The Value of Workplace Training to Organizations and a Framework for Determining Return on Training Investments* (Canadian Labour Force Development Board, 1997).

<sup>78</sup> *Cost/Benefit Analysis* at [http://www.strategis.ic.gc.ca/sc\\_indps/itt/newmedia/media2/es3-24.html](http://www.strategis.ic.gc.ca/sc_indps/itt/newmedia/media2/es3-24.html) - HEADING24-0

## 6.5. Isolating Effects of Training

A serious methodological concern is the attribution of impacts to training in an environment where many influences are at play. It is important to tease out extraneous factors or to decide when assessment can go ahead with appropriate caveats. It is necessary to show that results are attributed to training/learning and not other intervening variables. Detailed ways to isolate training's effect on performance are described by Phillips.<sup>79</sup> They include:

- use of control groups
- forecasting
- participant estimations
- supervisor estimation
- management estimation
- customer input
- expert estimation
- subordinate input

According to Phillips, it can be difficult to select the most appropriate one. It's important to consider the following criteria: feasibility, accuracy, credibility, costs, and time—including that of participants, managers, and others. Generally, two approaches are better than one. In using multiple sources, it's recommended to combine the inputs. This conservative approach builds acceptance. The target audience should receive explanations of the approach and the subjective factors.

It should be understood that ROTI figures aren't precise, though every effort is made to isolate training's effect. An ROTI figure represents the best estimate given the conditions, time and resources the organization was will to commit.

## 6.6. Reliability and Validity of Measurements Tools

Again, as with all research, it is essential that the tools be valid and reliable.<sup>80</sup>

- Reliability means that the instrument(s) should produce the same results when used under the same conditions; i.e., they should be consistent.
- Validity means that the instrument(s) should provide data and information that is relevant and accurate. The concept of validity of measurement tools includes content validity, criterion-related validity and construct validity.

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<sup>79</sup> *Was it the Training?* (Phillips, 1998) at

[http://www.astd.org/CMS/templates/template\\_1.html?articleid=11016](http://www.astd.org/CMS/templates/template_1.html?articleid=11016)

<sup>80</sup> Considerable advice on research reliability and validity can be found in *Training and Development Guide* (CCH Canadian, 1995) sections 85424, 86182 - 86184

## 6.7. Converting Data to Monetary Values

Not all data can be converted to monetary values, but true ROTI requires that it be attempted. According to Phillips,<sup>81</sup> there are five steps for converting either hard or soft data to monetary values.

- Step 1: Focus on a single unit.
- Step 2: Determine a value for each unit.
- Step 3: Calculate the change in performance.
- Step 4: Obtain an annual amount.
- Step 5: Determine the annual value.

There are several other ways to convert data to monetary values. Some are appropriate for a specific type of data or data category; others are appropriate for any type of data. Here are some options.<sup>82</sup>

1. Converting output to contribution.
2. Calculating the cost of quality
3. Converting employees' time
4. Using historic costs
5. Using internal and external experts
6. Using data from external studies
7. Using participants' estimates
8. Using supervisors' estimates
9. Using senior managers' estimates
10. Using HR's estimates

## 6.8. Selecting Training Costs and Benefits

From the long lists of potential costs and benefits, the specific costs and benefits for a training endeavor should be clearly stated in advance of the training. Alternatively, using a set ROI model will indicate for which costs and benefits data will be collected and analyzed.

## 6.9. Control Groups

Highly-recommend are experimental-research designs using pre-testing and post-testing of experimentally trained groups with untrained control groups. However, outside an ideal laboratory environment, this approach is not without its challenges; therefore, some recommend quasi-experimental designs based on samples and groups that exist naturally in the work environment. An example would be two similar departments, one that receives training and one that does not. Rather than evaluating performance

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<sup>81</sup> *How Much is Training Worth?* (Phillips, 1998) at [http://www.astd.org/CMS/templates/template\\_1.html?articleid=11019](http://www.astd.org/CMS/templates/template_1.html?articleid=11019)

<sup>82</sup> *How Much is Training Worth?* (Phillips, 1998) at [http://www.astd.org/CMS/templates/template\\_1.html?articleid=11019](http://www.astd.org/CMS/templates/template_1.html?articleid=11019)

differences statistically and presenting those statistics -- which, according to them, few people really understand -- they suggest demonstrating results visually through graphic presentations.

### **6.10. Individual vs. Group Measures**

Typically, evaluation of training or ROTI focuses on the trainee or group of trainees. It isn't logical for a business to conduct ROTI for an individual; however, individuals may choose to conduct ROTI from their unique situation. The measures used, for ROTI in traditional industries, will be the sum of the individuals who make up the training group.

For knowledge workers, however, the workgroup<sup>83</sup> has been identified as the appropriate level at which to measure performance of knowledge workers; individual measurements are not particularly useful since increases in an individual's productivity does not necessarily transfer upward within an organization. An approach to group evaluation is to: (1) select the group involved in the work to be trained/tracked; (2) help this group to select several measures appropriate to the work; (3) help the group clearly define measures, frequency of measurement, and whether benchmarking is appropriate; and (4) document the results.

### **6.11. Common Obstacles**

As stated earlier, there are substantial barriers to be overcome when planning ROTI. Some are attitudinal, others are actual, e.g., the benefits of training may take a long time to become obvious and/or the benefits could be due to other factors. For ROTI analysis to be effective, the barriers have to be identified and addressed at the outset.

### **6.12. Credibility**

When reporting training results, credibility is always an issue. It's crucial that data be accurate and that the conversion process be believable. Phillips<sup>84</sup> provides the following guidelines to raise credibility:

- Take a conservative approach when making estimates and assumptions
- Use the most credible and reliable sources for estimates
- Explain the approaches and assumptions used in the conversion.
- When results appear overstated, consider adjusting the numbers to achieve more realistic values.
- Use hard data whenever possible.

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<sup>83</sup> *Evaluating a Performance Support Environment for Knowledge Workers* (Thomas, Baron and Schmidt, 1995) at [http://www.cecer.army.mil/kws/tho\\_know.htm](http://www.cecer.army.mil/kws/tho_know.htm)

<sup>84</sup> *How Much is Training Worth?* (Phillips, 1998) at [http://www.astd.org/CMS/templates/template\\_1.html?articleid=11019](http://www.astd.org/CMS/templates/template_1.html?articleid=11019)

The conversion approaches assume that the data items can be converted to monetary values. Some results should be presented as intangible benefits.

### **6.13. People Involved**

Situations vary, but there are in all organizations a number of people/roles that could or should be involved in ROTI analysis. This includes individuals involved in all segments of the training and improvement cycle: needs assessment analysts, instructional designers, facilitators, program evaluators, and individuals in leadership and support roles.<sup>85</sup>

Based on the concept of 360° Feedback,<sup>86</sup> multiple sources of information on training / trainee performance should include subordinates, peers, customers, self-ratings, supervisor ratings, vendors and suppliers. This method of data gathering – multi-rater feedback -- may be less vulnerable to bias and therefore more objective.

### **6.14. General Observations**

The following wisdom about cost/benefit ROTI bears consideration.<sup>87</sup>

1. Some courses should/must be offered without expectation of ROTI, e.g., orientation of new employees, retirement planning.
2. Training programs for employees with well-defined and quantified expectations (standards, quotas, goals) are the most appropriate ones for measuring ROTI because measurement systems already exist.
3. For those without well-defined and quantified expectations, the responsibility rests on each participant to generate pre-training and post-training data and to assign dollar values to these.
4. Most ROTI analyses are for comparative studies: comparison between different types of training (on-the-job vs. off-the-job; individualized vs. group, centralized vs. regional); comparison between different types of investment (new hires vs. retraining)
5. A cost-benefit analysis is inappropriate when training is conducted to accompany the installation of new equipment because there are no prior performance measures to compare results, and the impact of installing the new equipment makes it impossible to separate performance attributable to training from performance attributable to the equipment.

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<sup>85</sup> *Measuring Return on Investment* at <http://www.cba.uc.edu/cbainfo/ccmed/retonin.htm>

<sup>86</sup> *What is 360° Feedback* at <http://www.sigmaassessmentssystem.com/360what.htm>

<sup>87</sup> *Measuring Training's ROI* (Parry, 1996) in *Training and Development* (May, 1996) p. 72-77.



6. Costs should be calculated over the shelf-life of a training program; however, it is difficult to know how many times it will be run before no longer being needed.
7. The benefits of training should extend well beyond the final offering. The payback period can typically be projected one to five years.
8. Although training costs can be calculated by HR managers, the benefits should be identified, quantified and converted to dollar values by management because they are in the best position to observe changes in performance attributable to training, and their data is more objective.
9. Generally speaking, training works better in the workplace than in the classroom; in partnership rather than self-directed; linked to a specific application such as new technology; in a state of employment; and for those already possessing sound basic education and skills.<sup>88</sup>

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<sup>88</sup> *Lifelong Learning: A Summary of Recent Research* (Ekos Research, 1997)

## 7. ROTI Tools and Resources

### 7.1. ROTI Tools Available On-line

#### 7.1.1. PETSROI for EPSS<sup>89</sup>

Performance, Education and Training Supports Return on Investment (PETSROI) for Electronic Performance Support Systems (EPSS) is a web-based system comprised of five down-loadable spreadsheets to be used at various stages of EPSS planning, development and implementation. It includes:

- Initial Benefits Worksheet
- Continuing Benefits Worksheet
- Quality Benefits Worksheet
- Other Benefits Worksheet
- ROI Calculation Worksheet

#### 7.1.2. On-line product-specific calculators

- **ROI Estimator from VUEpoint<sup>90</sup>** is an on-line, interactive tool for ROTI has been developed by VUEpoint Inc. based on industry averages and real-world practices. A calculation comparing in-house training and external training over 3 years results on the basis of number of trainees, number of course per year, course length, number of trainees per session, employee wages per hour, instructor costs per hour, classroom costs per day, course development per hour for a total cost.
- The Construction Safety Training System (CSTS), which is computer-based safety training program, helps clients to estimate of how much money could be saved by using CSTS with an on-line ROI Calculator.<sup>91</sup>
- On-line ROI analysis tools, from Employee Performance Solutions:<sup>92</sup>
  - The Profile relating to reduction in turnover costs.
  - The Profile relating to an increase in productivity.
  - The Performance Indicator (PPI) relating to an increase in productivity.
  - The Profile & Performance Indicator relating to increases in productivity.
  - The Step On Survey relating to turnover costs.
  - The Customer Service Survey relating to reduction in training costs.
  - The Call Center Survey relating to reduction in training costs.
  - The Sales Indicator relating to reduction of sales staff.

<sup>89</sup> Available at <http://itech1.coe.uga.edu/Faculty/gustafson/document/ROIforEPSS.html>

<sup>90</sup> Available at [http://www.vuepoint.com/file1\\_42\\_51.asp](http://www.vuepoint.com/file1_42_51.asp)

<sup>91</sup> <http://www.safetdisc.com/roicalculator/index.htm>

<sup>92</sup> [http://www.personnelinsights.com/available\\_roi\\_analysis.htm](http://www.personnelinsights.com/available_roi_analysis.htm)

### 7.1.3. Tools Available from On-line Sources

- An entire bank of tools for measuring training effectiveness, based on the Kirkpatrick Evaluation Model, is available on-line from Pepperdine University.<sup>93</sup>
- Tools for analyzing training needs, designing and evaluating training, and coaching application of training are available from Training Competency Architecture.<sup>94</sup>
- Tools to assess the knowledge and skills of employees are available on-line from examTools.<sup>95</sup> Employees take the exams on their own computers and the scores are tracked. The firm claims that the employer benefits by:
  - holding employees accountable for the skills and knowledge they acquire from training;
  - receiving an immediate return on training investment;
  - knowing what employees know before they are trained;
  - maintaining a history of employee training success; and
  - measuring the effectiveness of training.
- A worksheet, developed by IBM, is available specifically for undertaking and evaluating cost/benefit analysis for New Media Learning Materials.<sup>96</sup>

### 7.2. ROTI Resources

Many, many texts are available on the topic of return on investment in general, and cost-benefit analysis in the service sector in particular. One that is highly recommended is *Return on Investment in Training and Performance Improvement Programs* by Jack Phillips (1997). In addition, extensive ROTI advice is available on-line:

- from Fastrak Consulting in the UK at <http://www.fastrak-consulting.co.uk/tactix/Features/tngroi/tngroi.html>
- from School for Champions in the US at <http://www.school-for-champions.com/training/roiworkers.htm>
- from the American Society for Training and Development at [http://www.astd.org/virtual\\_community/research/What\\_Works/e-learning/](http://www.astd.org/virtual_community/research/What_Works/e-learning/)

<sup>93</sup> At [hale.pepperdine.edu/~cscunha/Pages/INDEX.HTM](http://hale.pepperdine.edu/~cscunha/Pages/INDEX.HTM)

<sup>94</sup> At [ww.ostd.ca/indexpt.htm](http://ww.ostd.ca/indexpt.htm)

<sup>95</sup> At <http://www.examtools.com/>

<sup>96</sup> *Undertaking and Evaluating Cost/Benefit Analysis* at [http://www.strategis.ic.gc.ca/sc\\_indps/itt/newmedia/media2/es3-34.html](http://www.strategis.ic.gc.ca/sc_indps/itt/newmedia/media2/es3-34.html) - HEADING34-0

## 8. ROTI Research

### 8.1. What is a good ROI?

What is a good ROI? There are many different answers, and only you can know what is right for your situation.<sup>97</sup> Achieving a minimum of 25% is a good goal, but some companies think that as long as they break even, it was still worth it. One can sometimes see significantly higher scores, even 100% or more, but these mainly occur with management training, because one is tracking the manager's influence on his whole team instead of just one person.

All dollar amounts aside, the most important considerations are: Was the training relevant to defined needs? Did it achieve its goal? Was the budget kept to a reasonable level? Did workers meet their performance objectives? Are they using what they learned? Is it making a difference in the way the business runs? If the answer is, "Yes," to these questions, training was probably well worth the investment.

### 8.2. Best practices in ROTI

The following examples of good ROTI practice have been identified by the Public Service Commission of Canada.<sup>98</sup>

- The RCMP organizational development program links assessment to performance, organizational competencies, and to core values rather than to training.
- At Xerox, assessment is linked to competency standards that employees can upgrade, thus building in self-directed competency improvement.
- At Motorola, assessment focuses on transfer of knowledge and skills to the job.
- Return-on-investment assessment was carried out at Ernst and Young based on participants' estimates of returns and benefits attributed to learning.
- For Imperial Oil, assessment is linked tightly to the company's strategic focus through competency gap analysis.
- The Bank of Montreal's Learning Institute links level 3 assessment to learning action plans and invests in extensive assessment of innovative learning events.

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<sup>97</sup> *Raise Your Training ROI* (Chase, 1997) at

<http://qualitymag.com/articles/1997/sep97/0997f3.html>

<sup>98</sup> *From Training Evaluation to Outcome Assessment: What Trends and Best Practices Tell Us* (Public Service Commission, 1997) at <http://resapp.gc.ca/rescentr/fulltx/outpap.htm>

- Treasury Board is working with all federal government departments to improve results measurement and accountability. Departments will be required to provide evidence of results that is clear, measurable and outcome-oriented.

### 8.3. Specific ROTI findings

The following are a sample of specific ROTI findings to give a flavor of what processes and results industry is finding.

- Nabisco ran an ROI analysis on a 2-day planning and selling program. They tracked on the results of training over a ten year period based on participant satisfaction; learning how training improved attitude, knowledge and skills; and how the training was transferred to the field. The results concluded that there was a \$20 increase in corporate profits for every dollar invested in training; and there was a \$122 increase in sales for every dollar invested in training. They concluded that there is a strong correlation between strong management support and sales training to improve the bottom line results for Nabisco.<sup>99</sup>
- Unitel reduced monthly turnover by 50% from 12% to 6% by providing a training program. They reported that it improved employee retention and overall morale.<sup>100</sup>
- The maximum return on self-study products is directly related to the number of times it is used.<sup>101</sup>
- Project EXCEL -- a workplace literacy project involving four small business enterprises in San Francisco -- reported the following accomplishments or "returns":
  - improved opportunities for worker advancement
  - increased use of English on the job
  - improved worker productivity
  - improved worker-manager relations and greater sensitivity by management to communication issues multicultural workplaces
  - worker's increased interest and ability related to pursuing further literacy education
  - development of a viable workplace literacy model for limited -English-proficient (LEP) workers
  - development and dissemination of a modular curriculum for LEP workers in the apparel, communications and food services industries
  - continued interest in and support for workplace literacy by the San Francisco business community

<sup>99</sup> Reported in *The Tangible Return on Investment for Sales Training* at [http://www.letstalkselling.com/html/tangible\\_roi.html](http://www.letstalkselling.com/html/tangible_roi.html)

<sup>100</sup> Reported in *The Intangible Return on Investment for Sales Training* at [http://www.letstalkselling.com/html/intangible\\_roi.html](http://www.letstalkselling.com/html/intangible_roi.html)

<sup>101</sup> *Maximizing Your Return on Investment* at <http://www.videoed.com/etroi2.html>

- In collaboration with the American Society for Training and Development (ASTD), the Conference Board of Canada studied investments in training in firms of various sizes through North America.<sup>102</sup> The report attempted to link training to “respondents’ rating of organizational performance” in five categories: ability to retain essential employees, employee satisfaction, quality of products/services, customer satisfaction, and overall profitability. The measure was informed opinion, rather than actual measurements, i.e., respondents were asked to rate a change in organizational performance over the past year on the basis of “better, no change, or worse.” In a general sense, then, the study concluded that training:
  - had little effect on the ability to retain essential employees;
  - either improved or had little effect on employee satisfaction;
  - improved product quality significantly;
  - improved customer satisfaction to a degree; and
  - greatly improved overall profitability.
- In the US, the National Employer Leadership Council conducted a cost-benefit analysis on school-to-work investment for students and employers.<sup>103</sup>

Benefits were quantified as follows.

- Productivity of students: the hourly wage that would have been paid to any employee or contractor who would have completed the work (full wage rather than students’ wage because student wages are counted as costs)
- Reduced recruitment costs: the difference in recruiting costs between hiring graduates of a school-to-work program and hiring employees for the same position from other sources
- Reduced training and supervision costs: the total training and supervision costs associated with newly-hired employees, less these same costs for new employees who had participated in a school-to-work program
- Higher productivity of school-to-work program graduates: retention rates (multiplying the difference in retentions rates by the average cost of turnover); promotion rates (comparison of promotion track records), and qualitative data (interviews with managers who compared the productivity of school-to-work graduates and other employees)

Costs were quantified as follows:

- Startup program development: fixed costs for developing a curriculum and physical infrastructure as well as employee time for planning and organizing the school-to-work program
- Ongoing program administration: a fixed cost allocated to employee time

<sup>102</sup> *Training and Development Outlook* (1999). Ottawa: Conference Board of Canada.

<sup>103</sup> *Intuitions Confirmed: The Bottom-line on School-to-Work Investment for Students and Employers* at [http://www.nelc.org/whatsnew/roi\\_stuff/](http://www.nelc.org/whatsnew/roi_stuff/)

- Recruitment of students: direct costs of school visits or publicity and indirect costs of expenses associated with job shadowing; calculated as number of employees times number of hours spent with students times employees' hourly compensation (wages and benefits)
- Student wages: calculated as the number of hours employees spend working with students times employees' hourly compensation (wages and benefits) plus costs of materials and instruction for classroom training
- Training and supervision: calculated as the number of hours students worked times students' hourly compensation (wages and benefits, if any)
- Materials: the cost for materials used expressly for student training by students or employees

The returns were described in terms of higher academic achievement; better college preparation; reduced training and supervision; increased retention; increased hires; better attendance; reduced recruitment costs; reduced turnover; higher productivity; and benefits – costs ratio.

- In Canada, the HJ Heinz Company provided training to staff in response to increased competition and the need for new technologies.<sup>104</sup> The training costs totaled \$869,000 for an external consultant and technical training specialist, and training in quality control, production and equipment maintenance. With employee training time considered, the shift reductions resulting from the new equipment is estimated to pay for the training in about 20 months. This return relates to labour savings only, and does not account for reduced costs due to fewer damaged containers, reduced absenteeism and improved worker confidence and morale.
- The Franklin Covey Corporation has assessed the return on investment in time management training, using their Time Quest Training, for 40 companies and 896 individuals.<sup>105</sup> It assessed behaviours performed regularly reported before and after the seminar, behaviours performed regularly 21-45 days after the seminar, and ways that training affected participants on the road. The reported return on investment included an average self-reported hours saved per employee per week, an average dollar amount saved per employee per year, and an average percentage of return on investment per 22 people trained of 809%.

<sup>104</sup> *Return on Training Investment* (Guelph Food Technology Centre, 1996) at <http://www.gftc.ca/newslett/96-10/invest.htm>

<sup>105</sup> *Impact of Time Management Training* at <http://www.franklincovey.com/organizational/results/impacttq.htm>

- In a study of ROI for training in Canada's food retail and wholesale sector, the Canadian Labour and Business Centre<sup>106</sup> concluded that:
  - there is very little published data concerning training's business performance impacts/ROI at the company level in the sector;
  - that which exists tends to be positive.
- Acme Incorporated used CD-ROM technology to train its field service engineers throughout the US with the objective of increasing customer satisfaction and sales.<sup>107</sup> The ROI relevant data included:
  - lifespan of the course – 3 years
  - total number of learners – 800
  - total learning time – 14 hours
  - burdened compensation for instructor -- \$78,000 with benefits (\$340/day)
  - burdened compensation for trainees -- \$164/learner
  - costs to create the courseware and train the trainer (?)
  - delivery costs, including travel, overhead, equipment and materials for an instructor-led workshop

The ROI analysis revealed a return of 129% by implementing the technology-based training.

- Bell Atlantic<sup>108</sup> used a product-knowledge training program to compare self-paced, computer-based training and multimedia training effectiveness on performance and sales. A control group was used to isolate training effects. Pre- and post-surveys were administered to participants. ROI was performed on the three forms of training interventions:
  - paper-based training ROI = -100%
  - CBT ROI = 1592.3%
  - multimedia ROI = 2059.8%

<sup>106</sup> *Training, the "Bottom-Line" and Canada's Food Retail and Wholesale Sector* (Falconer, 2001). Ottawa: Canadian Labour and Business Centre.

<sup>107</sup> Evaluating the Effectiveness and the Return on Investment of E-learning, Case Study 5b (Kruse and Keil, 2000) available at [http://www.astd.org/virtual\\_community/research/What\\_Works/e-learning/studies\\_5.html](http://www.astd.org/virtual_community/research/What_Works/e-learning/studies_5.html)

<sup>108</sup> Evaluating the Effectiveness and the Return on Investment of E-learning, Case Study 7a (Hodges, 2000) available at [http://www.astd.org/virtual\\_community/research/What\\_Works/e-learning/studies\\_7.html](http://www.astd.org/virtual_community/research/What_Works/e-learning/studies_7.html)



## 8.4. Emerging Practices

### 8.4.1. In Evaluation of Training

Increasingly, assessment or training evaluation is viewed as a tool to assist management in its decision-making and in monitoring the implementation of change. The following analysis has been provided by the Public Service Commission of Canada.<sup>109</sup>

Current Assessment Practices	Emerging Assessment Practices	Future Assessment Practices
largely assessment of reactions and some learning	assessment of performance on the job and impact on business	assessment of competency for future organizational needs
main beneficiaries of information are training departments	main beneficiaries of information are managers and those charged with directing business, although all employees also have interests	benefits of information should be diffused throughout organization
linked to training course objectives	linked to business plan	linked to anticipated future needs
focused on prescribed needs	focused on performance and business line	focused on competencies that permit organizational adaptation and change
process-oriented	results-oriented	future-oriented application
driver: quality control for training	driver: improvement of business results	driver: anticipating future competencies / requirements

Assessment of training is increasingly associated with organizational objectives, standards for training and performance, and competency profiles.

### 8.4.2. In Training

On the one hand, new types of training are being developed. For example, EPSS – Electronic Performance Support System -- is replacing traditional training in many settings.<sup>110</sup> EPSS is intended to be just-in-time, just-enough, on-demand performance support; a means to increase performance while decreasing training costs. EPSS, sometimes called integrated performance systems, aid the user in his/her performance of a work task or set of tasks and enhance learning through interactive, multi-sensory, multimedia environments. The learner receives immediate feedback on performance,

<sup>109</sup> *From Training Evaluation to Outcome Assessment: What Trends and Best Practices Tell Us* (Public Service Commission, 1997) at <http://resapp.gc.ca/>

<sup>110</sup> *Return on Investment for Electronic Performance Support Systems: A Web-Based System* at <http://itech1.coe.uga.edu/Faculty/gustafson/document/ROIforEPSS.html>

training is distributed over time and is provided in the work environment. EPSS costs are incurred primarily during initial development, and delivery costs are lower than for traditional training but more difficult to track.

On the other hand, one of the means by which to improve ROI for training is to improve the training itself. Appendix E contains ideas from the literature for improving ROTI.

### 8.4.3. ROTI for Knowledge-Intensive Industries

There is a growing body of literature about "knowledge workers" and how measuring productivity is different from traditional production workers. In the new jargon, knowledge workers are "human capital assets" and training is a "human capital investment." More precisely, human capital, or intellectual capital, is defined as the knowledge and skills resident in individual humans and used to produce goods, services or ideas in market and non-market circumstances.<sup>111</sup>

Thinking and invention are the assets upon which knowledge work and knowledge companies depend. Although the importance of human capital is recognized, most businesses don't manage it as an asset.<sup>112</sup> One reason is that they have a hard time distinguishing between the cost of paying people and the value of investing in them; another is that compensation systems and governance structures fail to recognize who owns intellectual assets.

Human capital grows in two ways: when the organization uses more of what people know and when more people know more that is useful to the organization. Therefore, investing in training is investing in human capital assets. The difficulty, it appears, is to measure the productivity of knowledge workers and, hence, to measure changes in productivity that may be due to training. The emerging paradox is that, when individuals are able to increase their intellectual assets through training and capture for themselves almost all the value of their human capital, they often leave the firm to become independent contractors.

Human capital investment is a growing concern of the Organization for Economic Cooperation and Development (OECD).<sup>113</sup>

- An OECD analysis estimated that secondary education had contributed an annual 0.6% to productivity growth in OECD countries between 1960 and 1985; however the evidence of additional economic out-put attributable to education/training has to be set against the cost of the investment.
- The World Bank has used cost-benefit analysis to calculate a "social" rate of return to university education of well over 10% a year between 1960 and 1995 in the OECD countries.

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<sup>111</sup> *Measuring What People Know: Human Capital Accounting for the Knowledge Economy* (Miller, 1997) -- an OECD publication.

<sup>112</sup> *Brain Power: Who Owns It...How They Profit From It.* (Stewart, 1997) in Fortune Magazine at <http://www.fortune.com/1997/970317/cap.html>

<sup>113</sup> *Counting Human Capital* (Healy, 1998) in the OECD Observer at <http://www.oecd.org/>

They conclude that investment in human capital yields large payoffs but rates of return of investment in human capital are generally measured in a very restrictive way, by comparing the additional earnings from employment of better-educated individuals to the additional social cost of investing in more education/training. Discovering what types of investment in human capital give the biggest returns is also a pressing concern. The OECD states that "priority now has to be given to the development of more direct measures of different types of skills and the role of learning in the workplace, as well as the measurement of the social and economic impact of human capital investment in sustaining development and reducing inequality."<sup>114</sup>

A 1998 OECD report<sup>115</sup> drew the following conclusions.

- Enterprise-based training can produce gains to both individuals and firms, but they are difficult to measure.
- Dispersed evidence indicates that training does improve productivity, with about half the gain distributed in wages.
- The impact is greatest with change in work structures.

Understanding the costs and benefits of training knowledge workers will be an unavoidable challenge as more knowledge-intensive industries develop and as traditional industries decline.

### 8.5. ROTI for “e-learning”

The most recent addition to the training community is “e-learning” through the use of Information and Communications Technologies (ICT) – computers and the Internet. A wide variety of e-learning products and services are suddenly available, with more every day. Many providers of e-learning present the argument that there is greater ROTI for e-learning versus face-to-face or traditional training practices. For example:

- *Information Week* surveyed more than 300 Information Technology executives and found that, while conventional classroom instruction costs about \$75 per hour, computer-based training costs about half that amount. Because employees don't have to take time to travel, corporations see distance learning, or desk-top learning, as a time- and money-saver.<sup>116</sup>
- Eight e-learning ROI case studies are presented by DigitalThink on their website.<sup>117</sup> The firms using e-learning to advantage include 3COM, Charles Schwab, iPlanet, redhat, Seagate, and Sun Microsystems and others.

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<sup>114</sup> *Counting Human Capital* (Healy, 1998) in the OECD Observer at <http://www.oecd.org/>

<sup>115</sup> *Human Capital Investment: An International Comparison*. (Centre for Educational Research and Innovation, OECD, 1998).

<sup>116</sup> *Distance Learning Money Issues* (Hirst, 2000) at <http://www.about.com/>

<sup>117</sup> At <http://www.digitalthink.com/clientpartner/clients/casestudies/>

More objective assessments of e-learning warn that, for example, the one-time savings in travel aren't worth much if the online learning doesn't lead to ongoing, measurable business benefits.

An overview of e-learning evaluations and research, conducted by Jack Phillips and the ASTD,<sup>118</sup> concluded:

- Most of the current evaluation at the business impact or ROI level has been driven by clients of e-learning, i.e., those who are funding the project.
- Available evidence suggests that conventional training yields more favorable responses than e-learning solutions. (Level 1, Kirkpatrick)
- E-learning is as effective as conventional training. Recipients of conventional training express more satisfaction (Level 1, Kirkpatrick), but the learning outcomes are not different from participants in e-learning programs (Level 2).
- The same evaluation strategies (Levels 1-5) can be applied to e-learning programs.
- ROI studies indicate a positive return for companies implementing e-learning programs. Most studies show a positive return based on cost reduction alone, but there is a need to also analyze the benefits.
- Building evaluation into the computerized training process can save time as well as money.

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<sup>118</sup> *Evaluating the Effectiveness and the Return on Investment of E-learning.* (Phillips, Phillips, and Zuniga; 2000) available at [http://www.astd.org/virtual\\_community/research/What\\_Works/e-learning/e-learning\\_main.html](http://www.astd.org/virtual_community/research/What_Works/e-learning/e-learning_main.html)

## 9. Synthesis

The mention of return on training investment or ROI can cause anxiety and frustration. From this limited environmental scan, it is clear that the concept is complex. The Consumer's Guide to Return on Training Investment is based on the following synthesis.

### 9.1. The Purpose of ROTI

In summary, ROTI analysis can be used to:

- demonstrate that training can be an investment rather than an expenditure
- make informed choices between training options
- encourage employers and employees to take training more seriously
- compare the cost of training to other investment options, e.g., new equipment
- compare the cost of training/retraining to new hires
- justify and expand HR budgets
- contain and/or maximize training budgets
- make training course objectives and content more relevant
- focus training on behavioural and/or organizational change
- refine and revise, or eliminate, weak training programs
- improve the financial worth of human capital assets
- attract attention to a particular problems, e.g., with productivity
- market the value of particular training products and services
- promote the importance of evaluation
- project future training costs
- improve the efficiency of resource utilization
- hold employees accountable for the skills and knowledge acquired from training;
- maintain a history of employee training success
- documenting positive change in individual or organizational performance
- encourage transfer of training
- measure the effectiveness of training.
- demonstrate accountability for training expenditures and policies

## 9.2. Setting the Stage for ROTI

### **Step one: Clearly identify the training course or program that is to be studied.**

The ROTI data to be gathered, and the process for doing so, will relate to the nature of the training which may be, e.g.,:

- self-study or instructor-led
- on-the-job or in a traditional classroom setting
- on-site or distance delivered
- individualized or group-oriented
- mandatory or voluntary for the individual
- short-term or long-term
- once-off or on-going
- hard skills or soft skills
- necessary or optional for business success

**Step two: Clearly identify or describe the training outcomes.** The description of benefits or training returns will relate to the nature of the outcomes which may be, e.g.,:

- different for each stakeholder group, e.g., employer, employees, communities
- long-term and/or short-term
- planned (intended) and/or unplanned (unintended)
- positive and/or negative
- tangible (quantifiable) and/or intangible (qualitative)
- for individuals or for groups

Typical training benefits may fall into four categories:

- time savings (less time needed to reach proficiency, less supervision needed, etc.)
- better quantity (faster work rate, less down time, not having to wait for help)
- better quality (fewer rejects, lost sales, reduced accidents, lower legal costs)
- personnel data (less absenteeism, fewer medical claims, reduced grievances)

The benefits of training should extend well beyond the final offering. The payback period can typically be projected one to five years.

### **Step three: Decide which costs and returns will be included in the ROTI study.** All

costs must be included, but returns will be unique to each training program or course.

Costs and returns will be divided into three types:

- one time only (e.g., needs analysis and course design)?
- per offering (e.g., facilities rental, consulting fees)?
- per participant (e.g., meals, materials)?

Some models will dictate which costs and benefits you will measure.

**Step four: Choose a ROTI model.** ROTI models have been developed for different reasons. The objective of vendor-based models is to increase sales; the objective of academically-based models is often for publication and peer view feedback; the objective of organizationally-based models is internal justification. In choosing an ROTI model, the pivotal question is "who needs to know what?" Some common ROTI models include:

- the Kirkpatrick evaluation model
- training utility formula
- Bell System Approach
- productivity measurement
- value added analysis
- payback period analysis
- Information Economics
- Balanced Scorecard
- measuring intellectual assets
- investment impact comparison

**Step five: Determine the data to be gathered and the means of doing so.** A variety of data collection methods will be needed to encompass both tangible and intangible costs and benefits. There may be existing data to use (e.g., productivity measures or industry benchmarks) or new data may be required (e.g., employee estimates and opinions). New data may be gathered by, e.g.,

- analysis of documents and records (e.g., number of accidents, grievances)
- opinion surveys of individuals or focus groups
- observation
- one-on-one interviews
- performance tracking

**Step six: Isolate the training returns or effects.** It is necessary to show that results are attributed to training/learning and not other intervening variables. Some methods are:

- use of control groups
- forecasting
- participant estimations
- customer input
- supervisor or management estimation
- expert estimation
- subordinate input

Generally, two approaches are better than one. It should be understood that ROTI figures aren't precise, though every effort should be made to isolate training's effect.

**Step seven: Convert costs and returns to monetary values.** Not all data can be converted to monetary values, but true ROTI requires that it be attempted. There are five steps for converting either hard or soft data to monetary values.

Item 1: Focus on a single unit, e.g., sales, product defects, employee turnover.

Item 2: Determine a value for each unit, e.g., cost per item.

Item 3: Calculate the change in performance attributable to training.

Item 4: Obtain an annual amount.

Item 5: Determine the annual value of improvement: the annual performance change multiplied by the unit value. ROTI then equals the net annual value of improvement less the program cost.

Other ways to convert data to monetary values include, e.g.,:

- calculating the cost of quality
- converting employees' time
- using internal and external experts
- using historic costs
- using data from external studies
- using participants' estimates
- using managers' estimates

Some ROI specialists speak of "reasonable evidence" in an ROI calculation – converting Return on Expectations to numerical value by quantifying opinion survey results and translating that to monetary values.

Some results -- changes in values, ethics, attitudes, specialized knowledge -- should be presented as intangible benefits.

**Remember: Start thinking ROTI before you need to.** ROTI is easiest when training has been designed and delivered with:

- an early focus on the client through, e.g., interviews, observations, surveys and participatory design and development methods
- one management team for analysis, design, development, implementation and evaluation
- an empirical design, i.e., based on observation, measurement of behaviour, careful evaluation of feedback, and a strong motivation to make design changes when needed
- continuous improvement through a repetition of processes (implementation, testing, feedback, evaluation, and change) throughout the training system's life.
- records, i.e., a complete audit trail.



### **9.3. Elements of a ROTI Plan**

#### **9.3.1. Timing**

For some, conducting ROTI is a one-time-only processes, perhaps to evaluate a particular training program or to compare options to meet a training need. For others, ROTI is incorporated into business operations as an ongoing strategy for, e.g., risk management or effective human resources management.

#### **9.3.2. Cost**

The ROTI process will add costs and time to the evaluation of programs, although a comprehensive ROTI process should not cost more than 4-5 percent of the overall training and HRD budget. Training Magazine reports that one major firm usually spends about \$5000 for and ROI impact study.

#### **9.3.3. Planning**

A successful ROTI implementation requires much planning and a disciplined approach to keep the process on track. Implementation schedules, evaluation targets, ROTI analysis plans, measurement and evaluation policies, and follow-up schedules are required.

#### **9.3.4. Reliability and Validity**

Attention needs to be paid to the quality of the measurement instruments. They must provide information that is valid and reliable. Reliability means that the instrument(s) should produce the same results when used under the same conditions; i.e., they should be consistent. Validity means that the instrument(s) should provide data and information that is relevant and accurate.

#### **9.3.5. Credibility**

When reporting training results, credibility is always an issue. It's crucial that data be accurate and that the conversion process be believable.

- Take a conservative approach when making estimates and assumptions
- Use the most credible and reliable sources for estimates
- Explain the approaches and assumptions used in the conversion.
- When results appear overstated, consider adjusting the numbers to achieve more realistic values.
- Use hard data whenever possible.

#### 9.4. Challenges to Consider

For ROTI analysis to be effective, the barriers have to be identified and addressed at the outset. Some are attitudinal, others are actual, e.g., the benefits of training may take a long time to become obvious and/or the benefits could be due to other factors. Some other **negative perceptions** -- that can be overcome -- are the following.

- *The costs of training are known and expressed in dollars, but the benefits may be soft, subjective and difficult to quantify for conversion to dollars.*
- *It is difficult enough to get managers to send people for training without imposing additional requirements to collect data to document impact.*
- *Costs are known up front, before training, but benefits may accrue over time; and it's difficult to determine when to assess the impacts or benefits.*
- *Most trainers lack the time and accounting skills to do cost/benefit analysis.*
- *Requests for impact data may disrupt productivity.*
- *Many of the most popular training programs will be operated even if costs exceed benefits, so conducting ROTI may be a waste of time.*
- *The outcomes of ROTI could be damaging to the HR staff and to budget support from top managers, so it may be better not to know.*
- *It is difficult to attribute a person's behaviour to any particular reason, much less to a specific training event.*
- *The very act of collecting data on the dollar value of performance will tend to bias information that is elicited, making it hard to present an accurate picture.*
- *Course evaluations are viewed as inconsequential by some and assessment of impact as too time-consuming and costly.*

Some training programs have been implemented for the wrong reasons (such as an effort to chase a popular fad or trend in the industry). A ROTI calculation for an unnecessary program will likely yield a negative value. Training won't help if the problem isn't lack of worker knowledge and skills.

## 9.5. Costs and Returns Checklists

TRAINING INVESTMENT	TRAINING RETURNS
<ul style="list-style-type: none"> <li>• <b>Direct Training Costs for Employers</b></li> <li><input type="checkbox"/> cost of needs analysis/surveys</li> <li><input type="checkbox"/> course design, development, or purchase</li> <li><input type="checkbox"/> salary of instructor and/or consultant</li> <li><input type="checkbox"/> salary of staff while on training</li> <li><input type="checkbox"/> offsite travel, lodging, and meals</li> <li><input type="checkbox"/> facilities rented or allocated</li> <li><input type="checkbox"/> equipment and hardware</li> <li><input type="checkbox"/> instructional and testing materials</li> <li><input type="checkbox"/> course/training evaluation</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Tangible Training Benefits</b></li> <li><input type="checkbox"/> improved overall productivity</li> <li><input type="checkbox"/> improved overall quality</li> <li><input type="checkbox"/> improved competitiveness</li> <li><input type="checkbox"/> improved profitability</li> <li><input type="checkbox"/> improved understanding of markets</li> <li><input type="checkbox"/> broadening the range of workers' tasks</li> <li><input type="checkbox"/> meeting jobs' changing skill requirements</li> <li><input type="checkbox"/> orientation of new employees</li> <li><input type="checkbox"/> meeting a shortage of qualified labour</li> <li><input type="checkbox"/> improved output per employee</li> <li><input type="checkbox"/> reduced waste or scrap</li> <li><input type="checkbox"/> improved customer satisfaction</li> <li><input type="checkbox"/> improved safety record</li> <li><input type="checkbox"/> increased sales</li> <li><input type="checkbox"/> compliance with regulations</li> <li><input type="checkbox"/> reduced employee absenteeism</li> <li><input type="checkbox"/> reduced employee tardiness</li> <li><input type="checkbox"/> reduced employee use of dispensary</li> <li><input type="checkbox"/> reduced safety-rule violations</li> <li><input type="checkbox"/> reduced employee grievances</li> <li><input type="checkbox"/> fewer strikes</li> <li><input type="checkbox"/> reduced employee turnover</li> <li><input type="checkbox"/> reduced discrimination charges</li> <li><input type="checkbox"/> increased number of promotions</li> <li><input type="checkbox"/> increased number of pay increases</li> <li><input type="checkbox"/> increased number of training programs</li> <li><input type="checkbox"/> number of requests for transfer</li> <li><input type="checkbox"/> improved performance-appraisal ratings</li> <li><input type="checkbox"/> implementation of new ideas</li> <li><input type="checkbox"/> reduced legal costs</li> <li><input type="checkbox"/> reduced insurance costs</li> <li><input type="checkbox"/> successful completion of projects</li> <li><input type="checkbox"/> number of employee suggestions</li> <li><input type="checkbox"/> frequency of goal setting</li> <li><input type="checkbox"/> reduced supervision</li> <li><input type="checkbox"/> reduced help from co-workers</li> <li><input type="checkbox"/> reduced calls to help line</li> <li><input type="checkbox"/> reduced downtime</li> <li><input type="checkbox"/> worker hours saved</li> <li><input type="checkbox"/> reduced time to perform operations</li> <li><input type="checkbox"/> reduced overtime</li> <li><input type="checkbox"/> fewer mistakes</li> <li><input type="checkbox"/> fewer employees needed</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Direct Training Costs for Individuals</b></li> <li><input type="checkbox"/> tuition</li> <li><input type="checkbox"/> childcare</li> <li><input type="checkbox"/> books and materials</li> <li><input type="checkbox"/> equipment, e.g., computer</li> <li><input type="checkbox"/> travel / parking</li> <li><input type="checkbox"/> special fees, e.g., library</li> <li><input type="checkbox"/> loss of income</li> </ul>	

TRAINING INVESTMENT	TRAINING RETURNS
<ul style="list-style-type: none"> <li>● <b>Intangible Training Costs</b></li> <li>___ loss of productivity while trainees are attending training</li> <li>___ other employee time related to training, e.g., manager time helping to apply training</li> <li>___ missed opportunity cost</li> <li>___ induction costs</li> <li>___ cost of replacing the employee while s/he is attending the course</li> <li>___ maintenance costs, e.g., mail, transport, refreshments, record keeping, stationery, accommodation</li> <li>___ higher wastage rates until the trainee is fully proficient</li> <li>___ recruitment of training staff or selection of training package</li> <li>___ the risk that a more highly trained employee may then obtain another job</li> </ul>	<ul style="list-style-type: none"> <li>● <b>Intangible Training Benefits</b></li> <li>___ improved understanding of new technologies</li> <li>___ remediating workers' inadequate pre-employment preparation</li> <li>___ improved employee morale</li> <li>___ greater co-operation among employees</li> <li>___ better management-employee relations</li> <li>___ better employee understanding of the organization</li> <li>___ greater employee flexibility</li> <li>___ greater employee loyalty</li> <li>___ improved employee work ethic</li> <li>___ less employee stress</li> <li>___ improved employee motivation</li> <li>___ increased employee self-confidence</li> <li>___ improved employee perceptions of job responsibilities</li> <li>___ improved decisions made</li> <li>___ more problems solved</li> <li>___ conflicts avoided</li> <li>___ greater employee job satisfaction</li> <li>___ more portable employee skills and job mobility</li> <li>___ greater employee job security</li> <li>___ improved employee pay and benefits</li> <li>___ increased use by employees of performance measures and standards, benchmarking and quality control methods</li> </ul>

## 9.6. Qualities of a Good ROTI Plan

In summation, the following may be qualities of a good ROTI plan:

1. utility -- Is it practical and useful?
2. feasibility -- Is it doable? How much time does it take?
3. ethicality -- Does it respect legal and ethical issues?
4. accuracy -- Is it honest and technically sound?
5. acceptability -- Is it agreed upon by all stakeholders?
6. efficiency -- Is it cost effective relative to the cost of the training?
7. adaptability -- Can it be used for different types of training?
8. inclusiveness -- Does it address a range of measures and information sources?
9. flexibility -- Can it be used before, during, and/or after training?
10. effectiveness -- Does it meet a need for information?
11. credibility -- Is it believable?

## 9.7. Concluding Notes

This environmental scan was originally completed in June 2000 for a project that resulted in the creation of a Consumer's Guide to Return on Training Investment.<sup>119</sup> That project was funded by the National Literacy Secretariat and the BC Ministry of Advanced Education, Training and Technology through the Centre for Curriculum, Transfer and Technology. The project was hosted by the BC Forestry Continuing Studies Network and the University College of the Cariboo. Appendix F contains the members of the advisory committee to that project.

This updated version has been part of a project to introduce ROTI and the "business case for training" to The Alliance of Sector Councils. It is intended as a resource to those who want information about the concept of Return on Training Investment.

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<sup>119</sup> Available on-line at <http://www.futured.com/> and elsewhere.

## Appendix A

### Cost – Benefit ROTI Worksheet<sup>120</sup>

Costs	One-Time Costs	Cost per Offering	Cost per Person
1. Course development (time) or purchase (price, fees)			
1.1. needs analysis and research		NA	NA
1.2. design and creation of blueprint		NA	NA
1.3. writing, validating, and revising		NA	NA
1.4. producing (typesetting, illustrating, reproducing)		NA	NA
2. Instructional materials			
2.1. per participant (expendables: notebooks, tests)	NA	NA	
2.2. per instructor (durables: videotape, software, overheads)			NA
3. Equipment (hardware)			
3.1. projectors, VHS, computers, training aids			NA
4. Facilities			
4.1. rental or allocated “fair share” use of classrooms	NA		NA
5. Off-site expenses (if applicable)			
5.1. travel, hotel, meals, breaks	NA	NA	
5.2. shipping of materials, rental of AV	NA		NA
6. Salary			
6.1. participants (# of instructional hrs x average hourly rate)	NA	NA	
6.2. instructors, course administrator, program manager	NA		NA
6.3. fees to consultants or outside instructors			NA
6.4. support staff, e.g., audiovisual, administrative	NA		NA
7. Lost productivity (if applicable)			
7.1. production rate losses or material losses	NA	NA	
A. Total of all one-time “up front” costs		NA	NA
B. Total of all costs incurred each time the course is offered	NA		NA
C. Sum of B x number of times course is run ( ___ )	NA		NA
D. Total of all costs incurred per participant	NA	NA	
E. Sum of D x number of participants ( ___ ) over the course life	NA	NA	
<b>F. Total costs (sum of A, C, and E)</b>			

<sup>120</sup> Available as MS Excel worksheet at <http://www.qualitymag.com/training/roi.html>

<b>Benefits</b>	<b>One-Time Benefit</b>	<b>Benefit per Offering</b>	<b>Benefit per Person</b>
<b>1. Time savings</b>			
1.1. shorter lead time to reach proficiency (hrs saved x \$)	NA		NA
1.2. less time required to perform operation (hrs saved x \$)	NA	NA	
1.3. less supervision needed (hrs saved x supervisory \$)	NA		
1.4. better time management (hrs freed up x \$)	NA	NA	
<b>2. Better productivity (quantity)</b>			
2.1. faster work rate (\$ value of additional units, sales)	NA	NA	
2.2. time saved by not having to wait (hrs saved x \$)	NA	NA	
2.3. less down time (\$ value or reduced nonproductive time)	NA	NA	
<b>3. Improved quality of outputs</b>			
3.1. fewer rejects (to scrap, lost sales, returns... \$ value)	NA	NA	
3.2. valued added to output (bigger sales... \$ value)	NA	NA	
3.3. reduced accidents (\$ value of savings on claims, etc.)		NA	
3.4. reduced legal fees (\$ value of savings on settlements)		NA	
3.5. improved competitiveness (change in market share...\$)		NA	NA
<b>4. Better personnel performance</b>			
4.1. less absenteeism / tardiness (self or subordinates .. \$ saved)	NA	NA	
4.2. improved health (\$ saved on medical and lost time)		NA	
4.3. reduced grievances, claims, job actions (\$ saved)		NA	
4.4. same output with fewer employees (\$ saved on jobs eliminated)		NA	NA
<b>A. Total of all one-time benefits</b>		NA	NA
<b>B. Total of all benefits occurring once per participant</b>	NA		NA
<b>C. Total value of all improvements per participant per month</b>	NA	NA	
<b>D. Length of payback period in months</b>	NA	NA	
<b>E. Number of employees affected during this period (D)</b>	NA		NA
<b>F. Total of B x E</b>	NA		NA
<b>G. Total of C x D x E</b>	NA	NA	
<b>H. Total benefits (sum of A + F + G)</b>			

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## Appendix B

### Comparing Training Delivery Methods

In an effective training program, how the information is presented can be as important as the information itself. Different situations require different training methods, depending on the number, background, and geographic distribution of the learners, as well as the nature, goals, and stability of the course content. Using the wrong method can actually hinder the transfer of knowledge, leading to unnecessary expense and frustrated, poorly trained employees. Listed here are some advantages and disadvantages of several of the most common training-delivery methods to help compare training choices.

#### 1. **Classroom** (conferences, lectures)

##### Advantages:

- easily customized and revised
- quickly developed
- minimal development costs
- trainees can ask questions

##### Disadvantages:

- low learning rate
- low knowledge retention
- inconsistencies from class to class
- scheduling difficulties

#### 2. **Print** (books, manuals, workbooks)

##### Advantages:

- can be quickly developed
- portable
- self-paced
- materials can be referenced later

##### Disadvantages:

- expensive to revise
- bulky to store and transport
- low completion rates
- requires literate learners

#### 3. **Video** (videotapes, teleconferences)

##### Advantages:

- efficient for large groups or multiple locations
- does not require trainer or trainee travel
- controlled, consistent content
- able to demonstrate as well as explain

##### Disadvantages:

- high production costs
- requires complex planning
- requires playback equipment
- risk of technical malfunction

#### 4. **Technology-delivered** (computer-based training, Web-based training, virtual reality)

##### Advantages:

- fast learning curve, high retention
- consistent
- interactive, immediate feedback
- ease of record keeping

##### Disadvantages:

- high development costs
- long development time
- requires computer equipment
- computers intimidate some learners



5. **On-the-job** (mentoring, apprenticeships)

Advantages:

- inexpensive to develop
- high transfer of knowledge
- directly relevant to trainee's job
- trainees interact with coworkers

Disadvantages:

- inconsistent
- difficult to control/monitor
- requires workers to be teachers
- can disrupt production

6. Additional advantages of non-traditional (**distance delivery or self-study**) may be:

- tightened instructional design
- the ability to bypass content not needed by the participant
- the ability to focus on materials not mastered by the participant
- electronic training allows the classroom portion to focus on applications and integration of learning on the job

## Appendix C

### Basic Costing Formulae<sup>121</sup>

#### 1. Direct Costs

$$\text{TRD} = \text{EC} + \text{VR} + \text{TM} + \text{AV} + \text{C} + \text{A} + \text{T} + \text{L} + \text{A} + \text{M}$$

Where:

TRD = total direct training costs

EC = cost of external consultants/providers

VR = venue rental and other overhead costs (if training is conducted off-site)

TM = training materials, e.g., stationery, supplies, photocopying

AV = cost of hiring and using audio-visual equipment, films, videos, etc.

C = catering and other refreshment/food costs

A = accommodation and travel costs for trainers and trainees

T = trainers' salaries and benefit costs

L = learners' salary and benefit costs

A = administrative staff's (e.g., receptionist) salary and benefit costs

M = miscellaneous training overheads, e.g., mail

#### 2. Indirect Costs

$$\text{TRI} = \text{NA} + \text{TE} + \text{PL} + \text{RE} + \text{PD}$$

Where:

TRI = total indirect training costs

NA = cost of training needs analysis

TE = cost of training course evaluation

PL = productivity losses due to trainees absence from their jobs in training

RE = cost of a replacement employee (as a net figure)

PD = cost of the program design not covered by other components

#### 3. Total Costs

$$\text{TR} = \text{TRD} + \text{TRI}$$

Where TR = total cost of training

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<sup>121</sup> *Training and Development Guide*, p. 86,500 – 86,508 (CCH Canadian Ltd., 1994)

#### 4. Cost per Trainee

$$L = TR / NL$$

Where:

L = cost per learner / trainee

TR = total training cost

NL = number of learners

#### 5. Cost per Trainee Hour

$$Lhr = TR / NL \times Nhr$$

Where:

Lhr = cost per learner hour

TR = total training costs

NL = number of trainees / learners

Nhr = number of hours of training

## Appendix D

### Choosing The Right Method To Determine ROTI

(excerpted directly from the 1997 CLFDB document:  
*The Value of Workplace Training to Organizations and  
a Framework for Determining Return on Training Investments*)

The following outlines a suggested process to encourage organizations to adopt human resource management practices that incorporate innovative evaluation frameworks and measurement (or ROTI) tools.

According to several leading organizations in the field of training and development (Confederation of British Industry *Investors in People*, American Society for Training and Development), an effective organizational strategy will integrate a human resource management strategy that includes a framework for training and evaluation. One of the critical steps in such a process is the establishment of measurable links between training and organizational objectives. The ROTI approach adopted (or developed) would be determined through a planned process that starts with understanding organizational objectives and ends with an evaluation of the effectiveness of the training program in meeting these objectives.

This framework is based on a review of a number of broad strategic frameworks (Anthony Carnevale, *Investors in People*) and training evaluation models (developed by Jack Phillips, Donald Kirkpatrick). Some steps may be carried out concurrently.

#### **Step I - Define the Overall Objectives of the Organization**

To effectively link training with the overall objectives of the organization, the owner/manager must define the objectives of the organization at the outset. An understanding of the strategic planning process will then provide an opportunity to bring about consideration of the people in the organization.

#### **Step II - Connect Human Resources to the Strategic Decision-Making Process**

The traditional approach to developing an organizational strategy is changing as companies deal with the pressures to implement new technologies, and improve quality and productivity. Organizations need to consider new ways of approaching their business strategies. One of these is the human resource-based strategy which focuses on connecting human resources to the strategic decision-making process. It focuses on the role of employees and how they fit into the overall objectives of the organization. For example:

- human resource growth trends in the industry
- compare your organization's employees with those of your competitors
- anticipate innovations in the products/services that affect employees

- address regulatory changes that affect employees (e.g., health and safety training)
- new management approaches (e.g., total quality management)
- changing characteristics of the labour force (e.g., drop in the number of youth)

### **Step III - Define Organizational Skill Needs**

Translate organizational needs into the skills and competencies employees require to achieve organizational objectives. To do this, the owner/manager should:

- translate organizational objectives into the day-to-day functions of the organization (e.g., marketing, manufacturing, sales, finance, and information technology)
- translate day-to-day functions into the skill outcomes needed to be produced by each employee
- compile employee skill outcomes into the competence required for each job - this includes the capability to the job, adaptability in the face of change, and understanding on the part of the employee of their importance in the organization.

(This step is adapted from the UK *Investors in People* concept mentioned above.)

### **Step IV - Apply Occupational/Skill Set Standards**

For an organization to understand the skills necessary to achieve their objectives, it is important to apply national sectoral standards to the jobs affected in the organization (e.g., a description of the skills in terms of functional outcomes). In this way, managers will be able to set training objectives, and evaluate the impact of training on the performance of the organization.

Depending upon the sector, this process may require that:

- basic skills (e.g., literacy, numeracy, problem solving) are separated from job specific skills (e.g., highly technical skills)
- skill outcomes (Step III) are assigned to job descriptions
- national sector standards are applied as a guide to developing organizational-level job standards
- standards are validated in a work setting.

### **Step V - Evaluate Skills Organization Currently Possesses (gap analysis)**

Evaluate the skills that the organization currently possesses to determine skill gaps (e.g., gaps between current and required results) and subsequently determine training needs. This may require interviews/surveys of managers and employees. Information that should be gathered includes:

- profile of the workplace organization (e.g., demographics, technology)
- strengths and weaknesses of the employees (e.g., education and training levels, technical expertise)
- flexibility and adaptability of the employees when faced with technological change

### **Step VI - Develop Training Plan**

The training plan should be designed based on the skills gaps identified in Step V. It should be incorporated into the everyday operations of the organization.

Some of the important elements should include:

- skills needed to satisfy organizational objectives
- training delivery approach
- duration of the training

### **Step VII - Develop Organizational Measurable Targets (or Benchmarks)**

Designing an ROTI approach requires benchmarks relative to the organization. It may be a financial and/or non-financial approach to analyzing everything that happens before the training program is offered, during the program, and/or after it has concluded. In some cases, it may be possible to link the contribution of training to certain organizational improvements (e.g., reduced error rates on the production line).

### **Step VIII - Establish Training Project Team**

Many employers (especially in small organizations) find that they cannot provide training on their own. Partnerships between employers, training providers, and unions could be of great value. For a training project team to be effective, it should occur in an environment where:

- no in-house expertise exists
- there is a highly specialized need
- there is limited time available within the organization to focus on training matters
- training is not sensitive to competitive issues
- it is cost-efficient.

### **Step IX - Evaluate the Return on Training Investments**

If an organizational justification is planned, the next logical step is to calculate the ROTI based on the benchmarks identified in Step VII. As mentioned earlier, depending upon the organization's strategic objectives, the training evaluation may take place before, during, and/or after the program. In some cases, a non-financial approach or a combination financial/non-financial approach may be more appropriate.

## Appendix E

### Ways to Increase ROI / ROTI

To some, successful training is realistic, available and easy to come back to. Training is most likely to be successful if the training climate is positive, i.e., where the training content is relevant, employees are motivated to use new skills, transfer strategies are internalized, supervisors support training and transfer, and potential applications are identified; and not negative, with no obvious application of training, low motivation to transfer training, perceived lack of supervisor support, uncertainty about how to use skills. The literature on ROTI includes discussion of methods, models, barriers, outcomes, etc. Not surprisingly, there is a considerable amount of "wisdom" about how to increase return on investment in training.

1. According to The Employers Group:<sup>122</sup>
  - build on strengths (reinforce asset behaviour: employee recognition, appreciation for good work, opportunities for growth, challenging work, increased job responsibility, and participation in decision-making)
  - document positive change in individual performance and organizational change
  - reinforce positive change (incentives and awards)
  
2. Train the right people, e.g., "asset employees," i.e. those who are punctual and supportive, who volunteer to help others, accept responsibility, work to solve problems and have positive attitudes and tendencies in the workplace.<sup>123</sup>
  
3. According to On With Learning Inc.:<sup>124</sup>
  - market training offerings to employees, repeat the message several times
  - promote employee benefits, e.g., vs. paying out their own pocket of advanced education or skills training
  - recognize course completion, e.g., in company newsletter
  - create training projects to reinforce what the student has just learned
  - create career development plans and evaluation methods
  
4. According to NoonTime University, Inc.:<sup>125</sup>
  - hold individuals responsible (i.e., offered not mandated)
  - enlist manager support
  - offer a wide range of skills courses
  - promote and recognize attendance

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<sup>122</sup> Employee Training and Development – Investments that Pay Off (Harder, 1998) at <http://www.hronline.org/newsltr/nwsltr698/training.htm>

<sup>123</sup> *Employee Training and Development – Investments that Pay Off* (Harder, 1998) at <http://www.hronline.org/newsltr/nwsltr698/training.htm>

<sup>124</sup> *Measuring Return on Investment* at <http://www.cba.uc.edu/cbainfo/ccmed/retonin.htm>

<sup>125</sup> *The Bottom Line: Management Training Increases Manager Retention* (Burr) at <http://www.noontimeu.com/article2.html>

- provide consequences for non-attendance
  - encourage transfer of training
  - track training impact
  - demonstrate bottom-line impact
5. According to Rutgers University Continuing Studies,<sup>126</sup> ensure that training is applied immediately:
- set aside time once the employee returns for practice to apply what s/he learned, i.e., remove the phenomenon of diminishing retention
  - ensure that new equipment is installed before training (e.g., pre-requisites for seminars at Rutgers)
6. According to Quality Magazine<sup>127</sup>, avoid these training mistakes:
- trying to address non-training issues with training, e.g., workplace safety concerns
  - training the wrong people, e.g., as a means of trying to change someone against his/her will
  - tolerating tuition-reimbursement abuse, i.e., without some sense of return to the firm
  - ignoring implementation or training transfer
  - not training when it's needed
  - fragmenting the training focus with, e.g., “hot” training topics
7. According to Bernardz Business Strategies,<sup>128</sup> to be successful, training must provide the following elements:
- it must be tied to improved performance or to solve an organizational problem
  - it must transfer learning into performance
  - it must solve or improve performance problems
  - it must be aligned to the strategic direction of the company, responding to the real needs of the company and be less responsive to the current management fad
8. According to “transfer of training” theorists at Florida State University, the way to maximize ROTI is to take a process approach to the transfer of training.<sup>129</sup> It provides the trainee with a cognitive link between the training room and the job environment; it capitalizes on and enhances the end-of-course transfer intention; and it takes into account the possible effects of a negative organizational training climate. It does this by providing trainees with an opportunity to plan how they will link the

<sup>126</sup> *Getting the Most from Your Training Investment* at

<http://www.nbc.rutgers.edu/newsletter/RN53/zielinski.html>

<sup>127</sup> *Training? Don't Waste Your Money!* at <http://qualitymag.com/articles/1998/nov98/1198tt.html>

<sup>128</sup> *raining Must Be Tied to Increased Performance!* at

<http://www.letstalkselling.com/html/imperative.html>

<sup>129</sup> *A Process Approach to the Transfer of Training* (Foxon, 1994) at

[www.wasu.murdoch.edu.au/gen/aset/ajet/ajet10/wi94p1.html](http://www.wasu.murdoch.edu.au/gen/aset/ajet/ajet10/wi94p1.html)



training to their job with the necessary structure and guidance. Trainees must not only be motivated to learn, but motivated to apply that learning; therefore, the very act of identifying and articulating potential uses of training can increase the intention to use the new skills, by reinforcing relevance and applicability of training to the workplace.

Training is only effective in so far as learners use new skills and knowledge in the work place and thus become more productive and efficient workers. It is unrealistic, however, to expect them to return to their jobs after a training course and not be impacted by the pressures of the workplace. Through Action Planning, trainees learn to anticipate the work place demands and develop a strategy for getting started. Action Planning for training transfer costs, approximately, an additional training hour.

Training involves creating new habits, and a sales training firm estimates that it takes approximately 21 days of dedicated effort to build a new habit. Coaching and reinforcement training should be completed in 21 day increments to effectively transfer knowledge learned in the classroom to skills learned in the field.<sup>130</sup> Effective training accounts for the fact that 40% of the learning is done in the classroom and 60% in the field. What is learned is transferred into a skill, at least in the sales training context.<sup>131</sup>

Typically only 10 percent of a company's training transfers skills to the job.<sup>132</sup> Of the other 90 percent, it has been suggested that 40 percent is lost because the training function is often isolated or peripheral. An additional 40 percent may be lost because most trainers or management educators do not build transfer into the training programs. Finally, 10 percent may be lost when the course designer does not deliver the training. A synthesis of the literature reviewed in the context of assessing the effectiveness of adult education suggests the following ten guidelines for designing training that ensures transfer.<sup>133</sup>

- 1) Build a plan for transfer into the training program from the outset.
- 2) Make sure that the work environment provides positive incentives to apply the skills gained in training.
- 3) Consider the audience-the people who will use the evaluation results. Collect data and report results with the audience in mind.
- 4) Set initial performance targets based on the training needs identified in the assessment phase.

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<sup>130</sup> *Training Must Have Long Term Impact!* at [http://www.letstalkselling.com/thml/long\\_term\\_impact.html](http://www.letstalkselling.com/thml/long_term_impact.html)

<sup>131</sup> *When Training is Needed, What Can You Expect?* at <http://www.letstalkselling.com/html/delivery.html>

<sup>132</sup> Kelly, H.K. (1982). *A Primer On Transfer Of Training*. Training and Development Journal, 36(11), 102-106.

<sup>133</sup> *Evaluating the Effectiveness of Training Programs* (Boverie, Mulcahy, and Zondlo, 1994) at <http://hale.pepperdine.edu/~cscunha/Pages/KIRK.HTM>

- 5) Use specific topics that are relevant and job related.
  - 6) Use the work-group manager or supervisor to deliver the training whenever possible.
  - 7) Keep training sessions short.
  - 8) Ensure that practice during the training sessions clearly matches the on-the-job situation.
  - 9) Plan for the assessment of skill transfer to be multidimensional, including the participant as well as the participant's subordinates, peers, and supervisor(s) whenever possible.
  - 10) Do not consider the training to be complete until transference has been evaluated.
9. Maximize ROTI by first minimizing the investment in training.<sup>134</sup> To minimize the investment without jeopardizing return, well in advance of the actual training, one should consider the following: what to train, who to train, where to train, when to train and how to train. Chase adds: *One of the most effective—and most neglected—means for increasing the effects of training is prepping your employees a few days or weeks ahead of time... After the training is completed, the participants' new skills and behaviors need to be nurtured until they become habits. This transition is a critical time for training's ROI.*

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<sup>134</sup> *Raise Your Training ROI* (Chase, 1997) at <http://qualitymag.com/articles/1997/sep97/0997f3.html>

## Appendix F

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