OFFICE OF THE SECRETARY OF DEFENSE
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OPERATIONAL TEST
AND EVALUATION

JAN 19 2017

MEMORANDUM FOR USERS OF THE DIRECTOR, OPERATONAL TEST AND EVALUATION (DOT&E) TEST AND EVALUATION MASTER PLAN (TEMP) GUIDEBOOK

SUBJECT: DOT&E TEMP Guidebook 3.1

DOT&E TEMP Guidebook 3.1 updates the Design of Experiments (DOE), Scientific Test and Analysis Techniques (STAT), Mission-focused Metrics, Operational Evaluation Framework (OEF), Modeling and Simulation (M&S) for Test and Evaluation, Defense Business Systems, Cybersecurity, and Software-Intensive Systems sections of the DOT&E TEMP Guidebook 3.0. Version 3.1 also contains a new Survey Design guidance section consistent with the 6 January 2017 DOT&E Survey Pre-testing and Administration memo.

The DOE and STAT sections now highlight the importance of justifying resources, especially long-lead items, using experimental design techniques at Milestone A and in TEMPs supporting Requests for Proposals. The Mission-focused Metrics section was renamed Quantitative Mission-focused Measures. The terms "metrics," "measures," and "response variables" have been used interchangeably in the Mission-focused Metrics, DOE, and STAT sections – which has led to some confusion among readers. Thus where it makes sense, we replaced the terms "metrics" and "response variables" with "measures." We added the term "quantitative" to Mission-focused Measures to highlight the importance of evaluating systems with quantitative measures as opposed to qualitative measures.

The cybersecurity guidance includes a statement reminding readers that a Cooperative Vulnerability and Penetration Assessment and Adversarial Assessment are normally required as part of an operational test or assessment supporting a fielding decision. The command and control cybersecurity example now contains a detailed table describing cyber defenders' roles and responsibilities.

Minor content updates were made in the Software-intensive Systems section to align the discussion with Department of Defense Instruction (DoDI) 5000.02 as compared to the interim DODI 5000.02.

That STAT and Defense Business Systems sections now include DOT&E survey content expectations in TEMPs, along with dedicated survey guidance. The Defense Business Systems section also now discusses the importance of describing software change requests when explaining the defect tracking process.

The measures of merit discussion in the OEF guidance was incorporated into the STAT section.

The M&S section was updated to reflect the 14 March 2016 and 17 January 2017 DOT&E guidance memoranda on the validation of M&S used in operational test and live fire assessments.

Program Managers will use the TEMP as the primary planning and management tool for all test activities starting at Milestone A. Program Managers will prepare and update the TEMP as needed and to support acquisition milestones or decision points. The TEMP should be specific to the program and tailored to meet program needs. Accordingly, the guidance in this guidebook, in DoDI 5000.02, and in the TEMP format are provided to assist in developing the appropriate TEMP format and content for each program. Strict or immediate adherence to the new TEMP format is not required. Use common sense to apply the guidance to fit your program. Evaluation of TEMP adequacy is based on the TEMP's content, not the format.

Questions or suggestions about this guidebook should be addressed to Dr. Catherine Warner, catherine.w.warner.civ@mail.mil, 703-697-3655.

J. Michael Gilmore
Director

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MEMORANDUM FOR USERS OF THE DIRECTOR, OPERATIONAL TEST AND EVALUATION (DOT&E) TEST AND EVALUATION MASTER PLAN (TEMP) GUIDEBOOK

SUBJECT: DOT&E TEMP Guidebook 3.0

This new version of the DOT&E TEMP Guidebook complements the January 2015 version of DoDI 5000.02 by illustrating with selective guidance and examples how to develop and document an adequate test and evaluation (T&E) strategy. The Program Manager will use the TEMP as the primary planning and management tool for all test activities starting at Milestone A. Best practices outlined in this TEMP Guidebook should be applied to all versions of the TEMP, including the Development Request for Proposal (RFP) TEMP.

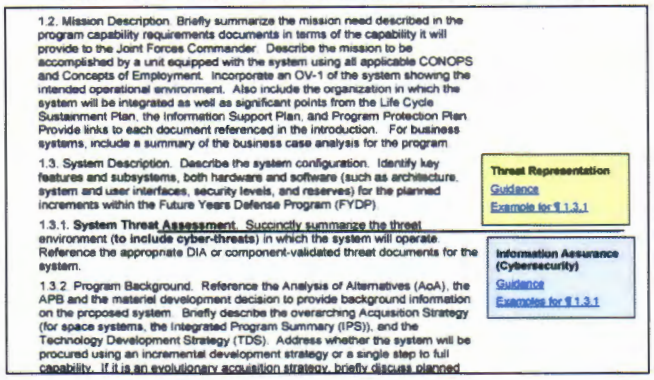
The Program Manager will prepare and update the TEMP as needed and to support acquisition milestones or decision points. The TEMP should be specific to the program and tailored to meet program needs. Accordingly, the guidance in this guidebook, in DoDI 5000.02, and in the TEMP format guide are provided to assist in developing the appropriate TEMP format and content for each program. Strict or immediate adherence to the new TEMP format is not required. Use common sense to apply the guidance to fit your program. Evaluation of TEMP adequacy is based on the TEMP's content, not the format.

Summary of the TEMP and TEMP Guidebook Format

The TEMP format has been changed as illustrated below. The previous TEMP format on the left explained in sentences and paragraphs what DOT&E required for adequacy. TEMP Guidebook 2.1 added colored callout boxes with links to the DOT&E Guidebook guidance and examples.

The new TEMP format on the right enumerates in bullets what should be considered for inclusion in each paragraph/section of the TEMP. Callouts with links to DOT&E guidance in the Guidebook 3.0 are in bold blue font.

Previous TEMP and Guidebook 2.1 Format


1.2. Mission Description. Briefly summarize the mission need described in the program capability requirements documents in terms of the capability it will provide to the Joint Forces Commander. Describe the mission to be accomplished by a unit equipped with the system using all applicable CONOPS and Concepts of Employment. Incorporate an OV-1 of the system showing the intended operational environment. Also include the organization in which the system will be integrated as well as significant points from the Life Cycle Sustainment Plan, the Information Support Plan, and Program Protection Plan. Provide links to each document referenced in the introduction. For business systems, include a summary of the business case analysis for the program.

1.3. System Description. Describe the system configuration. Identify key features and subsystems, both hardware and software (such as architecture, system and user interfaces, security levels, and reserves) for the planned increments within the Future Years Defense Program (FYDP).

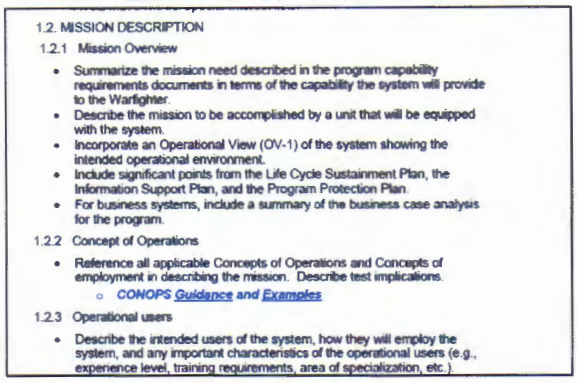
1.3.1. System Threat Assessment. Succinctly summarize the threat environment (to include cyber-threats) in which the system will operate. Reference the appropriate DIA or component-validated threat documents for the system.

1.3.2. Program Background. Reference the Analysis of Alternatives (AoA), the APB and the materiel development decision to provide background information on the proposed system. Briefly describe the overarching Acquisition Strategy (for space systems, the Integrated Program Summary (IPS)), and the Technology Development Strategy (TDS). Address whether the system will be procured using an incremental development strategy or a single step to full capability. If it is an evolutionary acquisition strategy, briefly discuss planned

Threat Representation
Guidance
Example for ¶ 1.3.1

Information Assurance (Cybersecurity)
Guidance
Examples for ¶ 1.3.1

New TEMP and Guidebook 3.0 Format


1.2. MISSION DESCRIPTION

1.2.1 Mission Overview

- Summarize the mission need described in the program capability requirements documents in terms of the capability the system will provide to the Warfighter.
- Describe the mission to be accomplished by a unit that will be equipped with the system.
- Incorporate an Operational View (OV-1) of the system showing the intended operational environment.
- Include significant points from the Life Cycle Sustainment Plan, the Information Support Plan, and the Program Protection Plan.
- For business systems, include a summary of the business case analysis for the program.

1.2.2 Concept of Operations

- Reference all applicable Concepts of Operations and Concepts of employment in describing the mission. Describe test implications.
  - *CONOPS Guidance and Examples*

1.2.3 Operational users

- Describe the intended users of the system, how they will employ the system, and any important characteristics of the operational users (e.g., experience level, training requirements, area of specialization, etc.).

The callouts have been placed throughout TEMP Guide 3.0 at locations where DOT&E and other applicable policies apply. Keep in mind that the examples are notional and apply to a specific or notional system, not to every system. In preparing your TEMP, you should apply the policy guidance and not simply copy the examples provided. The examples might not be appropriate for your system. The policy guidance contains additional links to the source policy documents if you wish to further investigate the underlying policy.

Summary of Milestone A TEMP Requirements in the January 2015 DoDI 5000.02

The Milestone A TEMP should address all major sections of the TEMP outline, but some of the details in the TEMP format may not be mature until Milestone B. The Milestone A TEMP should be complete enough to estimate and plan for the major resources required for adequate test and evaluation. Other specifics that should be included in the Milestone A TEMP include:

- Operational rationale for requirements. A link or reference to the capabilities development document (CDD) or similar document that provides rationale for requirements would be sufficient.

- For software acquisitions, an analysis of operational risk to mission accomplishment covering all planned capabilities or features in the system. The analysis will include commercial and non-developmental items.

- All planned T&E for phase completion. Major test events should have test entrance and test completion criteria.

- A table of independent variables (or "conditions," "parameters," "factors," etc.) that may have a significant effect on operational performance.

- Strategy and resources for cybersecurity T&E.

Summary of Milestone B and Subsequent TEMP Requirements in the January 2015 DoDI 5000.02

Regarding operational and live fire testing, the Milestone B and subsequent TEMPs should be updated to address all plans of the T&E strategy until system deployment. The

detailed focus of each TEMP should be on plans for the Developmental Test and Evaluation (DT&E), Live Fire Test and Evaluation (LFT&E), and Operational Test and Evaluation (OT&E) supporting the next major acquisition decision. In addition to updating the Milestone A content, the Milestone B and subsequent TEMPs should include:

- Expand on details of each LFT&E and OT&E phase/test to include cybersecurity testing.
- Expanded use of scientific and test analysis techniques to design effective and efficient testing.
- Reliability Growth Curves (RGCs) or Software Tracking metrics, updated RGCs (if applicable) that reflect test results to date, and a working link to the Failure Modes, Effects and Criticality Analysis (FMECA) data. A software defect or failure tracking database may replace the FMECA in software acquisitions.
- Operational evaluation framework that shows how the major test events and test phases link together to form a systematic, rigorous, and structured approach to evaluating mission capability across the applicable values of the independent variables.
- The updated table of variables will include the anticipated effects on operational performance, the range of applicable values (or "levels," "settings," etc.), the overall priority of understanding the effects of the variable, and the intended method of controlling the variable during test (uncontrolled variation, hold constant, or controlled systematic test design).
- Plans for Verification, Validation, and Accreditation if applicable.
- Appropriate cybersecurity measures to evaluate operational capability to protect, detect, react, and restore to sustain continuity of operation. The TEMP will document the threats to be used, which should be selected based on the best current information available from the intelligence community.
- Complete test resource requirements. Resources will reflect the best estimate for conducting all test activities. Resources will be mapped against the developmental and operational evaluation frameworks and schedule to ensure adequacy and availability. Ensure that resource estimates identified in the TEMP are matched against the schedule and justified by analysis.

Summary of the TEMP Outline from the January 2015 DoDI 5000.02

As before, the four major sections of the TEMP remain:

- Part I – Introduction
- Part II – Test Program Management and Schedule

- Part III – Test and Evaluation Strategy and Implementation
- Part IV – Resources Summary.
- Appendices may be added as needed for Scientific Test and Analysis Techniques, Cybersecurity, and Reliability.

Questions or suggestions about this guidebook should be addressed to Dr. Catherine Warner. She may be reached at Catherine.W.Warner.civ@mail.mil or (703) 697-3655.

J. Michael Gilmore
Director