Integrated Testing and Evaluation Handbook

NDIA Short Course by LtCol Mark "Geppetto" Raffetto
What MCOTEA Does

Planning
- Infantry Automatic Rifle Reliability
- System Assessment Plan
  - Logistics Vehicle System Replacement—Tractor Variant
    - System Evaluation Plan
  - June 2010

Testing
- Expeditionary, Naval, and Amphibious Systems
- C4ISR & IT/Business Systems
  - Initial Operational Test
  - Follow-on Operational Test
  - Multi-service Test
  - Quick Reaction Test
  - Test Observations

Reporting
- Evaluation Plans
  - Assessment Plans
  - Test Plans
  - Observation Plans
- Evaluation Reports
  - Assessment Reports
  - Test Data Reports
  - Observation Reports

USMC Integrated Test & Evaluation Process
By the end of this course, you will be able to …

- Employ best practices for integrated testing procedures
- Use the Test and Evaluation (T&E) Handbook as a reference tool
- Explain why collaboration across the Triad is important to the Marine Corps
- Explain how following an integrated, collaborative T&E process helps USMC
- Explain how the Test & Evaluation (T&E) Working Integrated Project Team (WIPT) and the Capabilities Documentation Integrated Project Teams (IPT) improve inter-command communications
- Explain how T&E considerations affect capabilities development and materiel development
1. Introduction
2. Purpose of the T&E Handbook
3. Interfaces between Commands
4. Integrated Testing
Purpose of the T&E Handbook
Stovepipes

War-fighter Need

Capabilities Development

Material Developers & Developmental T&E

Operational T&E

New System

CJCSI 3170.01
MCO 3900.15
DODI 5000.02
SECNAV 5000.2
Title 10 Sec 2399
MCOTEA OT&E Manual

USMC

Integrated Test & Evaluation Process
Collaboration

War-fighter Need → Capabilities Development → Operational T&E ↔ Acquisition and Developmental T&E → New System

USMC Integrated T&E Handbook

- CJCSI 3170.01
- MCO 3900.15
- DODI 5000.02
- SECNAV 5000.2
- Title 10 Sec 2399
- MCOTEA OT&E Manual
Benefits of Collaboration and Integrated T&E

- Reduce acquisition costs and risks
- Reduce time for fielding new capabilities to warfighters
- Improve system performance and reliability
Some words from our leaders…
Incorporate many recent JCS, OSD and DON policies into our processes

Establish a single source document on how the USMC Commands interface to provide warfighting capability

- USMC is the only component in the DOD with a policy signed by all of the Commanders involved in weapon system acquisition

Implement OSD(AT&L) direction to integrate T&E

- OSD policy memo 22 Dec 2007
- OSD policy memo 25 April 2008
Information Included in the Handbook

- Triad Command responsibilities
- The integrated acquisition process
- Standard test terminology
- Acronym definitions
- Required acquisition life-cycle documentation
- Test types, goals, timing, and requirements
- Establishment of Integrated Product Teams
- List of relevant DoD and USMC instructions and policies
Interfaces Between Commands
### Capabilities Documentation IPT

- Starts after completion of CBA
- Exists throughout acquisition process
- Obtains understanding of capabilities requirements from all perspectives
- Influences the capabilities development

### T&E WIPT

- Starts after Materiel Development Decision is made
- Exists throughout acquisition process
- Obtains a mutual understanding of all stakeholders’ test and evaluation requirements

**Featured IPTs**
Activities Requiring Collaboration with Capabilities Documentation IPT

- Assisting in development-review of Key Performance Parameters (KPPs)/Key System Attributes (KSAs) and other attributes in JCIDS documents
- Developing Concept of Employment (COE) and Concept of Operations (CONOPS) (if required)
- Developing capabilities with affordable, achievable, measurable and testable attributes
Activities Requiring Collaboration with T&E WIPT

- Developing and refining Critical Operational Issues (COIs)
- Developing a TES/TEMP/System Test and Evaluation Strategy (STES)
- Executing an agreed-upon T&E budget
- Establishing and maintaining T&E schedule
- Ensuring testing adequately assesses whether or not the system meets requirements
- Participating in the development(review of the Requirements Traceability Matrix (RTM) Test Criteria
CD ITP and T&E WIPT Deliverables
Integrated Testing
“The collaborative planning and collaborative execution of test phases and events to provide shared data in support of independent analysis, evaluation, and reporting by all stakeholders, particularly the developmental (both contractor and government) and operational test and evaluation communities.”
Goals of Integrated Testing

- Sound and testable requirements
- Achievable and measurable acquisition approach
- Seamless, robust, efficient T&E strategy
- Collaboration
- Common understanding
  - Attributes
  - Test Strategy
  - Definitions
  - Responsibilities

USMC Integrated Test & Evaluation Process
How Integrated T&E Helps the Warfighter

- Better-defined capabilities
- Ensured testability of capabilities
- Improved testing
- New capabilities fielded quicker
Three Key Aspects to Integrated Testing

Collaborative planning

Collaborative execution

Independent evaluation
The TEMP Evaluation Framework
Collaborative Planning: T&E Master Plan (TEMP)

- TEMP comprehensive plan for all program T&E

- The PM is responsible for producing the TEMP, supported by the T&E WIPT

- The TEMP is a “living” document published in support of Milestone B and Updated after major program changes/milestones

- The MCOTEA System Evaluation Plan (SEP) forms the basis of the MCOTEA contributions to the TEMP

- DT and OT assign issues and attributes with thresholds to test events using the TEMP evaluation framework.

- If DT and OT use the same modeling and simulation, they can collaborate on verification and validation activities for separate accreditations, when appropriate.
Collaborative Planning: DT Plans

- Collaboration begins at start of each DT test event planning.
- MCOTEA influences DT plans when appropriate.
- OT and DT share test data.
- Collaborative planning enables identification and testing of issues to reduce program risk.
Collaborative Planning: OT Plans

- Increased understanding of high-level issues the system is intended to address
- Development of unambiguous, testable requirements
- Increased contextual understanding of requirements
- Provides insight into potential system and operational deficiencies early in the program
- Earlier independent insight into progress toward meeting the desired level of OE/OS/OSur
- Earlier identification of potential IOT requirements
Collaborative Execution

- Both DT- and OT-specific requirements examined sequentially during the same test event
  - DT and OT have differing data requirements

- Test events where DT and OT testers collect and use the same data set
  - Data pedigree established and maintained
    - Data quality ensured
    - Caveats associated with data elements noted
    - Access controlled
    - Data security and integrity maintained
Independent Evaluations

- Shared data; separate evaluations
- Separate foci for DT and OT evaluations
  - DT evaluations span the gamut from specification compliance to mission performance.
  - OT evaluation concerned with mission-level issues and effects.
- OTA independence mandated by directive
- System certifications
Are the requirements clear and testable?

Does it perform the mission?

Does it work?
Integrated T&E Philosophy

Integrated T&E

Early involvement
One team
Continuous collaboration

Common Understanding

USMC Integrated Test & Evaluation Process
Fielding Warfighter Capabilities

Integrated T&E

- Early involvement
- One team
- Continuous collaboration

Common Understanding

Fielding Capabilities

- Sound requirements
- Robust T&E strategy
- Robust acquisition strategy

Common Understanding

USMC Integrated Test & Evaluation Process
Summary

✓ Purpose of the T&E Handbook
✓ Interfaces between Commands
✓ Integrated Testing
Integrated Testing and Evaluation Handbook
NDIA Short Course

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“USMC Integrated Test & Evaluation Handbook”

Select I'm Feeling Lucky