SLIDES ONLY
NO SCRIPT PROVIDED

CLEARED For Open Publication

Jan 14, 2025

Department of Defense
OFFICE OF PREPUBLICATION AND SECURITY REVIEW



Operational Test and Evaluation and Live Fire Test and Evaluation Policy Motivation & Opening Comments

Dr. Douglas C. SchmidtDirector, Operational Test & Evaluation
Office of the Secretary of Defense

Policy Overview Workshop
/ December 12, 2024

Transformation of Today's Battlefield...







SEAMLESS COLLABORATION ACROSS ALL DOMAINS

ATTRITABLE SYSTEMS AT SCALE

ENABLED BY AUTONOMY & AI

Transformation of Today's Battlefield...









LONG-RANGE LETHALITY

ATTRITABLE SYSTEMS AT SCALE

CONTESTED ELECTROMAGNETIC SPECTRUM

ANTI-ACCESS / AREA DENIAL (A2/AD)

Challenges to the Faster and Cheaper Delivery of Weapons that Work

There are several challenges with our current state that may inhibit our goal, often having cascading effects between each.



Challenges to the Faster and Cheaper Delivery of Weapons that Work

There are several challenges with our current state that may inhibit our goal, often having cascading effects between each.



In our T&E Enterprise – contractor, developmental live fire, and operational testing often operate in separate silos





Our tools and processes designed for hardware capabilities, versus those defined for software





We often fail to obtain nor analyze a holistic "whole body of evidence" that considers output from all phases of test to support acquisition decisions.



Compare and Contrast: Culture

Our T&E Culture



CURRENT STATE

- CT, DT, LF, OT, and M&S operate in separate silos
 - Operational contexts not introduced until late in T&E campaigns → late deficiency discovery, cost overruns, delays



FUTURE STATE

- Integrated T&E that collects and analyzes targeted data to maximize operational performance knowledge early and often, while optimizing test resources
- Deficiencies discovered early, when they are easiest and least expensive to fix



Compare and Contrast: Technology

Our T&E Technology – Data Repositories and Linkages



CURRENT STATE

- Scattered spreadsheets
- Data is not VAULTIS [Visible, Accessible, Understandable, Linked, Trustworthy, Interoperable, Secure]
- Unsuitable for modern data analytics and AI
- No linkage → Decisions not necessarily data-driven and T&E gaps can be hard to identify



FUTURE STATE

- Streamlined databases
- Data is VAULTIS
- Suitable for modern data analytics and Al
- Transparent linkage across acquisition decisions, operational performance metrics, test events, test data, and M&S
 - → Data-driven decision-making and straightforward T&E gap identification



Compare and Contrast: Methodology

Our T&E Methodology – Experimental Design and Body of Evidence



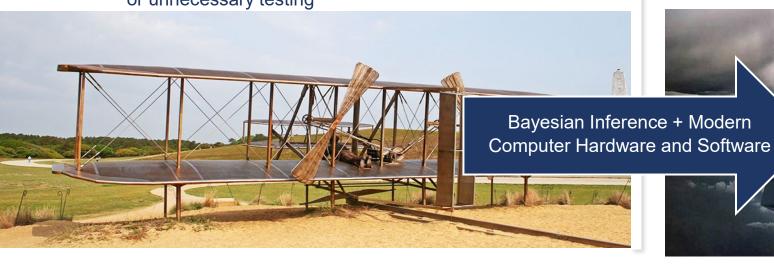
CURRENT STATE

- Early 1900s classical design of experiments
 - Static test design
 - Data collected during different phases of test typically cannot be combined
 - → Test resources are not optimized, resulting in redundant or unnecessary testing



FUTURE STATE

- We invent dynamic, adaptive design of experiments and implement them in easy-to-use, real-time software
 - Data collected during all phases of test is combined and analyzed as a "whole body of evidence"
 - Dynamically optimized test resources



odern Software

Acronyms: T&E = Test and Evaluation

Compare and Contrast: Methodology

Our T&E Methodology – M&S and Its V&V



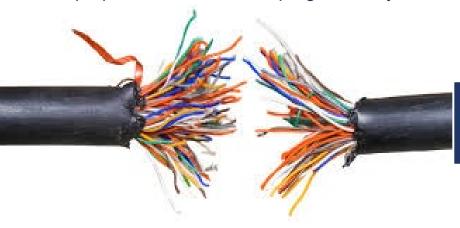
CURRENT STATE

- The use and V&V of M&S is sporadic and unsynchronized
 - It is often an afterthought to apply M&S to T&E after it was developed for another purpose
 - V&V is typically not in accordance with the lifecycle approach detailed in DoDI 5000.09 "M&S VV&A"
- → Lost opportunities to credibly apply M&S more broadly for the purposes of T&E across program lifecycles



FUTURE STATE

- A deliberate lifecycle approach to developing and "V&V'ing" M&S for the purposes of T&E, that is synchronized with live test data in accordance with DoDI 5000.09 "M&S VV&A" to generate a "predict, live test, refine" feedback loop
 - Credibly interrogate complex scenarios that might not be possible to orchestrate exclusively in the live domain
 - Expose early prototypes to operational contexts in digital worlds



Digital Engineering + Digital Twins + Uncertainty Quantification for Rigorous V&V Integrated Into Analysis Workflows

DOT&E Strategic Pillars







PILLAR 2
Accelerate The Delivery
of Weapons That Work



PILLAR 3
Improve the
Survivability of DoD in a
Contested Environment



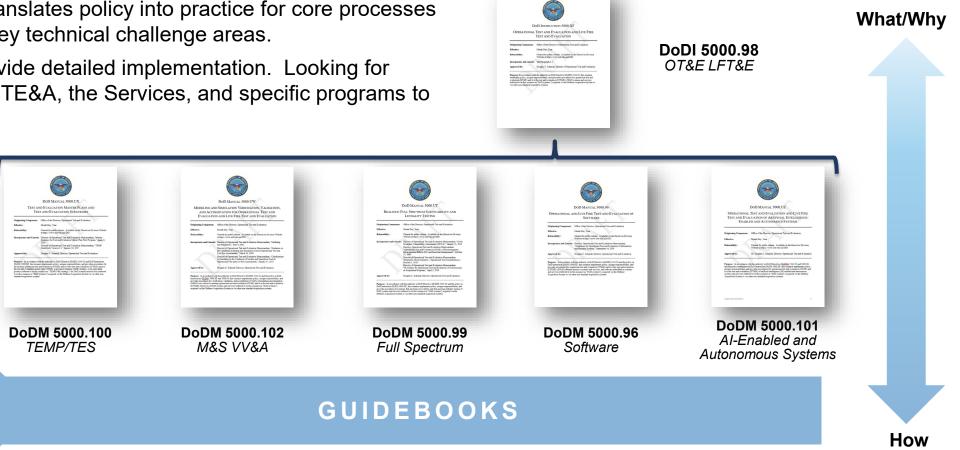
T&E of Weapon Systems
Built to Change Over Time



PILLAR 5Foster an Agile & Enduring
T&E Enterprise Workforce

DOT&E is Implementing a Comprehensive Approach to Policy and Guidance

- **DOD Instruction –** captures strategy intent and identifies organizational roles and responsibilities.
- **DOD Manuals –** translates policy into practice for core processes (TEMP/TES) and key technical challenge areas.
- **Guidebooks** provide detailed implementation. Looking for partnerships with DTE&A, the Services, and specific programs to shape content.



Narrative GUIDEBOOK MODULES Examples

DoDI 5000.98

DoDM 5000.100

Establishes policy, assigns responsibilities, & prescribes procedures for operational test & evaluation (OT&E) & live fire test & evaluation (LFT&E).

OT&E & LFT&E input to the test & evaluation master plan (TEMP), a test & evaluation (T&E) strategy, or an equivalent artifact.

DoDM 5000.96

DoDM 5000.99

versus

OT&E & LFT&E of DoD software-intensive systems & services, & software embedded in systems & services.

Realistic full spectrum survivability & full spectrum lethality testing of DoD systems & services.

DoDM 5000.102

DoDM 5000.101

Verification, validation, & accreditation (VV&A) of modeling & simulation (M&S) tools critical to meeting OT&E & LFT&E objectives.

OT&E & LFT&E of artificial intelligence (AI)-enabled & autonomous systems & services.



OFFICE OF THE SECRETARY OF DEFENSE

APR 0 3 2018

MEMORANDUM FOR COMMANDER, ARMY TEST AND EVALUATION COMMAND COMMANDER, OPERATIONAL TEST AND EVALUATION

COMMANDER, AIR FORCE OPERATIONAL TEST AND EVALUATION CENTER

DIRECTOR, MAI

EVALUAT COMMANDER BALLISTIC MI

SUBJECT: Procedures for Operational Programs

References: (a) Director, Operational To "Procedures for Operation Acquisition Programs," (b) Joint Staff J6 guidebook

Guide," Version 1.01 (c) DOT&E Memorandum. Priorities and Improvem (d) Chairman of the Joint Ch

Cyber Red Team Certifica (e) DOT&E Memorandum. January 21, 2015

This memorandum provides policie cybersecurity as part of all operational test the Department of Defense (DOD). This processes and procedures from references OT&E. DOT&E will routinely review an and evaluation technology and capabilities

Background

The DOD acquisition process shou that are both secure and resilient in all aso including cyber.1 The purpose of testing of the system to enable operators to execute



JUL 1 3 2018

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING

UNDER SECRETARY OF DEFENSE FOR ACQUISITION AND

ASSISTANT SECRETARY OF THE ARMY FOR ACQUISITION. LOGISTICS AND TECHNOLOGY

ASSISTANT SECRETARY OF THE NAVY FOR RESEARCH DEVELOPMENT AND ACQUISITION

ASSISTANT SECRETARY OF THE AIR FORCE FOR ACOUISITION

DIRECTOR OF THE MISSILE DEFENSE AGENCY

DIRECTOR, SPECIAL PROGRAMS, OFFICE OF THE UNDER SECRETARY OF DEFENSE FOR ACQUISITION AND SUSTAINMENT

COMMANDING GENERAL, ARMY TEST AND EVALUATION COMMAND COMMANDER, OPERATIONAL TEST AND EVALUATION

COMMANDER, AIR FORCE OPERATIONAL TEST AND

EVALUATION COMMAND

DIRECTOR, MARINE CORPS OPERATIONAL TEST AND EVALUATION ACTIVITY COMMANDER, JOINT INTEROPERABILITY TEST COMMAND

SUBJECT: Designation of Programs for Director, Operational Test and Evaluation Oversight

References: (a) 10 U.S.C. § 139

(b) 10 U.S.C. § 2366

(c) 10 U.S.C. § 2399

(d) DoD Instruction 5000.02, "Operation of the Defense Acquisition System,"

In order to effectively advise the Secretary of Defense, the Under Secretary of Defense for Research and Engineering, and the Under Secretary of Defense for Acquisition and Sustainment on operational and live fire test and evaluation (LFT&E) in the Department of Defense in accordance with reference (a), this memorandum provides the criteria and rationale to add and remove programs from Director, Operational Test and Evaluation (DOT&E) oversight. The resulting list of programs will focus test and evaluation resources on delivering combat credible weapons, equipment, and munitions



Per DOD Instruction 8500.01, "Cybersecurity," degradation or loss; and network operations ha

• Manuals guide all programs, not just those on T&E oversight!



- Manuals guide all programs, not just those on T&E oversight!
- Connecting DoDI with supporting DoD manuals and guidebooks formalizes guidance across the T&E community.

Video

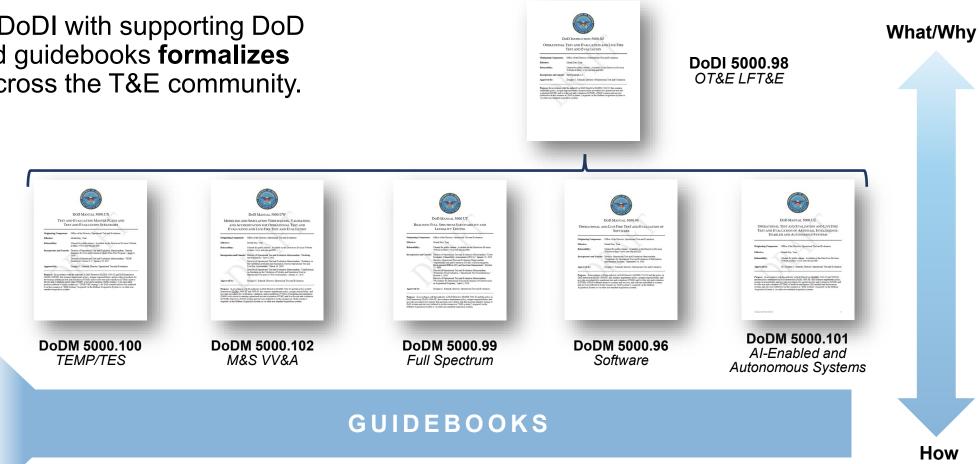
Tutorials

Examples

Narrative

GUIDANCE MODULES

Tools/



- Manuals guide all programs, not just those on T&E oversight!
- Connecting DoDI with supporting DoD manuals and guidebooks formalizes guidance across the T&E community.
- Facilitates standardization across the DoD with great authority stemming from the formal coordination process.



versus



- Manuals guide all programs, not just those on T&E oversight!
- Connecting DoDI with supporting DoD manuals and guidebooks formalizes guidance across the T&E community.
- Facilitates standardization across the DoD with great authority stemming from the formal coordination process.
- Enhances longevity since DoDMs provide stable guidance across leadership tenures.



- Manuals guide all programs, not just those on T&E oversight!
- Connecting DoDI with supporting DoD manuals and guidebooks formalizes guidance across the T&E community.
- Facilitates standardization across the DoD with great authority stemming from the formal coordination process.
- Enhances longevity since DoDMs provide stable guidance across leadership tenures.
- Clarifies roles and responsibilities: DoDMs specifically assign roles and responsibilities, making it easier to hold parties accountable for compliance.



DoD Instruction, Manuals, and Guidebooks Provide Information at the Speed of Relevance

UPDATED PERIODICALLY:

- Incorporate best practices developed with programs
- Reflect emerging technologies

DoD Instruction

Sets strategic intent & identifies key stakeholders

DoD Manuals

Directs how to execute strategic intent in core processes and critical challenge areas

Guidebooks

Provides detailed execution guidance via tutorials, examples, tools, and templates Partnerships with programs to shape implementation

Video Tutorials GUIDANCE MODULES Examples Tools/ Applications

UPDATED RARELY:

Updates reflect major shifts in strategic intent / roles and responsibilities

UPDATED ON DEMAND:

- As new content is developed / available
- Responsive to T&E practitioner needs

How to Help Us Help to Deliver Weapons that Work... Faster

