

FINAL DRAFT IN FINAL REVIEW FOR APPROVAL

# **Incorporating Test and Evaluation into Department of Defense Acquisition Contracts**



**September 2008**

**Office of the Deputy Under Secretary of Defense for  
Acquisition and Technology**

**Systems and Software Engineering  
Developmental Test and Evaluation**

## FINAL DRAFT IN FINAL REVIEW FOR APPROVAL

Published September 2008

This Guide is in the public domain and may be copied.

Citation of this work should appear as follows: Incorporating Test and Evaluation into Department of Defense Acquisition Contracts. Washington, DC: Office of the Deputy Under Secretary of Defense for Acquisition and Technology, 2008.

Office of Primary Responsibility:  
Systems and Software Engineering (SSE)/Developmental Test and Evaluation (DT&E)  
Office of the Deputy Under Secretary of Defense for Acquisition and Technology (ODUSD(A&T))  
Department of Defense, Pentagon

The DT&E office will develop and coordinate changes to the Guide as required, based on policy changes and customer feedback. To provide feedback, please send comments by e-mail to [ATL-DT&E@osd.mil](mailto:ATL-DT&E@osd.mil).



**FINAL DRAFT IN FINAL REVIEW FOR APPROVAL**

This page intentionally left blank.

FINAL DRAFT IN FINAL REVIEW FOR APPROVAL  
*Guide for Incorporating Test and Evaluation (T&E) into DoD Acquisition Contracts*

**CONTENTS**

|  |    |
|--|----|
| RECORD OF CHANGES .....  | i  |
| 1. INTRODUCTION .....  | 1  |
| 1.1. Purpose.....  | 1  |
| 1.2. Guide Organization .....  | 2  |
| 1.3. Definitions.....  | 3  |
| 1.4. Defense Federal Acquisition Regulation Supplement (DFARS).....              | 5  |
| 1.5. Acquisition Process.....  | 6  |
| 1.6. Contracting Process.....  | 8  |
| 2. PRE-SOLICITATION .....  | 13 |
| 2.1. Planning .....  | 13 |
| 2.1.1. Requirements.....   | 14 |
| 2.1.2. Test and Evaluation Strategy and the Acquisition Strategy/Plan.....       | 15 |
| 2.2. Working With Industry .....   | 15 |
| 2.3. Formula-type Incentives and Award Fees .....                                | 16 |
| 2.3.1. General .....   | 16 |
| 2.3.2. Formula-type Incentives .....   | 16 |
| 2.3.3. Award Fees .....  | 17 |
| 2.3.4. Information on Incentives .....   | 19 |
| 2.4. Market Research.....  | 19 |
| 2.5. Industry Days .....   | 20 |
| 2.6. Division of Responsibilities / Authority .....                              | 21 |
| 2.7. Draft Request for Proposals .....   | 22 |
| 2.7.1. Statement of Objectives (SOO).....  | 24 |
| 2.7.2. Statement of Work (SOW).....  | 25 |
| 2.8. T&E Focus Areas.....  | 27 |
| 2.8.1. Reliability.....  | 27 |
| 2.8.2. Shared Test Data Access.....  | 28 |
| 2.8.3. Integrated Testing .....  | 28 |
| 2.8.4. Modeling and Simulation (M&S) .....                                       | 29 |
| 2.8.5. System of Systems (SoS) .....   | 30 |
| 2.8.6. Government Furnished Equipment (GFE).....                                 | 30 |
| 2.8.7. Ranges & Resources .....  | 31 |
| 2.8.8. Safety .....  | 31 |
| 2.8.9. Test Assets .....   | 31 |
| 2.8.10. Software .....   | 31 |
| 3. SOLICITATION .....  | 33 |
| 3.1. Section C of the RFP (SOO/SOW) .....  | 33 |
| 3.1.1. Statement of Work (SOW).....  | 33 |
| 3.1.2. Test and Evaluation Master Plan (TEMP) .....                              | 34 |
| 3.2. Section L of the RFP (Instructions to Offerors).....                        | 35 |
| 3.2.1. Section L Instructions .....  | 35 |
| 3.2.2. Integrated Master Plan/Integrated Master Schedule (IMP/IMS) .....         | 36 |
| 3.2.3. IMP and IMS.....  | 36 |
| 3.3. Management Volume .....   | 37 |
| 3.4. Contract Data Requirements List (CDRL) and Data Item Description (DID)..... | 37 |
| 3.5. Section M of the RFP (Evaluation Factors).....                              | 38 |

FINAL DRAFT IN FINAL REVIEW FOR APPROVAL  
*Guide for Incorporating Test and Evaluation (T&E) into DoD Acquisition Contracts*

|        |   |     |
|--------|---|-----|
| 3.6.   | Sections M and L of the RFP .....   | 40  |
| 3.7.   | Technical Factor.....   | 41  |
| 3.7.1. | System Performance Specification .....  | 43  |
| 3.7.2. | Management Factor.....  | 46  |
| 3.7.3. | Price or Cost Factor.....   | 48  |
| 3.7.4. | Past Performance.....   | 48  |
| 3.7.5. | Proposal Risk Assessment (T&E Risks).....   | 51  |
| 4.     | CONTRACT EXECUTION .....  | 52  |
| 4.1.   | Test and Evaluation Team.....   | 53  |
| 4.1.1. | T&E Team Responsibilities .....   | 53  |
| 4.1.2. | T&E Team Participants and Roles.....  | 54  |
| 4.2.   | Contractor Performance Information .....  | 54  |
| 4.3.   | Award Fee Implementation.....   | 55  |
| 4.4.   | Defense Contract Management Agency (DCMA) Support .....                                 | 55  |
| 4.5.   | Test Operations .....   | 56  |
| 4.5.1. | Test Personnel .....  | 56  |
| 4.5.2. | Test Safety Issues .....  | 57  |
| 4.5.3. | Risk Acceptance Authority .....   | 57  |
| 4.5.4. | Accident/Incident Investigation/Reporting .....   | 57  |
| 4.5.5. | Detailed Test Planning .....  | 58  |
| 4.5.6. | Test Execution.....   | 58  |
| 4.5.7. | Test Data Access, Authentication, and Sharing.....                                      | 58  |
| 4.5.8. | Test Data Analysis and Evaluation .....   | 58  |
| 4.6.   | Change Management.....  | 59  |
| 4.7.   | Reporting.....  | 59  |
| 5.     | SUMMARY .....   | 60  |
|        | ATTACHMENT A – ACRONYM LIST .....   | A-1 |
|        | ATTACHMENT B – REFERENCES .....   | B-1 |
|        | ATTACHMENT C – SAMPLE CHECKLIST FOR EVALUATING A RELIABILITY<br>PROGRAM PLAN (RPP)..... | C-1 |
|        | ATTACHMENT D – SAMPLE T&E AWARD FEE CHECKLIST .....                                     | D-1 |
|        | ATTACHMENT E – SAMPLE PAST PERFORMANCE QUESTIONNAIRE .....                              | E-1 |

FINAL DRAFT IN FINAL REVIEW FOR APPROVAL  
*Guide for Incorporating Test and Evaluation (T&E) into DoD Acquisition Contracts*

**FIGURES**

|   |    |
|---|----|
| Figure 1-1 The Defense Acquisition Management Framework.....                    | 6  |
| Figure 1-2 Simplified Government Acquisition Process .....                      | 7  |
| Figure 2-1 Uniform Contract Format.....   | 22 |
| Figure 2-2 Relationship of Program Planning to a Typical RFP and Proposal ..... | 23 |
| Figure 3-1 Relationship of Proposal Documents to Contract Documents .....       | 35 |

**TABLES**

|   |    |
|---|----|
| Table 1-1 Contracting Activities and the T&E Role.....                          | 9  |
| Table 2-1 T&E Award Fee Considerations.....                                     | 18 |
| Table 2-2 T&E Content for the Statement of Objectives.....                      | 24 |
| Table 2-3 T&E Content for the Statement of Work.....                            | 26 |
| Table 3-1 T&E Content for RFP Section L–IMP/IMS .....                           | 36 |
| Table 3-2 T&E Contents for Section L–Management Volume .....                    | 37 |
| Table 3-3 T&E Focus and Evaluation Areas .....                                  | 39 |
| Table 3-4 T&E Contents for Section M–Supporting T&E Data .....                  | 42 |
| Table 3-5 T&E Contents for Section L–Supporting T&E Data.....                   | 43 |
| Table 3-6 T&E Contents for RFP Section M–System Performance Specification ..... | 44 |
| Table 3-7 T&E Contents for Section L–System Performance Specification.....      | 45 |
| Table 3-8 T&E Concerns for Section M–Past Performance.....                      | 49 |
| Table 3-9 Example of a Rating Scale for Past Performance.....                   | 49 |
| Table 3-10 T&E Concerns in Section L–Past Performance.....                      | 50 |

This page intentionally left blank.



## 1. INTRODUCTION

### 1.1. Purpose

This guide is designed to help the Department of Defense (DoD) and industry test and evaluation (T&E) professionals identify T&E items to consider for inclusion when drafting a statement of objectives (SOO), statement of work (SOW), and request for proposals (RFP), and during solicitation and contract execution. The guide presumes the reader has an understanding of T&E and the DoD systems acquisition processes as described in Department of Defense Instruction 5000.02 (DODI5000.02), and the Defense Acquisition Guidebook (DAG), and particularly, Chapter 9, Integrated Test and Evaluation. This guide follows the format and some content in the published guidebook on contracting for systems engineering (SE). Where the SE guidebook is primarily for the system engineers this guidebook focus on the T&E topics, issues, and items relative to the same contractual documents as referred to in the SE guidebook.

The guide is structured to address generic T&E items common across DoD Components. Components may have specific T&E direction and guidance each deems necessary for DoD 5000-based acquisition programs. Most contracts begin at MS B but a contract may be required prior to MS B for a prototype or some other product. The SOO, SOW and RFP development is essentially the same as described in this document. A good reference for discussion and description of Component T&E organizations is the Defense Acquisition University's T&E Management Guidebook (**reference a**) especially chapters 3 and 4.

The T&E guidance is based on programs that implement an acquisition strategy in which the development and testing has a single prime contractor. This is one of many DoD contracting types. Some project/system acquisitions will have different contracts. For example, Department of the Navy warship and combat system ACAT programs may contract the engineering and production work for accomplishment by other government and industry organizations, for risk mitigation of the prime contract work. Regardless of the contract type, the important thing is to consider T&E requirements in the context of the contract, regardless of the specific type. The PM can tailor the T&E guidance to fit his particular situation or approach.

The information and guidance are based on the sequenced development process of a SOO, SOW, and the RFP leading to a contract. The underlying T&E considerations also apply to a rapid acquisition and fielding process, although the rapid process requires a much more focused test and evaluation strategy (a strategy, including M&S, which links the key decisions in the system lifecycle to knowledge from developmental and operational evaluations, and outlines the test methodologies to obtain the data for evaluation), and approach (an event-driven plan including a process for the identification, implementation, testing, and evaluation of corrective actions prior to the next test including incremental testing, development, and fielding) based on performance of key system capabilities and safety. The test and evaluation strategy (hereafter referred to as T&E strategy, is captured in the approved Test and Evaluation Strategy (TES) document at MS A and focuses on the T&E events and activities expected in the Technology Development Phase with as much

FINAL DRAFT IN FINAL REVIEW FOR APPROVAL  
*Guide for Incorporating Test and Evaluation (T&E) into DoD Acquisition Contracts*

information as known at the time of TES development. The TES is expected to be updated as necessary and content is to transition into the draft TEMP.

Program managers (PMs) and the lead testers and evaluators for the Government and the contractor should consistently focus, and keep the program manager (PM) focused, on the T&E requirements for their respective teams. T&E excellence requires active leadership, sound planning, and realistic integrated developmental and operational testing (DT/OT).

The test and evaluation (T&E) community consists of a broad range of personnel who perform a wide variety of T&E functions in support of the acquisition, T&E, and contract-writing processes. Whenever this Guide refers to T&E personnel, ensure that the appropriate type(s) of T&E personnel are cited who must have the appropriate T&E skills to provide the required support. For example, when addressing the translation of critical technical parameters (CTP) into contract specifications, this Guide recommends that persons skilled in research, development, test and evaluation (RDT&E) are assigned to write and/or review those parts of the contractual documents. When addressing contractor support needed for OT&E, OT&E personnel from the operational test organization(s) should be enlisted to write and/or review those parts of the contractual documents.

The primary theme to remember is that if a T&E item or requirement is not in the SOW, it probably will not be in the RFP, and if it is not in the RFP, it probably will not be in the contract. If it is not in the contract – **do not expect to get it!**

## 1.2. Guide Organization

This guide contains the following four sections. The sections are organized to assist the user to focus on specific segments of the contract development process:

- **Section 1. Introduction.** This section covers the guide's purpose, organization, definitions, and an overview of the Defense Federal Acquisition Regulation Supplement (DFARS) (reference b).
- **Section 2. Pre-Solicitation.** This section discusses the importance of including the T&E contracting approach, including the T&E strategy and approach in the Acquisition Plan, Test and Evaluation Master Plan (TEMP), Incentives, Award Fee Plan, Statement of Objectives (SOO), and ultimately in the Statement of Work (SOW).
- **Section 3. Solicitation.** This section summarizes the source selection focus for those T&E items in the Technical, Management, Cost, Proposal Risk, and Past Performance elements of the source selection. The section highlights proposal documents that evolve into the negotiated contract.
- **Section 4. Contract Execution.** This section addresses the transition to Execution, Award Fee, and Defense Contract Management Agency (DCMA) support. This section discusses the key actions immediately following contract award.

### **1.3. Definitions**

Following are definitions for the principal terms used in this guide.

**1.3.1. Statement of Objectives (SOO).** The SOO is the portion of a contract that establishes a broad description of the Government’s required performance objectives.

**1.3.2. Statement of Work (SOW).** The SOW is that portion of a contract that establishes and defines the work to be performed by the contractor, and it may incorporate specifications, data item descriptions (DIDs), or other cited documents. The SOW should be consistent with all “promises or claims,” made in the proposal. A very good reference is the Defense Acquisition University’s (DAU) on-line continuous learning module (CLM) 031, “Improved Statement of Work”, which you can browse or take for credit (**reference c**).

**1.3.3. Request for Proposals (RFP).** The RFP is a solicitation used in negotiated acquisition to communicate Government requirements to prospective contractors and to solicit proposals.

**1.3.4. Contract.** A contract means a mutually binding legal relationship obligating the seller to furnish the supplies or services (including construction) and the buyer to pay for them. It includes all types of commitments that obligate the Government to an expenditure of appropriated funds and that, except as otherwise authorized, are in writing. In addition to bilateral instruments, contracts include (but are not limited to) awards and notices of awards; job orders or task letters issued under basic ordering agreements; letter contracts; orders, such as purchase orders, under which the contract becomes effective by written acceptance or performance; and bilateral contract modifications. Contracts do not include grants and cooperative agreements. (FAR 2.101)

**1.3.5. Proprietary Right.** Proprietary Right is a broad term used to describe data exclusively owned by the contractor. These data could be intellectual property, financial data, etc. A contractor may use the term in a proposal to protect the contractor’s sensitive information from disclosure, but the term is not a category of rights applicable to technical data to include T&E data under all contracts.

**1.3.6. Contract Data Requirements List (CDRL).** The CDRL (DD Form 1423) lists the contract data requirements authorized for a specific acquisition and becomes part of the contract. Additionally, the CDRL may list packaging, packing, and marking requirements, delivery requirements, and work directed through special contract requirements.

**1.3.7. Data Item Description (DID).** A DID is a description of a data item that is to be put on the contract. Each data item will have its own DID. There are three types of DIDs: standard, tailored, and one-time.

- **Standard DID:** A standard DID is one that is used "as-is." A standard DID is used if it exactly describes the information requirement that needs to be put on contract.

- **Tailored DID:** A tailored DID is one in which not all of the requirements quoted in a standard DID need to be put on contract. The standard DID is "tailored down"; the scope of the DID is reduced by taking out some of the words, paragraphs or sections. A DID can only be tailored by removing existing requirements from a standard DID, new requirements cannot be added to a standard DID. Many times DIDs are tailored to accept a contractor's data format.
- **One-Time DID:** A one-time DID is used when a data requirement cannot be met by using a standard or tailored DID. These are DIDs that are written to acquire specific information on a specific contract.

**1.3.8 Integrated Master Plan (IMP).** The IMP contains event-based technical activities with entry and exit criteria and reflects the technical approach to the program.

**1.3.9 Integrated Master Schedule (IMS).** The IMS is an integrated, networked schedule containing all the detailed discrete work packages and planning packages necessary to support events, accomplishments, and criteria of the IMP. (A good source for more details on both the IMP and IMS is the "Integrated Master Plan and Integrated Master Schedule Preparation and Use Guide (reference d).

**1.3.10. Test and Evaluation Strategy.** The TES is an early T&E planning document that describes the T&E activities starting with Technology Development and continuing through System Development and Demonstration into Production and Deployment. Over time, the scope of this document will expand. The TES will evolve into the TEMP due at Milestone B. The TES describes, in as much detail as possible, the risk reduction efforts across the range of activities (e.g., M&S, DT&E, OT&E, etc.) that will ultimately produce a valid evaluation of operational effectiveness, suitability, and survivability before full-rate production and deployment. It is a living document and should be updated as determined by the T&E WIPT during the Technology Development Phase. Its development will require early involvement of testers, evaluators, and others as a program conducts pre-system acquisition activities, especially prototype testing. The TES should be consistent with and complementary to the Systems Engineering Plan.

**1.3.11 Test and Evaluation Master Plan (TEMP).** The TEMP documents the overall structure and objectives of the Test and Evaluation (T&E) program. It provides a framework within which to generate detailed T&E plans and documents schedule and resource implications associated with the T&E program. The TEMP identifies the necessary Developmental Test and Evaluation (DT&E), Operational Test and Evaluation (OT&E), and Live Fire Test and Evaluation (LFT&E) activities. It relates program schedule, test management strategy and structure, and required resources to: Critical Operational Issues (COIs), Critical Technical Parameters (CTPs), objectives and thresholds documented in the Capability Development Document (CDD), evaluation criteria, and milestone decision points. The Government TEMP should be shared with industry, as appropriate. The TEMP does not relieve the contractor of any contractual obligations. It serves as an indicator of Government expectations, and should complement, not contradict, specifications and contractual language. Sharing the TEMP pays dividends and should be a common practice as appropriate to contractual T&E responsibilities (e.g., a single prime

contractor responsible for all T&E).

**1.3.12 Work Breakdown Structure (WBS).** The WBS is a fundamental project management technique for defining and organizing the total scope of a project, which delineates and segregates the technical elements to report costs to support technical management decisions and progress. A well-designed WBS describes planned outcomes instead of planned actions. The WBS needs to be consistent with the T&E program and how the T&E program will be conducted or it may be difficult to evaluate.

**1.3.13 System Performance Specification (SPS).** The System Performance Specification (or equivalent) contents will be incorporated into the contract. It describes the operational characteristics desired for an item without dictating how the item should be designed or built. JCIDS documents (i.e., CDD, CONOPS) are the basis in developing the system specification. These documents are key to developing sound contractual documents. A complete understanding of the system, verifying system performance, and validating T&E results will ultimately be based on meeting JCIDS requirements.

**1.3.14. Title 10 United States Coded (U.S.C.).** Title 10, Section 2399 - Operational test and evaluation of defense acquisition programs, paragraph (d) - Impartiality of Contractor Testing Personnel states that - In the case of a major defense acquisition program no person employed by the contractor for the system being tested may be involved in the conduct of the operational test and evaluation. The limitation in the preceding sentence does not apply to the extent that the Secretary of Defense plans for persons employed by that contractor to be involved in the operation, maintenance, and support of the system being tested when the system is deployed in combat.

#### **1.4. Defense Federal Acquisition Regulation Supplement (DFARS)**

**1.4.1. Using DFARS.** Guide users are not expected to have the same knowledge as contracting officers (KOs) but should understand the purpose of DFARS and where to look for specific guidance and information. DFARS and a Service's or Agency's contracting supplement provide specific clauses that must be included in the contract, and they may identify items for delivery. What is expected to be delivered is the main T&E focus, especially contractual language on proprietary/intellectual rights and data access and sharing.

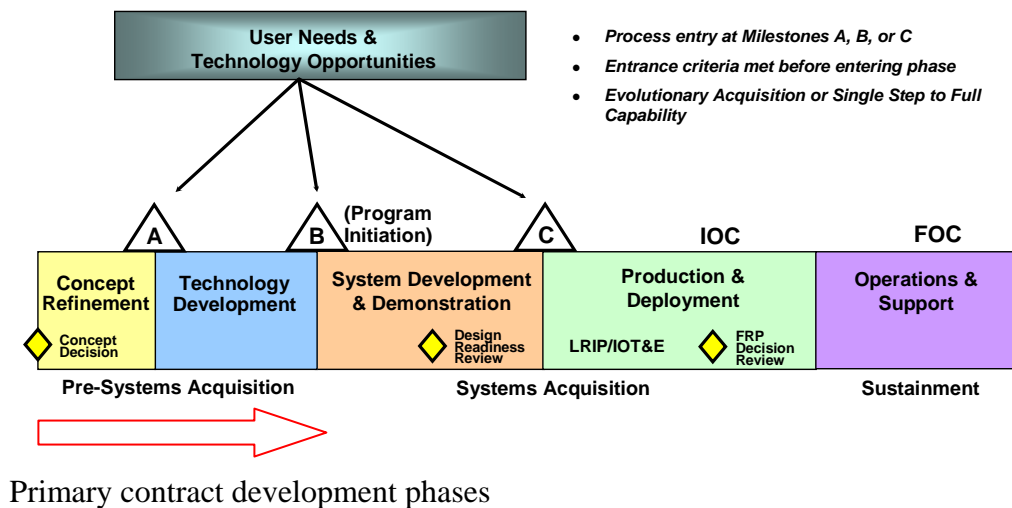
**1.4.2. DFARS Requirements.** The DFARS remains the source for regulation and implementation of laws as well as DoD-wide contracting policies, authorities, and delegations. In other words, DFARS will answer the questions, "What is the policy?" and "What are the rules?" The DFARS Procedures, Guidance, and Information (PGI) web site connects the acquisition community to the available background, procedures, and guidance and answers the questions "How can I execute the policy?" and "Why does this policy exist?" Another source for understanding DFARS is DAU's CLM CLC 113 - Procedures, Guidance, and Information, which you can browse or take for credit.

**1.4.3. Federal Acquisition Regulations (FARS) (reference e) Part 16.** FAR Part 16 FARS, Service supplements and individual Service award fee guides provide additional information on types of contracts and incentives that may be used. (FAR 16.405-2;

DFARS Part 216.405-2; AFARS Part 5116.4052(b); AFFARS Part 5316.405-2; Air Force Award Fee Guide; Army Award Fee Guide.

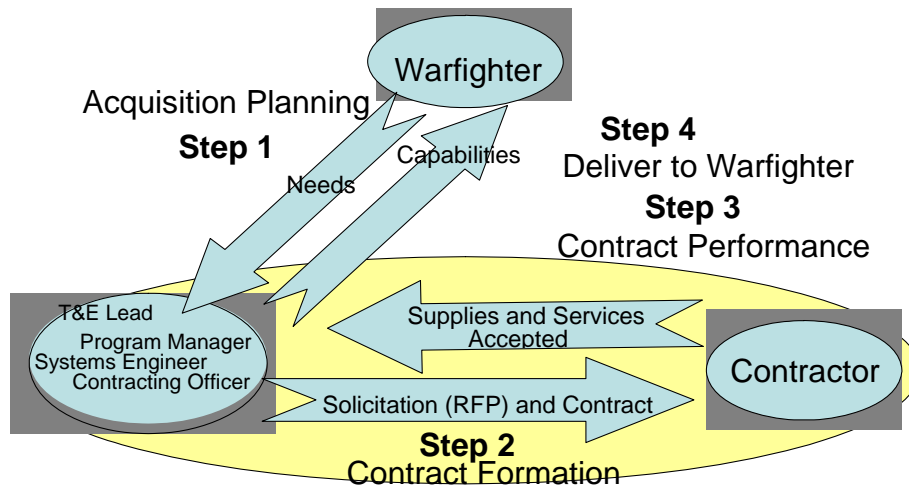
### 1.5. Acquisition Process

This guide focuses on contract development leading to contract award. Traditionally, program designation and contract award is at MS B. However, regardless of the acquisition phase, some contracts may be awarded prior to MS B, and the T&E contractual considerations described in this guide still apply. The five major phases of the Government acquisition process are defined in [DoDD 5000.1, The Defense Acquisition System](#) and [DoDI 5000.02, Operation of the Defense Acquisition System](#). Figure 1-1 below depicts the current Defense Acquisition Management Framework.



**Figure 1-1 The Defense Acquisition Management Framework**

Figure 1-2 below is a simplified illustration of the above acquisition process depicting the associated contracting steps. It begins when the warfighter identifies the need ([Joint Capabilities Integration and Development System \(JCIDS\) 3170.01E](#)) to the acquisition activity, which then translates that need into a requirement and purchase request. The KO solicits offers from industry and awards a contract. In the final step, the contractor closes the loop by delivering supplies and services that satisfy the Government need. During acquisition planning, primary responsibility rests with the acquisition activity.



**Figure 1-2 Simplified Government Acquisition Process**

Acquisition planning is the process of identifying and describing contract requirements and determining the best method for meeting those requirements (e.g., business, program Acquisition Strategy), including solicitations and contracting. Acquisition planning focuses on the business and technical management approaches designed to achieve the program’s objectives within specified resource constraints. The Acquisition Strategy (AS), usually drafted in the Technology Development (TD) phase of acquisition, is required and approved by the MS B Decision Authority (MDA) and provides the integrated strategy for all aspects of the acquisition program throughout the program life cycle. Earlier developmental activities are guided by the Technology Development Strategy (TDS). The TES and then the TEMP provides the strategy on the content, management, and focus of the T&E aspects of the acquisition program. The Acquisition Plan provides more specific plans for conducting the acquisition and is approved in accordance with agency procedures (FAR Part 7). A Source Selection Plan specifies the source selection organization, evaluation criteria, and procedures, and is approved by the KO or other Source Selection Authority (SSA). All of these documents guide RFP development. Other companion program artifacts include, for example, the Capabilities Documents (Initial Capability Document [ICD], Capability Development Document [CDD], and the Capability Production Document [CPD]); Risk Management Plan (RMP), Technology Readiness Assessment (TRA); Information Support Plan (ISP); Systems Engineering Plan (SEP); Product Support Strategy (PSS); DoD Directive 3200.11 Major Range and Test Facility Base; 2003 National Defense Authorization Act (NDAA) and Support and Maintenance Requirements. A good source for policy and guidance is DAU’s Acquisition Community Connection (ACC) Practice Center web site (**reference f**).

The program team must have strong technical, contracting, and T&E leadership as the program moves through its steps in contract formulation and execution. It is imperative to have the KO involved in the program acquisition planning process as early as possible.

## **1.6. Contracting Process**

The program manager (PM), chief or lead systems engineer (SE), KO, and lead tester and evaluator must work together to translate the program's Acquisition Strategy or Acquisition Plan and associated technical approach as defined in the Government SEP into a cohesive, executable contract, as appropriate. Table 1-1 identifies some typical contract-related activities from requirements identification through contract close-out and capturing lessons learned and the role of the lead for T&E who provides the T&E input, review, and coordination.



**Table 1-1 Contracting Activities and the T&E Role**

| Typical Contract-Related Activities  | T&E Role (“Lead for T&E” refers to the individual who leads the T&E review, coordination, etc., effort for the PM)  |
|--|---|
| 1. Identify overall procurement requirements and associated budget.  | PM provides any program-related requirements. Lead for T&E provides program T&E requirements. Describe the Government’s T&E needs and any constraints on the procurement.   |
| 2. Identify T&E actions required to successfully complete T&E and performance milestones.  | Lead for T&E defines the T&E strategy and approach and required T&E efforts. These will be consistent with the program’s Acquisition Strategy or Acquisition Plan, SEP and within the DoDI 5000.02 requirements. This effort should include identification of test and training ranges of the Major Range and Test Facilities Base (MRTFB), test equipment and facilities of the MRTFB, capabilities designated by industry, academia, unique instrumentation, threat simulators, targets, and Modeling and Simulation (M&S). Certain test events such as IOT&E, and IV&V may have to be performed by independent SMEs. |
| 3. Collaboration on acquisition and T&E strategies.  | The PM, users, and appropriate T&E personnel collaboratively develop the acquisition and T&E strategies so that users’ capability-based operational requirements (i.e., CDD, CONOPS) are correctly translated into accurate contractual terms and actions that give the highest probability of successful outcome for the government.”  |
| 4. Identify the reliability, availability, and maintainability (RAM) requirements and the need for a Reliability Program Plan (RPP).   | PM, SE, and Lead for T&E identify the RAM and RPP requirements for a robust RAM program, which includes reliability growth, as an integral part of product/system design, development, and T&E consistent with technical maturity and the system engineering plan.  |
| 5. Document any trade studies, Limited Demonstration Tests (LDTs), or market research results and identify potential industry sources. | PM and Lead for T&E identify programmatic and T&E information needed and assists in evaluating the search results for each area. See FAR Part 10 for sources of market research and procedures. Small Business must be considered.  |

FINAL DRAFT IN FINAL REVIEW FOR APPROVAL  
*Guide for Incorporating Test and Evaluation (T&E) into DoD Acquisition Contracts*

| Typical Contract-Related Activities                             | T&E Role (“Lead for T&E” refers to the individual who leads the T&E review, coordination, etc., effort for the PM)  |
|---|---|
| 6. Document the role of M&S.                                    | PM, with the Lead for T&E, identify the role M&S will contribute to the acquisition process, especially the T&E process. This effort should be consistent with the engineering plan for M&S. Address the need for a Modeling and Simulation Support Plan (MSPP) if required per Component direction.  |
| 7. Prepare a Purchase Request.                                  | PM and Lead for T&E ensure the specific programmatic and T&E needs are defined clearly. Consider the needs for testing COTS as well as any possible contractual implications, regarding testing, associated with FAR Part 12 Commercial Contracts. A Purchase Request should include product descriptions; priorities, allocations, and allotments; architecture; Commercial-off-the Shelf (COTS), Government-Furnished Information (GFI), or Government property or equipment; information assurance and security considerations; and required delivery schedules.   |
| 8. Identify acquisition streamlining approach and requirements. | The program team works together to ensure FAR and DFARS requirements are met while tailoring the acquisition strategy and approach. The PM is owner of the program acquisition strategy and planning. The Lead for T&E develops and reviews (and PM approves) the T&E strategy and approach with the PM and lead engineer. Acquisition streamlining approach and requirements include: budgeting and funding, contractor versus Government performance, management information requirements, environmental and safety considerations, offeror expected skill sets, and milestones. These are addressed in the Acquisition Strategy or Acquisition Plan. |
| 9. Determine Contractor OT&E Support.                           | PM and Lead for T&E will identify what, if any, contractor support is required for OT&E. There are five permissible types of contractor OT&E support. 1) Maintenance and support actions of the same type that the system contractor would be expected to perform as part of interim contractor support or contractor logistics support when the system is deployed in combat. 2) Conducting and reporting analyses of test failures to assist in isolating causes  |

FINAL DRAFT IN FINAL REVIEW FOR APPROVAL  
*Guide for Incorporating Test and Evaluation (T&E) into DoD Acquisition Contracts*

| Typical Contract-Related Activities   | T&E Role (“Lead for T&E” refers to the individual who leads the T&E review, coordination, etc., effort for the PM)   |
|---|--|
|   | of failure (but excluding participation in data scoring and assessment conferences. 3) Providing and operating system-unique test equipment, test beds, and test facilities which may include software, software support packages, instrumentation and instrumentation support. 4) Providing logistics support and training as required in the event that such services have not yet been developed and are not available from the military department or Defense Agency having responsibility for conducting or supporting the operational test and evaluation. 5) Providing data generated prior to the conduct of the operational test, if deemed appropriate and validated by the independent operational test agency in order to ensure that critical issues are sufficiently and adequately addressed. |
| 10. Plan the requirements for the contract Statement of Objectives (SOO) / Statement of Work (SOW) / specification, and T&E reviews in support of the technical reviews, test readiness reviews (TRRs) acceptance requirements, and schedule. | Lead for T&E is responsible for the development of the T&E contents of the SOO/SOW, and supporting the technical and test readiness reviews.   |
| 11. Plan and conduct Industry Days as appropriate.  | PM and Lead for T&E support the KO in planning the meeting agenda to ensure T&E needs are discussed.   |
| 12. Establish contract cost, schedule, and performance reporting requirements. Determine an incentive strategy and appropriate mechanism (e.g., Incentive/Award Fee Plan and criteria).   | Lead for T&E provides T&E resource estimates, and support development of the Work Breakdown Structure (WBS) based on preliminary system specifications; determines T&E event-driven criteria for key technical and readiness reviews; and determines what T&E artifacts are baselined. The PM, Lead for T&E, and lead engineer advise the KO in developing the metrics/criteria for an incentive mechanism.  |
| 11. Identify T&E data requirements.   | Lead for T&E identifies all T&E Contractor Data Requirements List (CDRL) intellectual property requirements, if any, and T&E performance expectations.   |

FINAL DRAFT IN FINAL REVIEW FOR APPROVAL  
*Guide for Incorporating Test and Evaluation (T&E) into DoD Acquisition Contracts*

| Typical Contract-Related Activities  | T&E Role (“Lead for T&E” refers to the individual who leads the T&E review, coordination, etc., effort for the PM)   |
|--|--|
| 12. Establish warranty requirements, if applicable.  | Lead for T&E works with the KO on determining cost-effective warranty requirements, such as: addressing and correcting defects (hardware, software, documentation) as part of the warranty. Under the warranty, the contractor will correct to the government's satisfaction each defect which the government specifies needs to be corrected prior to fielding. |
| 13. Prepare a Source Selection Plan (SSP) and RFP (for competitive negotiated contracts).                                | Lead for T&E provides input to the SSP per the SOO/SOW, Section L (Instructions, conditions, and notices to offerors or respondents) and Section M (Evaluation factors for award) of the RFP.  |
| 14. Conduct source selection and award the contract to the successful offeror.   | Lead for T&E participates on source selection teams.   |
| 15. Implement requirements for contract administration office memorandum of agreement (MOA) and/or letter of delegation. | Lead for T&E provides input regarding the T&E support efforts for inclusion in the MOA and/or letter of delegation. The MOA should define product/system performance requirements and or attributes.   |
| 16. Monitor and control (M&C) contract execution for compliance with all requirements.                                   | PM, Lead for T&E, and program team perform programmatic and T&E M&C functions as defined in the contract. They assist the Earned Value Management (EVM) implementation by monitoring the criteria for completion of T&E events, activities, and delivered products. They also assess T&E performance criteria in the Incentive/Award Plan.                       |
| 17. Contract Close-out.  | Contract close-out is mainly an accounting/administration activity, but KO provides status to PM. Lead for T&E may have input regarding any T&E-related articles, such as M&S tools and final performance reports.   |
| 18. T&E Lessons Learned.   | Lead for T&E, and contractor partner, should be capturing, and adjusting as necessary, lessons learned as the T&E effort progresses through the acquisition process. The lessons learned should be provided to the PM as part of the T&E close-out process and final PM report, as appropriate, to the program sponsor, or as directed.                          |

## **2. PRE-SOLICITATION**

The contents of this section will help you focus on and consider the most important contractual T&E items as you formulate the T&E strategy and approach. The discussion is applicable to whether you are preparing for a weapons system, C4ISR, or AIS acquisition program. A solid T&E strategy and approach foundation will facilitate the transition to the solicitation phase.

### **2.1. Planning**

During the program life cycle it is critical that the PM, SE, and T&E personnel recognize an early and consistent incorporation of T&E considerations and requirements begin at the onset of program planning during the Concept Refinement (CR) and Technology Development (TD) phases. The program acquisition strategy must be grounded in a technical approach with achievable, testable, and measurable performance requirements and reliability metrics embodied in viable system solutions that are within cost and schedule constraints.

The PM and his/her team, and the program, must be prepared to enter the System Development and Demonstration (SDD) phase with cost, schedule, and expected system performance requirements balanced and synchronized. Five important PM and team T&E considerations when beginning pre-solicitation activities are:

- Selecting a domain-experienced contractor with proven past T&E performance for a product or system similar to the one being developed must be a priority.
- Ensuring program planning documentation, even in draft, such as the Acquisition Strategy or Plan, Analysis of Alternatives (AoA), SEP, SSP, Risk Management Plan (RMP) and the RFP are available, coordinated, and consistent. The SEP, SSP, RMP, and the resulting RFP integrate the T&E policy directives and best practices from both Government and industry.
- Ensuring the integrated T&E strategy and approach addresses the total life cycle of the program and includes an event-based T&E approach which is not schedule driven, but logically sequenced test events consistent with product or system development, demonstrated performance reviews, and satisfying reliability metrics.
- Ensuring the specific test ranges/facilities and test support equipment are identified for each type of testing. Any shortfalls between the scope and content of planned testing with existing and programmed test range/facility capability must be identified with associated risk analysis. Ensure any applicable open air range requirements for OT&E are also addressed in addition to individual DT&E requirements.
- Incorporating T&E requirements in budgets and cost estimates in the program's T&E approach and achievable performance requirements, and integrated into the program's Integrated Master Plan (IMP), Integrated Master Schedule (IMS)/Integrated Master Test and Evaluation Schedule, and Earned Value Management (EVM) System. Program T&E cost and schedule realism must be supported by aggressive leadership, sound program planning, and timely application of resources along with execution of mature technical, T&E, reliability, and management processes.

- Consideration for Joint Interoperability Test Command (JITC) interoperability and net ready key performance parameter certification must be made. Additionally, planning considerations for sufficient and early Information Assurance (IA) planning through the DoD Interim Guidance for DoD Information Assurance and Certification Accreditation Process (DIACAP) process must be factored into the test strategy to ensure operationally representative test environments and connectivity can be obtained.

### **2.1.1. Requirements**

The T&E lead individual is responsible for establishing sound testable and measurable system performance requirements. The approved performance requirements are the backbone of the T&E strategy, approach, execution, and reporting. Performance requirements, derived from operational requirements, must be established that correlate with program costs and schedule. If these three elements are not balanced at the start of SDD phase, or program award, the program has a high probability of incurring cost increases and suffering schedule delays or worse, a deficient system. The system performance requirements should be performance based, and potential system solutions must be based upon mature technology and be within program cost and schedule constraints. These performance requirements are documented in the Acquisition Program Baseline (APB), and should be in the SOO, and based on the operational requirements stated in the ICD, or the follow-on CDD and associated JCIDS documentation. The preliminary system specification may include some of the JCIDS documents (or extracts from them) such as operational and system architectural views and Concept of Operations (CONOPS). The program office may also provide portions of the JCIDS documentation as reference material to aid the offerors' understanding of the operational requirements. The preliminary specification in the RFP is a precursor to the System Performance Specification that represents the program's functional baseline to be placed on contract. The functional baseline in the SPP is the first critical technical baseline established at the start of SDD.

Key for the T&E team is understanding all the stated and implied requirements and how to best meet those requirements through integrated T&E, use of M&S, establishment of a test team composed of all the stakeholders, and ensuring the T&E strategy and approach address system-of-systems (SoS) and joint T&E to the extent necessary to adequately demonstrate performance in the expected operational environment with realistic T&E events and schedule. The T&E lead along with test team members should develop a Requirements Testability Matrix (RTM) depicting how each requirement will be tested.

The DoD worked closely with both industry and the Government Electronics and Information Technology Association (GEIA) on the development of a new standard, GEIA-STD-0009, *Reliability Program Standard for Systems Design, Development, and Manufacturing*. DoD was motivated to initiate and support this undertaking because many systems have not been achieving the required level of reliability during development and have been subsequently found unsuitable during IOT&E. In May, 2008, the Defense Science Board DT&E Task Force (**reference g**) examined this issue and concluded that a new reliability program standard, which includes reliability growth as an integral part of design and development, and can be readily cited in DoD contracts, is urgently needed.

GEIA-STD-0009 consists of the essential reliability processes that must be performed in order to design, build, and field reliable systems. GEIA-STD-0009 is, at its core, a reliability engineering and growth process that is fully integrated with systems engineering. In order to facilitate its use in DoD acquisition contracts, enabling sample reliability contractual language is posted on DAU's ACC website (reference h). GEIA-STD-0009 should be explicitly cited in the system specification.

### **2.1.2. Test and Evaluation Strategy and the Acquisition Strategy/Plan**

The PM and Lead for T&E must recognize and emphasize the importance of a sound T&E strategy and approach to the program. The recognition begins with the statement of required capability, resulting in an approved system definition that provides a product meeting the user's needs. There is no "one size fits all" approach for programs, but disciplined adherence to proven T&E processes and practices will lead to a sound T&E strategy and approach. When developing the T&E strategy and approach consider that the single most important step necessary to avoid suitability failures is to ensure programs are formulated to execute a viable systems engineering and T&E strategy from the beginning, including a robust RAM program, which includes reliability growth and development.

The Government TES TEMP are the foundation T&E documents supporting the acquisition strategy and PM's program schedule and contains key items which must be considered when developing the SOW and RFP. The Government's T&E strategy and approach should describe what is to be accomplished. The offeror's integrated T&E approach provided in the proposal will expand on how the offeror intends to execute the integrated T&E program applying their domain experience and corporate best practices. The Government TES, and then TEMP, should be prepared as early as possible to properly influence the acquisition process by providing a carefully planned T&E strategy and approach to meet the programmatic and operational needs. This strategy and approach becomes very important if the acquisition strategy and engineering strategy employs incremental development and fielding. TES/TEMP development should begin in parallel with the analysis of operational requirements so the T&E strategy and approach are consistent with the required capability. The Government should share the draft TEMP, along with the draft preliminary system specification with industry representatives to obtain their perspective on the T&E strategy and approach. In addition to the TES/TEMP, the program requires supporting documents such as the SEP, AS, RPP, and ICD/CDD. These program documents capture information important to developing the T&E strategy and approach.

## **2.2. Working With Industry**

During the pre-solicitation phase of a program it is important that the T&E process be applied to set the stage for future expectations. The Government is in the leadership role in this stage and early industry inputs can provide critically important insights into the technical and performance challenges, program technical approach, and key business motivations. Lessons learned from past programs suggest the pre-solicitation process can be very productive when a highly collaborative environment is created involving the user, acquisition community, and industry personnel. The program should ensure early and

frequent industry involvement while developing the T&E strategy and approach and formulation and the development of the system performance requirements. Industry will provide important insight into both the T&E and business aspects of the program. The Government should include its T&E strategy and approach in the draft RFP to foster this synergism and interaction. Notwithstanding the desire to work with industry and getting input on T&E solutions from potential contractors, Government personnel must always keep in mind that individual contractors will have potential biases that will intrude into their recommendations.

### **2.3. Formula-type Incentives and Award Fees**

#### **2.3.1. General**

There are two broad types of incentive contracts, those that rely on the Application of predetermined, formula-type incentives and award-fee contracts, where the award amount is determined by the Government's judgmental evaluation of the contractor's performance.

Incentive contracts are designed to obtain specific acquisition objectives by establishing reasonable and attainable targets that are clearly communicated to the contractor, including appropriate incentive arrangements designed to motivate contractor efforts that might not otherwise be emphasized and discourage contractor inefficiency and waste. Most incentive contracts include only cost incentives, which take the form of a profit or fee adjustment formula and are intended to motivate the contractor to effectively manage costs. No incentive contract may provide for other incentives without also providing a cost incentive or constraint.

In developing appropriate incentives, the Government must take care to provide incentives for the desired behavior only, and not for actions that are counterproductive or for requirements that the contractor would otherwise be required to perform. Incentive increases or decreases are applied to performance targets rather than minimum performance requirements. Incentives are directly linked to expectation setting, understanding, and interactive management. Incentives and motivations must support the overall program needs and not sub-optimize a specific aspect of the program.

#### **2.3.2. Formula-type Incentives**

Formula-type incentives are based on either a single criterion or multiple criteria which can be objectively measured. DoD is moving more towards incentives based on objective criteria – according to the Defense Procurement and Acquisition Policy (DPAP) memorandum “Proper use of Award Fee Contracts and Award Fee Provisions,” dated APR 24 2007, **reference i)** *“It is the policy of Department that objective criteria will be utilized, whenever possible, to measure contract performance.”* For example, a cost incentive would be that the additional cost for every dollar over the target cost of the contract would be split between the Government and the contractor based on a fee adjustment formula (i.e., share ratio). Including incentives for T&E excellence, in addition to the cost incentive, can be an important aspect of the program acquisition strategy and should be an explicit consideration for any development or test program contract. The incentive strategy must be balanced with the program cost, schedule, and performance



requirements reflected in the program documentation. Incentives reinforce the Government's emphasis on T&E leadership, planning, and execution with the contractors. Incentives beyond the required cost incentive may be monetary, non-monetary, positive, or negative, but regardless of their structure, the goal is to motivate delivery of high-quality performance in achieving program goals.

Incentives for motivating excellence in the T&E portion of a program may be based on schedule or on performance, but no incentive contract may provide for other incentives without also providing a cost incentive or constraint (FAR 16.402). Some of the T&E criteria are inherently mixed with other criteria, especially technical criteria, for example, risk management, timely data delivery, and access. Incentives should be tied to specific test events, such as demonstrating a specific capability, or TPMs, in the system integration laboratory or testing a critical capability with a full-scale test article. The incentives applicable to T&E have tended to be subjective award fee measures, which will be discussed in the following section. When structuring incentives for the entire program, the RFP team must keep in mind that it is the policy of the Federal government to not incentivize minimum performance requirements, and to avoid the potential dangers of incentive dilution, incentive contradiction and unintended adverse consequences. For example, small increases in incentivized performance may have undesirable impacts on other program elements that are important, but not incentivized. Or, a contractor's desire to earn schedule incentives could detract from sound engineering decisions.

The incentives should consider non-test items that will end up driving the length or productivity of the test program. For example, if a radar system is not ready for test at the same time as the rest of the weapon system, then the test program could be delayed or lose efficiency because the program has to repeat test events when the radar is installed. In that case, an incentive placed on delivery of critical subsystems to the test program would have a greater effect on test program efficiency than any incentive applied directly to the test program itself. However, this may also be accomplished through a modification in delivery schedules of the critical subsystems. In general, focus incentives on demonstrating that key programmatic and technical risks are resolved as soon as possible, and avoid any incentives that may drive the contractor to delay testing inappropriately.

Incentives can also be tied to the contractor using preexisting Government test ranges/facilities to include instrumentation. As a national asset, the MRTFB is sized, operated, and maintained to provide T&E information to DoD Component T&E users in support of DoD research, development, T&E and acquisition process. If the contractor develops an internal test capability for a system which already exists within the MRTFB, a cost penalty will be incurred.

### **2.3.3. Award Fees**

The application of award fee incentives is generally associated with cost-reimbursement contracts, but may be used in either fixed-price or cost-reimbursement type contracts. An award fee provision may be used when the Government wishes to motivate a contractor and other incentives cannot be used because contractor performance cannot be measured objectively (FAR 16.404 and 16.405-2). The award fee approach is suitable for use when

FINAL DRAFT IN FINAL REVIEW FOR APPROVAL  
*Guide for Incorporating Test and Evaluation (T&E) into DoD Acquisition Contracts*

the work to be performed is such that it is neither feasible nor effective to devise predetermined objective incentive targets applicable to cost, technical performance or schedule.

Although award fee incentives can produce positive effects, the effort required for doing periodic evaluations in accordance with the award fee plan (e.g., continuous monitoring, midterm analyses, final analyses, and reports for each period) must also be considered, particularly for smaller program teams. Consider the investment in resources versus incentive gain trade-off before deciding to use an award-fee approach. Award fee criteria need specific data and examples of performance when making an award fee determination. As subjective measures are used, it is important that the contractor clearly understand expectations and be promptly advised of any problems or issues that may affect the award determination.

The contractor earns the incentives through a subjective evaluation process described in an Award Fee Plan. For example, if the program requires the contractor to develop a test bed, the award fee incentive could be related to the test bed development, test, and acceptance according to the schedule, cost, and test bed performance requirements. This incentive approach allows the Government to motivate exceptional contractor performance considering the conditions under which it was achieved, normally in such areas as quality, timeliness, technical progress, technical ingenuity, and cost-effective management. Early completion of technical reviews should not be award fee criteria since it may be counterproductive to the conduct of thorough event-based reviews. Attachment B lists sample T&E award fee criteria. Following are 14 items to consider when developing T&E award fee criteria.

**Table 2-1 T&E Award Fee Considerations**

- |  |
|--|
| <ol style="list-style-type: none"><li>1. Contractor has executed the T&amp;E strategy and approach in accordance with the TES/TEMP/Test Plan (TP), and keeps the management plans/tools integrated.</li><li>2. Contractor has implemented and demonstrated a disciplined T&amp;E management process to capture test entrance, exit, and success criteria with clearly defined metrics.</li><li>3. Contractor has presented a well-thought-out trade study and/or limited development testing (LDT) plans for the program and provides evidence of systematically evaluating all aspects of the system. The trade studies utilize common sets of critical trade parameters that are focused on the critical performance, schedule, and cost requirements of the program. Trade studies are documented and archived to establish an audit trail for the principal technical decisions on the program. The contractor conducts LDTs to test and evaluate specific critical aspects of system performance.</li><li>4. Test and evaluation data ownership, control, access, sharing and delivery support the T&amp;E strategy and approach.</li><li>5. Contractor continually demonstrates timely and efficient preparation of T&amp;E plans and reports as the system is progressively described to its lowest level of detail.</li><li>6. Contractor uses models and simulations to minimize the number of tests.</li><li>7. Contractor has implemented a process to track test failures, analyze and establish corrective actions, and provide feedback into plans and procedures to improve T&amp;E</li></ol> |
|--|

efficiency.

8. Contractor has established and implemented an event-based T&E process through the use of Technical Performance Measurements (TPMs) to include reviewing events with entry criteria, exit criteria, and success criteria.
9. Contractor demonstrates effective risk management, actively involving the Government to assess major risk areas, and establishes specific risk mitigation plans that are integrated into program plans.
10. Contractor flows down T&E processes and plans to the subcontractors and actively involves the subcontractor team in T&E baseline management, configuration management, requirements management and risk management activities.
11. Contractor has a disciplined action item tracking system that documents system and sub-system, if applicable, performance problems/issues that require program management attention.
12. Contractor has an exceptional record in meeting milestones and due dates and effectively uses T&E metrics to manage the T&E program.
13. The contractor has demonstrated knowledge of department level policy and guidance includes Joint Capabilities and Integration and Development System and Testing in a Joint Environment Roadmap.
14. Encourage prospective offerors to provide opportunities for integrating contractor testing, developmental testing, and operational testing to develop cost effective test programs with shorter schedules.

#### **2.3.4. Information on Incentives**

FAR Part 16, the DFARS, Service FAR supplements and individual Service incentive and award fee guides (e.g., Air Force Award Fee Guide, Air Force Guide Award Term / Incentive Options, Army Award Fee Guide) provide additional information, address ways to structure incentive and award fee plans, and provide examples. Additionally, there are applicable references and guides. There is OUSD(AT&L) memorandum, subject: Award Fee Contracts (**reference l**); DAU's "Award and Incentive Fees" Community of Practice (**reference m**), and a Guide – "Incentive Strategies for Defense Acquisitions" (**reference o**) which provides details on different incentive approaches.

#### **2.4. Market Research**

FAR Part 10 requires the Government's acquisition strategy to include the results of market research. FAR Part 10 implements Title 41 U.S.C. 253a(a)(1), 41 U.S.C. 264b, and 10 U.S.C. 2377 requirements. Market research is one method to establish the availability of products and the suitability of commercial products (e.g., COTS products) to meet the potential Government system performance needs. It supports the acquisition planning and decision process by supplying technical and business information about commercial and DoD technology, products, and industrial capabilities.

Market research is used to obtain current information on companies' maturity model level rating and how they have applied their rated processes within specific domains of their company. The specific rating is not the sole determiner of process maturity. The corporate commitment to continuous process improvement with documented plans and maturity

milestones is an important element. Frequently during the pre-solicitation and RFP preparation phase of a program, the Government team seeks business, T&E, and acquisition planning information via request for information (RFI). The Government usually sends these requests via the Government-wide point of entry (GPE) which can be found at the Federal Business Opportunities (FEDBIZOPs) web site (<https://www.fbo.gov/index?cck=1&au=&cck=>). The RFIs solicit data from interested industry sources and might be limited since it is an unfunded request for data and information. The RFI can be used to supplement market research and to secure specific types of T&E data, including the extent of their domain T&E experience and details on their T&E “best practices.” RFIs can provide valuable insight on how potential offerors have integrated their technical, T&E, and management processes to effectively manage prior programs. Each year the Major Range and Test Facility Base (MRTFB) activities are required to submit a notice, via FEDBIZOPs, which describes the nature of the anticipated commercial work and invites private sector responses of capability to perform these T&E services.

## **2.5. Industry Days**

Before release of a formal RFP, the Government may hold “Industry Days” to inform industry about the technical requirements, acquisition strategy, and T&E strategy and to solicit industry inputs for the pending program. Industry Days facilitate a program’s communications between Government and industry. During this time communications are the least encumbered by the formality and limitations associated with the formal RFP/source selection process. T&E personnel need to avail themselves of the opportunity for free and open communications. They should emphasize the importance of the significant aspects of T&E requirements (such as, M&S, hardware-software and system component integration T&E, test beds, prototypes, incremental T&E and fielding, interoperability architectures, and specific ranges) to resolve T&E complexities and mitigate actual or anticipated program risks. The Government should initiate discussions of the following seven T&E topics during Industry Days discussions.

- T&E strategy and approach. Continually emphasize the importance of the overall technical approach and associated T&E strategy and approach. The Government prepared TES/TEMP should be made available to industry, as appropriate in accordance with Component direction and guidance.
- User of M&S. Discuss M&S testing (especially the verification, validation, and accreditation (VV&A) process and proprietary rights) and any trade studies, LDTs, and analyses that have been conducted during the requirements generation process. While solution alternatives are studied during this phase of the program, the emphasis should remain on the resulting performance requirements, not on the specifics of the alternatives. Government trade studies, LDTs, and analyses should be made available to industry as appropriate.
- Potential T&E solutions. While it is necessary to investigate potential T&E solutions that are responsive to the requirements, the Government team should avoid becoming fixated with the solutions. The user sometimes becomes enamored with what he likes, the acquisition team focuses on the one that works, and industry has one it wants to sell. The team should focus on establishing the cost-effective T&E

processes and events that can be operationally evaluated and deliver the necessary operational capability.

- **Supporting Management Processes.** T&E members need to emphasize that potential offerors must have T&E management processes to be implemented during program execution. The Government team should have a clear understanding of system/sub-system requirements, encourage the offerors to discuss their T&E approach, and encourage the potential offerors to document their approach.
- **T&E approach.** T&E members need to address the T&E approach and how it was established. This is an excellent opportunity to reinforce the importance of the T&E processes and schedule for the program and for the Government to describe its T&E approach to the program
- **Corporate Proprietary Information.** Recognize that prospective offerors exercise extreme caution during open sessions for fear of compromising a competitive advantage or revealing a perceived weakness. During one-on-one sessions the discussions are more open and free, but be careful to provide all offers with equivalent information about the government's needs without divulging potential solutions considered by other offers.
- **Areas of Mutual Interest.** Identify areas of interest and encourage prospective offerors to provide data, insights, and suggestions that facilitate the transition into SDD with sound performance requirements and a well structured T&E approach. The agenda and topics should not be solely left to the discretion of the offerors.

For additional information on exchanges with industry before receipt of proposals see the other eight techniques discussed in FAR 15.201(b).

## **2.6. Division of Responsibilities / Authority**

An additional Government team consideration for working with industry is the division of responsibilities between the Government and the contractor, and also the level of authority granted to each to execute the test program. The contract should be clear on what the contractor is expected to deliver in terms of articles, performance, or services. However, T&E programs usually involve a shared responsibility in the planning, execution, and reporting of T&E. If this shared responsibility and authority are not clearly addressed during contract formulation and award, then any misunderstandings will cause problems during program execution. The problems will range from minor discussions over who can approve test plans, to major disconnects, such as missing equipment, which can bring the program to a halt.

The strategy for planning and executing the test program needs to be agreed to prior to release of the solicitation. One strategy consideration concerns overall control of the test program – will the contractor run everything with the Government testers in a support role at the contractors facility, or will it be shared, or will the Government testers at Government ranges/facilities be in control with the contractors in a supporting role? Remember, for operational testing, the contractor can only be involved to the extent that they will be involved once the system is fielded. Responsibilities related to the planning of

FINAL DRAFT IN FINAL REVIEW FOR APPROVAL  
*Guide for Incorporating Test and Evaluation (T&E) into DoD Acquisition Contracts*

detailed tests and the control of execution of test events needs to be considered also. In addition, responsibilities for conducting test-related safety analyses and mitigating test risks must be thought through during SOW and RFP generation. Some of the answers will be driven by the choice of test ranges and facilities to be used, (e.g., contractor or Government) but it still must be explicitly considered.

Another factor in addressing the level of responsibility of the contractor versus the Government is the overall level of system performance responsibility assigned to the contractor through the contract. Will the contractor have Total System Performance Responsibility (TSPR), in which case the contractor would be expected to handle all of the integration issues for the total system and deliver end system performance? Or will the contractor be responsible for only one element of the total system, and the Government or another contractor will become the system integrator, and accept the risks associated with delivering end system performance? Choosing one or the other, or some other approach, will have an impact on how the Government works with the contractor, and the appropriate division of responsibilities and authority between the Government and the contractor.

## **2.7. Draft Request for Proposals**

The RFP is a solicitation used in negotiated acquisition to communicate Government requirements to the prospective offerors and to solicit proposals. The FAR 15.204 specifies that the format and content of RFP and contracts are prepared in accordance with specific guidelines called the Uniform Contract Format (see Figure 2-1).

|   |
|---|
| <p><b>Part I – Schedule</b><br/>A-Solicitation/contract form<br/>B-Supplies or services and process/costs<br/>C-Description/specifications/statement of work<br/>D-Packaging and marking<br/>E-Inspection and acceptance<br/>F-Deliveries or performance<br/>G-Contract administration data<br/>H-Special contract requirements</p> <p><b>Part II – Contract Clauses</b><br/>I-Contract clauses</p> <p><b>Part III – List of Documents, Exhibits, and Other Attachments</b><br/>J-List of attachments</p> <p><b>Part IV – Representations and Instructions</b><br/>K-Representations, certifications, and other statements of offerors or respondents<br/>L-Instructions, conditions, and notices to offerors or respondents<br/>M-Evaluation factors for award</p> |
|---|

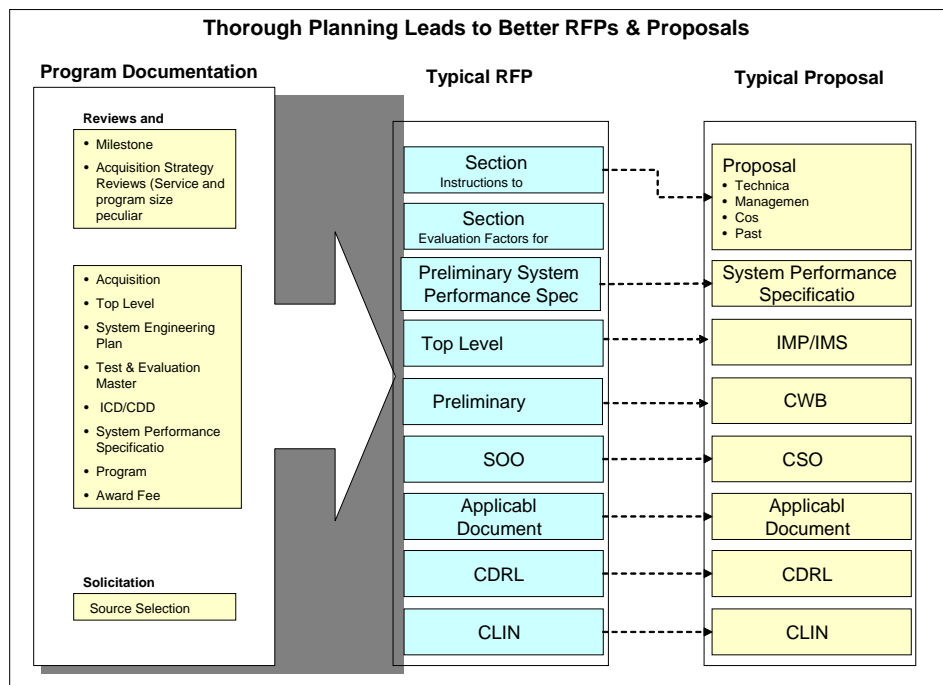
**Figure 2-1 Uniform Contract Format**

FINAL DRAFT IN FINAL REVIEW FOR APPROVAL  
*Guide for Incorporating Test and Evaluation (T&E) into DoD Acquisition Contracts*

The RFP typically includes two kinds of documentation – Program and RFP documents. Figure 2-2 depicts the flow from program documentation to populate typical RFP Sections to a typical proposal.

**Program Documents**— Acquisition Strategy, program Integrated Master Plan (IMP) or top level program roadmap, Incentive plan or Award Fee Plan, Government SEP, TEMP, preliminary system performance specification are the program’s important documents which are typically attached or referenced in the RFP and may be included in an “Offerors Library.” These documents describe the Government’s management, technical and T&E approach to the system acquisition along with the required system performance requirements and other important program planning elements.

**RFP Documents**—A typical RFP includes a model contract with any special contract requirements, Contract Line Item Numbers (CLINs), Statement of Objectives (SOO) or Statement of Work (SOW), Contract Data Requirements List (CDRL), Preliminary WBS, Evaluation Criteria (Section M) and Instructions to Offerors (Section L). The RFP (in concert with the Program Documents) defines the program to be proposed.



**Figure 2-2 Relationship of Program Planning to a Typical RFP and Proposal**

Early preparation of the Government TEMP is an important step to foster synergy among RFP sections. An integrated approach, developed specifically for each program, will result in a high degree of synergism and integration of all RFP and proposal elements. For instance, the SOW, IMP, IMS, SEP, TEMP, model contract, and the critical processes are all interrelated. The following subsections discuss the core RFP documents that contain

substantive T&E material and the applicable companion proposal documents. Sections C, L, and M are the primary parts of the RFP influenced by the T&E approach to the program.

The RFP captures and amplifies the acquisition, technical, T&E, and support program strategy. There is a natural flow of information from the program strategy, to RFP, to proposal, and the resulting contract. Each program must develop the RFP according to the program strategy. Some items are required for source selection purposes only, such as the proposal volumes and/or past performance information. Some items will become parts of the contract, such as the IMP, SOW, and system specification.

### **2.7.1. Statement of Objectives (SOO)**

The SOO is that portion of a contract that may establish a broad description of the Government’s required performance objectives. The SOO delineates the program objectives and the overall program approach. The SOO, along with the preliminary system performance specification (covering the technical performance requirements), provides offerors guidance for proposing a program to meet the user’s needs. The SOO is an RFP document that does not become part of the ensuing contract.

Section C contains the detailed description of the products to be delivered or the work to be performed under the contract and the preliminary system performance specification. The preliminary system performance specification was addressed in Section 2.1.1 and its conversion to the contract specification is addressed in Section 2.3.2. Other contract requirements documents may be included such as sample IMP event descriptions, CDRL, Contract Security Classification Specification (DD 254), pricing matrices. The following list contains text for inclusion in a SOO that emphasizes the main T&E themes of the guide. Specific program requirements and the program strategy are used to modify this example.

**Table 2-2 T&E Content for the Statement of Objectives**

| <b>Statement of Objectives</b>   |   |
|--|---|
| The T&E approach will capitalize on industry domain experience “best practices,” and will implement DoD T&E policies. The program shall: |   |
| 1.   | Document the T&E approach in an integrated Government TEMP that covers the life of the program.   |
| 2.   | Utilize contractor T&E “best practices” and processes to reduce cost. Includes agile and mature technical and management program processes based on company processes that undergo continuous improvement throughout the program’s life cycle. Policies and processes shall flow down to the lowest level of the contractor (subcontractors, teammates, or vendors) team. |
| 3.   | Implement event-based program milestones (e.g., Critical Design Review [CDR]) and integrated schedules (e.g., Integrated Master T&E Schedule). Implement event-based T&E events and reviews involving both Government and industry SMEs.  |



4. Use contractor configuration management processes to control the configuration of the T&E data. Provide real time access to the T&E baseline data for program participants.
5. Enhance opportunities for incorporation of improved capabilities and advanced technology using the modular open systems approach. Encourage use of commercial products/processes/standards.
6. Include Government participation on integrated product teams (IPTs)\* to gain insight into program progress.
7. Document the requirement for Reliability Program Plan (RPP)
8. Implement a comprehensive risk management process that is focused on the program's critical path to systematically identify and eliminate/mitigate cost, schedule, technical, and performance risks.
9. Institute a requirements management process coupled with a T&E baseline management strategy that supports the TD and SDD phases, as applicable, and an orderly transition to the production, deployment, operation and support acquisition phases.

\* T&E SMEs may participate in different teaming arrangements, including T&E IPTs, T&E Working IPTs (WIPTs), and program-specific teams such as contractor/combined test teams (CTTs), a combined T&E Task Force (CTF), or integrated test teams (ITTs). The title by itself is not the important item. The key to a team structure is the charter, which lists the roles, responsibilities, products, and stakeholder membership.

### **2.7.2. Statement of Work (SOW)**

The SOW is that portion of a contract that establishes and defines all non-specification requirements for a contractor's efforts, either directly or with the use of specific cited documents. The offeror may provide a SOW to be included in the negotiated contract. The Government may provide a SOW as part of the RFP instead of a SOO, in which case the offerors will tailor the SOW in their proposals depending on their specific solutions to the requirement. The SOW should:

- Describe the T&E events and activities to be accomplished that reflect the T&E approach to the program as described in the TEMP.
- Reflect use of T&E processes across the program, which are critical for program success. Processes such as, reliability growth planning, assessing technology maturity, management of performance deviations and waivers, performance baseline control, risk management, configuration, and T&E data management, including government access and sharing of contractor data, tests, and results.
- Plan for and support T&E events and event-based reviews as defined in the TEMP and or the program plan.
- Address the T&E baseline management process, associated T&E data, and Government approved stakeholder access to all T&E, to include M&S, data.
- Provide for TEMP updates and continuous process improvement consistent with corporate improvements, technical changes, and program needs.

FINAL DRAFT IN FINAL REVIEW FOR APPROVAL  
*Guide for Incorporating Test and Evaluation (T&E) into DoD Acquisition Contracts*

- Include a cross reference matrix tracking the Government SOO requirements to the proposed SOW. The SOW should be structured for the proposed system solution and not restricted by the structure of the Government’s SOO.
- Include the necessary contract language to ensure a RPP is delivered.
- Address the following items, as necessary, relative to the T&E strategy and approach: Contractor Test Plan, Detailed Test Plans and Reports, T&E Support for Government conducted tests, Test Instrumentation, Test Readiness Reviews, Failure Review Boards, Deficiency Reporting (DR), and T&E WIPT support.

The contractor SOW addresses the requirements stated in the SOO or RFP SOW, other sections of the RFP, and derived requirements based on the offeror’s approach. The SOW should include those T&E tasks and activities that the contractor is required to execute during the contract. The T&E approach relies heavily on contractor’s processes and practices and the SOW should address the application of these processes and practices during DT&E and OT&E and sustainment as applicable to the program. It is generally not the intent to put the specifics of the contractor’s individual processes and practices on contract, but the SOW should recognize the application of key T&E processes and practices on the program. The SOW should address the Government’s requirement –not a contractor’s solution. When a contractor proposes a detailed SOW, it must still be stated in terms to describe the Government’s requirements. Following is a sample SOW.

**Table 2-3 T&E Content for the Statement of Work**

| <b>Sample Instruction for Proposing T&amp;E Activities in a Statement of Work</b>                |  |
|--|--|
| <p>The offeror shall provide a SOW to be included in the negotiated contract. The SOW shall:</p> | <ol style="list-style-type: none"><li>1. Describe the T&amp;E work/tasks/activities to be accomplished on the program that reflect the T&amp;E approach to the program as described in the TES/TEMP.</li><li>2. Identify the role of M&amp;S to be used in support of the T&amp;E process and the documented Validation, Verification and Accreditation (VV&amp;A) of any M&amp;S to be used.</li><li>3. Reflect use of T&amp;E processes across the program that are critical for program success (e.g., requirements management, performance baseline control, risk management, configuration and data management, and interface management).</li><li>4. Provide for event-based reviews as defined in the Integrated Master T&amp;E schedule and or the program master schedule.</li><li>5. Address the T&amp;E baseline management process, associated data, and stakeholder access to all T&amp;E data, especially the handling and accountability of expected performance deviations or waivers.</li><li>6. Provide for TES/TEMP updates and continuous process improvement consistent with corporate improvements and program needs.</li><li>7. Include a cross reference matrix showing the tracking of Government SOO or SOW requirements to the proposed SOW. The SOW should be structured for the</li></ol> |

proposed system solution and not restricted by the structure of the Government's SOO or SOW.

8. Provide the proposed RPP format and content.
9. Describe the deficient reporting strategy in terms of methodology, processes, and database(s) used to support the contract and throughout the system life cycle. The proposed contractor DR database must be compatible with (i.e., feed into) the Government's DR database

## **2.8. T&E Focus Areas**

The following are nine specific T&E interest areas. The PM team needs to address each area in the planning stage, prior to issuing a solicitation for a contract.

### **2.8.1. Reliability**

The offeror is expected to develop and provide an RPP in order to achieve the following four objectives: 1) understand the Government's requirements, 2) design product/system for reliability, 3) produce reliable products/systems, and 4) monitor and assess user reliability.

The RPP should:

- Provide visibility into the management and organizational structure of those responsible and accountable (both offeror and customer) for the conduct of Reliability Activities over the entire life cycle.
- Define all resources required to fully implement the reliability program.
- Include a coordinated schedule for conducting all Reliability Activities throughout the system life-cycle.
- Include detailed descriptions of all Reliability Activities, functions, documentation, processes, and strategies required to ensure system reliability maturation and management throughout the system life cycle.
- Document the procedures for verifying that planned activities are implemented and for both reviewing and comparing their status and outcomes.
- Manage potential reliability risks due, for example, to new technologies or testing approaches.
- Flow reliability allocations and appropriate inputs (e.g., operational & environmental loads) down to subcontractors and suppliers.
- Include contingency-planning criteria and decision-making for altering plans and intensifying reliability improvement efforts.

The RPP is expected, at a minimum, to address the following twelve reliability activities. Specific descriptions of each of the activities may be found at attachment C and <https://acc.dau.mil/CommunityBrowser.aspx?id=219127&lang=en-US>.

1. System Reliability Model
2. Systems-Engineering Integration
3. System-Level Operational & Environmental Life-Cycle Loads
4. Life-Cycle Loads on Subsystems, Assemblies, Subassemblies, and Components
5. Identify and Characterize Failure Modes and Mechanisms
6. Closed-Loop Failure-Mode Mitigation
7. Reliability Assessment
8. Reliability Verification
9. Failure Definitions
10. Technical Reviews
11. Methods and Tools
12. Outputs and Documentation

### **2.8.2. Shared Test Data Access**

There is never enough time to test everything during the development of a system. Most systems will utilize technology and subsystems developed for other programs or in prior efforts. To take advantage of this prior data, and data generated during contractor development, the issue of data access needs to be addressed. Resolving the issue may touch on data rights issues, which can be a source of contention. The data access issue does not automatically mean buying all the data packages from the contractor. It just means ensuring the Government will have access to the needed data at a future point in time. Perhaps the best that can be negotiated in the contract is just the fee or rate to be paid for whatever data are needed in the future. The goal is that by negotiating the data access issue early, during the competitive portion of the contracting process, that it will minimize the cost for the data requested later during the execution of the contract. Note that data access could be considered from both perspectives – the contractor may want access to data the Government has or is aware of concerning technologies that the contractor needs. Typically, if contractor test data is to be used as part of the independent system evaluation the Government will require that the test be witnessed by the tester, evaluator, or the PM. Data access also means contractor's have the correct authorization to use the data, for example, IT 1 or 2 or 3 access permissions., and any security clearance requirements.

### **2.8.3. Integrated Testing**

Integrated testing is defined as: “the collaborative planning and collaborative execution of test phases and events to provide data in support of independent analysis, evaluation and reporting by all stakeholders particularly the developmental (both contractor and Government) and operational test and evaluation communities.” (**reference j**). The PM and Lead for T&E need to consider the availability of in-house and or Component T&E

FINAL DRAFT IN FINAL REVIEW FOR APPROVAL  
*Guide for Incorporating Test and Evaluation (T&E) into DoD Acquisition Contracts*

resources and then contractor use, relationship, and responsibilities for DT&E, OT&E, and LFT&E. The PM and Lead for T&E need to consider such questions as:

- Who will be in charge of the testing – Government or contractor?
- Will Government personnel “work” for the contractor (i.e. Government Furnished Personnel)?
- Who is accountable for test conduct and reporting?
- What is the Government’s T&E oversight role and process?
- Will the Government witness the testing at the contractor’s facility?
- Will the government receive all pertinent raw test data?”

The contractor T&E role and responsibilities must be clearly, accurately, and completely identified. FAR Subpart 9.5—Organizational and Consultant Conflicts of Interest ([http://www.acquisition.gov/far/current/html/Subpart%209\\_5.html#wp1078823](http://www.acquisition.gov/far/current/html/Subpart%209_5.html#wp1078823)) provides the responsibilities, general rules, and procedures for identifying, evaluating, and resolving organizational conflicts of interest. DOT&E has specific statutory and regulatory guidance on contractor involvement on OT&E and LFT&E. Components have specific guidance relative to contractor involvement in their respective acquisition programs.

#### **2.8.4. Modeling and Simulation (M&S)**

One of the important PM team M&S strategy decisions that must be made early in a program is the allocation of M&S responsibility between the Government and its contractor(s), with attendant funding and accountability implications. This allocation typically varies by phase, with Government M&S activities prominent in the early phases (e.g., Concept Refinement, Technology Development), but the prime contractor assuming a preeminent role after source selection and throughout the System Development and Demonstration phase. Government M&S activity typically increases again during Operational Test & Evaluation (OT&E). The Government must decide to what degree it wishes to have an independent M&S-based capability rather than just insight into the contractor’s M&S activities. The Government must also decide whether it will provide, or facilitate providing, the contractor with Government-owned M&S tools and data, and if so, what its limits of liability will be regarding the functional adequacy, trustworthiness, and evolution of such Government-furnished equipment or information (GFE/GFI). VV&A responsibilities must also be allocated. Close coordination is necessary between the program office’s M&S lead and its Contracting Officer. Contracting strategies, solicitation, and contract clauses must be consistent with the decided division of responsibilities. Particular attention should be paid to the GFE/GFI aspects discussed above. RFP language and contract clauses should address M&S representation requirements; data rights; the contractor’s own M&S planning and documentation thereof, including the examination of reuse opportunities; expectations regarding the sources of M&S tools and data; the ownership and maintenance of Government-funded M&S resources; VV&A; standards that must be complied with; Government user support; access control; and metrics and documentation requirements, all across the system’s full life-cycle. The use or development of proprietary M&S tools, or those protected by copyright

or patent, with Government funds should be allowed only on a specifically reviewed, by-exception basis. A key planning consideration is addressing the need for including updates to M&S in the RFP based on use of actual test data. Effective use of M&S throughout T&E process requires an iterative model-test-model process where possible.

Indicators of contractor M&S expertise should be considered in defining source selection criteria. Contractor attributes that have a direct relationship to successful M&S use may include:

- A documented systems engineering process showing its organizations, activities, the specific M&S tools used by each, and the information flows among them;
- An existing information-sharing infrastructure (e.g., integrated data environment) providing enterprise team members, on a nearly continuous, from-the-desktop basis, the capability to discover, access, understand, and download a comprehensive set of authoritative, accurate, and coherent product development information. The data items provided by this system should be accompanied with metadata providing the pedigree and sufficient applicability and context information to guide their valid use;
- Successful experience using a wide variety of models and simulations, both for design (prescriptive modeling environments such as systems engineering tools, Computer Aided Design (CAD), and software design tools) and assessment (descriptive M&S), from the engineering to mission levels;
- Successful participation in distributed simulation federations using an open standard architecture (e.g., the IEEE 1516 High Level Architecture);
- A record of reuse of M&S tools and information produced by other organizations (Government, industry and COTS);
- A documented VV&A process, with records indicating a history of compliance; and
- A staff with documented M&S expertise.

#### **2.8.5. System of Systems (SoS)**

Expected product/system interoperability should be clearly identified in the SOO and CONOPs and will drive the T&E strategy, needed resources, and schedule. For example, does the product/system being developed stand alone, or is it part of a SoS? What is the relationship between this system and the other systems? Are the boundaries/interfaces between systems well defined?

#### **2.8.6. Government Furnished Equipment (GFE)**

The identification of and control for GFE for T&E must be identified early because they will affect contract funding and scheduling. In areas like support equipment, not identifying GFE can be a showstopper if an assumption is made about equipment availability that is not true. Similarly, the Government does not want to pay for development of contractor-unique support equipment if the design can use existing support equipment.

### **2.8.7. Ranges & Resources**

The identification of test ranges, facilities and other needed resources (such as personnel, equipment, Operational Test Agency (OTA)) for DT&E, OT&E, and LFT&E cannot wait until the final stages of TEMP approval. The test ranges, range resources, equipment, and personnel should be identified to the extent possible in the T&E strategy development process. Especially, those DoD assets the Government require the contractor to use, or require the contractor to specifically identify and justify use of its own test resources. There has to be a comparison of Government to contractor test facilities to ensure there is no duplication and that the most appropriate facility to conduct the test and evaluation is identified. If government test facilities are required, ensure that a appropriate language in their contract with the DOD contract sponsor that provides the use of test support from the MRTFB facility at the Government-established rate in accordance with DODD 7000.14-R, volume 11A, chapter 12. Otherwise, defense contractors will be charged as commercial customers.

### **2.8.8. Safety**

The type of product/system will drive the personal and system safety issues. Since the T&E program will involve real people using real systems, the strategy regarding ensuring the safe conduct of the test program must be captured. Especially, who has the final safety decision – Government (such as the program office or range safety officer) or contractor. Safety topics include who has accountability in case of an accident and who has weapon release authority.

### **2.8.9. Test Assets**

A significant costing topic is the number of test assets required for conducting the necessary test cycles during DT, OT, Live-Fire, and contractor testing. The number of test assets required for conducting DT, IOT&E and LFT&E is typically recommended by the T&E WIPT with DOT&E concurrence and documented in the OSD approved TEMP. These determinations should include identification of spares. Consideration of this topic must be in conjunction with M&S expectations, any statutory and or regulatory requirements, and required sample size necessary to support the stated performance confidence levels.

### **2.8.10. Software**

Software is a rapidly evolving technology that has emerged to compose major components and critical sub-systems of most DOD materiel solutions. Software allows creation of products that fundamentally differ from hardware components. The following six bullets identify differences between hardware and software.

- Software has no physical characteristics limiting size or prescribing natural, structural units with boundaries and proximal interfaces.
- Software structural units are statements, objects and programs for which the interfaces are intangible and range widely in diversity, complexity and dynamic behavior.

FINAL DRAFT IN FINAL REVIEW FOR APPROVAL  
*Guide for Incorporating Test and Evaluation (T&E) into DoD Acquisition Contracts*

- Software functionality is virtually boundless, unconstrained by material properties and associated manufacturing technologies.
- Software units are captured abstractions of functions allocated to design, easily changeable and therefore challenging to manage and maintain.
- Unlike hardware that typically degrades gracefully before failing, software typically fails abruptly and with greater consequence to delivery of expected system performance.
- Software almost always delivers function through code execution in a non-deterministic domain space and therefore cannot be exhaustively tested and will always contain faults. Software testing mitigates the risk of performance failures by exposing code faults and is therefore fundamentally a risk reduction activity.

System designs that incorporate software components require consideration of these unique differences and their implications for software T&E processes in solicitations, proposals and evaluation of domain experience and past performance. Evidence of experienced software T&E organizations should include documentation and successful demonstration of:

- Allotment of sufficient financial, schedule, material and domain expertise across the WBS and IMP/IMS to properly incorporate software T&E with software design and production, system integration, and system sustainment.
- An initial software T&E strategy that addresses mitigation of high risk technologies in preliminary system designs and areas of highest complexity in the system software architecture. This strategy should identify and describe:
  - Software evaluation metrics for Management, Requirements and Quality, including Reliability,
  - Types and methods of software testing to support comprehensive evaluation,
  - A linkage of software T&E into program risk management and risk reduction activities,
  - Data management/analysis methods and tools,
  - Models and simulations supporting software T&E including accreditation status,
  - Software development /test and software-hardware integration labs and facilities.
- A defined software T&E process consistent with and complementing the software and system development, maintenance and system engineering processes, committed to continuous process improvement and aligned to support project phases and reviews, including an organizational and information flow hierarchy.
- Software test planning and test design initiated in the early stages of functional baseline definition and iteratively refined with T&E execution throughout allocated baseline development, product baseline component construction and integration, system qualification and in-service maintenance.



- Software T&E embedded with and complementary to software code production as essential activities in actual software component construction, not planned and executed as follow-on actions after software unit completion.
- Formal planning when considering reuse of COTS or GOTS software, databases, test procedures and associated test data that includes a defined process for component assessment and selection, and test and evaluation of component integration and functionality with newly constructed system elements.

### **3. SOLICITATION**

The contents of this section will help you focus on and consider the most important contractual T&E items as you transition from the pre-solicitation phase to the actual drafting of the RFP. In contracting, the term “solicitation” means to go out to prospective bidders and request their response to a proposal. The solicitation builds upon the SOO and the SOW. All the previous identification, development, and refinement of T&E requirements now have to clearly, completely, and accurately captured in the appropriate sections of the RFP.

#### **3.1. Section C of the RFP (SOO/SOW)**

Section C of the RFP contains the detailed description of the products to be delivered or the work to be performed under the contract. This typically includes the Government’s SOO (or SOW) and preliminary system performance specification. The preliminary system performance specification was addressed previously. Other requirements documents may be included such as sample IMP event descriptions, CDRL, Contract Security Classification Specification (DD 254), and pricing matrices. A major discussion item is the inclusion of the implementation and execution of reliability activities fully integrating systems engineering, DT and OT. Attachment C provides a checklist to guide your discussions and decisions relative to RAM planning, accountability, and reporting for your program.

##### **3.1.1. Statement of Work (SOW)**

The following five elements need to be considered during the proposal development.

- SOWs are often too detailed and inadvertently include inappropriate items for a contract. (For example: technical day-to-day procedures and/or instructions are captured in such detail, that as they mature during the program they cannot be implemented without a contract change.) The goal is to secure a commitment to implementing the process, not controlling the very detailed procedures. The TEMP should capture how the T&E processes operate for the program. Therefore the SOW should refer to the TEMP as a commitment to implementing the processes defined for the program.
- SOW tasks should be reflected in the IMP/IMS, especially the technical baseline management, technical design, verification, and validation tasks and their associated system-level event-based technical reviews.

FINAL DRAFT IN FINAL REVIEW FOR APPROVAL  
*Guide for Incorporating Test and Evaluation (T&E) into DoD Acquisition Contracts*

- The SOW should not identify individuals or specific IPTs that accomplish the tasks and should avoid including dates for start or completion of tasks. These dates, and sometimes the IPTs that will accomplish the tasks, are identified in the IMS.
- Conducting event-based technical and test reviews should be appropriate and consistent with the program technical and support strategy included in the offeror's RFP.
- All the important T&E management processes and tasks should be included, such as: decision analysis, T&E planning, assessment, test plans and reports, and data requirements, risk, and configuration management. A checklist of the T&E supporting processes, tasks and products expected as part of the SOW can be a useful aid during the SOW evaluation to ensure completeness.

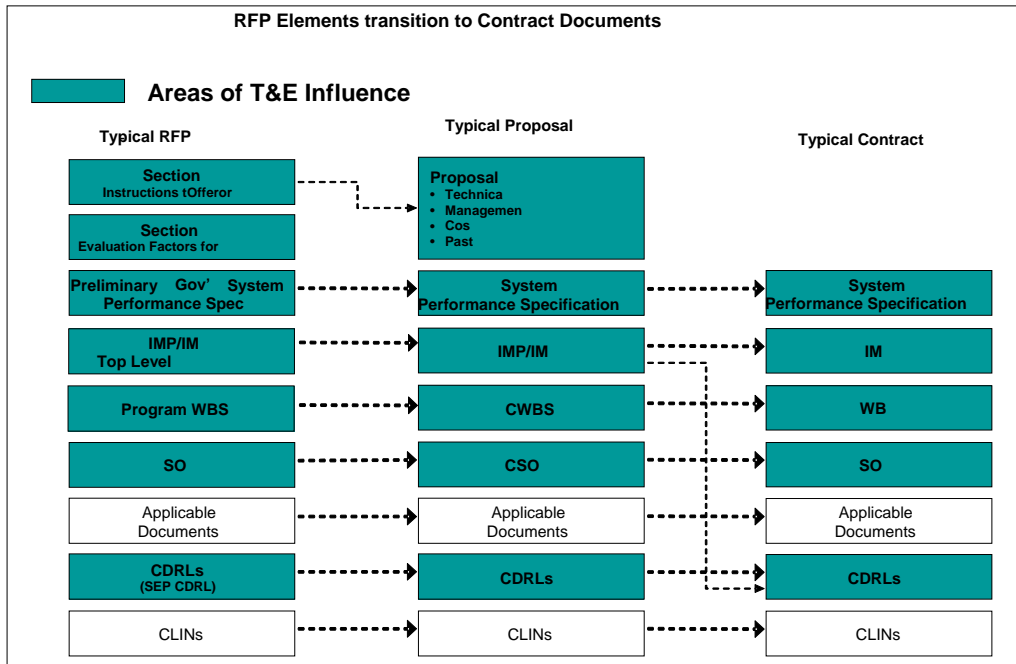
**3.1.2. Test and Evaluation Master Plan (TEMP)**

The TEMP is used to evaluate the completeness of program planning and application of T&E best practices. The following is a list of five considerations when evaluating the offeror's proposed integration of their T&E solution and program technical approach with the management approach which should be included in a Source Selection Evaluation Guide or other appropriate document.

- The proposed T&E solution incorporates those best practices and the processes that are mature, stable, and will be applied to the program. Any tailoring or modifications to the standard processes (as reflected in corporate procedures) are appropriate to the program and should not increase cost, schedule, or technical risk. The offeror has made a corporate commitment and implemented plans for continuous process improvement.
- Major T&E reviews in support of the program's technical reviews (such as the System Requirements Review (SRR), System Functional Review (SFR), Program Design Review (PDR), and Critical Design Review (CDR) are clearly identified.
- A single T&E authority for the program has been identified. The T&E team's roles and responsibilities within the offeror's proposed organization have been clearly defined and assigned. A fragmented responsibility among IPTs, especially engineering and T&E, is a risk.
- The skill, experience level, and corporate commitment of key proposed T&E personnel have been ascertained. Plans for transition and personnel assignments are in place for a smooth ramp-up of work tasks without risk of delays. There are sufficient manpower resources identified and available to support the program.
- Key T&E processes critical to program success have been integrated with the program management, and engineering processes reflect the T&E approach in the TEMP. Examples include configuration management, requirements management, technical and performance baseline control, risk management, technology reuse/insertion/obsolescence planning, and modeling and simulation planning.

### 3.2. Section L of the RFP (Instructions to Offerors)

Many of the documents in the RFP evolve into the negotiated contract via the proposal and source selection process (Figure 3-1).



**Figure 3-1 Relationship of Proposal Documents to Contract Documents**

During the proposal evaluation it is important that any changes or deficiencies in these documents be corrected. The Source Selection Plan delineates how the Government and the contractors will communicate during the evaluation process, e.g., procedures for submittal of questions or requests for clarifications and submittal of a Final Proposal Revision. For all documents that are to be contractual the technical authority must ensure that they are complete and sufficient. Usually the IMP, WBS, System Specification, SOW, and CDRL are identified as contractual documents. Contract Data Item Descriptions (DIDs) and CDRLs may be tailored to the acquisition program in order to obtain contractor-produced plans or studies that satisfy specific program needs.

#### 3.2.1. Section L Instructions

Section L of the RFP instructs the offerors how to structure their proposal and what should be included in each section of the submittal. It should be written after Section M, and tracked to the evaluation factors. The Government should avoid asking for unnecessary data in the proposal to satisfy technical curiosity. Otherwise both the contractor's proposal team and the Government reviewers will spend time proposing and reviewing unnecessary information. All data submitted in the proposal must correlate with the evaluation criteria in Section M, or be necessary to award the contract (e.g., model contract, SOW, CDRL, system performance specification). The offerors will treat all data as critical. If the

offerors' time and resources are wasted on unnecessary data, the quality of the proposal may suffer, potentially affecting the choice of the right contractor with the right approach. Extraneous proposal data can also cause the Government evaluation team to spend valuable time on areas not germane to the evaluation criteria.

### **3.2.2. Integrated Master Plan/Integrated Master Schedule (IMP/IMS)**

The RFP should contain an event-based, top-level schedule depicting the major program elements and key milestones, such as contract award, DT&E, OT&E, reviews, production or long lead decisions, and system delivery.

### **3.2.3. IMP and IMS**

The IMP and IMS should clearly demonstrate that the program is structured to be executable within schedule and cost constraints, and with acceptable risk. They should provide a functionally integrated picture of the proposed program. There must be a direct correlation between the event-driven activities in the IMP and IMS and the planned technical approach. Thus, both the IMP and IMS are key elements to proposal preparation and source selection. There must be a high correlation between the cost basis of estimates and information within the IMS. Following is a sample RFP Section L for the IMP/IMS.

**Table 3-1 T&E Content for RFP Section L–IMP/IMS**

| <b>Section L-IMP/IMS</b>  |
|---|
| <p>The offeror shall submit an IMP/IMS {IMP/IMS Guide} that is structured as an event-based planning document. Engineering reviews such as the SRR, SFR, PDR, and CDR are typical. T&amp;E supports each review, as required, with appropriate performance data.</p>  |
| <p>The IMP includes the accomplishments and criteria for the efforts involved with the design, development, test, production and sustainment including planned block upgrades, technology insertion, and entry and exit criteria.</p>   |
| <p>The offeror's T&amp;E processes and corporate best practices (as described for the program) shall be the source of the test events, definitions, major T&amp;E products, and criteria for the IMP events.</p>  |
| <p>The program's critical path is identified in the IMS. The result of a schedule risk assessment is presented which reflects acceptable schedule risk.</p>   |
| <p>For programs that require an IMP which includes a Process Narrative Section {IMP-IMS Guide Section 4.2.5}. The offeror shall include within the IMP process narratives brief synopses of the offeror's processes considered essential for program success. The narratives shall reference the offeror's corporate T&amp;E processes and best practices and indicate how they are applied to the program.</p> |

### 3.3. Management Volume

The management volume is used to highlight special areas that are discriminators for the source selection. It should not be used to systematically address all technical and management processes to be used on the program. It should, however, provide a clear description of how the offeror plans to organize internally, interface with the Government program office and other external organizations, and manage subcontractors. This volume should include the approach to managing all program information, including T&E, information, how it is assembled and integrated, and how it is shared among stakeholders.

The proposal instructions should avoid a reliance on a “cookbook” list of specific T&E management processes to be discussed and evaluated. The important issue is that the offeror’s T&E processes and best practices are mature, integrated, and will be applied to the program. The focus should be on the key T&E processes that are important for program success. Examples of discriminating processes for a program might include: risk management, configuration management, T&E Key Performance Parameters (KPPs), Critical Operational Issues and Criteria (COIC), and Critical Technical Parameters (CTPS) metrics and system reliability growth, software maturation, program and performance review process, modeling and simulation, requirements and baseline management, and obsolescence/technology insertion planning. Following is a sample Section L for the Management Volume.

**Table 3-2 T&E Contents for Section L–Management Volume**

| <b>Section L–Management Volume</b>   |
|--|
| The offeror shall submit a Management Volume that describes the key management and technical processes and how they are integrated with the other management, financial, and functional processes.   |
| This volume shall include discussion of processes, program organization and special tools that are important to technical management. For example: program organization, roles and responsibilities of Integrated Product Teams (IPTs) and the T&E Team.   |
| T&E requirements management tracking tools, electronic and/or virtual program approach, special capabilities/facilities, data management/archiving/real-time access and data submittal, configuration management and supporting tools, modeling and simulation processes, and risk management processes. |
| The role of reviews in baseline management, and system validation and verification processes including failure/fix reporting and tracking.   |

### 3.4. Contract Data Requirements List (CDRL) and Data Item Description (DID).

Contract Data Requirements Lists (CDRLs) and Data Item Descriptions (DIDs) may be tailored to the acquisition program in order to obtain contractor-produced documents that satisfy specific program needs.

FINAL DRAFT IN FINAL REVIEW FOR APPROVAL  
*Guide for Incorporating Test and Evaluation (T&E) into DoD Acquisition Contracts*

- **CDRL.** In this section, identify any T&E related data products that the potential contractor must produce. This may include plans, metrics, reports, artifacts, raw test data, or other T&E documentation. The CDRL will delineate the specific M&S items, data products, and timelines to provide these to the designated OTA.
- **DID.** In this section include those DIDs applicable, if any, to the T&E effort. A DID is a completed document that defines the data required of a contractor. The document specifically defines the data content, format, and intended use.
- Each T&E team will have to determine the need for DIDs supporting their effort. To determine if a T&E DID already exists, you can go to the Acquisition Streamlining and Standardization Information System (ASSIST) website (reference k). ASSIST is the source of DoD specifications and standards. Examples of T&E DIDs are:
  - **DI-NDTI-80566A** – Test Plan. The Test Plan underlines the plans and performance objectives at every level of testing on systems or equipment. It provides the procuring activity with the test concept, objectives and requirements to be satisfied, test methods, elements, responsible activities associated with the testing, measures required and recording procedures to be used
  - **DI-NDTI-80809B** - Test/Inspection Report. This data item description (DID) contains the format and content preparation instructions for the data product generated by the specific and discrete task requirement as delineated in the contract.
  - **DI-NDTI-81585A** - Reliability Test Plan. This plan describes the overall reliability test planning and its total integrated test requirements. It delineates required reliability tests, their purpose and schedule. This document will be used by the procuring activity for review, approval, and subsequent surveillance and evaluation of the contractor's reliability test program.

### **3.5. Section M of the RFP (Evaluation Factors)**

A successful offeror's proposal must respond to the requirements of the RFP. It must be responsive to the Section L, Instructions to Offeror. Section M, Evaluation Factors for Award, is the standard against which the proposal will be evaluated and forms the basis for selection. To a large extent the quality of the proposal is directly related to the clarity of the Government's delineation of the technical requirements in the RFP. During the proposal evaluation the Government team will establish the degree to which the contractor has implemented RFP requirements and proposed a sound technical program with high expectations for success. The following is a summary of eight T&E focus and evaluation areas during the proposal evaluation. This list is not meant to be all inclusive. Components should have specific proposal evaluation criteria.

**Table 3-3 T&E Focus and Evaluation Areas**

- **T&E “Best Practices”**
  - The TEMP addresses the T&E approach across the program life cycle.
  - The offeror has proposed event-based tests and reviews with entry, exit criteria, and measure of success criteria.
  - The reviews include participation by both Government and industry T&E Subject Matter Experts (SME).
- **Offeror’s Capability**
  - The offeror’s domain experience (both process and product) is applicable to the program.
  - Domain expertise coupled with application of offeror’s “best practices” using experienced personnel.
  - Proven Past Performance (domain and process areas). The offeror demonstrates positive past performance that supports a high probability of T&E success on the program.
  - Provides an acceptable deficiency reporting process and database compatible with the Government’s DR data requirements and database
- **T&E Planning**
  - Adherence and application of corporate “best T&E practices” is inherent in the T&E approach.
  - The TEMP is a foundation document that is integrated into the IMP/IMS.
  - The T&E processes are integrated within the management and technical framework.
  - OT&E and JITC requirements are addressed (such as. Critical Operational Criteria, Information Assurance, SoS interfaces both within the SoS and outside systems, Critical Mission Function (CMF)).
- **T&E Baseline**
  - Processes and resources (people, test ranges/facilities, instrumentation, and domain infrastructure) are integrated to systematically mature the T&E performance baseline.
  - Requirements management and traceability processes support the evolving T&E performance baseline.
- **Metrics**
  - Product metrics are linked with T&E performance baseline maturity.
- **Incentives**
  - Incentives support maturing the T&E baseline and are linked to final product performance at delivery.
- **Cost and Schedule Realism**
  - Program budgets and cost estimates are realistic. There is a balance between cost, schedule, and performance.
  - Cost estimates and schedule support the T&E strategy and approach in the TEMP.
  - The program’s critical path is actively managed.
- **T&E Data Access**
  - Ownership, control, timely access, and delivery of T&E data, to include raw test data, to support the evolving technical baseline are clearly established. T&E data are consistent with the program’s technical and acquisition strategy.

### **3.6. Sections M and L of the RFP**

In order to accommodate variations among the DoD components source selection processes, RFP format nuances, and differences among programs, the discussion of Sections M and L is segmented into four general factors.

- Management
- Cost Factor
- Past Performance Factor and
- Cost Factor or Pricing Data

Each of these areas includes a brief discussion of the topic and example language (in shaded boxes) that can be applied to program RFPs.

Section M of the RFP states the evaluation factors and significant sub factors, and their relative importance, that are the basis for selecting the source. Section M should be written before Section L and should be carefully structured to address only those elements determined to be keys to success. Taking into account early industry input, focus the Section M criteria on the source selection discriminators required to select the best value proposal with acceptable program risk. Do not include proposal evaluation criteria that do not add value to the source selection. Weigh each and every lesson learned from previous programs and RFPs (especially similar programs) when establishing RFP requirements.

Sections M and L should be specific to each program, giving consideration to the scope and the nature of the technical program, maturity of the relevant technology, critical subcontract or teaming efforts, software content and Commercial-off-the-Shelf (COTS)/Non-Development Item (NDI). The task for the Government team is to provide the one-for-one match between the Section M criteria that will be used to evaluate the technical information and the proposal instructions in Section L. Normally there are three primary considerations:

1. Offerors' plans for implementing and managing the T&E process,
2. Offerors' technical approaches (both program and specific product offering) including supporting data (trades and analyses), and
3. Offerors' past performance.

The most effective criteria are measurable and relevant to the program, traceable, and under the offeror's control. Following are nine questions the Government team should answer when developing specific program related criteria for Sections M and L:

- How can the evaluation team develop confidence that the offerors' proposed T&E solutions, including unprecedented high risk solutions (e.g., lack of proven technical maturity), will meet performance requirements and can be implemented within technology, cost and schedule baselines?
- How will the evaluation team establish an understanding of the offerors' T&E approach?
- How can the evaluation team understand whether the specific plans for implementing and managing the T&E processes were based on company best practices, domain experience and company maturity ratings?



FINAL DRAFT IN FINAL REVIEW FOR APPROVAL  
*Guide for Incorporating Test and Evaluation (T&E) into DoD Acquisition Contracts*

- How will the evaluation team understand whether the T&E solution is adequately supported by trade studies, LDTs, analyses, modeling & simulations and demonstrations? How will the evaluation team determine if the supporting trade studies, LDTs, trade criteria and analyses are the results of the T&E process during proposal preparation? Is there objective evidence the offeror used the processes proposed for the program?
- How will the evaluation team determine that relevant and demonstrated past performance from other programs is applicable to the T&E processes to the proposed approach (e.g., successful performance on similar complex systems)?
- How will the evaluation team assess the maturity and application of the offeror's proposed processes in the proposal risk assessment?
- How will the evaluation team determine that the T&E costs and resources (especially, number of operators, sample size, tests, ranges, and usage schedule and sequence), proposed for the system/sub-systems are reasonable and realistic for the planned T&E approach?
- How will the evaluation team establish that the proposed offeror's T&E schedule and critical path analysis are realistic and represents the planned T&E approach consistent with the overall program schedule?
- How can the evaluation team understand the trustworthiness of any M&S proposed for use in the T&E process?

It is common practice to include a matrix in the RFP which correlates Section L to Section M so that it is perfectly clear what portions of the proposal will be used to evaluate each Section M evaluation criteria element. This also serves as a quick check to make sure that each element of the proposal tracks to source selection criteria. The following paragraphs include sample Sections M and L text for each subject that need to be integrated with the rest of the Sections M and L in the program's RFP.

### **3.7. Technical Factor**

T&E team members should be involved in the review and assessment of the technical portions of the source selection. This review generally involves:

1. the offeror's proposed technical solution,
2. the technical data supporting the offeror's proposed technical solution and how it meets the specification requirements, and
3. the System Performance Specification (or equivalent)

The core of the technical evaluation centers on the offeror's system performance specification, the technical solution of the approach, and any supporting trade studies, LDTs, analyses, modeling, and demonstrations that have been requested in Section L.

Most RFPs request two general types of technical data: the description of the proposed solution, and trade studies and analyses. The proposed solution and resulting performance is program specific and represent the bulk of the technical data submitted. This section includes drawings, flow diagrams, technical descriptions, and pictures of the offeror's

FINAL DRAFT IN FINAL REVIEW FOR APPROVAL  
*Guide for Incorporating Test and Evaluation (T&E) into DoD Acquisition Contracts*

proposed solution. This information is important because it is, in essence, the result (end product) of the engineering processes to include DT&E processes implemented by the bidder during the proposal phase.

The trade studies and analyses (including modeling and simulations) provide substantiating data showing not only the performance but also the extent and scope of alternative solutions considered before arriving at the proposed solution and specification. A well-structured family of trade studies, analyses, and M&S that support the system configuration and its performance is objective evidence that the bidder has implemented his engineering processes described in other sections of the proposal. The Government should ask for a summary of the trade studies, LDTs, and analyses that discuss the scope of the alternative solutions and performance capability considered before arriving at the proposed solution and specification. Many times “why” something was discarded is as important as “what” was selected. The trade study, LDTs, and analysis data clarify the inner workings of the offeror’s processes. The data demonstrate the application of the offeror’s requirements analysis process and is evidence that the offeror:

- has engineering and T&E processes,
- has applied them in arriving at a solution, and
- when coupled with other documents in the proposal, is committed to continue the processes during execution of the contract.

Following are sample Sections M and L for the Supporting T&E Data which need to be integrated with the program unique part of Sections M and L.

**Table 3-4 T&E Contents for Section M–Supporting T&E Data**

| <b>Section M–Supporting T&amp;E Data</b>  |
|---|
| <p>This supporting T&amp;E data factor (sub factor) is met when the offeror’s proposal demonstrates the following:</p> <ol style="list-style-type: none"><li>1. The offeror conducted a series of trade studies, LDTs, modeling and simulations, and analyses that systematically evaluated the full range of alternatives. The results support the technical and program requirements and validate the proposed configuration and its performance.</li><li>2. Trade study and LDT processes were uniformly and consistently applied and followed the offeror’s documented corporate processes as applied to the program in the TEMP.</li><li>3. Trade study and LDT criteria addressed the critical cost, technology, risk, and performance requirements/constraints for the program.</li><li>4. Recognition that a Reliability Program Plan (RPP) is required to understand Government requirements and the need to design and test for product/system reliability.</li></ol> |

**Table 3-5 T&E Contents for Section L—Supporting T&E Data**

| <b>Section L—Supporting T&amp;E Data</b>  |
|---|
| <p>The offeror shall provide a summary of the T&amp;E trade studies any LDTs, M&amp;S results, ensure product/system reliability and analyses that were accomplished to arrive at the proposed solution. The offeror shall discuss:</p> <ol style="list-style-type: none"><li>1. The trade studies, LDTs, analyses, models and simulations processes.</li><li>2. A summary of the trade studies and LDTs analyses results that support the proposed solution and program T&amp;E approach.</li><li>3. A description of the trade study and LDT criteria, how they relate to the key performance requirements/constraints for the program, and the planned processes addressed in the TEMP. The data shall address the range of alternatives considered and the important results that support the T&amp;E strategy and approach decisions.</li><li>4. The process for developing and implementing a Reliability Program Plan (RPP).</li></ol> |

### **3.7.1. System Performance Specification**

A preliminary system performance specification is normally included in the RFP that defines the Government’s performance requirements for the system. The offeror normally responds with a system performance specification in the proposal. This specification includes the Government requirements plus any derived requirements necessary to describe the system-level performance. It may include allocation of requirements and should include corresponding verification requirements. The system performance specification should not include SOW language, tasks, guidance, and data requirements but should reference necessary industry and approved military Specifications and Standards. Offerors responding to the RFP have a tendency to “parrot” back the Government’s preliminary system performance specification in the proposal. They are hesitant to revise the content and format, and are especially hesitant to respond with revised requirements for fear of being judged non-responsive. The Government should make clear in the solicitation that the offerors need to do so. If the Government is receptive to considering revised performance requirements (trade space) that are cost effective, then this has to be clearly delineated in the RFP along with an indication of how the “value” to the Government will be established and evaluated. The system specification will be included in the contract.

In past practice, one particular element of the System Specification has received limited emphasis—Section 4.0 Verification and Test. The offeror must supply more than a simple table indicating the method of verification (analysis, inspection, simulation, test or demonstration). Section 4.0 of the specification, along with the System Test Plan, IMP/IMS and TES/TEMP, should provide the insight to understand the method and extent of system verification. An incremental buildup approach to testing including the T&E success criteria for each increment starting at sub-systems of the system hierarchy, should support minimizing the system test events and activities. Section 4.0 of the System Specification should reflect this T&E philosophy. Following are sample Sections M and L for the System Performance Specification. These samples should be modified for the program and integrated with the rest of the RFP’s Section M.”

**Table 3-6 T&E Contents for RFP Section M–System Performance Specification**

**Section M–System Performance Specification**

The offeror's system performance specification will be evaluated in conjunction with the technical solution based upon the following:

1. Specification includes the key requirements and functionality identified in the RFP's preliminary system performance specification stated in performance terms.
2. Requirements are quantifiable, testable and measurable and are supported by mature technology.
3. Objective values (goals) are clearly identified and distinguished from firm requirements.
4. Operational environment is described and defined in which the system, System of Systems (SoS), and/or Family of Systems (FoS) operates.
5. Environmental and safety design requirements and/or constraints are specified.
6. Functional, electronic, physical, hardware, and software interfaces for the system are included.
7. There is appropriate use of Government and industry specifications, standards, and guides. When Government documents are referenced, only those that have been approved should be referenced.
8. Test, verification, and reliability approaches for all system requirements included in the specification are complete and appropriate.
9. The specification does not include unnecessary requirements/language. (Examples include: SOW tasks, data requirements, product or solution descriptions.)
10. The requirements are achievable within the planned program schedule and cost.

**Table 3-7 T&E Contents for Section L–System Performance Specification**

| <b>Section L–System Performance Specification</b>  |   |
|--|---|
| <p>The offeror shall propose a System Performance Specification that meets the Government minimum requirements. The specification should be performance based and address the allocation of Government performance requirements plus any derived requirements necessary to describe the performance of the integrated system solution. It should not be a mere “parroting back” of the Government’s preliminary system performance specification, but keyed and tailored to the individual solution of the offeror. Key elements to be addressed in the System Performance Specification are as follows:</p> |   |
| 1.   | Accurate and complete understanding of the key performance requirements (e.g., KPPs) in the Government’s preliminary system performance specification included in the RFP.  |
| 2.   | Derived requirements necessary to document the system performance that will govern the design, development and test program. (e.g., critical technical parameters (CTPs)).  |
| 3.   | Identified and documented system level interfaces that define the operational, physical, hardware, software and functional interfaces that define the program external interfaces and constraints (e.g., approved operational, functional, and or system architectures).  |
| 4.   | Test and Verification section to the specification that delineates the approach to verifying performance, success criteria, and key characteristics to include reliability metrics.   |
| 5.   | A cross-reference matrix showing the tracking of Government performance requirements to the offeror’s proposed system performance specification. The specification should be structured for the proposed system solution and not restricted by the structure of the Government’s preliminary system performance specification*. |

\* In general, the offerors follow the structure and organization of the Government preliminary system performance specification when preparing the proposal’s System Performance Specification. This may lead to an awkward specification structure if the offeror’s breakout of the product differs from the Government’s top level breakout. It should be clear in Section L that the format of the Government preliminary system performance specification is to be followed or that the offeror has the latitude to restructure the specification to conform to its proposed technical approach.

As discussed in Section 2, the source selection technical evaluation is primarily focused on the offeror’s proposed system performance specification, product offering technical solution description, and supporting data.

The following 11 areas need to be considered during the technical proposal evaluation and must be consistent with evaluation criteria contained in Section M.

FINAL DRAFT IN FINAL REVIEW FOR APPROVAL  
*Guide for Incorporating Test and Evaluation (T&E) into DoD Acquisition Contracts*

- All the critical or key requirements must be included within the specification.
- Goals are appropriately identified and differentiated from firm requirements. Goals do not have much standing as contract performance requirements.
- Specification requirements are stated in performance language.
- SOW tasks or data deliveries are not in the specification.
- The System Performance Specification Verification and Test Section (Section 4) should be more detailed than a table reflecting only a method of verification. There should be a one-to-one correlation with the Performance Requirements (Section 3) and it must reflect the engineering and test approach documented in other sections of the proposal.
- System hardware and software interface requirements should be identified and documented. They become constraints on the system that are critically important.
- Watch for “parroting” of the Government requirements without regard to substantiating evidence in the other sections of the proposal. A claim of performance without substantiating data is a technical risk.
- The product offering is complete, meets performance requirements, and is supported by hardware and software demonstrated in a relevant operational environment.
- The product reflects special design considerations such as, Modular Open Systems Approach (MOSA), safety, security, etc.
- Analyses, modeling and simulation, and trade studies support design decisions and technical approach to the program as defined in the offeror’s T&E approach.
- The processes should systematically address the technical challenge. The effort should be comprehensive (e.g., include all relevant solutions, technologies, and/or alternatives) and address the areas of technical, cost, schedule, and risk.

**3.7.2. Management Factor**

Test and evaluation management, design, integration, and verification/validation processes are normally evaluated using a combination of the offeror’s SOW, TEMP, IMP/IMS and management volume, as directed to be submitted with the proposal. The purpose of the evaluation is to establish:

- the offeror’s domain current and past performance and experience,
- the stability and maturity of the offeror’s T&E processes and best practices, and,
- that valid and complete approaches to test and evaluate the proposed system/sub-system are consistently integrated throughout the program.

An integrated example Section M is provided since there is significant overlap of all these elements. Individual Section L examples are included within each subsection. Following is a sample Section M for the Technical and Management Integration.

**Table 3-8 T&E Contents for Section M–Technical and Management Integration**

| <b>Section M–Technical and Management Integration</b>  |
|--|
| <p>This factor (sub-factor) is met when the offeror’s proposal demonstrates the following:</p> <ol style="list-style-type: none"><li>1. The program tasks are complete and include a comprehensive description of the engineering and test tasks. Technical and test planning is complete, supports implementation of the program’s technical strategy and supports accomplishment of the requirements and objectives as contained in the proposed contract. Management of technical and performance baselines and requirements using a tool set applicable to the program.</li><li>2. Test and evaluation processes are mature, stable, and represent the program’s application of corporate best practices and lessons learned.</li><li>3. Approach, tasks, processes, and procedures are flowed down to the subcontractors, vendors and other teammates. A trained workforce (familiar with the processes, practices, procedures, and tools) is available or in place to ensure accomplishment of the work.</li><li>4. Test and evaluation processes, products, and events are included in the IMP/IMS and reflect the program technical approach. The IMP narratives include the T&amp;E processes and sub-processes, e.g., requirements management and tracking, performance baseline control, interface management, configuration management, test data management, validation and verification process, failure reporting and corrective action system, risk management.</li><li>5. The IMS clearly indicates the program’s critical path and has acceptable schedule risk.</li><li>6. The test and evaluation meetings, test events, status reviews and design reviews are identified, participation established and timing/frequency necessary to monitor and control T&amp;E progress and support the technical progress.</li><li>7. There is a single T&amp;E authority responsible for program T&amp;E direction with lines of responsibility and authority clearly established. Key personnel are assigned and personnel resources identified. The role of the Government (program office, supporting Government organizations, and user) along with the key subcontractors has been identified.</li><li>8. Computer-based or software tools that are used for T&amp;E management are real time (near real time) and accessible to all program participants. Processes, procedures, and tools for test data archiving and data deliveries are secure and accessible to appropriate program participants. The tasks, activities, and methods to facilitate Government’s timely access to the necessary program T&amp;E.</li><li>9. System-level T&amp;E reviews and meetings are adequate to monitor and control T&amp;E progress in support of the technical progress. IMP events include T&amp;E milestones consistent with the technical and support strategy for the program. There is a sound approach to event-based reviews.</li><li>10. Test and evaluation product metrics address the key product performance requirements. The “leading and lagging” metrics provide past progress, current status to aid day-to-day management of the program for timely decision, and future projections. Root cause analysis processes are in place to continually improve the T&amp;E processes and sub processes. Tracking and reporting T&amp;E progress and performance metrics at major program reviews to ensure consistent application and continuing maturity of essential program processes (technical, configuration and data management, quality, subcontractor management, manufacturing, risk management, test and verification.)</li><li>11. Program working groups are established that effectively involve program participants to improve coordination with supporting organizations and streamline T&amp;E and other decision-making.</li><li>12. Program’s TEMP represents a sound integrated T&amp;E approach. These are based on corporate procedures and address the critical T&amp;E areas within the program. The plans are flowed down to the teammates, subcontractors and vendors involved in the program. The plans are consistent with the SOW, SEP, IMP/IMS, and other program management plans and processes to support critical path analysis, EVM, risk management.</li><li>13. The basic principles and T&amp;E approach stated in the TEMP are modified and or expanded, as necessary, throughout the program’s life cycle.</li><li>14. The TEMP and the integrated T&amp;E schedule follow the direction and guidance as defined in DoD 5000.1, DoDI 5000.02, and the DAG.</li></ol> |

This factor is typically evaluated using a combination of the offeror's SOW, SEP, IMP/IMS plus IMP Narratives and Management Volume. Section L of the RFP describes in detail the contents of each volume of the proposal.

### **3.7.3. Price or Cost Factor**

Government source selection teams have placed more emphasis on evaluating the reasonableness of the offerors' proposed price or cost. There has been considerable emphasis on cost estimating, parametric analysis, Basis of Estimates (BOEs), and using historical and past performance data on topics such as software code, hardware design complexity, T&E, and manufacturing costs. However, T&E tasks and costs have not been subject to the same analytical attention or scrutiny over the years. T&E personnel should consider the following five areas in support of the cost proposal evaluation.

- The T&E cost estimates correlate with the proposed solution and T&E program. Make sure the program proposed is the one in the cost estimate and that it is reasonable and realistic. The program cost, schedule and performance must be balanced and synchronized.
- The processes, the organization, T&E tasks, and products proposed in other sections of the proposal are adequately resourced and included in the cost.
- Cost estimates for T&E work and products are supported by the offeror's domain experience and past performance.
- T&E manpower estimates and Basis of Estimates (BOE) must be adequate and reasonable for the organization, tasks and schedule as reflected in the IMP/IMS and SOW. The skill level of the proposed manpower should reflect the complexity of the tasks. BOE supporting rationale should be based upon credible historical data, past experience, and/or expert judgment.
- Time phasing of the resources (manpower, facilities and infrastructure) must be consistent with the IMP Events and the IMS tasks and the TEMP's T&E approach.

Since costs are normally provided by WBS element, the Program WBS is a valuable tool in understanding the cost proposal. The Government normally includes a Program WBS (PWBS) (based on MIL-HDBK-881) in the RFP. This PWBS must contain elements for T&E tasks along with the other elements (e.g., product, engineering, and sustainment). The RFP directs offerors to expand this Government PWBS into a Contract WBS (CWBS).

### **3.7.4. Past Performance**

In a competitive environment, the Government relies upon the offeror's past performance record to demonstrate that the team possesses the skill and experience to perform well on the new contract. To gain this confidence, source selection groups, such as the Air Force's Performance Confidence Assessment Group (PCAG) utilize a structured approach driven by the respective Source Selection Evaluation Criteria to ensure it fully understands each offeror's strengths and weaknesses. This, in turn, will allow the source selection team to project how those strengths and weaknesses will affect the proposed effort. Test and



evaluation planning, leadership and execution must have a prominent role in the Section M Factors and Sub-factors and it must be considered in the past performance evaluation. A contractor with experienced personnel in the applicable domain, bolstered with a credible past performance record, should result in better contract performance (e.g., lower risk and cost while still achieving the user’s performance requirements). Following is a sample Section M followed by a sample Section L for the Past Performance.

**Table 3-8 T&E Concerns for Section M–Past Performance**

| <b>Section M–Past Performance</b>   |
|---|
| <p>The source selection group conducts a past performance assessment which evaluates the offeror’s relevant experience as a prime or subcontractor, as well as the performance demonstrated by divisions and subcontractors who will participate in contract performance if the offeror’s proposal is selected. Based on the assessment the source selection group determines a confidence rating indicating the probable level of successful performance in planned effort; and identifies issues that may be a concern for the procurement.</p> |

Following is an example of typical past performance confidence assessment criteria and rating scale. Components may have their own and more expansive assessment criteria, especially when considering C4ISR systems, SoS, or FoS experiences.

**Table 3-9 Example of a Rating Scale for Past Performance**

| Performance Assessment Criteria |  |
|---------------------------------|--|
| Rating                          | Description  |
| <b>High Confidence</b>          | Based on the offeror’s performance record, the Government has high confidence the offeror will successfully perform the required effort.   |
| <b>Significant Confidence</b>   | Based on the offeror’s performance record, the Government has significant confidence the offeror will successfully perform the required effort.  |
| <b>Satisfactory Confidence</b>  | Based on the offeror’s performance record, the Government has confidence the offeror will successfully perform the required effort. Normal contractor emphasis should preclude any problems. |
| <b>Unknown Confidence</b>       | No performance record is identifiable.   |
| <b>Little Confidence</b>        | Based on the offeror’s performance record, substantial doubt exists that the offeror will successfully perform the required effort.  |
| <b>No Confidence</b>            | Based on the offeror’s performance record, extreme doubt exists that the offeror will successfully perform the required effort.  |

**Table 3-10 T&E Concerns in Section L–Past Performance**

**Section L–Past Performance**

A source selection group is convened to accomplish a performance risk assessment of offerors' relevant contract performance. The offerors' T&E performance record determines what level of confidence the source selection group has in the ability of each offeror to perform all aspects of the Contract, to include T&E. Offerors must submit information on contracts considered relevant in demonstrating the ability to perform the proposed effort including rationale supporting the assertion of relevance. Section M evaluation Factors and Sub-factors will be used to evaluate past performance and assess performance risk.

Most past performance assessments include a questionnaire that requests specific information relative to a contractor's past performance from selected previous customers of the offeror. Questions specifically for technical planning, leadership, T&E, and execution should be included when appropriate. See attachment C for a sample questionnaire.

Not all contracts included in the offeror's Past Performance Volume need to be "highly relevant" to past performance but a few examples should be highly relevant to the planned effort. See the FAR 15.305(a) (2) regarding evaluating past performance mandatory and discretionary requirements. However, having limited T&E of a similar system, past performance results, or lack of domain experience can be a serious risk.

The T&E team need to consider the following six areas in support of the past performance proposal evaluation.

- Focus on those contracts that are "relevant or highly relevant" and closely evaluate that the performance is clearly applicable to the proposed program. Contracts that are similar in scope, apply the same corporate processes, and present successful results are the most powerful evidence of past performance.
- Review the allocation of T&E tasks to teammates and subcontractors and determine that their T&E experience is relevant and connected to the past performance examples.
- Most Past Performance evaluations include a questionnaire that is sent to select previous customers. Evaluate responses against the Technical and Management Evaluation Criteria in Section M.
- Systems engineering and associated T&E is a required element in government acceptable contractor performance assessment reports. This information is available to the past performance evaluation team. Trends and systemic issues across several contractor performance evaluations may indicate potential strengths and/or weaknesses in expected performance.
- For any program rated low, determine if there is a "corrective action" plan between the Government and contractor and if the corrective action is on schedule. Low contractor performance assessment rating with no "corrective action" plan is a "red light" and risk indicator.

- The team should evaluate, not only the information provided by the offerors, but information obtained from other sources (e.g., CPARs, questionnaires, internal Governmental information).

### **3.7.5. Proposal Risk Assessment (T&E Risks)**

Normally the source selection team establishes a proposal risk for each of the factors established in Section M. The proposal risk is typically established at the factor level, e.g., technical and management; however, the risks are identified at the sub-factor level and summed to the factor during the evaluation. This risk assessment establishes the risk associated with the offeror's proposed program to include the technical approach, technical performance, testability and measurability of the performance requirements, management approach, application and integration of management and technical processes, program schedule, and cost/resource allocations. The following is a list of nine considerations when assessing the risks during the proposal risk assessment.

- Claims of performance are supported by credible analyses, trade studies, LDTs, and/or modeling and simulation results.
- The offeror's domain experience supports the program approach and the T&E challenges on the program.
- The T&E processes and best practices are mature and stable, modifications to the standard processes (as reflected in corporate procedures) are appropriate to the program, and should not increase cost, schedule or technical risk.
- T&E processes, described in the TEMP, are stable and mature (including technical hardware and software readiness levels (TRLs) maturity ratings, e.g., for MS B a TRL of 6 is required) and corporate plans for continued process improvement.
- The key T&E processes determined critical to program success have been integrated into the program management and T&E approach. Examples include: configuration management, requirements management, performance baseline control, risk management, technology insertion/obsolescence planning, modeling and simulation planning. These are flowed down to teammates, subcontractors, and vendors.
- The T&E processes, as appropriate, are integrated with the other functional processes.
- The risk associated with executing the T&E activities have been evaluated with respect to their relationship to the program's critical path.
- The risk associated with the offeror's costs are consistent with their proposed T&E effort, tasks and products, organization and personnel resources, personnel experience levels.
- The T&E program schedule is reasonable and realistic and is consistent with the planned execution of the program; the T&E activities are on and near the program's critical path, and the supported by the offeror's past performance.

#### **4. CONTRACT EXECUTION**

The contents of this section will help you focus on and consider the most important contractual T&E items as you transition from the solicitation phase to contract execution.

The key to contract success is sound leadership, sound planning, and application of the contractor's corporate processes during execution. The T&E processes will develop, capture, document, and archive all of the T&E data. The T&E processes must be tightly integrated with the engineering and management processes and schedules that control the conduct of the program which will ultimately define, produce, and deliver the product to the user.

Program start up can be hectic. New personnel are assigned; facilities are being established and during all this turmoil, real program work needs to be accomplished. Program startup and personnel ramp-up are almost always risk areas. It is essential that the program quickly transition into execution. During the first few weeks after contract award it is important that the Government and contractor T&E team have an interactive face-to-face meeting, usually the kick-off meeting, and the T&E leaders step forward and set the tone for the program. Focus areas during initial meetings with the contractor should include the following seven topics:

- Leadership completing the merger of the Government and contractor T&E personnel into a functioning integrated team; recognition of the responsibilities inherently residing with the contractor and Government (program office, user, evaluator, tester and DCMA).\*
- Review of the program T&E strategy and approach.
- Review of the system performance specification, KPPs, and CTPs, to ensure a mutual understanding of the functional baseline.
- Reinforcement of the importance of implementing the contractor's T&E "best practices" and domain experience
- Review and establishment of the initial set of T&E product and process metrics.
- Review of the plans for event-based reviews (along with entry, exit, and measure of success criteria) documented in the IMP; review of the technical tasks and resulting products documented in the IMS; and ensuring T&E correlation with the SEP, IMP/IMS, and the EVMS in preparation for the Integrated Baseline Review (IBR).
- Review of and discussion of all the source selection T&E related findings to ensure they are resolved.

\* There are different teaming arrangements in which T&E SMEs participate. There are oversight teams, requirements teams, program management teams, and then program specific teams such as combined T&E Task Force (CTF), combined test teams (CTTs) or integrated test teams (ITTs). Regardless of the team's title, the team can have a T&E specific focus, or not. The charter is the key document to define the team structure and should list the roles, responsibilities, products, and membership.

#### **4.1. Test and Evaluation Team**

At contract award the Government/contractor T&E team must begin the integration into an organizational structure to promote the execution of the program's T&E processes and products. The authority for the Government and contractor must be clearly established. The contractor has likely identified a planned organizational structure in their proposal. The roles and responsibilities of Government personnel within the program's structure have to be defined and working relationships established. One of the first tasks is to make the appropriate assignments of Government personnel and to get the team physically together so introductions and working relationships can be established at the onset. If the program organization includes a T&E IPT, it is often responsible for delivery of the completed TES and or TEMP and is responsible for the functioning of the T&E processes across the program. It must be a strong team, staffed with experienced personnel from both Government and the contractor. The respective team uses the approved performance baseline (e.g., APB criteria) that is allocated to the product/system. It is the team responsibility to support the many major system reviews (SRR, SFR, PDR, CDR, etc.) with T&E results, and risk assessments which will support the evolving technical baseline and product/system definition. Government participation on the respective teams is generally governed by the following eight guidelines:

- The Government does not lead or manage the contractor's T&E effort.
- Government participants serve primarily as "customer representatives" and one of their contributions is to reduce the cycle time of contractor/Government communications and decisions. The Government participants are there to facilitate the Government's acquisition related guidance and direction to meet program commitments in a timely manner.
- They convey their knowledge/expertise on T&E strategy, performance requirements; operations, maintenance and other important topics.
- They interface and coordinate the activities with other Government organizations that participate in the program, ensuring they understand the overall T&E approach and their participation supports program objectives.
- They control and facilitate identification and delivery of Government Furnished Equipment (GFE), Government supplied data and services.
- They should be participants in the risk management process.
- Government IPT participants can offer personal and expert opinion from the customer's perspective; however, they cannot authorize any changes, waivers, or deviations to or from the contract requirements, which must be made by the contracting officer.
- Government IPT members cannot authorize contractors to perform work that is beyond the contract. Any such changes must be made by the contracting officer.

##### **4.1.1. T&E Team Responsibilities**

The contract defines the responsibilities of the contractor versus the Government. However, the contract should not be expected to address all of the roles and responsibility issues that arise during the test program execution. It is the responsibility of all parties, but

especially the Government representatives, to understand the roles, authority, and span of control of each of the team representatives. The contractor is only required to execute the contract, and not required to do anything above that minimum requirement. If the contractor has total system performance responsibility, then they also have responsibility for any interface issues that may arise. The contractor should have responsibility for identifying any interface issues that may arise involving other contractors or with Government furnished equipment or supplies. Otherwise, the issue of responsibility for addressing interface issues will need to be worked out on an ad hoc basis.

Other common issue areas include the providing of people, spares, and consumables. The responsibilities for data authentication and data access also need to be addressed. Who will capture the raw data and convert into useful data products? If the contractor is responsible for first generation data processing (data authentication process), will they only be responsible for the data that they intend to analyze, or will they be responsible for processing all data and providing it to the appropriate Government or contractor for analysis and evaluation? The contractor may interpret their responsibility as only providing data authentication services for specification compliance related data, where the Government may have assumed that the contractor would have provided authentication for all data. In this case, it may help to make it clear that while the contractor will have to provide data authentication services for all test participants, they will only be responsible for analyzing the data that is necessary to show compliance with the contract.

#### **4.1.2. T&E Team Participants and Roles**

The participants in the T&E team are anyone and everyone necessary to successfully execute the test program, or that has a stake in the outcome of the test program (i.e. Joint Forces Command (JFCOM)). Different acquisition programs may have several teams working T&E issues, but the basic issues to be addressed are management and execution. The T&E WIPT is generally the team that addresses the strategy and overall management of the T&E program, while a Combined Test Force (CTF) or Integrated Test Team (ITT), or something similar, will handle the execution of the test program. The T&E WIPT will include all stakeholders for the strategy and status of T&E. At a minimum, T&E WIPT participants include the program manager and staff representatives, oversight organizations, contractor and major subcontractors, the responsible test organization, Operational Test Agencies (OTA's) system evaluator, and appropriate user representatives. The ITT or CTF participants include the responsible test organization, the OTA, and the contractor. These three major groups will provide the day-to-day management, execution, and logistics support necessary to plan, execute, analyze data, and report test results. As you can see from the list of participants, all of these teams represent different perspectives and perhaps different detailed objectives, so good team management skills will be necessary to establish common goals, deconflict roles and responsibilities, and execute a timely, efficient, and effective T&E program.

#### **4.2. Contractor Performance Information**

The FAR Part 42.15 identifies the requirement to record and maintain contractor performance information. DoD policy requires the periodic assessment of contractor past performance. Most Components use the Contractor Performance Assessment Report

(CPAR), which should be a valuable tool to evaluate contractor past performance during source selections. Other Components should have some form of accepted documentation to record and maintain contractor performance information. Poor performance documented in the CPAR, or other contractor performance document, will influence source selection decisions and can result in non selection. Excellent performance can significantly enhance the likelihood of winning a future source selection. Contractors are very sensitive to these facts and usually are motivated to improve poor performance. Used correctly and actively, contractor performance information can be an excellent management incentive tool.

#### **4.3. Award Fee Implementation**

There are several award fee activities that may require T&E involvement to sustain contractor and Government attention and interest in successful execution of the T&E approach to the program. These include interim and final evaluations for each award fee period, establishment of criteria for the upcoming terms, and providing feedback to Government officials and the contractor. It is particularly important to develop well defined criteria applicable to each term, especially when award fee is rolled over (an element of many award fee plans is the ability to “roll-over” unearned award fee money from one period to another[reference l])to a subsequent term. The DFARS, Service Supplements and guides provide details regarding administration of award fee programs.

#### **4.4. Defense Contract Management Agency (DCMA) Support**

The fundamental responsibility of DCMA is to:

- assess compliance with contractual terms for cost, schedule and technical performance in the areas of design, development and production, and,
- evaluate the adequacy and perform surveillance of contractor engineering efforts that relate to design, development, production, subcontract management, reliability & maintainability, configuration management.

Since DCMA is normally onsite with the contractor they are uniquely situated to be involved in the day to day contractor activities. They are intimately familiar with the inner workings of the contractor’s capability, processes, personnel and facilities. They can be the “eyes and ears” of the program office and can be a valuable asset to the Government Test and Evaluation Lead. As part of the pre-contract activity, a Memorandum of Agreement should have been coordinated with the DCMA field office detailing their specific tasks related to program participation after the contract is issued. This activity should include how DCMA will participate in the execution of the T&E processes, and enlisting DCMA’s support in the implementation of various management tools/systems (WBS, IMP, IMS, EVM). The following three topics should be clearly addressed early in the T&E strategy development effort, as appropriate, to the product/system under development.

- Production Acceptance T&E. DCMA usually is responsible for production acceptance testing. This responsibility and process should be verified and captured in the T&E process and approach.

FINAL DRAFT IN FINAL REVIEW FOR APPROVAL  
*Guide for Incorporating Test and Evaluation (T&E) into DoD Acquisition Contracts*

- Flight Release. DCMA usually issues the flight release (in the case of aircraft programs), that permit even developmental test aircraft to enter the flight test program. This responsibility and process needs to be captured early in the T&E effort and schedule for the decision points that lead up to issuance of the flight release.
- Contractor Personnel Management. DCMA will sometimes be the approving authority for contractor flight crews to fly in developmental tests. This issue and the relative DCMA processes and policies regarding training and certifying contractors to operate the system being developed must be captured early in the T&E process and approach.

#### **4.5. Test Operations**

The actual execution of test events presents numerous contractor/Government detail-type issues that must be addressed to successfully complete the program, and the contract. The following items are potential conflict areas, and should be addressed early, to ensure clarity and completeness as to contractor and Government responsibilities and expectations for the T&E effort throughout the acquisition process. These areas may or may not be specifically spelled out in the contract, but should have been considered during the preparation of the SOW in some form or fashion.

##### **4.5.1. Test Personnel**

Since contractor and Government personnel work closely together during the execution of test events, it is important to have a clear understanding of what each party is providing in terms of personnel, and how they will be managed. The skill sets needed for executing the program need to be identified prior to the start of the test program. Depending on the product/system under test there may be a requirement for some specific skills sets to fully exercise the product/system. Once the personnel requirement is established then the source of the personnel should be clearly established. For example, which skills will the contractor acquire for the test program, or from the Government? In some programs, the contractor brings the test managers and the Government provides the maintenance personnel. Whatever the actual arrangement is between contractor versus Government supplied personnel, clear expectations need to be set as to skill sets and quantity of personnel. Additionally, the contractor and Government management role and responsibilities must be clear. Do contractor personnel supervise Government personnel? – If so, what are the rules of engagement such as work hour expectations and disputes? Do Government personnel oversee contractor personnel – if so, how do we keep from unintentionally making constructive changes to the contract? For operational testing and evaluation, Title 10 USC 2399(d), Impartiality of Contractor Testing Personnel, specifically prohibits system contractor involvement in the conduct of the operational test and evaluation unless the Secretary of Defense plans for persons employed by that contractor to be involved in the operation, maintenance, and support of the system being tested when the system is deployed in combat. Consequently, system contractor personnel may not participate in data authentication groups (DAGs) or reliability, availability, and maintainability (RAM) scoring conferences, nor act as data collectors, reducers, or processors.



#### **4.5.2. Test Safety Issues**

The actual testing of equipment in a lab or on a test range introduces personnel safety issues and concerns. For example, the F-16 used hydrazine, a toxic chemical, to power the emergency power unit. When the emergency power unit was tested on the ground, it exposed the ground personnel near the aircraft to a potentially hazardous environment from hydrazine in the power unit exhaust, and when hydrazine was spilled during servicing of the aircraft, the safety related aspects were not clear in terms of how to clean it up, safe exposure levels, etc. So the Government and contractor roles and responsibilities for the conduct and approval of test-related safety issues and analysis need to be clearly defined. Note that in addition to safety analyses for personnel and test article risks, these analyses should also address environmental impacts related to the conduct of tests. Some of these environmental issues are at the state and local level, so the complete list of environmental laws may not be known prior to contract award, so the contract needs to allow for these types of analyses and impacts to the execution of the test program.

#### **4.5.3. Risk Acceptance Authority**

The conduct of safety analyses will assist in identifying and clarifying the risks involved in the test program. Detailed test planning should establish test conditions and test procedures which should mitigate most of the significant risks. However, some residual risk will remain, and the question then becomes one of who has the authority to accept the residual risk and allow the test to proceed. The approval authority can be different, depending upon the levels of risk established (e.g. low, medium, or high risk). For example, most flight tests involve a routine or relatively low level of residual risk, so the operations officer or the test team lead has the authority to approve a flight with that level of risk. However, flight tests such as high angle-of-attack (or stall) testing are usually considered to be high risk tests, since the aircraft behavior in the stall regime is not well known, and the risk of losing the aircraft is very likely. In this case, the range commander, or their equivalent, would be the approval authority to fly that particular test event. Since the approval (or lack of approval) to conduct tests is not within the contractor's control, the contract needs to account for that possibility. Components may use different risk matrixes, such as 3-tier versus 4 tier or dollar/injury/mission impact thresholds. These different matrixes may also have their own risk decision authority decision levels. This becomes very important when contracting for a program that will cross DT and OT lines, as well as Multi-Service Operational Test and Evaluations (MOT&Es).

#### **4.5.4. Accident/Incident Investigation/Reporting**

In the unfortunate event of an accident or incident, the accident / incident reporting and investigation procedures and process must be clearly defined. This process should include authority, documentation, and who is accountable for the test article in case of an accident/incident; for example, if a test aircraft crashes, who is going to be held responsible for that test article? Will the accident investigation be conducted according to Government procedures, or contractor? How is the contractor expected to support the accident investigation? Will the Government indemnify the contractor for the loss of the test asset, or is the contractor expected to procure insurance to cover the risk of losing the test asset?

#### **4.5.5. Detailed Test Planning**

This area refers to detailed test plans, or the test plans that are actually constructed and used to execute the test events and acquire the necessary data. Higher levels of test planning, such as T&E strategies and system level test plans, have more of a management focus and insufficient detail to actually execute a test event. So when it comes to actual test operations, the detailed test plans drive the actions of the testers. Therefore, the roles and responsibilities for the development of detailed test plans must be defined. This area includes: processes for detailed test planning, especially with integrated testing; who writes the test plan; and who approves the test plan. A key consideration is when the contractor writes the detailed test plans, how does the Government ensure that the contractor does not become responsible for doing more testing than required for the contract? This is part of defining the Government's role in approving detailed test plans.

#### **4.5.6. Test Execution**

The roles and responsibilities for the actual conduct of a test must be defined. Essentially, define who controls the conduct of tests – Government or contractor, or shared. This area includes such items as deleting or adding test points, expectations for a particular priority when it comes to range or range asset availability, and will there be a contractor or Government run-through of the data collection instrumentation prior to the actual test to verify operational status

#### **4.5.7. Test Data Access, Authentication, and Sharing**

The access to, process for authentication, and sharing of all test data must be clearly established. There should be no restrictions to Government access to all test data and agreement on the process to authenticate test data. The contract should clearly describe the collection, authentication, and availability process. If a data authentication group (DAG) is established, define the leader, where the data will be stored, and how the authenticated data will be made available for all stakeholders. This is an area that will potentially invoke contractor intellectual property issues, so that part of the contract needs to be clearly understood by the test team.

#### **4.5.8. Test Data Analysis and Evaluation**

Data analysis and evaluation responsibilities, process, and products must be identified and adhered to throughout the testing effort. The process should clearly identify what the contractor is responsible for versus the Government and the process for adjudicating conflicting evaluations. Especially in the case of integrated testing, there will be a lot of data collected. The contractor should only be responsible for analyzing sufficient data to demonstrate compliance with the specification and statement of work. This is an area that requires a very clear contractual understanding and specifics identify the type, format, schedule, and approving and coordinating authorities for all T&E reports. The contractor reports should be listed as contract deliverables, for example, if the government is expecting or relying on a contractor report to satisfy an acquisition milestone or decision review, then that needs to be communicated to the contractor.

#### **4.6. Change Management**

Change is inevitable in any test program. Changes to product/system performance criteria (such as: new requirements, deviations and waivers to existing performance criteria) have to be clearly and completely documented, incorporated into the contract, and adhered to. There should be an approved change management process defining the authority controlling the change process and configuration management of test assets. This is sometimes called a configuration control process, but a distinction needs to be made between the configuration control process that is part of the systems engineering process and focused on the design configuration; and the configuration control process that is focused on test asset configuration. The latter will include design changes in addition to deviations or waivers resulting from the production process, and even changes to the test instrumentation. The integrity of the test results rests on understanding and maintaining control of the configuration of the test assets as the test program progresses. Unknown or undocumented configuration changes can invalidate data and introduce safety risks. This is especially true with software changes. For more specifics on this topic see FARS Part 48 – Value Engineering at:

<http://www.acquisition.gov/far/current/html/FARTOCP48.html>

#### **4.7. Reporting**

This is an area that requires a very clear contractual understanding and specifics. Identify the type, format, schedule, and approving and coordinating authorities for all T&E reports. The contractor's reports should be listed in the contract as CDRL. For example, if the Government is expecting or relying on a contractor report to satisfy an acquisition milestone or decision review, then that needs to be communicated to the contractor and perhaps clauses made in the contract to incentivize the contractor to make that happen.

## 5. SUMMARY

This Guide provides you the major T&E items and or requirements to consider as you develop and or review a SOO, SOW, RFP, and contract. The various lists provide you a baseline for discussions, decisions, and review for T&E items and or requirements. These lists, coupled with your Component's specific T&E contractual direction, guidance, and requirements should help you address all the necessary T&E contents for a SOO, SOW, and RFP for your program. As mentioned in the beginning of this Guide --the key understanding to remember is that if a T&E item or requirement is not in the SOW, it probably will not be in the RFP, and if not in the RFP, it probably will not be in the contract. If it is not in the contract – ***do not expect it!*** You must be involved early and stay involved with the PM, the SE, and the other PMO leads throughout the contracting process to ensure the T&E policies, practices, procedures, and requirements are understood, accepted, and included in the contract as necessary for program success.

**ATTACHMENT A – ACRONYM LIST**

|        |   |
|--------|---|
| AFARS  | Army Federal Acquisition Regulation Supplement  |
| AFFARS | Air Force Federal Acquisition Regulation Supplement   |
| AIS    | Automated Information System  |
| AOA    | Analysis of Alternatives  |
| AT&L   | Acquisition, Technology and Logistics   |
| BOE    | Basis of Estimate   |
| C4ISR  | Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance |
| CAD    | Computer Aided Design   |
| CDD    | Capability Definition Document  |
| CDR    | Critical Design Review  |
| CDRL   | Contract Data Requirements List   |
| CLIN   | Contract Line Item  |
| CMF.   | Critical Mission Function   |
| CONOPS | Concept of Operations   |
| COTS   | Commercial Off-the-Shelf  |
| CPAR   | Contractor Performance Assessment Report  |
| CR     | Concept Refinement  |
| CTT    | Combined or Contractor Test Team  |
| CTF    | Combined T&E Task Force   |
| CTP    | Critical Technical Parameters   |
| CWBS   | Contract Work Breakdown Structure   |
| DAG    | Defense Acquisition Guidebook or Data Authentication Group                                  |
| DCMA   | Defense Contract Management Agency  |
| DFARS  | Defense Federal Acquisition Regulation Supplement   |
| DIACAP | DoD Information Assurance and Certification Accreditation Process                           |
| DID    | Data Item Description   |
| DoD    | Department of Defense   |
| DR     | Deficiency Reporting  |
| DT&E   | Development, Test and Evaluation  |
| EVM    | Earned Value Management   |
| FAR    | Federal Acquisition Regulation  |
| GEIA   | Government Electronics and Information Technology Association                               |
| GOTS   | Government Off the Shelf  |
| IA     | Information Assurance   |
| IBR    | Integrated Baseline Review  |
| ICD    | Initial Capabilities Document   |
| IEEE   | Institute of Electrical and Electronic Engineers  |
| IMP    | Integrated Master Plan  |
| IMS    | Integrated Master Schedule  |
| IOT&E  | Initial Operational Test & Evaluation   |
| IPT    | Integrated Product Team   |
| ITT    | Integrated Test Team  |
| JCIDS  | Joint Capabilities Integration and Development System                                       |
| JFCOM  | Joint Forces Command  |

FINAL DRAFT IN FINAL REVIEW FOR APPROVAL  
*Guide for Incorporating Test and Evaluation (T&E) into DoD Acquisition Contracts*

|        |  |
|--------|--|
| JITC   | Joint Interoperability Test Command            |
| KO     | Contracting Officer                            |
| LDT    | Limited Development Test                       |
| LFT&E  | Live-Fire Test &Evaluation                     |
| M&C    | Monitor and Control                            |
| MDA    | Milestone Decision Authority                   |
| MOSA   | Modular Open Systems Approach                  |
| MOT&E  | Multi-Service Operational Test and Evaluation  |
| M&S    | Modeling and Simulation                        |
| NDI    | Non-Developmental Item                         |
| NR-KPP | Net-Ready Key Performance Parameter            |
| OTA    | Operational Test Agency                        |
| OT&E   | Operational Test and Evaluation                |
| OUSD   | Office of the Under Secretary of Defense       |
| PCAG   | Performance Confidence Assessment Group        |
| PDR    | Preliminary Design Review                      |
| PGI    | (DEFARS) Procedures, Guidance, and Information |
| PWBS   | Program Work Breakdown Structure               |
| RAM    | Reliability, Availability and Maintainability  |
| RFI    | Request for Information                        |
| RFP    | Request for Proposal                           |
| RMP    | Risk Management Plan                           |
| RPP    | Reliability Program Plan                       |
| RTM    | Requirements Testability Matrix                |
| SDD    | System Development and Demonstration           |
| SEP    | Systems Engineering Plan                       |
| SFR    | System Functional Review                       |
| SME    | Subject Matter Expert                          |
| SOO    | Statement of Objectives                        |
| SOW    | Statement of Work                              |
| SRR    | System Requirements Review                     |
| SSP    | Source Selection Plan                          |
| TD     | Technology Demonstration or Technical Data     |
| TDS    | Technology Development Strategy                |
| TEMP   | Test and Evaluation Master Plan                |
| TES    | Test and Evaluation Strategy (Document)        |
| TPM    | Technical Performance Measurement              |
| TRR    | Test Readiness Review                          |
| TSPR   | Total System Performance Responsibilities      |
| VV&A   | Verification, Validation, and Accreditation    |
| WBS    | Work Breakdown Structure                       |

**ATTACHMENT B – REFERENCES**

- a. Defense Acquisition University (DAU) Test and Evaluation Management Guide, January 2005 ([http://www.dau.mil/pubs/gdbks/test\\_evalu\\_guide.asp](http://www.dau.mil/pubs/gdbks/test_evalu_guide.asp))
- b. DFARS websites: <http://www.acq.osd.mil/dpap/dars/dfarspgi/current/index.html>; DFARS Procedures, Guidance, and Information (PGI) Web Site <http://www.acq.osd.mil/dpap/dars/pgi/index.htm>
- c. Defense Acquisition University’s Acquisition Community Connection <https://learn.dau.mil/html/clc/Clc1.jsp?cl=>
- d. Integrated Master Plan and Integrated Master Schedule Preparation and Use Guide V0.9, October 21, 2005 ([http://www.acq.osd.mil/sse/docs/IMP\\_IMS\\_Guide\\_v9.pdf](http://www.acq.osd.mil/sse/docs/IMP_IMS_Guide_v9.pdf))
- e. FAR website: <http://www.acquisition.gov/comp/far/index.html>
- f. Defense Acquisition University’s Acquisition Community Connection Practice Center web site: <https://acc.dau.mil/CommunityBrowser.aspx>
- g. USD (AT&L), subject: Final Report of the Defense Science Board (DSB) Task Force on Developmental Test and Evaluation, dated June 6, 2008.
- h. Defense Acquisition University’s Acquisition Community Connection web site for sample RAM contract language <https://acc.dau.mil/CommunityBrowser.aspx?id=219127&lang=en-US>.
- i. OUSD(AT&L) memorandum, subject: Proper use of Award Fee Contracts and Award Fee Provisions, April 24, 2007
- j. OUSD(AT&L)A/T and DOTE memorandum, subject Definition of Integrated Testing, April 25, 2008
- k. Acquisition Streamlining and Standardization Information System (ASSIST) website -<http://assist.daps.dla.mil/online/start/>
- l. OUSD(AT&L) memorandum, subject: Award Fee Contracts FAR 16, DFARS 215, DFARS 216, March 29, 2006
- m. Defense Acquisition University’s “Award and Incentive Fees” Community of Practice (CoP) website: <https://acc/dau.mil/awardandincentivefees>.
- n. Office of the Deputy Under Secretary of Defense for Acquisition Reform, “Incentive Strategies for Defense Acquisitions” dated April 2001.

## **ATTACHMENT C – SAMPLE CHECKLIST FOR EVALUATING A RELIABILITY PROGRAM PLAN (RPP)**

This checklist is not meant to be all inclusive, but rather, a tool to guide your discussions and decisions relative to RAM planning, accountability, and reporting for your program.

### **Reliability Program Plan (RPP)**

- Implements with appropriate methods, tools, and Best Practices, the Reliability Activities described herein in order to accomplish the four objectives?
- Includes procedures for verifying planned Reliability Activities are implemented?
- Manage risks due to new technologies?
- Includes decision-making criteria and plans for intensifying reliability-improvement efforts?
- Periodic updates coordinated with customer/user?

### **System Reliability Model**

- Build & refine model throughout the life cycle?
- Routinely update model as failure definitions are updated, failure modes are identified, operational & environmental load estimates are updated, and as design or manufacturing changes are made?
- Detailed component stress & damage models included?
- Model used to (1) update allocations, (2) aggregate reliability, (3) ID single points of failure, (4) identify reliability-critical items and the need for additional design or testing activities?

### **Systems-Engineering Integration**

- Reliability Activities integral to system engineering process throughout life cycle?
- Reliability-improvement actions routinely incorporated during design, production, and in the field?
- Reliability impact of design changes and supplier change notices monitored & evaluated throughout the life cycle?
- Manage and control reliability-critical items?
- Design rules that impact reliability adhered to?

### **System-Level Operational & Environmental Life-Cycle Loads**

- Develop and periodically update load estimates throughout life cycle?
- Estimates verified on instrumented systems/products with operationally-realistic conditions applied in time for Reliability Verification?
- Use estimates in reliability modeling, assessment, verification?
- Coordinate estimates with Systems Engineering?

### **Life-Cycle Loads on Assemblies, Subassemblies, and Components**

- Develop and periodically update these load estimates based on operational & environmental loads applied at the system-level?
- Verify load estimates on instrumented systems/products/assemblies with operationally-realistic conditions applied?



FINAL DRAFT IN FINAL REVIEW FOR APPROVAL  
*Guide for Incorporating Test and Evaluation (T&E) into DoD Acquisition Contracts*

- Flow down estimates and updates to designers, integrators of commercial-off-the-shelf (COTS), non-developmental items (NDI), government-furnished equipment (GFE), and suppliers?
- Use estimates to identify failure modes & mechanisms, and in assessments and verification?

**Identify and Characterize Failure Modes & Mechanisms**

- Identify failure modes & mechanisms throughout the life cycle?
- Begin to identify failure modes & mechanisms as soon as development begins using realistic life-cycle operational & environmental loads in conjunction with engineering- and physics-based models?
- Teams developing assemblies, subassemblies, and components for system identify and confirm failure modes and distributions with analysis, test, or accelerated test?
- Teams selecting/integrating assemblies, subassemblies, and components for system (including COTS, NDI, and GFE) identify and confirm failure modes and distributions with analysis, test, or accelerated test?
- Identify and confirm failure modes induced by manufacturing variation and errors?
- Identify and confirm failure modes induced by user or maintainer errors?
- All test and field failures analyzed to root cause?

**Closed-Loop Failure-Mode Mitigation**

- Analyze and map to the customer-specified Failure Definitions and Scoring Criteria (FDSC) all failure modes in order to formulate corrective actions throughout the life cycle?
- Aggressively mitigate failure modes until reliability requirements are met?
- Employ a mechanism for monitoring and communicating the implementation and effectiveness of corrective actions that is accessible by the customer?
- Include failure modes that may occur during the life cycle in the system reliability model?

**Reliability Assessment**

- Assess reliability requirements feasibility using the System Reliability Model in conjunction with expert judgment?
- Reliability requirements allocated to lower indenture levels and flowed to subcontractors/suppliers?
- Periodically assess reliability of system throughout the life cycle using the reliability model, the life-cycle operational & environmental load estimates, and the customer-specified FDSC?
- Reliability values to be achieved at various points in the program included?
- Reliability assessments from analysis, modeling & simulation, test, and the field tracked as a function of time and compared to allocations and customer reliability requirements?
- Monitor and evaluate the implementation of corrective actions as well as other changes to the design or manufacture of the systems/product that may impact reliability?
- All assessments include COTS, NDI, and GFE?

**Reliability Verification**

- Develop and periodically refine a Reliability Requirements Verification Strategy/Plan that is an integral part of the systems-engineering verification and is coordinated and integrated across all phases?
- Strategy ensures reliability requirements will be verified during design and will not degrade during production or in the field?
- Includes reliability values to be achieved at various points during development?
- Verification based on analysis, modeling & simulation, testing, or a mixture, and operationally realistic?
- Verified System-Level Operational & Environmental Life-Cycle Loads will be used?
- Customer-specific requirements, if any, included?

**Failure Definitions**

- Understand customer-specified FDSC?
- Design to avoid failures due to user or maintainer errors?
- RPP integrates customer-specified FDSC with (1) system reliability model, (2) ID of failure modes & mechanisms, (3) closed-loop failure-mitigation process, (4) reliability assessment, and (5) reliability verification throughout life cycle?

**Technical Reviews**

- RPP specifies how and when technical reviews will be conducted throughout the life cycle?
- Conduct periodic interchanges with customer/user that promotes understanding of operational environment?
- Technical reviews scheduled and conducted to (1) assure progress towards achieving reliability requirements, (2) verify that planned Reliability Activities are implemented, and (3) compare status and outcomes of Reliability Activities?
- Independent peer review conducted by SMEs?
- Conduct & participate in reviews with customer/user that address identification, analysis, classification, and mitigation of failure modes?

**Methods & Tools**

- Reliability Activities implemented with methods & tools from RPP?
- Reliability Best Practices implemented and adhered to?
- Changes in methods, tools, or Best Practices included in RPP update and approved by customer?

**Outputs and Documentation**

- Planning for RPP updates?
- Continuous customer access to status and outputs from all Reliability Activities?
- Outputs appropriately scheduled and documented in Reliability Case?

FINAL DRAFT IN FINAL REVIEW FOR APPROVAL  
*Guide for Incorporating Test and Evaluation (T&E) into DoD Acquisition Contracts*

**ATTACHMENT D – SAMPLE T&E AWARD FEE CHECKLIST**

This checklist is not meant to be all inclusive, but rather, a sample to guide your discussions and decisions relative to award fee planning, accountability, and reporting for your program.

| <b>EXCELLENT</b>  | <b>VERY GOOD</b>   | <b>SATISFACTORY</b>   | <b>UNSATISFACTORY</b>   |
|---|--|---|---|
| <p>T&amp;E reviews met all the entry , exit , and success criteria (including teammates, vendors and subcontractors reviews) Reviews were successful. Program proceeded as planned. Reliability growth covered with complete risk assessment on all critical areas.</p> <p>T&amp;E baseline data package is complete with no TBDs, omissions, or incorrect data. Requirements management process is actively used with minimal change rate, no technical discrepancies and only a few administrative discrepancies. Baselines established ahead of schedule.</p> <p>T&amp;E reflects best practices. Best practices are flowed down to subs, teammates and vendors. Program execution applies the documented program processes.</p> <p>Critical path is defined and actively managed. Proactive risk management processes applied across the program to include, subs, vendors, teammates and Government participants risks. Risk mitigation plans are in place and on schedule.</p> <p>A deficiency reporting (DR) process is clearly identified and part of the review process.</p> | <p>T&amp;E reviews met most of the entry, exit, and success criteria. Only minor omissions. Reviews were successful although there were minor re-reviews but no significant delays to subsequent events. Reliability growth covered with some risk assessment provided on most critical areas.</p> <p>T&amp;E baseline data package is mature and stable with only minor TBDs, omissions, or incorrect data. Requirements management process is in place and used with acceptable change rate with only minor technical discrepancies. Baselines established on schedule.</p> <p>T&amp;E reflects best practices, reflect the program specific needs. Best practices are flowed down to principle subs, vendors and teammates. Program execution applies critical documented program processes.</p> <p>Critical path is defined and managed. Risk management process includes subs, vendors, teammates and Government participants Risk mitigation plans are in place incorporated into the program. Only minor delays to risk mitigation schedules.</p> <p>A deficiency reporting (DR) process is in-place and is sporadically used in reviews.</p> | <p>T&amp;E reviews met most of the entry, exit, and success criteria. Reviews were successful although a few items required subsequent re-review. Is consistent with the TES and TEMP, as appropriate, and the SEP. Program experienced some rework with no program impacts to the critical path. Reliability growth covered with risk assessment provided on some critical areas.</p> <p>T&amp;E baseline data package is well defined, mostly mature and stable with no serious TBDs, omissions, or incorrect data. Requirements management process is in place and used with acceptable change rate and no serious technical discrepancies. Baselines established on schedule</p> <p>T&amp;E reflects best practices which are critical to high risk program areas. Best practices are flowed down to critical subs, vendors and teammates. Program execution usually applies the documented program processes.</p> <p>Critical path is defined and managed. Risk management process includes critical subs, vendors and teammates. Risk mitigation plans are focused on critical path and incorporated into the program. There is need for occasional modification of or addition of risk mitigation plans</p> <p>A deficiency reporting (DR) process is in place but not regularly used.</p> | <p>T&amp;E reviews did not meet some of the entry and exit criteria. Omissions are considered significant. Is not consistent with SEP, TES, TEMP as appropriate. Subsequent re-reviews required. Program delays and cost increases experienced. Critical path was impacted. Reliability growth not mentioned.</p> <p>T&amp;E baseline data package only partially defined. Requirements management process experiences high change rate and in the state of flux. Program delays or cost increases incurred. Critical path is impacted.</p> <p>T&amp;E reflects best practices. Best practices are not flowed down to critical subs, vendors and teammates. Program has deviated from the documented program processes.</p> <p>Critical path is ill defined, not well managed. Risk management plans are not well defined and do not include the subs, vendors or teammates. There is need for continual modification of or addition of risk mitigation plans that impact the critical path.</p> <p>A deficiency reporting (DR) process is in-place but not used.</p> |

FINAL DRAFT IN FINAL REVIEW FOR APPROVAL  
 Guide for Incorporating Test and Evaluation (T&E) into DoD Acquisition Contracts

**ATTACHMENT E – SAMPLE PAST PERFORMANCE QUESTIONNAIRE**

This questionnaire is not meant to be all inclusive; it is a tool to guide your discussions and decisions regarding ranking contractor past performance relative to your program.

| <b>Sample Past Performance Questionnaire</b>   |  |  |   |   |                           |            |
|--|--|--|---|---|---------------------------|------------|
| Based on your knowledge of the contract identified above, please provide your assessment of how well the contractor performed on each of the following topics. Only performance in the past five (5) years is relevant. Please check the appropriate rating and comment on all responses other than those rated Satisfactory or N/A. |  |  |   |   |                           |            |
| <b>Performance Rating Definitions:</b>   |  |  |   |   |                           |            |
| <b>Exceptional (E)</b>   | <b>Very Good (V)</b>   | <b>Satisfactory (S)</b>  | <b>Marginal (M)</b>   | <b>Unsatisfactory (U)</b>   | <b>N/A</b>                |            |
| <i>Indicates performance clearly exceeded requirements. Area of evaluation contains few minor problems for which corrective action appears highly effective.</i>   | <i>Indicates performance exceeded some requirements. Area of evaluation contains few minor problems for which corrective action appears effective.</i> | <i>Indicates performance meets contractual requirements. The area of evaluation contains some minor problems for which the corrective actions appear satisfactory.</i> | <i>Indicates performance meets contractual requirements. The area of evaluation contains a serious problem for which corrective actions have not yet been identified, appear only marginally effective, or have not been fully implemented.</i> | <i>Indicates the contractor is in danger of not being able to satisfy contractual requirements and recovery is not likely in a timely manner. The area of evaluation contains serious problems for which the corrective actions appear ineffective.</i> | <i>Neutral or Unknown</i> |            |
| <b>Sample Questions</b>  |  |  |   |   |                           |            |
| <i>Was there a single test and evaluation authority designated for the program with clear lines of authority and responsibility to the program manager?</i>  | <i>E</i>   | <i>V</i>   | <i>S</i>  | <i>M</i>  | <i>U</i>                  | <i>N/A</i> |
| <i>Did the contractor include Government test and evaluation personnel on the IPTs to create an integrated team approach?</i>  | <i>E</i>   | <i>V</i>   | <i>S</i>  | <i>M</i>  | <i>U</i>                  | <i>N/A</i> |
| <i>How well did the contractor maintain a balanced set of system performance, cost and schedule requirements during the program?</i>   | <i>E</i>   | <i>V</i>   | <i>S</i>  | <i>M</i>  | <i>U</i>                  | <i>N/A</i> |
| <i>Did the contractor use his "best practice" software development process work across the total industry team?</i>  | <i>E</i>   | <i>V</i>   | <i>S</i>  | <i>M</i>  | <i>U</i>                  | <i>N/A</i> |
| <i>How effective was their interface management and control?</i>   | <i>E</i>   | <i>V</i>   | <i>S</i>  | <i>M</i>  | <i>U</i>                  | <i>N/A</i> |
| <i>How well did they manage technical risk? Was it focused on the risks associated with the critical path?</i>   | <i>E</i>   | <i>V</i>   | <i>S</i>  | <i>M</i>  | <i>U</i>                  | <i>N/A</i> |
| <i>Did they complete all the T&amp;E entry/exit criteria for major design reviews effectively? Were action items established and expeditiously closed?</i>   | <i>E</i>   | <i>V</i>   | <i>S</i>  | <i>M</i>  | <i>U</i>                  | <i>N/A</i> |
| <i>Did they deliver quality T&amp;E products (reports, analyses, trade studies, LDTs, and specifications) in a timely manner?</i>  | <i>E</i>   | <i>V</i>   | <i>S</i>  | <i>M</i>  | <i>U</i>                  | <i>N/A</i> |
| <i>How well did the contractor manage event-based reviews with their subcontractors, teammates and vendors?</i>  | <i>E</i>   | <i>V</i>   | <i>S</i>  | <i>M</i>  | <i>U</i>                  | <i>N/A</i> |
| <i>Did the contractor include SMEs in T&amp;E reviews on higher risk areas of the program?</i>   | <i>E</i>   | <i>V</i>   | <i>S</i>  | <i>M</i>  | <i>U</i>                  | <i>N/A</i> |
| <i>Did the contractor apply the corporate "best T&amp;E practices" and use their experienced personnel?</i>  | <i>E</i>   | <i>V</i>   | <i>S</i>  | <i>M</i>  | <i>U</i>                  | <i>N/A</i> |
| <i>How well did the contractor adhere to the program T&amp;E schedule in the execution of the program?</i>   | <i>E</i>   | <i>V</i>   | <i>S</i>  | <i>M</i>  | <i>U</i>                  | <i>N/A</i> |
| <i>How well did the contractor maintain the program T&amp;E process? Was it updated with the results of continuous process improvement efforts?</i>  | <i>E</i>   | <i>V</i>   | <i>S</i>  | <i>M</i>  | <i>U</i>                  | <i>N/A</i> |
| <i>Were the T&amp;E requirements extended down to subcontractors, teammates and vendors?</i>   | <i>E</i>   | <i>V</i>   | <i>S</i>  | <i>M</i>  | <i>U</i>                  | <i>N/A</i> |
| <i>How well did the contractor integrate the T&amp;E processes &amp; tools in the management of the program (SEP, IMP, IMS, EVM, Risk Management)?</i>   | <i>E</i>   | <i>V</i>   | <i>S</i>  | <i>M</i>  | <i>U</i>                  | <i>N/A</i> |
| <i>How well did the contractor manage the performance baselines of the program?</i>  | <i>E</i>   | <i>V</i>   | <i>S</i>  | <i>M</i>  | <i>U</i>                  | <i>N/A</i> |
| <i>How well did the contractor employ metrics (e.g., delinquency reporting, reliability growth) to manage performance baseline maturity?</i>   | <i>E</i>   | <i>V</i>   | <i>S</i>  | <i>M</i>  | <i>U</i>                  | <i>N/A</i> |
| <i>How timely, complete and usable was the T&amp;E data package for the defined performance baselines? Was the T&amp;E data package complete to support the program's technical and acquisition strategy?</i>  | <i>E</i>   | <i>V</i>   | <i>S</i>  | <i>M</i>  | <i>U</i>                  | <i>N/A</i> |
| <i>How well did the contractor manage the requirements and apply any requirements management tool? Did the program experience an unusually high requirements change rate?</i>  | <i>E</i>   | <i>V</i>   | <i>S</i>  | <i>M</i>  | <i>U</i>                  | <i>N/A</i> |

This page intentionally left blank.

**Incorporating Test and Evaluation  
into Department of Defense  
Acquisition Contracts**

Version 1.0  
September 2008

Department of Defense  
Office of the Deputy Under Secretary of Defense  
for Acquisition and Technology

Developmental Test and Evaluation  
Systems and Software Engineering  
3020 Defense Pentagon, Room 2B278  
Washington, DC 20301-3020