



Integrated Testing and Evaluation Handbook

NDIA Short Course by LtCol Mark "Geppetto" Raffetto



USMC Integrated Test & Evaluation Process



What MCOTEA Does

Planning

Testing

Reporting

Infantry Automatic Rifle Reliability
System Assessment Plan

Logistics Vehicle System Replacement-Tractor Variant
System Evaluation Plan



June 2010
Marine Corps Operational Test and Evaluation Activity
3035 Barnett Avenue
Quantico, VA 22134-5014


Approved: *Thomas D. McQueen*
Thomas D. McQueen
Deputy Director, MCOTEA
By direction

Expeditionary, Naval, and Amphibious Systems

C4ISR & IT/Business Systems

Infantry Automatic Rifle Reliability
System Assessment Report

Logistics Vehicle System Replacement-Tractor Variant
Operational Test Agency Evaluation Report



December 2010
Marine Corps Operational Test and Evaluation Activity
3035 Barnett Avenue
Quantico, VA 22134-0114

Approved: *D.L. Reeves*
D.L. Reeves
Principal Tester
Director, MCOTEA

FOR OFFICIAL USE ONLY

Evaluation Plans
Assessment Plans
Test Plans
Observation Plans

Combat Service Support Systems



Initial Operational Test
Follow-on Operational Test
Multi-service Test
Quick Reaction Test
Test Observations

Ground Combat Systems

Evaluation Reports
Assessment Reports
Test Data Reports
Observation Reports

USMC Integrated Test & Evaluation Process



Course Goals

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



Course Agenda

1. Introduction
2. Purpose of the T&E Handbook
3. Interfaces between Commands
4. Integrated Testing

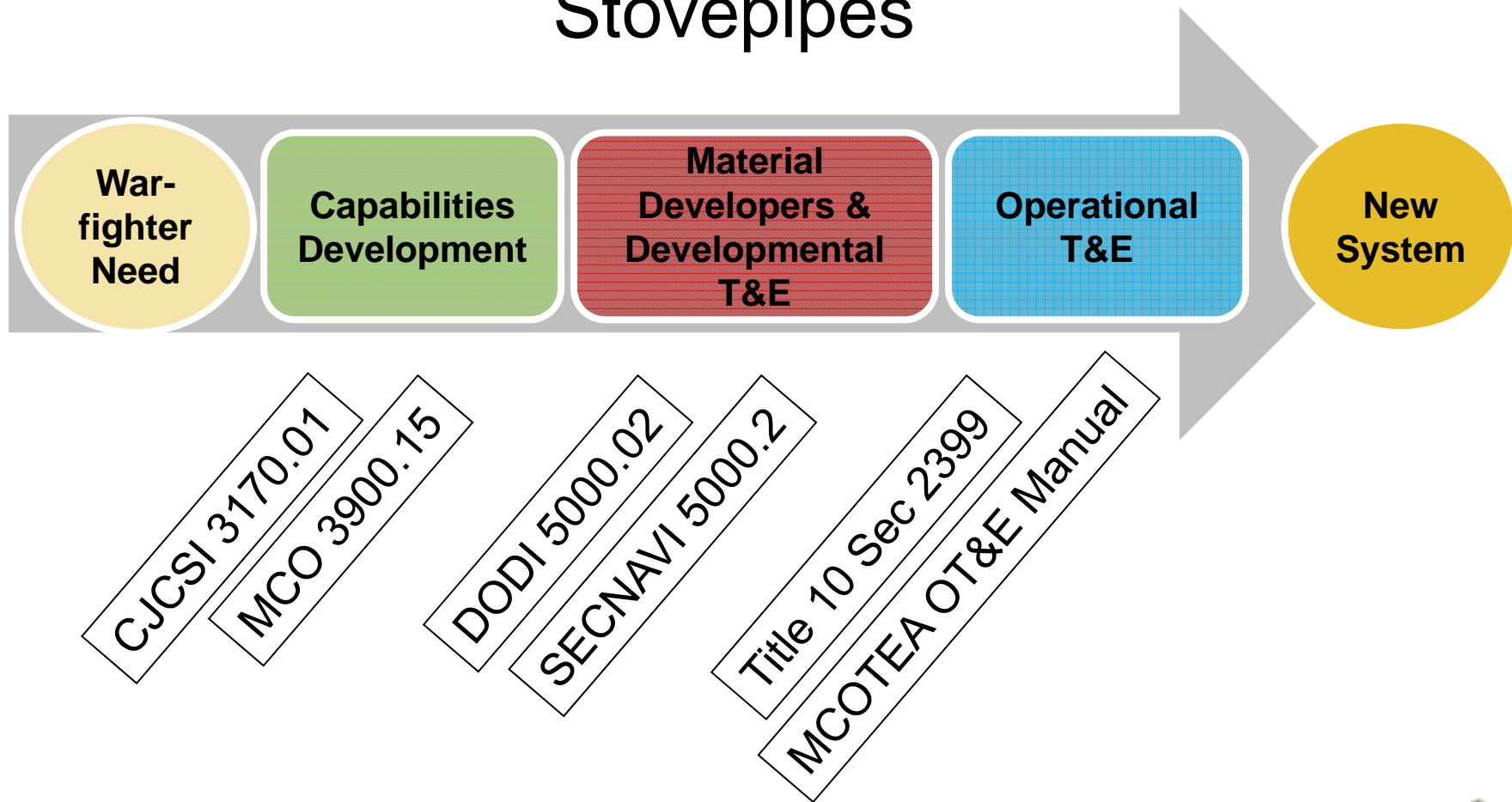


Purpose of the T&E Handbook



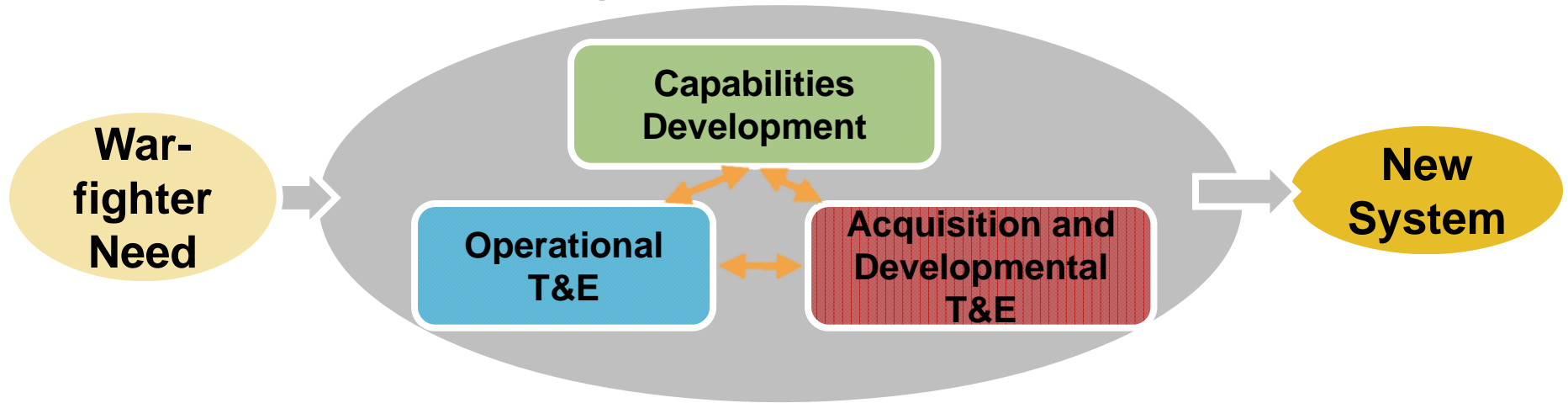
T&E Before Integration

Stovepipes

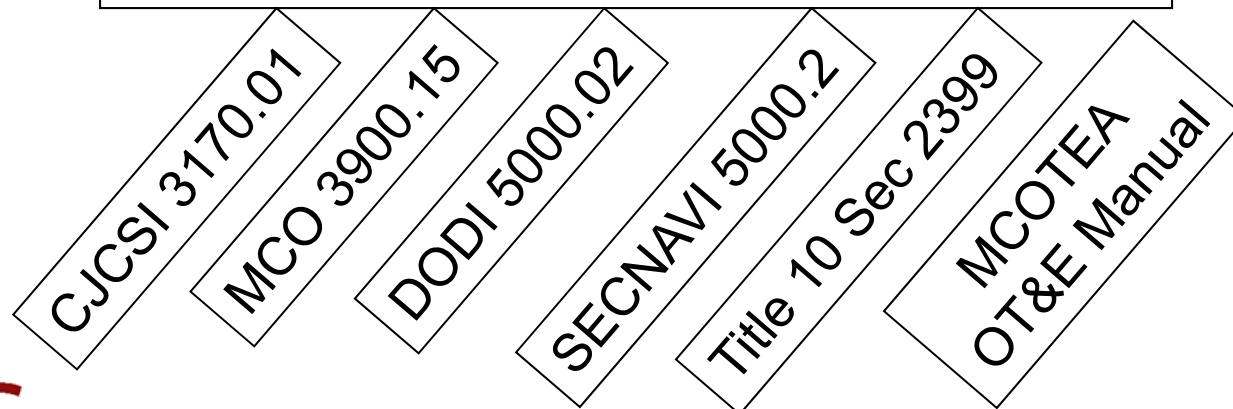


T&E After Integration

Collaboration

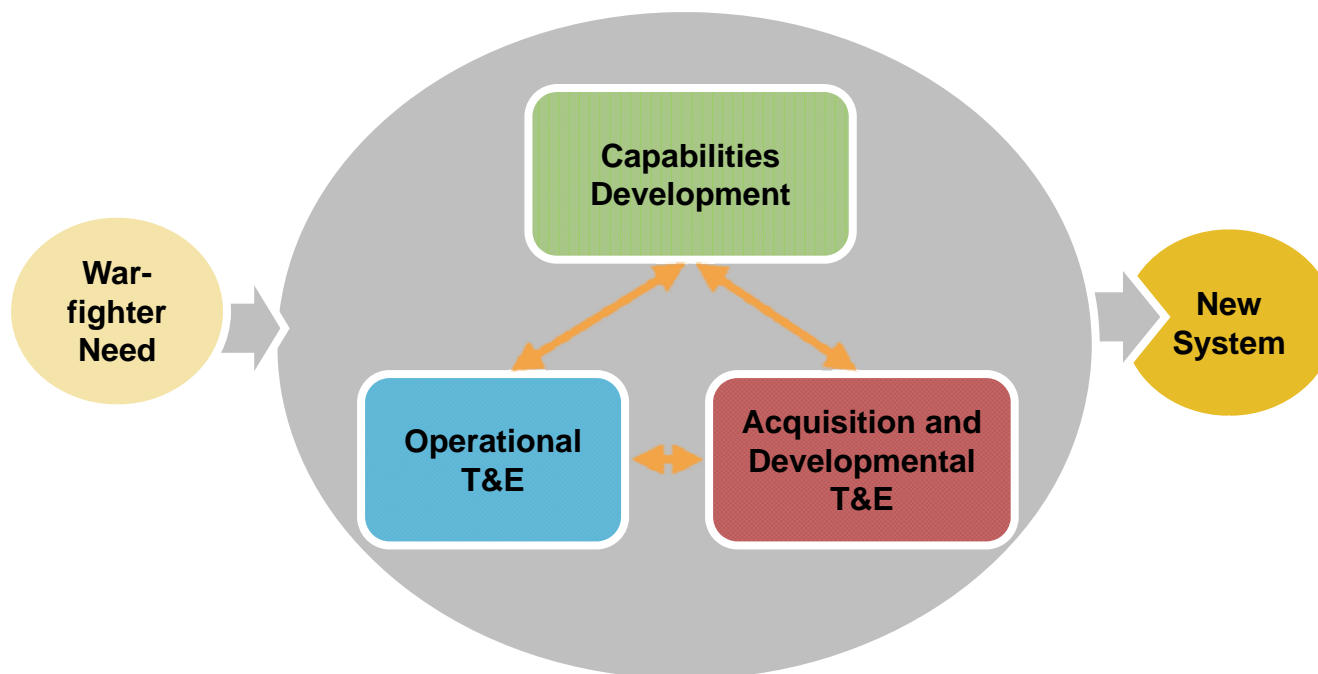


USMC Integrated T&E Handbook



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



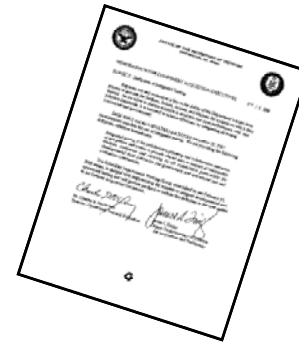
Commanders' Videos

- Some words from our leaders...



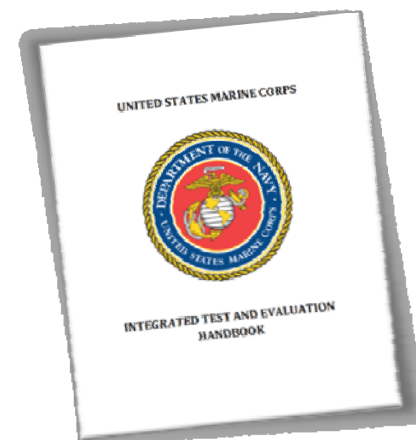
Why We Wrote the Handbook

- ❑ 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



Featured IPTs

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



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

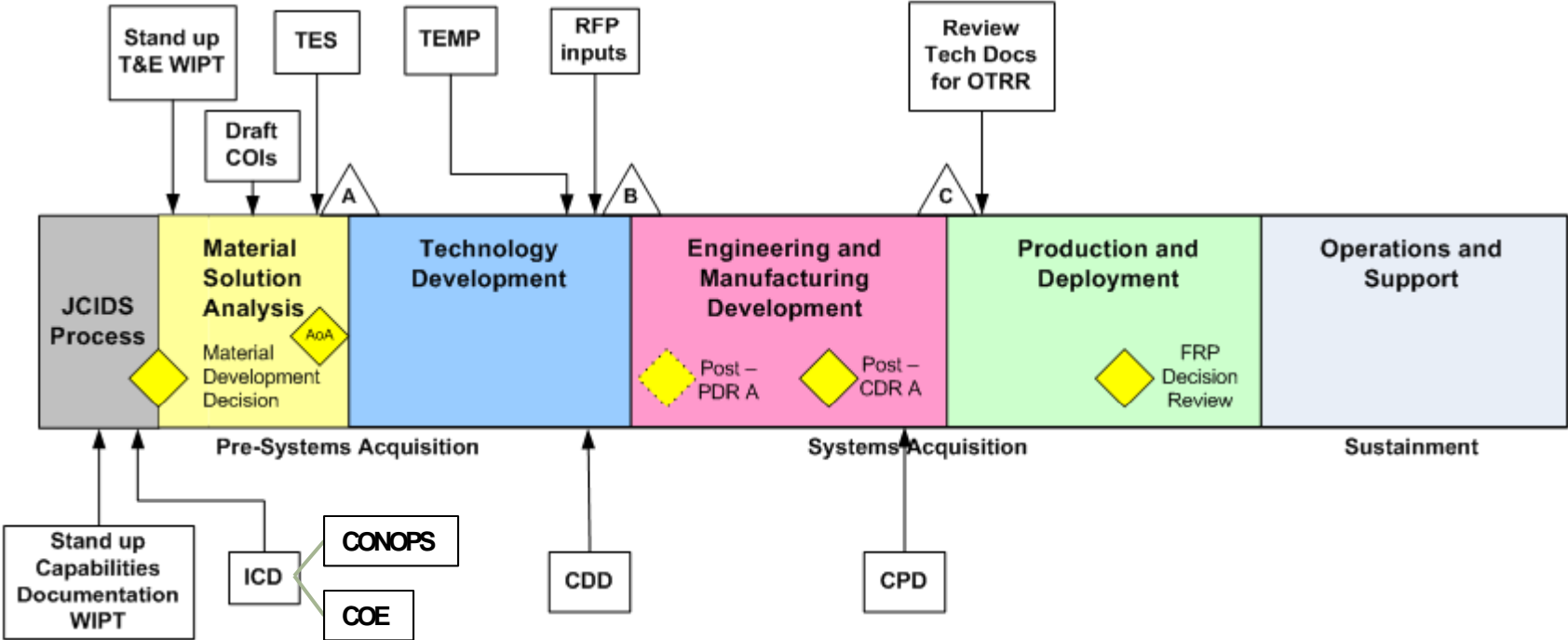


Activities Requiring Collaboration with T&E WIPT

- ❑ 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



Integrated Testing Definition



“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



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



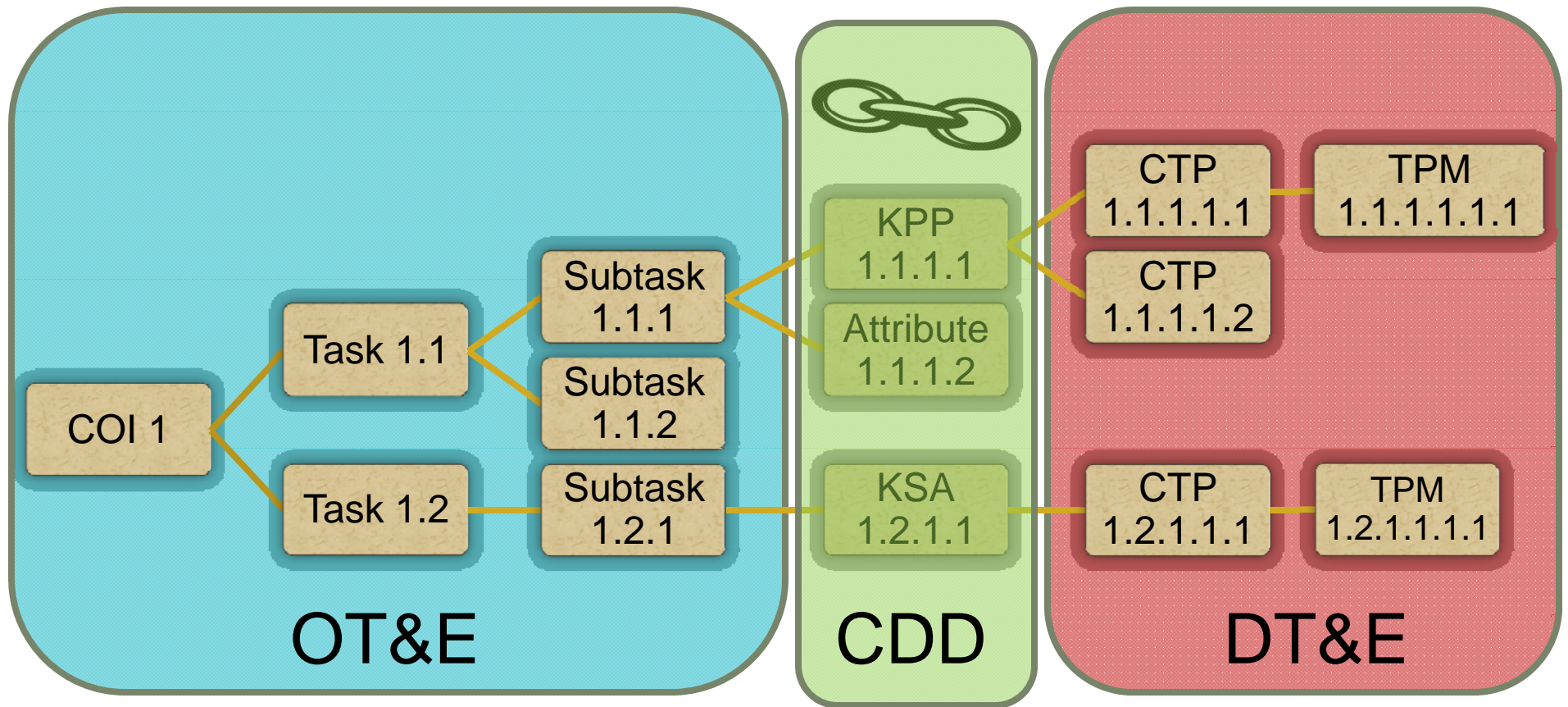
Collaborative execution



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

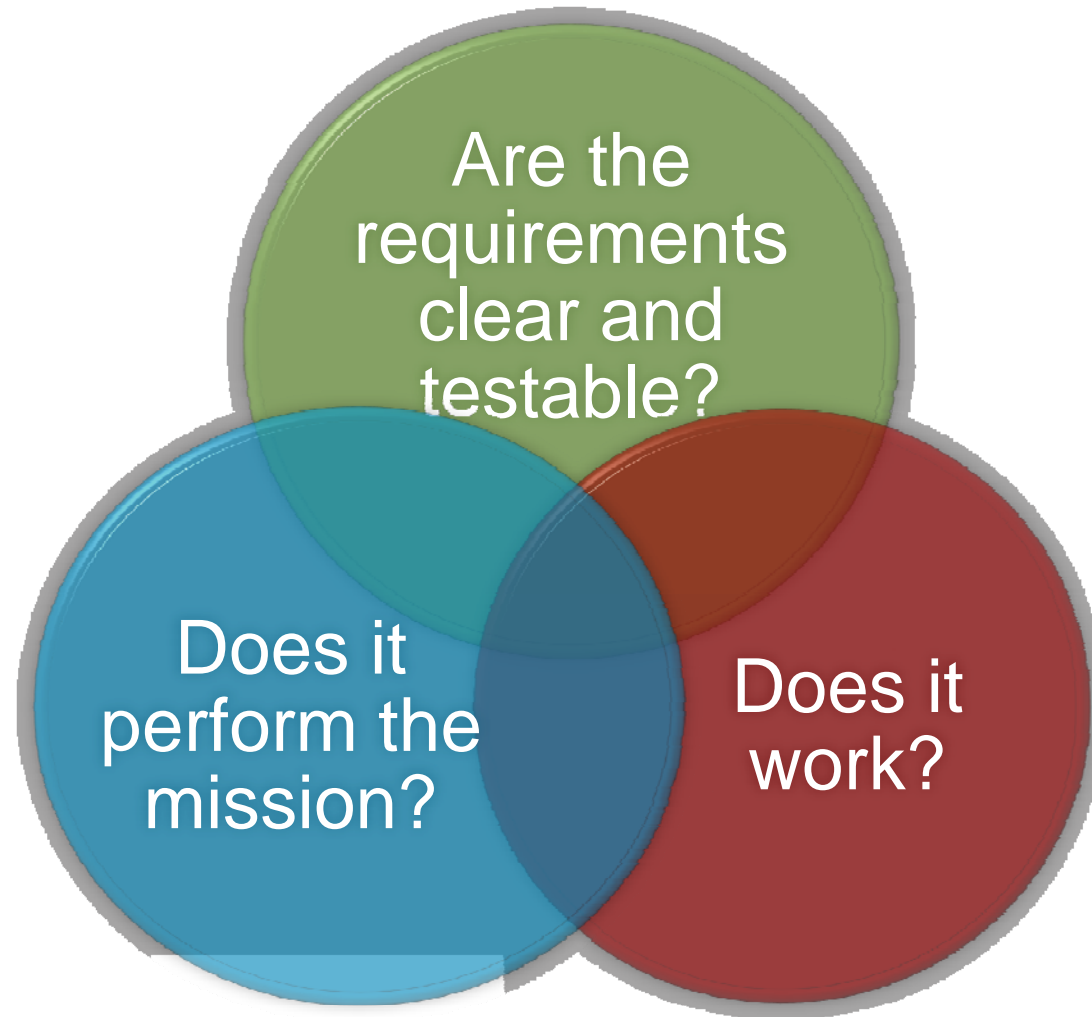


Independent Evaluations

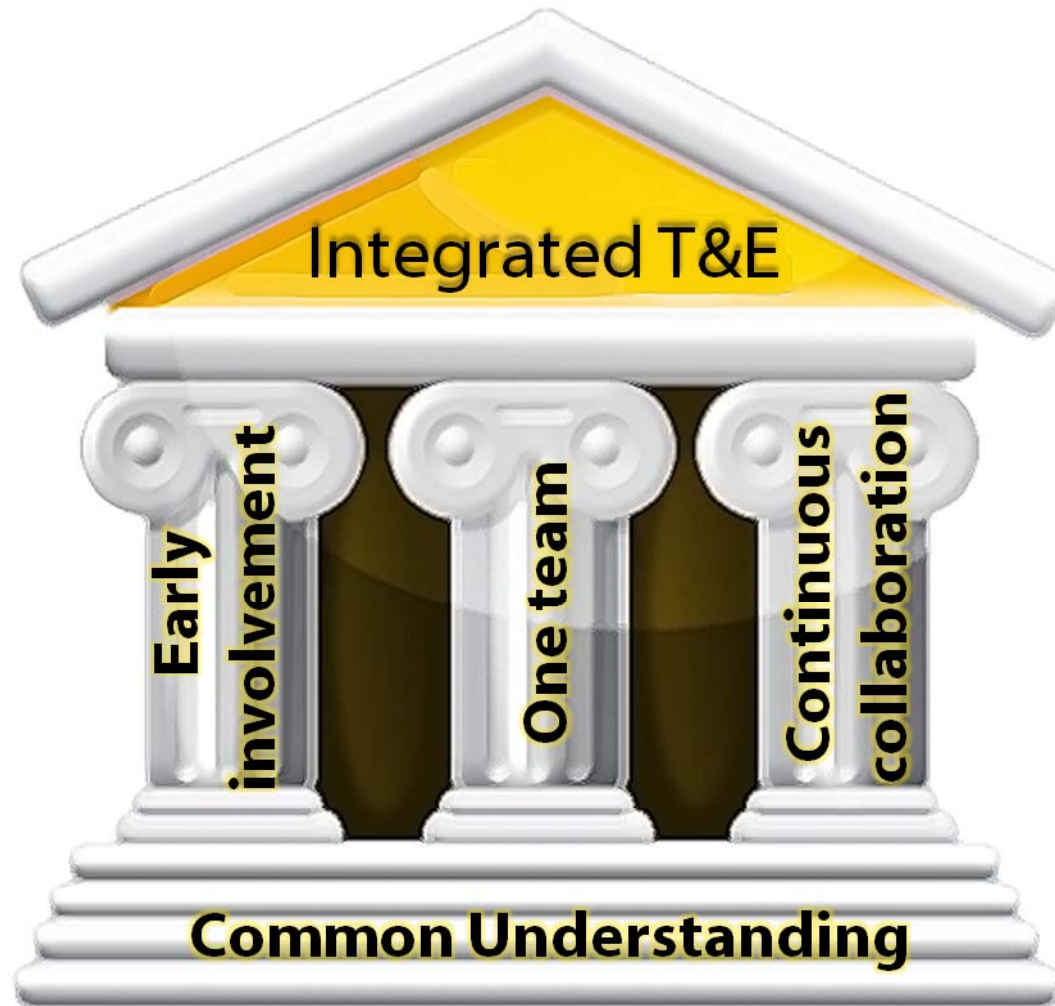
- ❑ Shared data; separate evaluations
- ❑ Separate foci for DT and OT evaluations
 - DT evaluations span the gamut from specification compliance to mission performance.
 - OT evaluation concerned with mission-level issues and effects.
- ❑ OTA independence mandated by directive
- ❑ System certifications



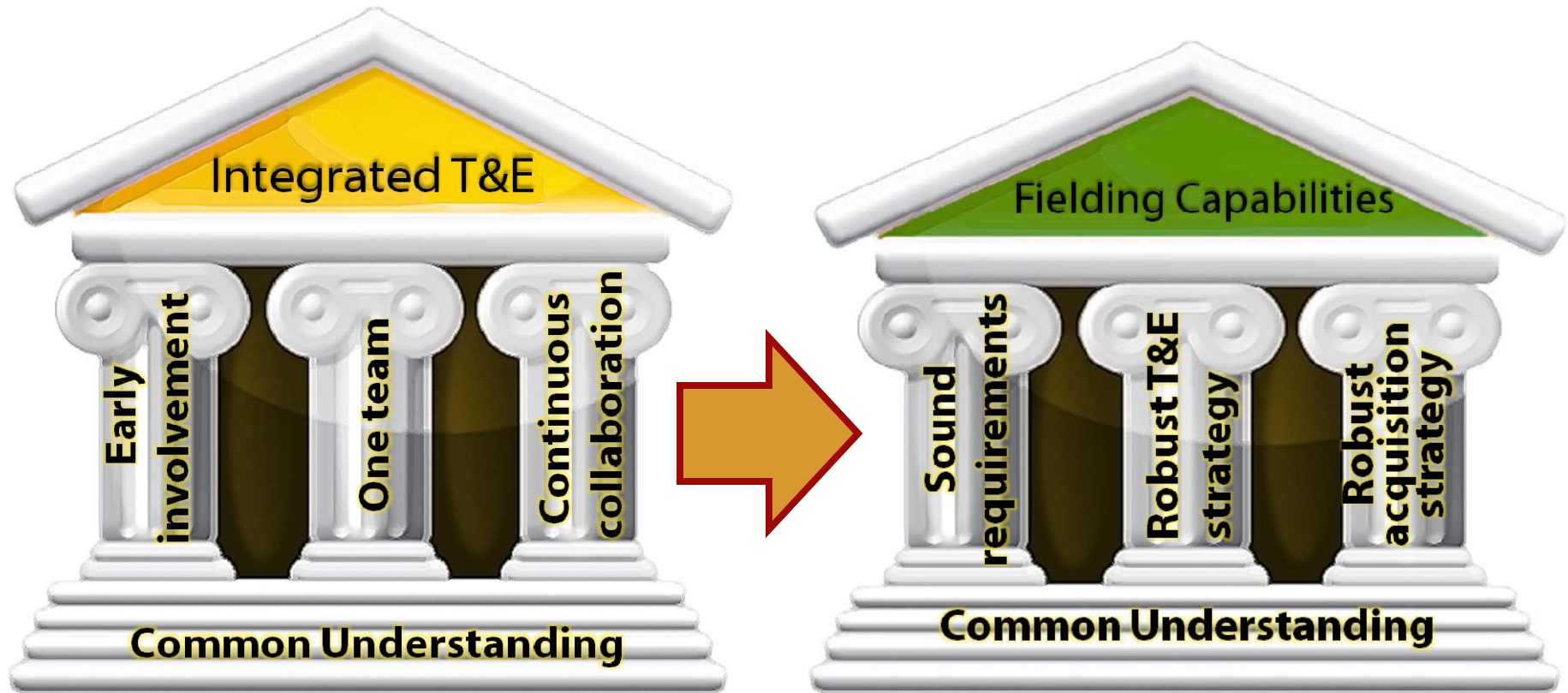
Integrated T&E Questions



Integrated T&E Philosophy



Fielding Warfighter Capabilities



- ✓ Purpose of the T&E Handbook
- ✓ Interfaces between Commands
- ✓ Integrated Testing



Integrated Testing and Evaluation Handbook NDIA Short Course

LtCol Mark “Geppetto” Raffetto
MCOTEA MCB Quantico
Mark.Raffetto@USMC.Mil
703-432-0942



“USMC Integrated Test & Evaluation Handbook”

Select

I'm Feeling Lucky

