Cost & Training Effectiveness Analyses (CTEA) for Large-Scale Simulations

Training FWG
10 August 99

Mr. Gardner
ODUSD(R)

09/07/16
ODUSD(R) - READINESS & TRAINING

Status: 9803-5 - DoD IG Report (‘97) concluded that “effectiveness of large-scale computer simulations had not been demonstrated for field training exercises in terms of training mission and cost-effectiveness.”

• Past efforts have not provided methodologies and processes needed to support evaluation of large-scale simulations.

• Separate efforts underway in Impact Assessment, Return on Investment (RoI), Learning Methodologies, and Training Effectiveness.

Coordination Plan formulated to leverage Service and DMSO efforts.
Cost Training Effectiveness Analysis (CTEA) Process

- **Current Efforts Underway**
  - DMDC: Cost and Training Effectiveness Evaluation of Large-Scale Simulations - Tech Report & Data Base
  - LMI: CTEA - Cost Orientation
  - IDA: Training Effectiveness - Metrics/Measures of Effectiveness
  - DMSO: Quantify the Impacts of M&S - MSMP Objective includes benefits to support investment
  - Army: Impact Analysis - Phases I & II completed
  - Navy: Learning Methodology Sub-group for JSIMS

- **IG: Sep ‘99 DUSD(R) Memorandum Action Completed**
Cost Training Effectiveness Analysis (CTEA) Process

- **DMDC: Training Effectiveness Evaluation of Large-Scale Simulations**
  - Technical Report “Evaluating Large-Scale Training Simulations”
    - Provides a framework for Evaluation (“how to manual”)
    - Coordination and Review Completed
  - Training and Cost-Effectiveness File (TCEF)
    - Operational Data Base
    - Contains Evaluations and Research Summaries
    - Information summary and analyses in Technical Report

09/07/16
How is TCEF Used?

• Research and Analysis tool for training evaluators, developers, and analysts
• Typical queries
  - Estimate the training- and cost effectiveness of various types of training
  - Identify procedural guidance for conducting evaluations
  - Identify relevant examples of published evaluations
  - Locate representative studies, analyses, and reviews
  - Determine military requirements (e.g., directives, instructions) for conducting studies during training system development
Cost Training Effectiveness Analysis (CTEA) Process

• LMI: CTEA - Cost Orientation
  – Conducting Study of Training Simulations with an emphasis on the cost portion of the CTEA
  – To determine
    • What extent the Services maintain Life Cycle Cost data for large scale training simulations.
    • If line items contained in the cost estimates vary by Service.
    • If there is a need for further definition/standardization of line items included in the life cycle costs.
  – Target completion FY 99
Cost Training Effectiveness Analysis (CTEA) Process

• IDA: CTEA- Effectiveness Orientation
  - Conducting Study of Training Simulations with emphasis on the effectiveness portion of the CTEA
  - To determine
    • An appropriate framework for cost-effectiveness analyses of large scale simulations.
    • Appropriate measures of performance for large scale simulations.
    • The extent to which the Services conduct cost-effectiveness analyses of large scale simulations.
  - Target completion FY 99
Cost Training Effectiveness Analysis (CTEA) Process

• DMSO: Quantify the Impacts of M&S - M&S Master Plan Objective includes benefits to support investment
  - Develop a “Users Guide” for Outlining Policy and Procedures for use of M&S across Functional Areas
  - Produce a “Common Practices Guide” for use of M&S from Inception to Fielding
  - Initial Data Collection Complete, “The Utility of Modeling and Simulation: An Initial Data Collection”
  - Leverage the Training CTEA work as a prototypical effort across functions

• Incorporate into Revised M&S Master Plan

09/07/16
Cost Training Effectiveness Analysis (CTEA) Process

- Army: AMSO Study - Phases I & II Methodology and Proof of Principle Completed
  - Benefits Initiative for M&S
  - Broader than Training Functional Area
  - Releasable after Army Internal Review
  - Work conducted with DMSO Cooperation
"...I have directed AMSO to coordinate the Army’s efforts to develop and implement a definable process by which quantitative and qualitative M&S benefits are captured enabling our better understanding, justification, and use of M&S across the Army.

"...AMSO will develop a comprehensive M&S benefits methodology (or methodologies) which will provide a factual basis to answer M&S benefits questions.

**Phase I**
- Objectives Hierarchy
- Metrics
- Techniques to compute benefit

**Phase II**
- Proof of Principle

**Phase III**
- Application

Next Step
Cost Training Effectiveness Analysis (CTEA) Process

• Navy: Learning Methodology for JSIMS
  - Formed Working Group of JSIMS Partners
  - Addresses the Behavioral Aspects of Training
  - Collaborative Team Across JSIMS Enterprise
  - R&D Effort that Precedes Effectiveness Determination
**LMWG Products**

- **Status of Products** (May 99)
  - Learning Methodology Reference Document
    - Third Draft in Editing
  - LM System Level Use Case
    - Effort started to Identify LM gaps in Planned System Level Use Cases or To Develop Unique LM SLUC
  - Framework for Learning Effectiveness Assessment
    - Draft Framework Published within Reference Document
  - A definition of AAR features needed to implement LM precepts
    - No Progress
  - Technology Transition and Insertion Plan
    - Effort initiated. Integrating effort with JPO insertion of DARPA ASTT work
  - Pre-Exercise Development Workshop (May 25-26)
    - Educate Developers / Explore Available Products for Infusion into JSIMS
Cost Training Effectiveness Analysis (CTEA) Process

• IG: Update and Progress Report
  - DoDD 1430.13, “Training Simulators and Devices” Being Revised/Rewritten to include CTEA for simulations
  - DMDC Technical Report and TCEF Database
  - Develop “How to Manual” and Guidance for TEA, May form basis for DoDI
Cost Training Effectiveness Analysis (CTEA) Process

• Summary
  - Metrics, Processes, Policies and Guidelines are needed to Support CTEA for Future Training Systems
  - Separate Efforts now underway in Services and Agencies
  - Training FWG Sub-Group formed with community representation
    • Review DMDC Technical Report & TCEF
    • Provide Input and Review to other ongoing efforts
    • Provide Prototype / Participation for Training in Larger DMSO M&S Effort
    • Update DoDD 1430.13, Training Simulators and Simulations
  • Provide Update to Training Council and Response for IG

09/07/16