

Predictive Approach for Assessment of Return on Training Investment

Meredith Carroll, Roberto Champney, Christina Padron, Xuezhong Wang,
and David Haddad

Presented by Christina Padron
Design Interactive, Inc.

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no guesswork. **pure science.**



Agenda

- Background
- Return on Training Investment (ROTI)
- Challenges with ROTI
- ROTI Approach
- Benefits and Applications

Background: What is the Problem?

BUDGETS ARE TIGHT!

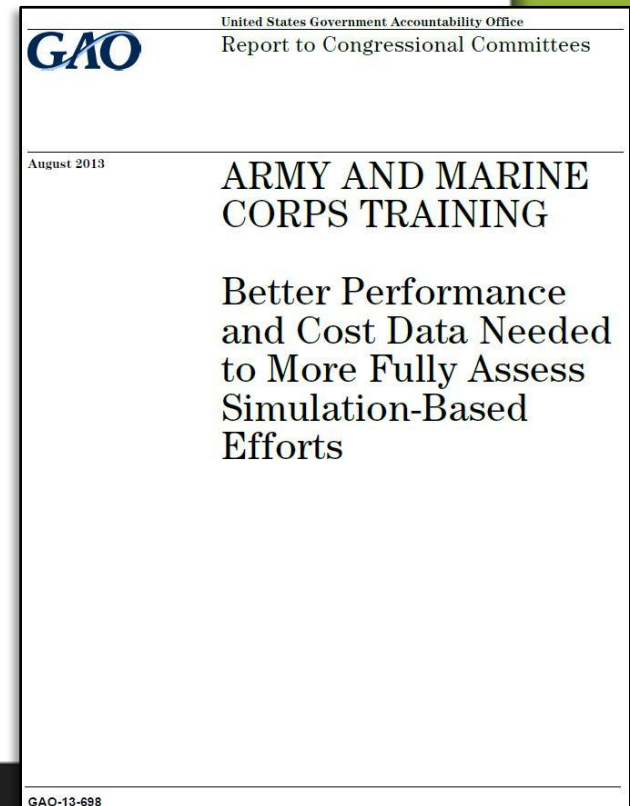
- Warfighters need best-of-breed training to maintain our military's dominance, but it needs to be cost effective.
 - Simulation-based training is often used to replicate tactical environment at lower cost
- Training effectiveness data for training simulations
 - Often not available
 - Expensive and time consuming to obtain
- ROI calculations usually limited to cost-related metrics
 - Don't account for how well training meets learning objectives



Background: What is the Need?

According to an August, 2013 GAO report (GAO-13-698)...

- Performance and cost data are needed to ensure training requirements are met and to prioritize investments
- Need to quantifiably demonstrate how simulator use contributes to achieving training objectives
- Need methodology for identifying all costs and a means to collect and track the costs



Return on Training Investment (ROTI)

- **Return on Investment**
 - A performance measure used to evaluate the efficiency of an investment. It is a product of the benefit (return) from the investment compared to how much it cost (investment)
- **What is Return on Training Investment?**
 - An accounting-based method of comparing the benefits and costs of training by converting all benefits and costs to financial measures
 - ROTI provides a common understanding of the financial benefits of training to stakeholders

Challenges

1. How we can we predict/measure training impact?

- Need to predict/measure effects
- Effort / Cost of measuring effects can be substantial

2. How can we quantify ROTI?

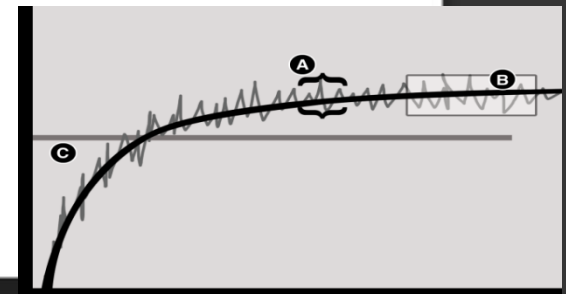
- Benefit of training / Cost of training
- Some benefits are hard to or cannot be measured in \$'s
- Algorithms for calculating ROTI are needed

3. How can we make ROTI more accessible to training practitioners?

- Efficient methods from which to make decisions

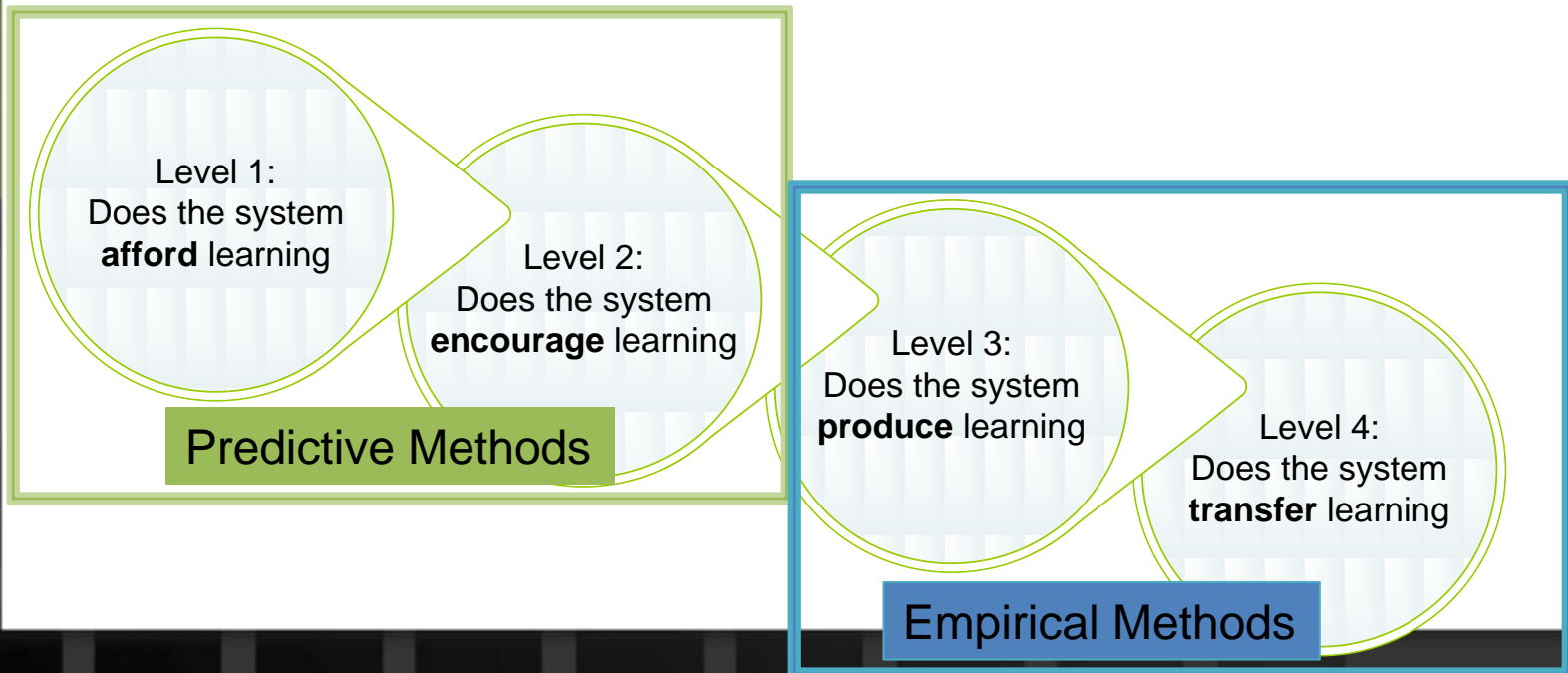
Challenges with determining training impact

- Predicting training impact of proposed systems is difficult without ability to validate
- Impact of training is difficult and expensive to measure
- Training impacts (i.e. transfer) come in a variety of forms
 - Direct, positive/negative, near/far, vertical or horizontal, etc.
- Measures of training vary
 - E.g., performance changes, percent transfer, transfer effectiveness ratio
- “Treatment” effects (how much training)
 - Impacts how much is learned
 - Learning curves



Method to measure training impact

- Method: 4-level Training Effectiveness Evaluation (TEE) approach
 - The higher the level, the more scrutiny and robust the methods used



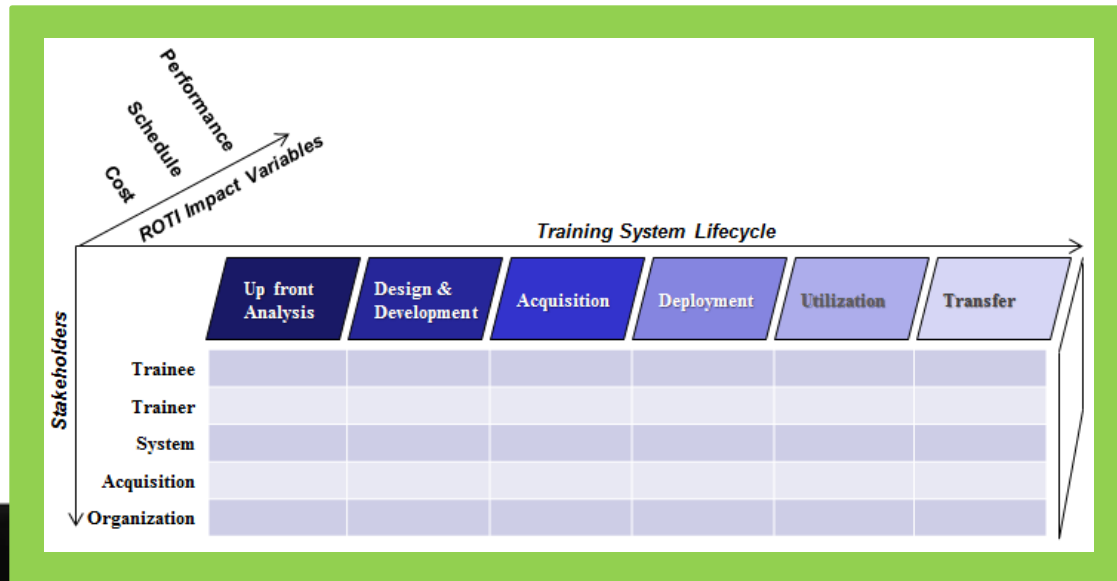
Quantification of ROTI

Variables

- Cost: the \$'s involved
 - Planning, purchasing, using, maintaining, etc.
 - Savings, reduced losses, etc.
- Schedule: the time involved
 - Planning, acquiring, executing, etc.
 - Time savings in training or operations
- Performance: training effectiveness
 - Training objectives supported, changes in performance after training
- Apply weights to cost, schedule, performance

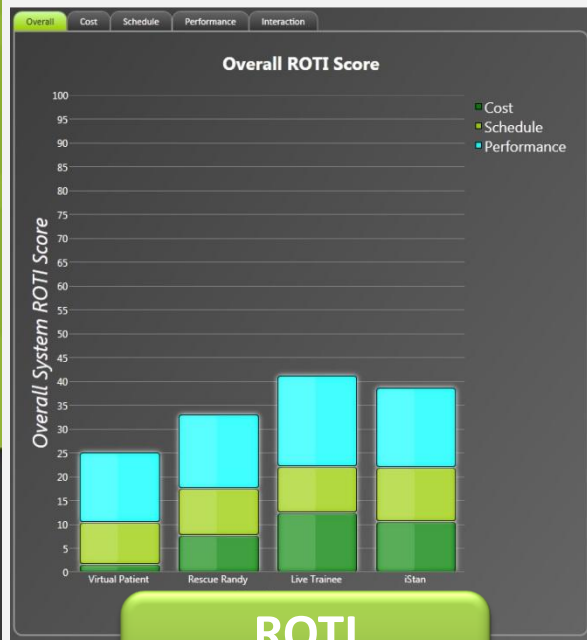
How to make ROTI approachable

1. Defining an objective ROTI measure
 - Composite measure of all Cost, Schedule & Performance Impacts
 - Arrive at a single score (e.g., 0-100, or other).
2. Aligning Performance to Training Objectives (TO)
 - e.g., % of TOs supported, changes in TO performance



How to make ROTI approachable

3. Utilize multiple-level analysis

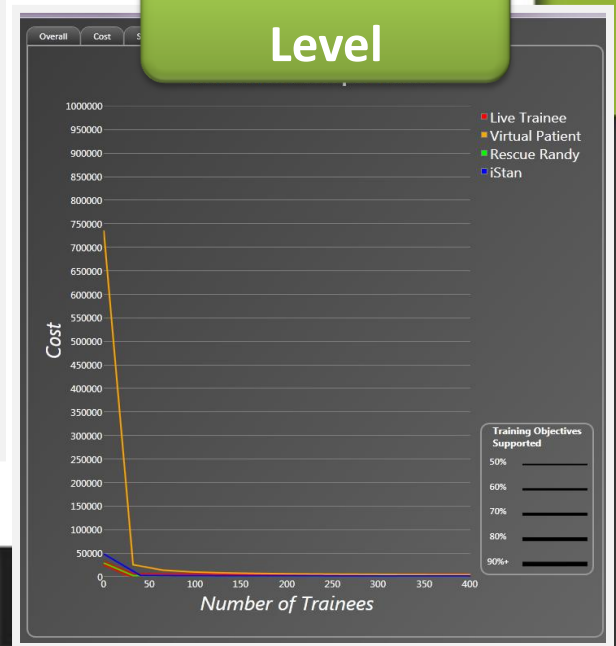


ROTI level



Variable level

Interaction Level



ROTI Approach

ROTI Tool

Training Objectives



Requirements & SME

Cost, Schedule, Performance Constraints

System Parameters



Acquisitions

Task Analysis

Cue Fidelity Analysis

System Requirements



Benefits and Applications

Benefits

ROTI Tool will allow users to:

- Determine optimal training system requirements, both fidelity and training strategy requirements, based on training objectives.
- When resources don't permit TEE, estimates a training system's impact on Cost, Schedule and Performance
- Perform Cost/Benefit Tradeoff Analyses both within and across system alternatives

Applications

ROTI Tool will inform training system selection and design for:

- Acquisition Professionals
- Requirements Professionals
- Defense and Commercial Medical communities
- Extension to all DoD Domains

Contact Information

Technical Point of Contact:

Christina Padron
Christina.padron@designinteractive.net
407-706-0977 x238

Design Interactive, Inc.
1221 E Broadway St
Oviedo, FL 32765

www.designinteractive.net

