FY 2019 DoD T&E Workforce Competency Model

Units of Competence	Competencies	Competency Elements
Planning	**Competency 1.** Risk Identification	**Element 1.** Identify T&E risk factors (e.g., lack of available time, money, test articles/platforms, new technology, test expertise, external subject matter experts, test facilities, test methodologies/schemes, product maturity that includes hardware/software) based upon likelihood and consequence of occurrence to test strategy/approach and impact on the overall program plan and schedule along with mitigation recommendations.
		Element 2. Develop risk mitigation for T&E risk factors in accordance with the processes and procedures found in the Department of Defense Risk Management Guide to cover system risk elements throughout the test program.
		Element 3. Support Program Management Office's development of a risk management plan with T&E relevant risks and mitigation plans that enable a balanced plan for a program.
	Competency 2. Capabilities Assessment	**Element 4.** Translate requirements documents (e.g., Technology Development Strategy, Initial Capabilities Document, Capability Development Document, Capability Production Document, Program Protection Plan, Cybersecurity Strategy, Information Support Plan, System Threat Assessment Report, Environmental Safety and Occupational Health, and concept of employment/operation) to identify evaluation criteria to support T&E planning efforts.
		Element 5. Assess whether the capability requirements are well defined so as to measure in test and are relevant to the operational mission. Understand how flexible requirements in agile developments could affect test and evaluation.
		Element 6. Determine data requirements to assess evaluation criteria for assessing the system performance requirements, (e.g., identify Critical Technical Parameters, software maturity levels, Measures of Effectiveness, Measures of Suitability) to support evaluation of Critical Operational Issues, Key Performance Parameters, and Key System Attributes.
		Element 7. Determine necessary T&E infrastructure requirements (people/knowledge, cybersecurity teams, funding, investments, budgets, T&E processes, facilities/ranges, cyber ranges, instrumentation and associated support, automated testing tools, Software Systems Integration Labs, Modeling and Simulation) and identify shortfalls that will require investments to meet T&E infrastructure sufficiency.
	Competency 3. Program T&E Strategy Development	**Element 8.** Incorporate all policies, practices, and procedures with the technical requirements of a program to develop and document a T&E strategy that supports the program's acquisition strategy (traditional, rapid, agile, incremental acquisitions). Utilize the full spectrum of the integrated testing process in the T&E strategy. Utilize Scientific Test and Analysis Techniques (STAT). Identify how the following components fit together during systems development: CT, DT, OT, and LFT. Identify where environmental, interoperability, cybersecurity, and mission-level testing should fit into system development. Determine the appropriate criteria for evaluating OT parameters

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		(Effectiveness, Suitability, and Survivability) and LFT&E parameters (Lethality and Vulnerability).
		Element 9. Develop and document the T&E strategy that integrates policy, program requirements, cost and resource estimates, evaluation framework, and the T&E schedule to accomplish program goals. Use appropriate contracting strategies to maximize the efficient use of human capital and other resources.
		Element 10. Identify all organizations and activities that have roles and responsibilities in providing for or overseeing the T&E strategy that supports a program's acquisition life cycle or a system-of-systems' acquisition life cycle.
		Element 11. Identify and organize the T&E management forum (e.g., T&E Working-level Integrated Product Team, Integrated Test Team, Combined Test Team) necessary to address all the T&E issues and documentation to support the T&E strategy, approach, and overall program plan.
		Element 12. Translate the T&E strategy into the appropriate test document (e.g., Test and Evaluation Master Plan (TEMP), Developmental Test Plans, Operational Test Plans, and Live-Fire Test Plans) including identification of all the required resources to ensure the strategy is executable and supports the Systems Engineering Plan and overall Acquisition Strategy.
	Competency 4. Test Cost Estimating	**Element 13.** Provide financial cost estimates for T&E support to ensure T&E resources are available during development and production of the system life cycle.
Preparation	**Competency 5.** Coordination of T&E Activities and Events	**Element 14.** Interact with all organizations/activities that require information/activity exchange to successfully complete the test planning as enumerated in the T&E strategy contained in the TEMP.
		Element 15. Continually coordinate and monitor availability of required test and/or evaluation resources to identify any potential resource problem/issue (e.g., troop deployment, range closure, required test configurations may slip, environmental certifications, requisite authorities to test/operate, blue team/red team availability) to ensure effective completion of test events.
		Element 16. Execute tasking orders and funding streams to commit resources as requested, when and where required to complete T&E activities/event.
	Competency 6. Test Readiness	**Element 17.** Verify readiness of resources (e.g., facilities, trained operators, maintainers, externally acquired test teams (e.g., red, blue) and testers, tools, properly configured test products/software/systems/platforms and instrumentation) for T&E program execution.
		Element 18. Ensure all required resources are deployed to the test site(s) as required and in sufficient time to provide for pre-test rehearsal(s), communications, and instrumentation checks.
		Element 19. Comply with and implement policies and procedures (e.g., safety, security, environmental) required to successfully conduct test activity/event. Investigate specific policies, procedures, and operational constraints for applicable test ranges to ensure compatibility during test operations.

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		Element 20. Assess all T&E related factors (resources and product maturity including hardware/software) to determine system/test article readiness (e.g., Developmental Test Readiness Reviews, DT&E Assessments, Operational Test Readiness Reviews, Live-Fire Test Readiness Reviews) before starting the test. Ensure adequate personnel are assigned to allow continual coverage for overlapping test events.
		Element 21. Plan, conduct, and report on Test Readiness Reviews.
Test Execution	**Competency 7.** Risk Management	**Element 22.** Manage test execution/risk mitigation factors (e.g., safety, schedule, resources, fault isolation, and program priority) by adapting to real-time changes/challenges to advise Test Director in order to optimize test opportunity and coverage of key parameters/factors/conditions that have significant effect on operational performance.
	Competency 8. Test Control Management	**Element 23.** Confirm data collection tools are valid, operators and maintainers are trained, Modeling and Simulation/Live Virtual Constructive hardware and software tools are properly integrated, and system under test is configured as required to execute the test events/activities and collect required data.
		Element 24. Confirm and monitor security and safety compliance (such as people and item/system under test) and environmental requirements constraints to protect resources and comply with established policies.
		Element 25. Develop, validate, rehearse, and execute tests in an organized fashion to facilitate identification of completed data suitable in form and format for analysis and evaluation. Ensure data required for STAT analysis are suitable.
		Element 26. Control the test schedule to complete scenarios and scripts within boundaries of test plan and to optimize collection of data to support evaluation objectives.
	Competency 9. Data Management	**Element 27.** Verify all required and expected raw test data (i.e., forms, electronic tapes, sensors) are secure, collected, documented, and archived along with descriptions of data to ensure completeness of data collected.
		Element 28. Ensure validity of collected test data to meet test objectives in support of planned analysis and evaluation. Determine how cybersecurity will be used to protect the integrity of test data.
		Element 29. Distribute data per the data management plan for analysis of test results in support of the evaluation.
Analysis	**Competency 10.** Data Verification and Validation	**Element 30.** Translate outputs from test instrumentation systems, data acquisition system methods and formats, software tools/logs, capabilities, and operation to verify and validate test data set.
		Element 31. Identify gaps and variances in raw test data to determine data voids or outliers that may degrade analysis and evaluation.
	Competency 11. Data Reduction and Assimilation	**Element 32.** Reduce, translate, and analyze raw test data into organized and meaningful data products to support planned analysis of STAT-based design, evaluation, and reporting.
		Element 33. Conduct data scoring to refine demonstrated test results (i.e., fly out; models; Reliability, Availability, and Maintainability scoring conferences) to establish a complete data set of system, to include software performance.
		Element 34. Align data to specific test objectives in support of the planned analysis and the overall evaluation.

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Evaluation	**Competency 12.** Determination of Test Adequacy	**Element 35.** Confirm that the tests conducted support the stated test objectives (i.e., does the product satisfy system requirements) to ensure adequacy of the planned analysis and evaluation. Determine appropriate analysis and evaluation techniques to be incorporated in a system evaluation or a system-of-systems' evaluation (e.g., STAT, design of experiments, or similar).
		Element 36. Confirm that modeling and simulation met test objectives so as to augment test data and ensure adequacy of evaluation. Identify how accredited modeling and simulation (including the V&V process) should be used to supplement live test data.
	Competency 13. Validation of Test Results	**Element 37.** Determine whether the collected data are sufficient to accurately and completely support established measurability metrics (e.g., effectiveness, suitability, survivability).
		Element 38. Determine whether the data collected via modeling and simulation tools are sufficient to adequately supplement data collected during live T&E to facilitate a credible evaluation of the system's (or system-of-systems') realistic survivability and lethality under combat conditions.
	Competency 14. Evaluative Conclusions	**Element 39.** Confirm that the collected test data can sufficiently and accurately support the evaluation framework in the approved TEMP.
		Element 40. Relate test results and evaluation conclusions to performance specification and performance results to report on operational significance.
		Element 41. Assess how hardware/software components are brought together to function properly as required in capability documents and what their performance brings to the larger system of systems designed to achieve required capability.
Reporting	**Competency 15.** Technical Reviews	**Element 42.** Determine and provide T&E input to all technical and programmatic reviews to support acquisition decision making.
	Competency 16. Lessons Learned	**Element 43.** Assess and document lessons learned on conduct of test data collection, analysis, and evaluation processes to ensure constant improvement of methods and processes.
		Element 44. Apply and/or adapt previous lessons learned from similar test activities/events.
	Competency 17. Documentation	**Element 45.** Provide the required programmatic T&E reports and/or presentation (such as quick-look analysis, test reports, analysis reports, software sprint reports, and evaluation reports) to capture test background, methodology, limitations, results, evaluation, and recommendations to support decision making.
		Element 46. Archive the data throughout the T&E planning, preparation, T&E execution, analysis, and evaluation phases to support future T&E efforts.
Professional	**Competency 18.** Customer Service	**Element 47.** Anticipate and support the needs of both internal and external customers of the acquisition community.
		Element 48. Deliver high-quality T&E products/services and commit to continuous improvement.
	Competency 19. External Awareness	**Element 49.** Maintain currency on local, national, and international T&E policies and trends that might affect the Department of Defense T&E acquisition community and associated stakeholders.
		Element 50. Assess T&E impact on the external environment (e.g., social, political, economic) and end user.

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		Element 51. Remain actively involved and partner with other elements in the acquisition process (e.g., systems engineering, cybersecurity).
	Competency 20. Flexibility	**Element 52.** Respond to changes and new information and rapidly adapt to changing circumstances impacting the T&E strategy, approach, and overall plan.
	Competency 21. Communication	**Element 53.** Listen effectively and clarify information as needed.
		Element 54. Make clear and convincing oral presentations of technical data, analysis, and evaluation for the intended audience.
		Element 55. Write in a clear, concise, organized, and convincing manner for the intended audience.
	Competency 22. Technical Credibility	**Element 56.** Apply and/or convey T&E principles, procedures, requirements, regulations, and policies related to specialized technical competencies and/or needed by program decision makers.
		Element 57. Pursue self-development to advance technical and management skill sets and prepare for future advancement and changing technologies.
		Element 58. Maintain currency of technical knowledge, skills, and certifications.
	Competency 23. Critical Thinking	**Element 59.** Independently and objectively anticipate, identify, and analyze challenges/problems, weighing relevance and accuracy of information to affect solutions.
		Element 60. Generate and evaluate alternative T&E strategies and solutions.
	Competency 24. Professional Ethics	**Element 61.** Provide unbiased T&E results, analysis, and evaluation.
		Element 62. Exhibit personal conduct in accordance with Department of Defense ethical standards.
	Competency 25. Leadership and Management	**Element 63.** Hold self and others accountable for measurable, high-quality, timely, and cost-effective data, and unbiased T&E results.
		Element 64. Determine objectives, set priorities, delegate work to the right person/group, and monitor progress.
		Element 65. Accept responsibility for his/her team mistakes and shortfalls.
		Element 66. Make well-informed, effective, and timely decisions, even when data are limited or solutions produce negative consequences.
		Element 67. Anticipate and articulate implications of decisions, test, and evaluation results.
		Element 68. Inspire and foster team building and partnering.
		Element 69. Provide the vision and strategic thinking and planning necessary to ensure all the necessary resources are leveraged to the extent possible and available when needed.