

TEST AND EVALUATION ENTERPRISE GUIDEBOOK



August 2022

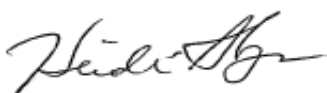
FOREWORD

The T&E Enterprise Guidebook further clarifies and details the procedures that should be implemented to meet the intent of the T&E policies outlined in DOD Instruction (DoDI) 5000.89. The T&E Enterprise Guidebook clarifies the T&E role and actions for five of the six acquisition pathways detailed in DoDI 5000.02: major acquisition capability, middle tier of acquisition, urgent capability acquisition, defense business systems, and software acquisition pathway. The role of T&E for the acquisition of services will be provided if the pathway is used in the future to deliver critical warfighting capabilities. Irrespective of the acquisition pathway, the T&E Enterprise Guidebook emphasizes the need for T&E professionals to do the following:

- Actively engage in the acquisition process at the onset of the acquisition program to inform the development of the requirements and acquisition contracts;
- Collaborate in the planning and execution of T&E events across the system lifecycle to provide data early and often in support of both developmental and operational test objectives and acquisition decisions while supporting timely assessments of progress and risk to technical and operational performance;
- Actively engage with program managers to establish and enable the use of data stores and knowledge management tools to successfully build the body of evidence needed to support more agile T&E; and
- Leverage digital engineering tools, rigorous verification and validation processes, and automation tools to expedite the T&E planning, data analysis, reporting, and management of identified design shortfalls and vulnerabilities.

We expect to update the T&E Enterprise Guidebook as new challenges arise and as new T&E tools and processes become available to support even more agile and robust T&E. This memorandum applies to all future updates to the T&E Enterprise Guidebook that will include an array of T&E Focus Area Chapters intended to provide additional guidance on unique topics such as cyber survivability, artificial intelligence-based systems, modeling and simulation, interoperability, and more.

Adequate and agile T&E is the cornerstone of delivering weapons that work, at the speed of operational relevance. For programs on the T&E Oversight List, we will consider adherence to the T&E Enterprise Guidebook in our review of the adequacy of T&E strategies and plans. Regardless of the oversight status, we strongly encourage all to adhere to the procedures outlined in this T&E Enterprise Guidebook.



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TEST AND EVALUATION CHAPTER 1: T&E OVERVIEW



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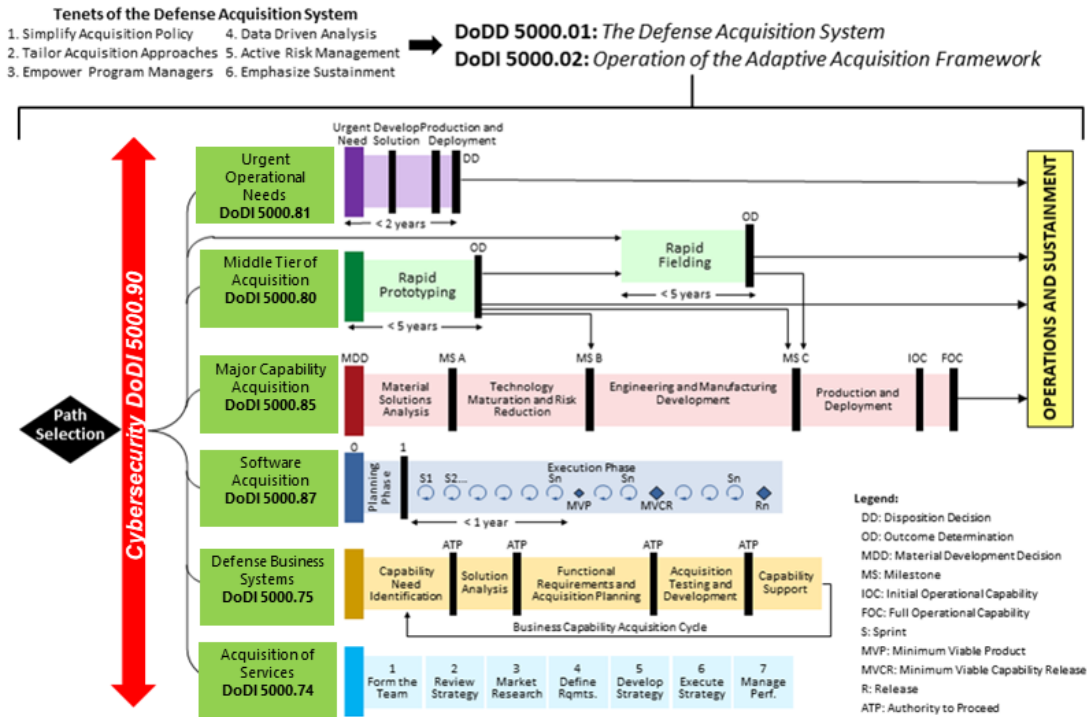
Test and Evaluation (T&E) Overview

1. Introduction

The Enterprise T&E Guidebook provides the DoD Acquisition and T&E communities with the requisite information to comply with the T&E Policy specified in DoDI 5000.89 and facilitate a robust and rigorous T&E program. In the event of conflict between this guidance and the policy, the reader should defer to policy documentation. The Enterprise T&E Guidebook consists of three parts:

- **T&E Overview.** Provides readers with foundational information about T&E applicable across the six pathways outlined in the DoD's Adaptive Acquisition Framework (Figure 1). In particular, the T&E Overview identifies types of T&E within the DoD; required T&E documentation; T&E roles, responsibilities, and authorities; the T&E Oversight List; and general information about managing a T&E program.
- **T&E Acquisition Pathway Guidance.** Provides readers with information about the T&E activities that defense acquisition programs should undertake for each acquisition pathway within the DoD's Adaptive Acquisition Framework: Major Capability Acquisition, Urgent Capability Acquisition, Middle Tier of Acquisition, Defense Business Systems, and Software Acquisition. The requirement for additional information about the Acquisition of Services pathway is under review.
- **Focus Areas.** Provide readers with information on critical assessment areas for T&E, such as cybersecurity, and enablers of T&E, such as T&E strategies. Focus area chapters will evolve and links will be provided as they are created.

Throughout the Enterprise T&E Guidebook, you will also encounter references to Companion Guides which provide detailed how-to information on particular T&E activities, methods, and documentation. Links will appear as companion guides become available, and additional companion guides will be developed as appropriate.



July 2019

Figure 1. DoD Adaptive Acquisition Framework¹

1.1 Purpose of T&E

T&E is critical to the acquisition process, as it provides the data required to demonstrate technical, functional, and warfighting capability, and affords the opportunity to identify and solve any system deficiencies prior to making a final acquisition or fielding decision. The effectiveness and efficiency of the T&E program is enhanced by two major factors: 1) an adequately planned and resourced T&E strategy and 2) access to contractor-generated data, tools, information, and expertise. Adequate T&E provides engineers and decision makers with knowledge to assist in managing programmatic risks, measuring technical progress, and characterizing operational effectiveness, suitability, survivability, and lethality as the program progresses through the acquisition process.

The Program Manager (PM) should involve the T&E organizations with the acquisition program from its inception and throughout its lifecycle to support the program decisions and delivery timeline. Contractor testing (CT), government developmental test and evaluation (DT&E), live fire test and evaluation (LFT&E), and operational test and evaluation (OT&E) should be integrated, streamlined, and automated to the maximum extent practicable to enable efficient use of test data and resources across the test program and evaluation of system operational effectiveness, suitability, survivability, and lethality to inform the decision authorities. Maximum sharing, reciprocity, availability, and reuse of test results and artifacts among testing and certification organizations are necessary for efficiency. Collaboration between all organizations should be considered to develop

¹ DoDI 5000.02

digital system models, simulations, and test environments for common use across the spectrum of system tests that may produce necessary data or information. The PM should capture results from all test events in a shared data repository, available for all parties to use for independent assessment:

- Government test teams should be involved from the inception of the program to ensure their T&E requirements are captured in acquisition contracts and that they have a process to generate the required data.
- Government test teams should strive to maintain a tempo that supports the required decisions using various tools (e.g., digital engineering, sequential testing, and automation).
- Government test teams should develop a robust T&E program to support decisions with end-to-end mission threads employing actual users.
- OT&E and LFT&E should concentrate on appropriately scoped, dedicated tests while integrating useable data and information from all sources to meet stakeholder needs, support operational evaluations, and inform decisions.
- The T&E Working Integrated Product Team (WIPT) may develop collaborative test data scoring boards to evaluate available test data for potential to meet any IOT&E and LFT&E requirements.

2. Types of Test & Evaluation

Each type of T&E exists to enable the DoD to acquire systems that support warfighters in accomplishing their mission. Collaborative planning and execution of test phases and events can provide shared data in support of independent analysis, evaluation, and reporting by all stakeholders. This approach does not support the replacement of dedicated DT&E, OT&E, or LFT&E, but may affect the scope of individual test events if stakeholders can pull data from prior events to support their evaluations. Incorporating operational realism early in the test program improves the probability of identifying and correcting problems early, rather than later in development when redesigns are more expensive and correcting the problem may prove infeasible.

Before the start of testing for any acquisition path, the T&E WIPT will develop a T&E Strategy² to document DT&E, OT&E, and LFT&E requirements; the rationale for those data requirements (e.g., Joint Capabilities Integration and Development System and a Concept of Operations (CONOPS)); and resources required, to be approved by the DOT&E and USD(R&E), or their designee, as appropriate.³

2.1 Developmental Test & Evaluation

DT&E is the disciplined process of generating substantiated knowledge on the capabilities and limitations of systems, subsystems, components, software, and materiel.

² Different naming conventions for the T&E planning document are common and acceptable (e.g. Simplified Acquisition Master Plan (SAMP), Test and Evaluation Master Plan (TEMP), test strategy, T&E Strategy). This document will refer to any of these as the T&E Strategy.

³ DoDI 5000.89, pg. 10

This knowledge is used to inform decision makers on risks in acquisition, programmatic, technical, and operational decisions throughout the acquisition life cycle. DT&E assesses the maturity of technologies, system design, readiness for production, acceptance of government ownership of systems, and readiness to participate in operational T&E, and sustainment.

Both test and evaluation are necessary to gain value from a DT&E effort. In the context of DT&E, an entity can be a technology, process, materiel, software module, component, subsystem, system, and system of systems. Identified conditions refer to test conditions that are controlled, uncontrolled, measured, or not measured. Developmental evaluations are accomplished using criteria derived from various sources, the most common of which are the mission sets from the Concept of Operations/Operational Mode Summary/Mission Profile (CONOPS/OMS/MP), the capability gaps, user requirements specified in the capabilities documents (Initial Capabilities Document (ICD), the Capability Development Document (CDD), Critical Operational Issues (COIs), Critical Operational Issues and Criteria (COIC)), the design measures contained in the technical requirements documents (TRD), and contractual performance specifications. The data collected during one test may result in multiple developmental evaluations being accomplished.

DT&E activities should commence during the development of requirements to ensure key technical requirements are measurable, testable, and achievable, and provide feedback that the system engineering process is performing adequately. In particular, the DT&E program should:

- Verify the achievement of critical technical parameters and key performance parameters
- Assess system specification compliance and the system's ability to achieve the thresholds prescribed in the capabilities documents
- Provide data to the PM to enable root cause determination of failures arising from tests, and identify corrective actions
- Provide information for cost, performance, and schedule tradeoffs
- Report on the program's progress to plan for reliability growth, and assess reliability and maintainability performance for use during key program decisions
- Identify system capabilities, limitations, and deficiencies
- Assess system safety and compatibility with legacy systems
- Stress the system within the intended operationally relevant mission environment to assess readiness for OT
- Support all appropriate certification processes
- Document achievement of contractual technical performance, and verify incremental improvements and system corrective actions
- Assess entry criteria for IOT&E and FOT&E
- Provide DT&E data to validate parameters in modeling and simulation (M&S)
- Assess the maturity of the chosen integrated technologies

- Identify cyber vulnerabilities within custom and commodity hardware and software on components, subsystems, and systems so the Program Office can mitigate them early in the program’s lifecycle
 - Support cybersecurity assessments and authorization, including Risk Management Framework (RMF) security controls
- b. Evaluation of Developmental Test Adequacy
- DT&E provides feedback to the PM's and decision makers to inform decision-making throughout the acquisition cycle. The PM uses the T&E Strategy as the primary planning and management tool for the integrated test program. The documentation should describe a logical DT&E strategy, including: 1) decisions to be informed by the DT&E information, 2) evaluations to inform those decisions, 3) test and M&S events to be conducted to generate the data for the evaluation, and 4) resources to be used and schedules to be followed to execute T&E events. A comprehensive DT&E program generates the key data used to evaluate technologies, components, sub-systems, interoperability, cybersecurity, and reliability capabilities. The T&E Strategy includes an Integrated Decision Support Key (IDSK) and evaluation framework (if necessary) that shows the correlation/mapping between decisions, capabilities to be evaluated, measures to be used to quantify the capabilities, and test and M&S events.

2.2 Operational Test & Evaluation

OT&E supports the evaluation of the operational performance of units equipped with systems operated under realistic operational conditions in an operationally representative threat environment (Initial Operational Capability, plus ten years), including joint combat operations and system of systems concept of employment. Operational testing provides data required to enable credible evaluation of operational effectiveness, suitability, and survivability (10 U.S.C. §§ 4171 and 4172; DoDI 5000.89).

To this end, in 2019, the operational test community created, and DOT&E endorsed, a set of six core test principles intended to deliver more lethal and more resilient capabilities at the “speed of relevance.” The six principles are: Early OT Involvement, Tailor to the Situation, Continuous and Cumulative Feedback, Streamline Processes and Products, Integrated and Combined Collection/Test, and Adaptive.

Early OT Involvement: The intent of this principle is for the OT teams to be engaged with a program from its very inception. The earlier an OT team’s involvement, the greater its influence on requirements definition, budgeting, contracting, and engineering to ensure the entire test community is part of a system’s development. By applying an operational perspective very early in a program, we can reduce changes later in the acquisition lifecycle and, in turn, reduce overall program cost.

Early involvement is more than “observation” from an oversight prospective or “being seated at the table” as a symbol of collaboration; it means truly being part of the team to ensure relevant and credible information is provided to the decision makers when they

need it. Early OTA involvement means shaping each test event to simultaneously meet Contractor Test (CT), Developmental Test (DT), and OT objectives. In other words, to the maximum extent possible, design test events in an environment that can collect data once to answer the respective test objectives.

Tailor to the Situation: The intent of this principle is to provide test teams the flexibility to adjust their tests as needed in order to field capabilities as rapidly as possible. Given that many programs today are rapid in nature and the acquisition community works hard to speed product delivery by exploring streamlined approaches and more agile techniques to procure products, our OT teams will need to adjust our methods to meet the unique needs of every program. We want each of our teams to know they have the flexibility to tailor their test planning, execution, and reporting as needed to field capability as rapidly as possible.

As each test team builds a test design for their program, they should determine and align the overarching purpose of the test with the warfighter (“characterize” versus “demonstrate”). What decision is being supported? What information is needed to support that decision? It is essential, in the spirit of the OTAs providing warfighting capability, that the warfighter has direct input and rationale as to why OT is being conducted. This information will be critical as we march toward the “speed of relevance.”

Continuous and Cumulative Feedback: The intent of this principle is to ensure that OT provides timely feedback regarding the problems it discovers throughout the life of a program, especially in the earlier stages. The current acquisition timeline calls for OT reports at specific milestones in the process. With today’s fast-paced acquisitions, these reports may be irrelevant even before publication. In order to provide relevant information, we will provide “Continuous and Cumulative Feedback” to the Program Office and all stakeholders regarding our findings. Depending on the nature of the program, we may still provide reports at specified milestones, but these reports will be a cumulative document containing all the OT feedback leading up to that particular milestone or decision point. We want the developer and the Program Manager to know test results almost as fast as the OT teams. This approach changes the paradigm from OT being a “final exam” for a Program Manager to OT being a partner in the system development, and yet still delivering combat capability through timely, independent assessments.

Streamline Processes and Products: Closely aligned with the principle of “Tailor to the Situation,” the intent of this principle is to remove the bureaucratic constraints of the current acquisition processes. As a new program comes online, test teams should have the flexibility to modify existing procedures. To enable fielding at the “speed of relevance,” the test team must have the ability to streamline test processes and products to best meet the needs of their program. Along these lines, and tied to the previous principle, we want the teams to be able to create new products and processes, as needed, as they plan, execute, and report on their systems.

Integrated and Combined Collection/Test: Closely coupled with “Early OT Involvement,” the goal of this principle is to merge the primary test stakeholders (the

contractor/developer testers CT, DT, and OT) into one unified test team. As the program progresses through its acquisition lifecycle, we will no longer conduct sequential testing but pursue synchronized collection and data sharing among all three test communities. We should remove the artificial CT, DT, and OT barriers and think in terms of utilizing all test events at any point in the program to achieve CT, DT, and OT objectives in a collaborative fashion to the maximum extent possible. This “One Team” approach enhances communication across the entire program and encourages earlier and faster testing.

Adaptive: With today’s rapidly evolving technologies, the OTAs must be able to adapt to whatever program is presented to them. With the push within DoD for prototyping and its associated rapid fielding, the OTAs must not be encumbered by existing bureaucratic processes, but must be allowed the freedom to change as the test proceeds in order to take advantage of learning during the test process. They should not be constrained by a “checklist mentality” or rigid test designs that exceed the scope of the specific and evolving warfighter concerns.

Application of these core principles are essential to enabling our warfighters with equipment that works at the right time. The entirety of the T&E community alignment with these principles will facilitate early discovery and correction of deficiencies and collapse the artificial barriers between developmental and operational testing.

OT&E is conducted on all programs to support the development and fielding decisions. Following initial fielding, any capability upgrades that could materially change system performance will have to be tested to ensure no degradation in operational performance as a result of such changes, and to assess the extent of any improvements to performance as a result of those changes. Programs on T&E oversight may not conduct OT until the DOT&E approves the adequacy of plans in writing.

For programs under T&E oversight, the DOT&E may provide the Milestone Decision Authority (MDA) with a report summarizing the assessment of the test adequacy and operational performance findings in support of the milestone decisions. For programs on T&E oversight, DOT&E must submit a report to the Secretary of Defense and the congressional defense committees before programs are permitted to proceed beyond low-rate initial production (BLRIP), which will state the Director’s opinion as to whether T&E was adequate and evaluate whether a unit equipped with the system was operationally effective, suitable, and survivable for combat. The Director may also provide additional information on the operational capabilities of the items or components as appropriate (10 U.S.C. §§ 4171 and 4172.).

2.3 Types of Operational Events

Operational events may be categorized into five types. Test plan approval for each test type varies and may be tailored as appropriate.

Operational demonstrations may be conducted by the material developer, PM, or operational test agency (OTA) with representative warfighters and missions to improve

system design, and should incorporate all aspects of system performance, including survivability and lethality, if deemed critical to mission effectiveness or force protection. The purpose of an ops demo is to assess the technical maturity and interoperability of the system, as well as characterize the system's progress in a threat-realistic operational environment. Data from such events may inform program transition decisions (e.g., exit from rapid prototyping) and subsequent OT events.

Early Operational Assessments (EOA) may be conducted to provide a means to evaluate a program's progress early in the process toward developing an operationally effective, suitable, and survivable system. EOAs are typically an analysis, based on a review of current program plans and documentation, as well as data from early developmental testing, technology assessments, M&S, and program reviews, to include the preliminary design review. EOAs enable the OTA to provide early input on key operational strengths and risks inherent to the design that, if not corrected, could have a detrimental effect on the determination of operational effectiveness, suitability, and survivability. EOAs examine the links and consistency between the CONOPS, requirements, and technology limitations to provide recommendations to the program and the requirements authority.

Operational Assessments (OA) should be conducted with operational realism to the maximum extent possible with representative units, missions, and environments and provide data to evaluate system performance. OAs often serve as risk reduction events to minimize the risk of finding major issues during IOT&E. An OA or a series of OAs may be conducted with pre-production systems and may not test the system in all missions and operational environments, or against all threats. Data from OAs may be analyzed and reported as an interim assessment of the status of the system's capability and limitations and any risks in meeting operational effectiveness, suitability, and/or survivability. In the event that an operational assessment is supporting a fielding or deployment decision, plans should detail system configuration, capabilities, users, missions, environment, and the data needed to demonstrate the required capabilities. In these cases, if the program is on T&E oversight, an early fielding report will document whether the system is operationally effective, suitable, and/or survivable in accordance with 10 U.S.C. §§ 4171 and 4172 .

Initial Operational Test and Evaluation (IOT&E) is required in Title 10 U.S.C. §§ 4171 for major defense acquisition systems to proceed to full rate production. IOT&E will use production or production-representative test articles in a dedicated field test conducted under realistic combat conditions to determine operational effectiveness, suitability, and survivability. Realistic combat conditions should include all relevant threats where possible, including, but not limited to: cyber, electromagnetic spectrum operations (EMSO), kinetic, directed energy, and chemical biological radiological nuclear (CBRN).

Follow-on Operational Test and Evaluation (FOT&E) may be necessary after IOT&E to evaluate system modifications or verify that identified deficiencies have been corrected. The scope of FOT&E should be tailored as appropriate. Data gathered during

FOT&E should ensure that the system retains its operational effectiveness, suitability and survivability, in a new or emerging operational environment or in a new mission.

2.4 Operational Test Readiness Review (OTRR)

OTRRs occur prior to an operational event (e.g., IOT&E, OA, FOT&E), and address and verify system reliability, maintainability, and supportability performance, as well as determine if the hazards and Environmental, Safety, Occupational, and Health (ESOH) and Software System Safety are manageable within the planned testing operations. The OTRR determines if changes are required in planning, resources, or testing necessary to proceed with OT&E. OTRRs may be conducted in multiple steps to ensure that the production configuration of the system (usually the LRIP system) can proceed to OT&E.

Programs on the T&E Oversight List are required by DoD policy to establish a Service process for determining and certifying a program's readiness for IOT&E by the Service or the Component Acquisition Executive. The OTRR is complete when the Service or the Component Acquisition Executive evaluates and determines material system readiness for IOT&E. The OTRR may be conducted by the PM or operational test agency (OTA), depending on Service policy.

2.5 Live Fire Test and Evaluation (LFT&E)

Live fire testing informs the degree to which a system, operating in a realistic threat environment, can avoid, withstand, or recover from threats it is likely to encounter in combat (survivability) or the ability of a weapon or weapon system to kill expected threats and targets in an operationally realistic environment (lethality). As with OT&E, "operationally representative" covers the period of IOC, plus ten years. The requirements to conduct LFT&E are contained in 10 U.S.C. §§ 4172. Survivability includes all classes of threats able to harm, deter, or destroy the system, including kinetic and non-kinetic threats.

LFT&E is not limited to testing system specifications and will test against threats likely to be encountered in combat or appropriate targets configured for combat. For survivability, the primary emphasis is on testing system vulnerability to kinetic attack with respect to user casualties while also considering susceptibility to attack, including the effect of those vulnerabilities on residual mission capability and recoverability from attack. Testing must include firing threats at the system as it is configured for combat, including all the dangerous materials (including flammables and explosives), and all critical subsystems present and operating that could make a difference in determining the test outcome. Crew and user casualties should include specific details on the type and severity of injury, as well as the potential operational impact of such casualties on the ability of the platform to accomplish its mission after a threat engagement, when appropriate. Personnel survivability must also be addressed even in cases where the platform cannot survive. For example, in cases of crash and egress. While user casualties

are a primary emphasis, uncrewed systems and weapons may also be subject to LFT&E to evaluate system survivability and effectiveness.

For lethality, the primary emphasis is on the evaluation of lethal effects of the weapon (munition or missile) on appropriate targets configured for combat. In testing of production-representative systems, the target should be representative of the class of systems the weapon is designed to defeat and demonstrate the lethality effects the weapon is designed to produce.

Survivability and lethality plans will be included in the T&E Strategy. Survivability and lethality testing starts early in a program's life cycle, allowing time to correct any design deficiency and vulnerabilities demonstrated by such testing. At the conclusion of LFT&E, the DOT&E shall submit a report on the adequacy of LFT&E testing and the survivability and lethality performance of the system/weapon to the congressional defense committees.

2.5.1.1 FUSL Waiver Process

In accordance with 10 U.S.C. §§ 4172(c), an LFT&E program must perform Full-Up System-Level (FUSL) testing. Although there is no waiver from LFT&E, the law contains provisions for a waiver from the requirements for FUSL testing. The Program Executive Officer will provide a memorandum to the Service or the Component Acquisition Executive asserting that the survivability or lethality tests required by 10 U.S.C. §§ 4172 are unreasonably expensive and impractical. The Service or the Component Acquisition Executive will provide a similar memorandum to USD(A&S) as the Defense Acquisition Executive requesting a waiver from the requirement of FUSL testing on that basis. The waiver must be approved by USD(A&S) as the DAE, even in cases where acquisition authority has been delegated to the Service.

USD(A&S) will request that DOT&E certify that the live fire testing and evaluation laid out in the T&E Strategy (or previously in the Live Fire Strategy/Alternative Live Fire Test and Evaluation Plan) is adequate to evaluate the survivability or lethality of the system without using FUSL assets using a combination of component, subsystem and system-level testing, adequately verified and validated M&S tools, and combat, mishap, or safety data where appropriate. DOT&E will provide a memorandum affirming this to be the case, along with the approved Test and Evaluation Master Plan (TEMP), or the appropriate live fire sections of the TEMP, to USD(A&S). In accordance with 10 U.S.C. §§ 4172 (c)(3), USD(A&S) will then submit memoranda and the live fire plan to the chairs and ranking members of the congressional defense committees, informing them of the granting of the waiver.

The waiver package sent to Congress consists of these two parts: 1) certification that the waiver is needed and 2) an approved Alternative LFT&E plan for evaluating survivability or lethality. These two parts require coordination between the acquisition executive USD(A&S) and DOT&E.

3. T&E Documentation

3.1 T&E Strategy to Support T&E Planning

The purpose of T&E planning is to better understand users' needs and define an executable approach to credibly demonstrate the technical, functional, and operational capabilities that need to be delivered to meet users' needs. The planning process is critical and sets the conditions for success. Testing and planning should be digitized and automated as much as possible to support continuous development, integration, and delivery of system capabilities. As such, the PM should establish a common data repository to store T&E data and provide access to all test teams so that they can review, use, and input these test data to meet their objectives. This should enable the use of sequential testing, big data analytics, and other adaptive methods in support of T&E efficiencies.

All test teams should be involved early in the program during the planning process to establish and document how testing, M&S, analysis, and evaluation of the system performance at its various maturity stages will be accomplished. The T&E WIPT and PM should work with the contractor to fully understand the contractor's tools, specifically their verification and validation plans, and the credibility of those tools for the intended use. It is encouraged that government test team train with these tools as appropriate so they can use their outputs to inform evaluations. Such expectations should be clarified with the appropriate contractual provisions.

The PM, in coordination with the T&E WIPT, is responsible for writing the T&E Strategy. The purpose of the T&E Strategy, regardless of the acquisition pathway or naming convention, is to guide the activities of test organizations in planning and executing an effective and efficient test and evaluation process in support of the major program decisions. Common names for T&E strategies may include, but are not limited to, TEMPs, SAMPs, test strategy, and T&E Strategy. This T&E Strategy serves as an agreement between the PM and all the T&E stakeholders for T&E tasks, roles, resources, and responsibilities, and should be developed in the planning phase of the program. The T&E Strategy should be developed in time to inform the acquisition contract and updated as needed across the acquisition cycle to capture the requirements and processes by which systems will be tested and evaluated to verify technical requirements, and to evaluate operational effectiveness, suitability, survivability, and lethality. The T&E Strategy should document the T&E resources required to support DT&E, OT&E, and LFT&E. For programs on T&E oversight, DOT&E is the approval authority of the T&E Strategy. The T&E Strategy for programs not under T&E oversight is approved at the Component level.

The T&E Strategy should be executable and aligned with the Acquisition Strategy, T&E policy (DoDI 5000.89), and relevant T&E focus area chapters in the T&E Enterprise Guidebook. The T&E Strategy will include the Integrated Decision Support Key (IDSK) as per DoDI 5000.89. The T&E Strategy should detail a high-level plan to adequately characterize the performance of the system as it progresses through its major milestones and other critical programmatic decisions. At a minimum, the T&E strategy includes:

- An IDSK that highlights the program decisions and data requirements and sources (e.g., CT, DT, LFT, OT, M&S) to support those decisions, and correlates data requirements with critical operational issues and technical requirements
- Resources and test support requirements needed for all test phases, including consideration for M&S Verification Validation and Accreditation (VV&A) where required
- DT&E, OT&E, and LFT&E scope, objectives, and data
- A program schedule with T&E events and reporting requirements that incorporate report generation timelines
- Test phase objectives, including entrance and exit criteria, cybersecurity test objectives, and M&S events
- Data collection requirements, including from live test events and M&S
- Projected and actual level of funding, including funding sources for all test resources, including M&S VV&A

While a T&E Strategy is the main T&E deliverable for each of the six acquisition pathways, the success of T&E relies heavily on each of the other documents outlined in Table 1. The T&E community should work with the acquisition community on these documents to incorporate needed T&E information. Not all acquisition pathways require all the documentation noted below. For more information on the documents in Table 1, refer to the [Milestone Document Identification \(MDID\) website](#). The MDID provides a definition of the document, any notes on statutory and/or regulatory requirements, source documents for the specific document, and if applicable, the approval authority. The MDID allows users to filter by program type, life-cycle event, source, and keyword. The acquisition pathway chapters highlight T&E content and involvement of test teams in the development of each of these documents.

Table 1. Documentation Used in T&E Strategy Development

Documentation	Description
Joint Capabilities Integration and Development System (JCIDS) Documentation	The JCIDS process provides the baseline requirements for documentation, review, and validation of capability requirements, at all classification levels, across the Department. JCIDS is the process used by the Joint Requirements Oversight Council (JROC) to fulfill its statutory responsibilities to the Chairman of the Joint Chiefs of Staff (CJCS), including, but not limited to, identifying, assessing, validating, and prioritizing joint military capability requirements. T&E personnel primarily assess the testability, measurability, achievability, and clarity of the capabilities required in the documents, and provide that assessment to the PM and Chief Engineer.

Table 1. Documentation Used in T&E Strategy Development

Analysis of Alternatives (AoA)	DoDI 5000.84, “Analysis of Alternatives,” outlines the procedures, responsibilities, and guidelines for conducting the AoA, which assesses potential materiel solutions that could satisfy the validated capability requirement(s) documented in the Initial Capabilities Document, and supports a decision on the most cost-effective solution to meeting the validated capability requirement(s). In developing feasible alternatives, the AoA identifies a wide range of solutions having a reasonable likelihood of providing the needed capability. AoAs are typically required for programs using the Major Capability Acquisition Pathway, and provide a foundation for the development of documents at the milestones, starting at Milestone A, and is used when developing the T&E Strategy for the preferred solution(s).
Validated Online Life Cycle Threat (VOLT)	The VOLT is the authoritative, system-specific threat assessment tailored for and normally focused on one specific program. The VOLT involves the application of threat modules and is written to articulate the relevance of each module to a specific acquisition program or planned capability. While VOLT reports support Acquisition Category (ACAT) I-III programs, only Major Defense Acquisition Programs (MDAPs) and programs on the T&E Oversight List require a unique, system-specific VOLT report to support capability development. T&E personnel use the VOLT as a reference for developing T&E plans, T&E resources and capability requirements, and test scenarios, as well as a guide for defining the threat environment for a mission-oriented context.
Acquisition Strategy	The Acquisition Strategy is the PM’s plan for program execution across the entire program life cycle. It is a comprehensive, integrated plan identifying the acquisition approach and describes the business, technical, and support strategies the PM plans to employ to manage program risks and meet program objectives. The strategy evolves over time and continuously reflects the current status and desired goals of the program. The PM includes the T&E WIPT in the development of the Acquisition Strategy so the T&E Strategy fully supports the program’s approach. The Acquisition Strategy includes a description of the test program for both the contractor and the government.
Systems Engineering Plan (SEP)	The Systems Engineering Plan (SEP) documents key technical risks, processes, resources, metrics (Technical Performance Measurement and other metrics), SE products, quality control, and completed or scheduled SE activities. The SEP is a living document, updated as needed to reflect the program’s evolving SE approach and/or plans and current status. The purpose of the SEP is to help PMs develop, communicate, and manage the overall SE approach guiding all technical activities of the program. T&E personnel use the SEP as a reference for developing the T&E Strategy, test plans, and other planning documents.
Program Protection Plan (PPP)	In accordance with DoDI 5000.83, “Technology and Program Protection to Maintain Technological Advantage,” the PPP describes protection of the system from foreign collection, design vulnerabilities, supply chain exploitation, tampering, and battlefield loss. The Program Office takes an end-to-end system view when developing and executing the PPP (external, interdependent, or government furnished components that may be outside the PM’s control should be considered). The PPP provides a usable reference within the program for understanding and managing the full spectrum of program and system security activities. Programs update the PPP as threats and vulnerabilities change or are better understood. T&E personnel use the PPP as a reference for developing the T&E Strategy, test plans, test resource and capability requirements, and other planning documents. The PPP provides information on a program’s critical missions, critical functions, critical

Table 1. Documentation Used in T&E Strategy Development

	<p>components, threats, vulnerabilities, and threat countermeasures. T&E personnel should also consider how Program Protection applies to test events, test processes, and test data, the exploitation of which can cause harm.</p>
Cybersecurity Strategy	<p>In accordance with DoDI 8500.01, “Cybersecurity,” the Cybersecurity Strategy describes the program’s planned cybersecurity risk management and both the program’s long-term approach for, and implementation of, cybersecurity throughout the program lifecycle. All Acquisition programs acquiring systems containing information technology (IT) are required to develop and maintain a Cybersecurity Strategy, which is submitted to the cognizant chief information officer for review and approval at milestones and decision points.</p> <p>The T&E WIPT will review the Cybersecurity Strategy and leverage it in the development of the T&E Strategy.</p>
Security Plan	<p>In accordance with DoDI 8510.01, “Risk Management Framework (RMF) for DoD Information Technology,” the Security Plan provides an overview of the security requirements for the system and describes the security controls in place or planned for meeting those requirements. The Security Plan should include a system boundary description, implementation status, responsible entities, resources, and estimated completion dates. Security Plans may also include a compiled list of system characteristics or qualities required for system registration, key security-related documents such as a risk assessment, privacy impact assessment, system interconnection agreements, contingency plan, security configurations, configuration management plan, and incident response plan.</p> <p>The T&E WIPT will review the Security Plan and leverage the details in that plan when developing the T&E Strategy. The details included in the Security Plan can help testers identify specific areas for testing.</p>
Security Assessment Plan	<p>In accordance with DoDI 8510.01, “Risk Management Framework (RMF) for DoD Information Technology,” a plan to assess the selected security controls must be developed by programs required to follow the Risk Management Framework (which is all DoD information technology that receives, processes, stores, displays, or transmits DoD information). The Security Assessment Plan contains selected controls and their corresponding security control assessment activities with a detailed roadmap of how to conduct such an assessment.</p>
Acquisition Program Baseline (APB)	<p>The APB is the agreement between the MDA and the PM, and the PM’s acquisition chain of command, used for tracking and reporting the life of the program or program increment. T&E personnel use the APB as a reference for developing test plans and schedules, test resource and capability requirements, and other planning documents, in an effort to ensure the strategy for T&E remains consistent with the program’s goals and objectives. For all ACAT programs, PMs are required to propose and document program goals prior to, and for approval at, program initiation. The MDA will approve entry into the Engineering and Manufacturing Development (EMD) phase and formally initiate the program by approving the APB. All ACAT programs are required to use an APB. For MDAPs, the APB satisfies the requirements in 10 USC 2435 and 2220.</p>
Cost Analysis Baseline Description (CARD)	<p>The DoD conducts analysis to provide accurate information and realistic estimates of cost for DoD acquisition programs, and this data is collected to inform the analysis. Independent and sound cost estimates are vital for effective acquisition decision-making and oversight. For ACAT I and ACAT IA programs, the CARD is used to formally describe the acquisition program for purposes of preparing both the DoD Component Cost Estimate and the Cost Assessment Independent Cost Estimate.</p>

Table 1. Documentation Used in T&E Strategy Development

	<p>MDAPs and MAIS will provide a CARD in support of major milestone decision points. In accordance with DoDI 5000.73, the PMO will prepare and deliver the draft CARD to the office of Cost Assessment (CA) and the Service Cost Agencies (SCA). For joint programs, the CARD will include the common program agreed to by all participating DoD Components, as well as any unique program requirements of the participating DoD Components.</p> <p>The CDT ensures the test portion of the program definition is sufficiently defined for an adequate estimate. The tester also reviews the cost estimates resulting from the CARD to ensure reasonable funding and that the funding is included in the Resources section of the T&E Strategy. Finally, cost estimates for testing eventually appear in the Research, Development, Test & Evaluation (RDT&E) Exhibits (specifically R-2 and R-3 for test), which go to the President and Congress, and the T&E Budget Submissions (T&E-1), which go to the DoD.</p>
<p>Lifecycle Sustainment Plan (LCSP)</p>	<p>The LCSP describes sustainment influences on system design and the technical, business, and management activities to develop, implement, and deliver a product support package that maintains affordable system operational effectiveness, suitability, survivability and/or lethality over the system life cycle, and seeks to reduce cost without sacrificing necessary levels of program support. According to IAW DoDI 5000.85, “Major Capability Acquisition,” DoD Components will ensure reliability and maintainability data from operational and developmental testing and evaluation, fielding, all levels of repair and their associated manpower, and real property informs estimates Operations and Support costs for major weapon systems.</p>
<p>Information Support Plan (ISP)</p>	<p>The ISP serves as a key document in achieving interoperability certification. The ISP describes IT and information needs, dependencies, and interfaces for programs in all acquisition categories. It focuses on the efficient and effective exchange of information that, if not properly managed, could limit or restrict the operation of the program from delivering its defined capability. The Net-Ready Key Performance Parameter (NR-KPP) identified in the CDD will also be used in the ISP to identify support required from external information systems. Bandwidth requirements data will also be documented in the ISP.</p> <p>T&E personnel use the ISP to identify how the system should be tested to evaluate 1) users’ ability to enter and manage a network, 2) users’ ability to exchange information, and 3) how the system supports military operations. T&E personnel can use the ISP and a CONOPS/OMS/MP to develop test scenarios for evaluating key information/data exchanges that have an impact on mission success.</p>
<p>Lifecycle Mission Data Plan (LMDP)</p>	<p>In accordance with DoDD 5250.01, “Management of Intelligence Mission Data (IMD) in DoD Acquisition” are required for IMD-dependent programs. IMD are defined as DoD intelligence-derived information used for programming platform mission systems in development, testing, operations, and sustainment, including, but not limited to, the following functional areas: intelligence signatures, electronic warfare integrated reprogramming (EWIR), order of battle (OOB), characteristics and performance (C&P), and geospatial intelligence (GEOINT).</p> <p>The LMDP defines specific IMD requirements for a program, and becomes more detailed as the system progresses toward IOC. During development of T&E strategies and plans, IMD requirements are identified based on the need to verify and validate detection and identification functionality for DT&E, and for operational effectiveness, suitability, and survivability for OT&E. The T&E Strategy should define specific intelligence requirements to support program developmental and operational test and</p>

Table 1. Documentation Used in T&E Strategy Development

	evaluation. The LMDP should include information on IMD data existing within the program for sensor or algorithm development, or for testing purposes.
Request for Proposal (RFP)	A Request for Proposal (RFP) is a solicitation used in negotiated acquisition to communicate government requirements to the prospective contractors and to solicit proposals. At a minimum, solicitations shall describe the T&E community test requirements, anticipated terms and conditions that will apply to the contract, information required in the offeror’s proposal, and (for competitive acquisitions) the criteria that will be used to evaluate the proposal and their relative importance.

3.2 Test Plans

The lead test organization, in coordination with the T&E WIPT, develops test plans for each event identified in the T&E Strategy. For any events that may affect safety of personnel, the T&E community, working with the PM and user community, will provide relevant safety documentation. Barring unforeseen circumstances, all elements of an approved test plan should be satisfied by the end of the test period, including collection of all required data. Test plans should include information about the order of test event execution and test data collection, as well as relevant operating instructions that may impact test outcomes. At a minimum, test plans should detail:

- Test purpose in relation to overall T&E Strategy and program life cycle
- Test schedule, location, and resources (personnel, targets, threat)
- Data requirements and how the test team will collect, reduce, and distribute data
- Test limitations

For programs on the T&E oversight list, operational test plans across all acquisition pathways, including LFT&E strategies, must be approved by DOT&E and should be submitted to DOT&E at least 60 days prior to the start of testing. If the test cannot be executed according to the approved plan, DOT&E concurrence must be obtained prior to executing revised test events.

4. T&E Organizations

4.1 Office of the Secretary of Defense (OSD) Test & Evaluation Organizations

4.1.1 Under Secretary of Defense for Research and Engineering (USD(R&E))

The USD(R&E) is the principal advisor to the Secretary and Deputy Secretary of Defense for all matters regarding the DoD Research and Engineering (R&E) Enterprise, defense R&E, technology development, technology transition, developmental prototyping, experimentation, developmental testing activities and programs, and unifying defense R&E efforts across the DoD. As outlined in DoDI 5000.89, the USD(R&E):

1. Establishes policies and strategic guidance and leads defense research; engineering; developmental prototyping and experimentation; technology development, exploitation, transition, and transfer; DT&E; and manufacturing technology activities
2. Prepares Milestone B and Milestone C DT&E sufficiency assessments on Major Defense Acquisition Programs (MDAPs) where the Defense Acquisition Executive (DAE) is the MDA
3. Develops DT&E policy and ensures appropriate test facilities, test ranges, tools, and related M&S capabilities are maintained within the DoD
4. Serves as an advisor to the Joint Requirements Oversight Council on matters within USD(R&E) authority and expertise to inform and influence requirements, concepts, capabilities-based assessments, and CONOPS
5. Approves the DT&E plan within TEMP's and delegates approval authority, as appropriate
6. Develops governing policy and advances practices and workforce competencies for DT&E

4.1.1.1 Director, Developmental Test, Evaluation & Assessments (D(DTE&A))

The D(DTE&A) serves as the principal advisor to the USD(R&E) for developmental test, evaluation, and assessments, and supports the USD(R&E) in the conduct of its T&E responsibilities and activities listed in Section 2.1.1. The D(DTE&A) provides system engineering (SE) and T&E rigor to DoD Adaptive Acquisition Framework (AAF) pathways and R&E modernization priorities to ensure delivery of relevant and timely warfighting capabilities by:

- Engaging AAF and early prototyping programs in developing innovative and efficient DT&E and SE strategies supporting acquisition life-cycle decisions that deliver capability advantages needed by warfighters
- Providing independent DT&E, Engineering, and Technical Risk Assessments to accurately evaluate technical performance and technology, engineering, and integration maturity in support of critical decisions
- Supporting the development and implementation of T&E and SE policy and guidance for the acquisition life-cycle continuum

4.1.1.2 Test Resource Management Center (TRMC)

The Director Test Resource Management Center (TRMC) serves as the principal advisor to the USD(R&E) on matters pertaining to strategic planning and assessment of the DoD T&E infrastructure. The TRMC provides robust and flexible T&E capabilities to develop, acquire, field, and sustain reliable and effective weapons systems to meet the current and future needs of the warfighter. It looks across the entire T&E infrastructure to align T&E efforts with DoD modernization goals and ensure ranges are ready to test new capabilities as they emerge.

The TRMC oversees the Major Range and Test Facility Base (MRTFB), plans for and assesses the adequacy of the MRTFB, and maintains awareness of other T&E facilities and resources, within and outside the Department, and their impacts on DoD requirements (DoDD 5105.71, March 8, 2004, Section 4).

The TRMC accomplishes its missions through the:

Major Range and Test Facility Base. The MRTFB is the designated core set of DoD T&E infrastructure (open-air ranges, test facilities, instrumentation data processing, and other test resources) and associated workforce to provide T&E capabilities in support of the DoD acquisition system (DoDD 3200.11, Change 2 October 15, 2018, Paragraph 3); it operates in accordance with DoDI 3200.18, Change 2 October 15, 2018.

Central T&E Investment Program (CTEIP). CTEIP provides OSD funding and a mechanism for the development and acquisition of new test capabilities to satisfy multi-Service requirements. It administers the acquisition and integration of all training and associated test range instrumentation and development-related policy by:

- Addressing modernization projects too large for a single Service
- Ensuring requirements solve multi-Service needs
- Developing integrated solutions across the spectrum of T&E capabilities
- Developing common range instrumentation that benefits many platforms (DoDD 3200.11 Change 2, October 15, 2018)

T&E Science and Technology (T&E/S&T) Program. The T&E/S&T Program develops test technologies to keep pace with evolving weapons technologies. Funded within the Advanced Technology Development Budget Activity, the T&E/S&T Program is critical to ensuring DoD ability to adequately test advanced systems that will be fielded in the future. T&E/S&T Program technology development projects typically begin at Technology Readiness Level (TRL) 3 and mature to TRL 6; deliverables include test technology prototypes and demonstrations in relevant test environments. The T&E/S&T Program addresses long-term gaps in the T&E infrastructure, as well as risk reduction for the development of test capabilities.

The TRMC manages the T&E/S&T Program, which employs a decentralized execution process through Test Technology Areas, each of which is led by an Executing Agent from one of the Services and based at a test organization in the field. Each Executing Agent leads a working group composed of representatives from the DoD T&E and S&T communities, with expertise related to the respective test technology.

Joint Mission Environment Test Capability (JMETC) Program. JMETC provides a persistent capability for linking distributed facilities, enabling DoD customers to develop and test warfighting capabilities in a joint context. JMETC provides a test infrastructure consisting of the components necessary to conduct joint distributed test events by cost-effectively integrating live, virtual, and constructive test resources configured to support users' needs. The JMETC program provides customers with a support team to assist with JMETC products and the conduct of distributed testing.

National Cyber Range Complex (NCRC) Program. The NCRC improves the resiliency and lethality of the nation's warfighters in the cyber-contested battlespace by delivering operationally representative cyberspace environments for T&E, training, and mission rehearsal. The NCRC team supports DoD acquisition program managers in the planning and execution of a wide range of cybersecurity activities throughout the lifecycle, including science and technology experimentation, architectural evaluations, security control assessments, cooperative vulnerability and penetration assessments (CVPA), and adversarial assessments (AA). The NCRC supports training, certification, and mission rehearsal requirements for the Cyber Mission Force (CMF).

Test Resource – Governance (TR-G) Division. The TR-G Division advises the Director, TRMC on MRTFB policy, workforce, infrastructure changes, budgets, and expenditures, with the goal of ensuring that the MRTFB maintain a broad base of T&E capabilities sufficient to support the full spectrum of DoD T&E requirements.

Test and Training Enabling Architecture (TENA) Software Development Activity (SDA). TENA provides the architecture and software implementation necessary to:

- Enable interoperability among range systems, facilities, simulations, and command, control, communications, computers (C4) intelligence, surveillance, and reconnaissance (ISR) systems in a quick, cost-efficient manner
- Foster reuse for range asset utilization and for future developments
- Provide composability to rapidly assemble, initialize, test, and execute a system from a pool of reusable, interoperable elements

4.1.2 Director, Operational Test and Evaluation (DOT&E)

The DOT&E is the principal adviser to the Secretary of Defense, the Under Secretary of Defense for Acquisition and Sustainment (USD(A&S)), and the Under Secretary of Defense for Research and Engineering (USD(R&E)) on OT&E and LFT&E in the DoD, and the principal OT&E and LFT&E official within the senior management of the DoD. The DOT&E:

1. Prescribes policies and procedures for the conduct of OT&E and LFT&E for the DoD across the acquisition pathways
2. Monitors and reviews OT&E and LFT&E activities in the DoD
3. Oversees MDAPs or other programs designated by the Director for T&E oversight
4. Determines specific OT&E and LFT&E policy and best practices for each of the acquisition pathways, as applicable
5. Designates select programs for DOT&E operational and live fire oversight in accordance with 10 U.S.C. §§ 139, 4171, 4172, and 4231, as applicable, and the criteria outlined in Paragraph 3.2 of DoDI 5000.89
6. In coordination with the USD(R&E), jointly publishes and manages the T&E Oversight List, which identifies all programs under oversight for DT&E, OT&E, or LFT&E

7. Approves the OT&E and LFT&E planned activities in TEMPs, test strategies, or other overarching program test planning documents for programs on the T&E oversight list
8. Approves, in writing, the adequacy of OT and LF plans for those programs under T&E oversight before OT or LF begins
9. Approves alternative LFT&E plans and strategies for evaluating survivability or lethality when a waiver from FUSL testing is being sought, in accordance with timelines established in 10 U.S.C. §§ 4172
10. Determines the quantity of articles to be procured for operational and live fire test for systems on the T&E oversight list for operational and/or live fire testing
11. Evaluates and approves the use of production-representative articles for purposes of adequate and realistic initial operational test and evaluation (IOT&E) for programs under T&E oversight for operational and/or live fire testing
12. Assesses the adequacy of OT&E and LFT&E performed by the Services and operational test agencies (OTAs) for programs under T&E oversight for operational and/or live fire testing
13. Approves, in writing, the use of data collected outside an approved operational test plan (OTP) for use in operational evaluation for programs under T&E oversight for operational and/or live fire testing
14. Submits independent OT&E and LFT&E reports to the OSD, Joint Staff, DoD Components, and congressional defense committees, as applicable
15. Submits a report after the conclusion of OT&E and LFT&E, as required by 10 U.S.C. §§ 4171, 4172, to the OSD, Joint Staff, DoD Components, and congressional defense committees before systems under T&E oversight may proceed to beyond LRIP
16. Submits an annual report summarizing the operational and live fire test and evaluation activities of the Department of Defense during the preceding fiscal year as required by 10 U.S.C. §§ 139(h)

In accordance with DoDD 5141.02, DOT&E is responsible for ensuring the stability in funding and strategic guidance for the following joint DOD activities intended to further assess and enhance the operational performance of the warfighter in combat.

4.1.2.1 Joint Test and Evaluation (JT&E) Program

The JT&E Program enables the planning and execution of joint tests to support the future fight. The JT&E Program considers emerging technologies and the increasingly complex and dynamic, joint, multi-domain operational environment to develop solutions intended to enhance the United States' operational effectiveness, suitability, and survivability in combat. As the Services and Combatant Commands (CCMD) help identify critical challenges that need to be addressed in their areas of responsibility to maintain superiority across joint, multi-domain operations, the JT&E Program provides operational test and evaluation management and expertise to develop, test, and validate joint solutions, including agile warfighting tactics, techniques, and procedures (TTPs),

concepts of employment (CONEMP), and concepts of operations (CONOPS). Given the increased integration and dependencies of platform, network, and command and control solutions across the domains, JT&E's mission and unique focus on system of systems testing is becoming increasingly critical to the Department's strategic objectives, to include modernization. JT&E test techniques, workforce talents, and reach-back are essential to the adequate evaluation of the effectiveness of operational plans across the CCMDs.

4.1.2.2 Joint Live Fire (JLF) Program

The JLF Program's primary mission is to enable the development of adequate LFT&E tools, methods, and infrastructure, to include digital technologies needed for credible evaluation of DoD systems' survivability and lethality and development and validation of Joint Munitions Effectiveness Manuals (JMEMs) and weaponizing tools. The JLF Program is focused on addressing survivability/lethality T&E capability shortfalls due to the increased complexity of DoD systems and adversary threats.

4.1.2.3 Center for Countermeasures (CCM)

The CCM is a joint activity focused on the planning and execution of T&E activities intended to evaluate the operational effectiveness of countermeasures and counter-countermeasures employed by a range of DoD and foreign weapon systems. It accomplishes this by operating and deploying mobile test equipment capable of simulating an array of adversarial threats throughout the country. The transportability of CCM test tools and personnel provides the requisite test agility and efficiency for the DoD to develop and field warfighting capability at operationally relevant speeds. It minimizes the deployment of aircraft and Program Office staff to test locations, preserving their schedules and resources. CCM supports system developers and Service developmental and operational test agencies in the T&E of DoD systems.

4.1.2.4 Joint Aircraft Survivability Program (JASP)

The JASP Program develops cross-Service aircraft survivability solutions and evaluation methods needed to dominate the multi-domain battlefield and mitigate U.S. aircraft losses in combat. JASP products support: 1) weapons tactics schools, air operations, and training, 2) operational and live fire test and evaluation of aircraft systems, 3) aircraft combat damage reporting, and 4) transition of technologies to the battlefield intended to improve aircraft survivability and force protection. The Services' aviation acquisition commands (Army Aviation and Missile Command (AMCOM), Air Force Life Cycle Management Center (AFLCMC), and Naval Air Systems Command (NAVAIR)) depend on JASP activities to increase U.S. military aircraft combat effectiveness in current and emerging threat environments through the joint coordination and development of T&E capability and aircraft survivability technologies that complement Service aircraft survivability programs. JASP efforts include RDT&E of susceptibility and vulnerability

reduction technologies, M&S, aircraft combat damage reporting, and aircraft survivability education.

4.1.2.5 Joint Technical Coordinating Group for Munition Effectiveness (JTTCG/ME)

The JTTCG/ME program develops validated weaponeering tools for multi-domain operations derived from the policy-approved Joint Munition Effectiveness Manuals (JMEMs). Combatant Command strike authorities rely on these weaponeering tools to estimate and optimize the type and number of U.S. weapons or capabilities required to achieve the desired lethal effect against a range of strategic or tactical targets while mitigating risk for collateral damage, to include civilian casualties. DOT&E provides oversight, stability in funding, and strategic guidance, while the Army's Combat Capability Development Command Data and Analysis Center (DEVCOM DAC) executes the JTTCG/ME mission in accordance with DOT&E guidance, JTTCG/ME Executive Steering Committee guidance, Joint Staff Military Targeting Committee requirements, and Chairman of the Joint Chiefs of Staff instructions.

4.1.2.6 Test and Evaluation Threat Resource Activity (TETRA)

TETRA is a joint duty activity between DOT&E and the Defense Intelligence Agency (DIA) established to ensure that OT&E and LFT&E programs and warfighter training are adequately informed by the latest and emerging intelligence data. TETRA manages a Threat Systems Database cataloging asset availability, location, limitations, and adequacy, and continues to enhance its support to the OT&E community by identifying significant system vulnerabilities and evaluating their operational impacts, underpinning DOT&E's role in fielding the most effective and suitable equipment to the warfighter. TETRA's T&E Threat M&S Configuration Management System implements controls and distribution management for threat M&S products. TETRA, working with Intelligence Production Centers and acting as the DOT&E lead for Integrated Technical Evaluation and Analysis of Multiple Sources (ITEAMS) projects, evaluates options to build threat-representative simulators and models from intelligence, open source, and industry data. TETRA also provides oversight of the Services' threat verification and validation process, which confirms that a system meets design specifications and documents the differences between actual threat performance and that of the representation. TETRA also represents DOT&E in the Foreign Materiel Program overseen by the Office of the Under Secretary of Defense for Intelligence and Security. The objective of TETRA's involvement in the Foreign Materiel Program is to secure actual systems for intelligence analysis and use in operational testing. Additionally, TETRA developed and continues to maintain the Threat Systems Database, which catalogs threat assets available for the T&E community.

4.1.2.7 International Test and Evaluation Program (ITEP)

ITEP enables bilateral and multilateral agreements between U.S. forces and Allies which are critical for expediting the development and fielding of advanced warfighting technologies, and supporting T&E infrastructure and capabilities. These agreements

enable the planning and execution of cooperative T&E projects, transfer of necessary test equipment and materials, exchange of T&E-relevant information through working groups, and reciprocal use of test facilities. ITEP fulfills the requirement to test in natural environments not available in the U.S., provides access to technical test capabilities the U.S. does not have or are out of service, and provides for partner access to U.S. ranges and facilities when needed.

4.1.2.8 Cyber Assessment Program (CAP)

DOT&E also manages and fully funds the CAP, which was created in response to a conference report in the FY03 NDAA to “monitor the DoD’s ongoing efforts to improve interoperability and information assurance.” CAP is planned and executed with the Combatant Commands, Services, Operational Test Agencies, DoD-certified Red Teams, and the Intelligence Community. Current mission priorities include: 1) mission-focused operational assessment using validated and persistent cyber threats, 2) assessment of warfighter ability to execute missions in a contested environment, 3) identification of critical vulnerabilities, facilitation or remediation, and verification, and 4) assistance to cyber defender personnel to improve detections and responses to cyber attack.

4.2 DoD Component T&E Organizations

4.2.1 Department of the Army

4.2.1.1 Department of the Army T&E Executive

The Army T&E Executive is the Director, T&E Office under the authority, direction, and control of the Deputy Under Secretary of the Army, and:

- Serves as the senior advisor to the Secretary of the Army and Army Chief of Staff on all Army T&E matters
- Advises the Army Systems Acquisition Review Council (ASARC), the Army Requirements Oversight Council (AROC), and Overarching Integrated Product Teams (OIPTs) on T&E matters
- Approves test-related documentation for the Secretary of the Army and forwarding, as appropriate, to OSD
- Coordinates T&E matters with the Joint Staff and OSD, including serving as the principal Army interface on T&E matters with the USD(R&E) and DOT&E
- Oversees all Army T&E missions and functions, to include formulating overarching Army T&E strategy, policy, and program direction, providing policy oversight, and management of resources
- Provides Headquarters, Department of the Army oversight on the funding of the Army Threat Simulator program, Army Targets program, and Army Instrumentation program

- Oversees Army responsibilities in Joint T&E, Foreign Comparative Testing (FCT), and multi-Service and multi-national T&E acquisition programs
- Serves as the Army T&E functional chief for the T&E acquisition workforce career field (Army Regulation 73-1, June 8, 2018, Section 2-18)
- Serves as the Chemical and Biological Defense Program (CBDP) T&E Executive in accordance with DoDD 5160.05E, Paragraph 2.14.d (Change 2 July 18, 2019)
- Oversees the adequacy of T&E programs and infrastructure that supports the CBDP test requirements

4.2.1.2 U.S. Army Test and Evaluation Command (ATEC)

ATEC is the Army's OTA and consists of the U.S. Army Evaluation Center (AEC), U.S. Army Operational Test Command (OTC), and Test Centers. AEC produces independent, comprehensive evaluations and assessments by consolidating all developmental and operational testing and other credible data to provide essential information to decision makers. AEC also produces system safety documentation. OTC plans, conducts, and reports on operational tests to provide essential information to AEC. ATEC's Test Centers plan, conduct, and report on developmental tests to provide essential information to AEC (Army Regulation 73-1).

4.2.2 Department of the Navy

4.2.2.1 Department of the Navy (DON) T&E Executive

For the purpose of this instruction, DON T&E will be used to indicate responsibilities for both the DON T&E Executive and the Director, Innovation, Test & Evaluation, and Technology Requirements (OPNAV N94). Specific DON T&E responsibilities include:

- Establish and implement DON DT&E, LFT&E, and OT&E policy for the various DoD-defined AAF pathways within the DON
- Coordinate development and implementation of Capability-Based Test and Evaluation (CBTE) processes to integrate T&E phases into a single T&E continuum
- Endorse or approve DON TEMPs and MTS for all Navy programs and USMC ACAT I programs, BCAT I programs requiring OT, and programs on oversight
- Act for the SECNAV, CNO, and CMC as the senior DON representative responsible for coordination with DOT&E and Director, Developmental Test, Evaluation and Assessment (D, DTE&A) for T&E policy issues and acquisition program TEMP, DT, OT, and LFT&E matters
- Establish the TECP for identifying, tracking, and resolving program T&E issues
- Determine, with SYSCOM and Service OTA support, the adequacy of T&E infrastructure and coordinate infrastructure investment required to support systems testing

- Coordinate DON participation in testing of Joint programs
- Review requirements capabilities documents (e.g., Initial Capabilities Document (ICD), CDD and CDD updates, CNS)
- Establish process for coordinating Fleet assets for T&E support
- Oversee testing matters associated with Marine Corps equipment, and ensure integration of Navy and USMC testing for USMC systems deployed on Navy ships
- Support scheduling fleet resources for RDT&E efforts
- Coordinate target resource planning with program resource sponsors, and procure and allocate Naval targets for training and T&E claimants
- Assist CDT/T&E leads in implementation of elements of this instruction and accompanying guidebook (Each DON acquisition program is assigned to a specific N942 Action Officer (AO) responsible for assisting the CDT/T&E lead with implementing elements of this instruction and the guidebook and obtaining RDT&E resources to support their T&E efforts; the list of AO portfolios can be found at the DON Acquisitions T&E Collaboration SharePoint Site.)
- Chair a T&E Requirements and Resources Board (TERRB) for MCA programs prior to Gate 3/MDD and each program/capability modification initiation to support the Gate/initiation (The TERRB will use System Capability Requirements and OTA-developed system-specific mission tasks/conditions analysis to assess the availability and resourcing of required T&E infrastructure (including a gap assessment), as well as establishing the demand and funding for resources such as targets, missiles, ranges, and M&S. Assessment of adequacy of resources and identification of gaps will be briefed at the Gate/Program initiation brief, and support initial TEMP development.)

4.2.2.2 U.S. Navy Operational Test and Evaluation Force (OPTEVFOR)

The Navy COMOPTEVFOR provides independent and objective assessments for the effectiveness, suitability, survivability and/or lethality of naval aviation; surface; subsurface; command, control, communications, computers, and intelligence (C4I); cryptologic; and space systems in support of DoD and Navy acquisition and fleet introduction decisions (SECNAVINST 5000.2F).

4.2.2.3 U.S. Marine Corps Operational Test and Evaluation Activity (MCOTEA)

MCOTEA provides OT&E for the Marine Corps and conducts additional T&E as required to support the Marine Corps mission to man, train, equip, and sustain a force in readiness. Further information on MCOTEA can be accessed [here](#).

4.2.3 Department of the Air Force

4.2.3.1 Air Force T&E Executive

The Air Force T&E Executive is Director, Air Force Test and Evaluation (AF/TE) and:

- Functions as the focal point for Air Force T&E policy, guidance, direction, and oversight for the formulation, review, and execution of T&E plans, programs, and budgets
- Functions as the chief T&E advisor to senior Air Force leadership on T&E processes, including contractor testing, DT&E, OT&E, LFT&E, and the use of M&S in T&E
- Functions as the final T&E review authority and signatory for TEMP's prior to the Service or the Component Acquisition Executive and OSD approval and signature
- Collaborates with requirements sponsors and system developers to improve operational requirements, system development, and the fielding of operationally effective, suitable, safe, and survivable systems
- Oversees the Air Force T&E infrastructure by determining the adequacy of T&E resources required to support system acquisition activities
- Administers various T&E resource processes and chairs or serves on various committees, boards, and groups supporting T&E activities
- Manages the Air Force Joint Test and Evaluation program according to DoDI 5010.41, "Joint Test and Evaluation (JT&E) Program" ([HAF MD 1-52](#))

4.2.3.2 U.S. Air Force Operational Test and Evaluation Center (AFOTEC)

AFOTEC is the Air Force's independent test agency responsible for testing, under operationally realistic conditions, new systems being developed for Air Force and multi-service use. AFOTEC's independent and objective evaluations of how well systems will meet operational requirements provide a vital link between the developer and user. Further information on AFOTEC can be accessed [here](#).

4.2.3.3 Space Training and Readiness Command (STARCOM)

STARCOM exists to prepare combat-ready United States Space Force (USSF) forces to fight and win in a contested, degraded, and operationally-limited environment through the deliberate development, education and training of space professionals; development of space warfighting doctrine, tactics, techniques, and procedures; and the test and evaluation of USSF capabilities. (At the time of the issuance of this chapter, AFOTEC is in the process of transitioning test and evaluation of USSF to STARCOM.)

4.2.4 Defense Information Systems Agency (DISA)

4.2.4.1 DISA T&E Executive

The DISA T&E Executive is the Commander, Joint Interoperability Test Command (JITC). DISA is a combat support agency of the DoD and provides, operates, and assures command and control and information-sharing capabilities and a globally accessible enterprise information infrastructure in direct support to joint warfighters, national level leaders, and other mission and coalition partners across the full spectrum of military operations. Further information on DISA can be accessed [here](#).

4.2.4.2 Joint Interoperability Test Command (JITC)

The Joint Interoperability Test Command (JITC) is the only non-Service OTA for Information Technology (IT)/National Security Systems (NSS). JITC provides an independent and objective evaluation for the operational effectiveness, suitability, and survivability (cyber) in support of DISA and other DoD agency acquisition decisions. JITC, as the DoD's Joint Interoperability Certifier, also provides interoperability assessments in support of Operational Test Readiness Reviews. Further information on JITC can be accessed [here](#).

5 T&E Program Management

5.1 Program Manager (PM)

The PM is responsible for building, executing, and resourcing a rigorous and robust T&E program. To the extent possible, the PM should work with the T&E community to inform the requirements, acquisition contracts, and source selections and to construct a T&E Strategy.

5.2 T&E Working Integrated Product Team (T&E WIPT)

The PM should charter a T&E WIPT to translate the T&E Strategy into the appropriate test strategy documentation. The T&E WIPT consists of representatives from all organizations responsible for providing for or overseeing the T&E Strategy and its execution. In particular, the T&E WIPT should include stakeholders such as systems engineers, developmental testers, operational testers, live fire testers, the user, product support, the Intelligence Community, cybersecurity experts, and applicable certification authorities. The T&E WIPT may also split into sub-WIPTs as appropriate to address specific focus areas (e.g., live fire, cyber, and RAM).

5.3 Chief Developmental Tester (CDT)

As soon as practical, after establishing the program, the PM should designate a CDT. The CDT will be responsible for coordinating the planning, management, and oversight of all

DT&E (contractor and government) activities; overseeing the T&E activities of other participating government activities; and helping the PM make technically informed, objective judgments about contractor and government T&E planning and results.

5.4 Lead DT&E Organization

PMs will designate, as soon as practicable after the Program Office is established, a Lead DT&E Organization, which will be responsible for 1) providing technical expertise on T&E concerns to the CDT, 2) conducting DT&E activities to support independent evaluations and as directed by the CDT or their designee, 3) supporting certification and accreditation activities, and 4) assisting the CDT in providing oversight of contractors and in reaching technically informed, objective judgments about contractor and government T&E planning and results.

5.5 Lead Operational Test Agency (OTA)

OTAs provide DOT&E plans to assess the adequacy of data collection and analysis planning to support the DOT&E's independent assessment of a system's operational effectiveness, suitability, survivability, and lethality.

6 T&E Oversight List

The DOT&E and the USD(R&E)) publish a joint T&E Oversight List in accordance with DoDI 5000.89, which includes acquisition programs designated for DT, OT, and LFT&E oversight. The T&E Oversight List does not include highly classified and sensitive programs. DOT&E and USD(R&E) identify the oversight of such programs directly to the Service or the Component Acquisition Executives. DOT&E maintains the T&E Oversight List, designated Controlled Unclassified Information (CUI), which can be accessed [here](#) using a common access card. DOT&E and USD(R&E) will continuously review and update the oversight list and notify each other and the Services accordingly.

As USD(A&S) and Service or the Component Acquisition Executives identify new acquisition programs for any of the six acquisition pathways in accordance with DoDI 5000.02, DOT&E will apply the following criteria to determine the need for OT and LFT&E oversight:

- Program exceeds or has the potential to exceed the dollar value threshold for a major program, to include MDAPs, designated major subprograms, as well as highly classified programs and pre-MDAPs
- Program has a high level of Congressional or DoD interest
- Weapons, equipment, or munitions that provide or enable a critical mission warfighting capability or is a militarily significant change to a weapon system

Additionally, DOT&E will consider the following to determine when programs should be removed from DOT&E oversight:

- T&E (initial and follow-on OT&E and/or LFT&E) is complete, and associated reporting to inform fielding and full-rate production decisions is complete
- Program development has stabilized and there are no significant upgrade activities

In accordance with DoDI 5000.89, DOT&E is the approval authority for TEMPs, test strategies, and other overarching program test planning documents for all programs on the T&E oversight list for OT and LF.

The USD(R&E) will apply the following criteria to determine the need and priority for DT&E oversight:

- ACAT ID programs, pre-MDAP ACAT ID programs, and ACAT ID Defense Acquisition Executive-designated Special Access Programs
- Missile system programs and associated equipment that are an integral part of the layered and integrated Missile Defense System for homeland and regional defense
- Adaptive Acquisition Framework programs that are national security systems providing intelligence activities, cryptographic activities related to national security, and command and control of military forces
- Programs with open or unresolved high technical risk rated areas as determined by an Independent Technical Risk Assessment
- ACAT IB and IC programs conducting DT&E activities prior to Initial Operational Test and Evaluation (IOT&E) or Follow-on Operational Test and Evaluation (FOT&E) to verify a military capability:
 - Directly linked to the successful execution of an ACAT ID program CONOPS
 - Supporting a USD(R&E) Assistant Director Modernization Road Map or investment area
 - Receiving high-level interest and attention as communicated by Congressional or Department principals
- In coordination with USD(A&S), critical 804 Middle Tier of Acquisition Programs

USD(R&E) reviews and approves DT&E plans (in the TEMP, test strategy, or other overarching program test planning documents) for ACAT ID programs. For other programs on oversight for DT&E (e.g., ACAT IB and IC), USD(R&E) reviews and advises the Milestone Decision Authority on the adequacy of such plans.

7 Phases of T&E

T&E phases, as listed in the T&E Competency Model on the DAU website, are planning, preparation, execution, analysis, valuation, and reporting. General information about each phase is listed below.

T&E Phase	T&E Activities
Planning	Support the development of system requirements and acquisition contracts (Not found in T&E competency model. Inserted for the purposes of T&E guidance only. <ul style="list-style-type: none"> • Identify T&E risk factors based on likelihood and consequence of occurrence to test strategy/approach and impact on the overall program

T&E Phase	T&E Activities
	<p>plan and schedule through participation in all program risk management processes.</p> <ul style="list-style-type: none"> • Develop risk mitigation recommendations for T&E risk factors in accordance with the processes and procedures found in the DoD Risk, Issue, and Opportunity Management Guide to cover system risk elements throughout the acquisition cycle and during the test program. • Support Program Management Office's development of a risk management plan with T&E-relevant risks and mitigation plans that enable a balanced plan for a program. • Translate requirements documents to identify evaluation criteria to support T&E planning. • Determine whether the capability requirements are sufficiently defined to assess testability and that they are relevant to the operational mission. Understand how flexible requirements in agile developments could affect T&E. • Determine data requirements to assess evaluation criteria for assessing the system performance requirements and evaluation of Critical Operational Issues, Key Performance Parameters, and Key System Attributes. • Determine necessary T&E infrastructure requirements and identify shortfalls that will require investments to meet T&E infrastructure sufficiency, and if and how the Digital Engineering Ecosystem is being used for the program. • Apply all T&E policies, practices, and procedures to develop a T&E Strategy that supports the program's Acquisition Strategy for the applicable Adaptive Acquisition Pathway. Incorporate IT at the earliest opportunity and identify how the following components fit together during systems development: CT, DT, OT, and LFT. For T&E aspects, identify where interoperability, cybersecurity, Scientific Test and Analysis Techniques (STAT), environmental mitigation, safety, and mission-level testing, etc., fit into system development. Determine the appropriate criteria for evaluating OT parameters (Effectiveness and Suitability) and LFT&E parameters (Lethality and Survivability). • Document the T&E Strategy that integrates policy, program requirements, cost and resource estimates, evaluation framework, and the T&E schedule to accomplish program goals. Use appropriate contracting strategies to maximize the efficient use of human capital and other resources. • Identify all organizations and activities with roles and responsibilities in providing for or overseeing the T&E Strategy that supports a program's acquisition life cycle or a system of systems' acquisition life cycle. • Identify and organize the T&E management forum (e.g., T&E WIPT, Integrated Test Team, Combined Test Team) necessary to address all T&E issues and documentation to support the T&E Strategy, approach, and overall program plan. • Translate the T&E Strategy into the appropriate test planning documentation (e.g., Developmental Test Plans, Operational Test Plans, and Live-Fire Test Plans) including identification of all the required resources to ensure the strategy is executable and supports the Systems Engineering Plan and overall Acquisition Strategy.

T&E Phase	T&E Activities
	<ul style="list-style-type: none"> • Provide financial cost estimates for T&E support to ensure resources are available and mapped against the schedule to ensure availability during development and production of the system life cycle. Ensure all test costs are fully captured in budget requests and TEMP resource tables, or other test strategy documentation.
Preparation	<ul style="list-style-type: none"> • Interact with all organizations/activities that require information/activity exchange to successfully complete the test planning as enumerated in the T&E Strategy. • Continually coordinate and monitor availability of required test and/or evaluation resources to identify any potential resource problem to ensure effective completion of test events. • Execute tasking orders and funding streams to commit resources as requested, when and where required to complete T&E activities/events. Ensure accounting of all applicable T&E resources. • Verify readiness of resources for T&E program execution. • Ensure all required resources are deployed to the test site(s) as required and in sufficient time to provide for pre-test rehearsal(s), communications, and instrumentation checks. • Comply with and implement policies and procedures (e.g., safety, security, environmental) required to successfully conduct test activity/event. • Investigate specific policies, procedures, and operational constraints for applicable test ranges to ensure compatibility during test operations. • Assess all T&E related factors to determine system/test article readiness before starting the test. Ensure adequate personnel are assigned to allow continual coverage for overlapping test events. • Plan, conduct, and report on Test Readiness Reviews.
Execution	<ul style="list-style-type: none"> • Manage test execution/risk mitigation factors by adapting to real-time changes/challenges to advise Test Director to optimize test opportunity and coverage of key parameters/factors/conditions that have significant effect(s) on operational performance. • Confirm data collection tools are valid, operators and maintainers are trained, M&S/Live Virtual Constructive hardware and software tools are properly integrated, and system under test is configured as required to execute the test events/activities and collect required data. • Confirm and monitor security and safety compliance (such as people and item/system under test) and environmental requirements/constraints to protect resources and comply with established policies. • Develop, validate, rehearse, and execute tests in an organized fashion to facilitate identification of completed data suitable in form and format for analysis and evaluation. Ensure data required for STAT analysis are suitable. • Control the test schedule to ensure timely execution of critical tasks, assigned resources, and project milestones to optimize collection of data in support of evaluation objectives. • Verify all required and expected raw test data to ensure completeness of data to support a system evaluation.

T&E Phase	T&E Activities
	<ul style="list-style-type: none"> • Ensure validity of collected test data to meet test objectives in support of planned analysis and evaluation. Determine how cybersecurity will be used to protect the integrity of test data. • Distribute data per the data management plan for analysis of test results in support of the evaluation.
Analysis	<ul style="list-style-type: none"> • Translate outputs from test instrumentation systems, data acquisition system methods and formats, software tools/logs, capabilities, and operation to verify and validate test data set. • Identify gaps and variances in raw test data to determine data voids or outliers that may degrade analysis and evaluation. • Reduce, translate, and analyze raw test data into organized and meaningful data products to support planned analysis of STAT-based design, evaluation, and reporting. • Conduct data scoring to refine demonstrated test results to establish a complete data set of system, to include software performance. • Align data to specific test objectives in support of the planned analysis and the overall evaluation.
Evaluation	<ul style="list-style-type: none"> • Confirm that the tests conducted support the stated test objectives to ensure adequacy of the planned analysis and evaluation. Determine appropriate analysis and evaluation techniques to be incorporated in a system evaluation or a system of systems' evaluation (e.g., STAT, design of experiments, or similar). • Confirm that M&S met test objectives to augment test data and ensure adequacy of evaluation. Identify how accredited M&S (including the validate and verify process) should be used to supplement live test data. • Determine whether the collected data are sufficient to accurately and completely support established measurability metrics. • Determine whether the data collected via M&S tools are sufficient to adequately supplement data collected during live T&E to facilitate a credible evaluation of the system's (or system of systems') realistic survivability and lethality under combat conditions. • Confirm that the collected test data can sufficiently and accurately support the evaluation framework in the approved TEMP or other test strategy documentation. • Relate test results and evaluation conclusions to performance specification and performance results to report on operational significance. • Assess how hardware/software components are brought together to function properly as required in capability documents and what their performance brings to the larger system of systems designed to achieve required capability.
Reporting	<ul style="list-style-type: none"> • Determine and provide T&E input to all technical and programmatic reviews to support acquisition decision-making. • Assess, document, apply, and/or adapt lessons learned on conduct of test data collection, analysis, and evaluation processes to ensure constant improvement of methods and processes. • Provide the required programmatic T&E reports and/or presentation (quick-look analysis, test reports, analysis reports, software sprint reports, and evaluation reports) to capture test background, methodology,

T&E Phase	T&E Activities
	<p data-bbox="526 254 1370 352">limitations, results, evaluation, and recommendations to support acquisition decision making and user needs (e.g., development of TTPs, etc).</p> <ul data-bbox="480 359 1382 422" style="list-style-type: none"> <li data-bbox="480 359 1382 422">• Archive the data throughout the T&E planning, preparation, T&E execution, analysis, and evaluation phases to support future T&E efforts.