

Appendix A: T&E workforce competency model

Table 19. The 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 platforms, new technology, product maturity that includes hardware/ software) based upon likelihood and consequence of occurrence to test strategy/approach and impact to the overall program plan and schedule along with mitigation recommendations.
		Element 2. Develop risk mitigation for T&E risk factors in accordance with 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, Information Assurance, Environmental, Safety and Occupational Health and concept of employment/operation) to identify evaluation criteria to support T&E planning efforts.
		Element 5. Determine data requirements to assess evaluation criteria for assessing the system performance requirements, (e.g. identify Critical Technical Parameters, software maturity levels, Measure of Effectiveness, Measure of Suitability) to support evaluation of Critical Operational Issues, Key Performance Parameters, and Key System Attributes.
		Element 6. Determine necessary T&E infrastructure requirements (people/ knowledge, funding, T&E processes, facilities/ranges, instrumentation and associated support, Software Systems Integration Labs, Modeling & Simulation) and identify shortfalls that will require investments to meet T&E infrastructure sufficiency.
	Competency 3. Program T&E Strategy Development	Element 7. 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.
		Element 8. Develop and document the test and evaluation

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		strategy that integrates policy, program requirements, cost and resource estimates, evaluation framework and the T&E schedule to accomplish program goals.
		Element 9. Identify all organizations and activities that have roles and responsibilities in providing for or overseeing the test and evaluation strategy that supports a program acquisition life cycle.
		Element 10. 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 test and evaluation strategy, approach, and the overall program plan.
		Element 11. Translate the test and evaluation strategy into the appropriate test document (e.g., Test and Evaluation Strategy (TES), Test and Evaluation Master Plan (TEMP), Test Plan) including identification of all the required resources to ensure the strategy is executable and supports the overall program plan and systems engineering master plan.
	Competency 4. Test Cost Estimating	Element 12. Provide financial cost estimates for T&E support to ensure T&E resources are available during development and production of the system lifecycle.
Preparation	Competency 5. Coordination of T&E Activities and Events	Element 13. Interact with all organization/activities that require information/ activity exchange to successfully complete the test planning as enumerated in the Test and Evaluation Master Plan.
		Element 14. 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) to ensure effective completion of test events.
		Element 15. Execute tasking orders and funding streams to commit resources as requested, when and where required to complete T&E activities/events.
	Competency 6. Test Readiness	Element 16. Verify readiness of resources (e.g., facilities, trained operators and testers, properly configured test products/software/systems/platforms and instrumentation) for T&E program execution.
		Element 17. 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 18. Comply with and implement policies and procedures (e.g., safety, environmental) required to successfully conduct test activity.
		Element 19. Assess all T&E related factors (resources and product maturity including hardware/software) to determine system/test article readiness (e.g. Developmental Test Rea-

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		diness Reviews and Operational Test Readiness Reviews) before the starting the test.
Test Execution	Competency 7. Risk Management	Element 20. 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 factors/conditions.
		Element 21. Confirm data collection tools are valid, operators are trained, and system under test is configured as required to execute the test events and collect required data.
	Competency 8. Test Control Management	Element 22. 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 23. 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.
		Element 24. Control the test schedule to complete scenarios and scripts within boundaries of test plan and to optimize collection of data to support evaluation objectives.
		Element 25. Verify all required and expected Raw Test Data (i.e. forms, electronic tapes, sensors, etc) are secure, collected, documented and archived along with descriptions of data to assure completeness of data collected.
	Competency 9. Data Management	Element 26. Ensure validity of collected test data to meet test objectives in support of analysis and evaluation.
		Element 27. 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 28. Translate outputs from test instrumentation systems, data acquisition system methods and formats, capabilities and operation to verify and validate test data set.
		Element 29. Identify gaps and variances in raw data to determine data voids that may degrade analysis and evaluation.
	Competency 11. Data Reduction and Assimilation	Element 30. Reduce, translate and analyze raw data into organized and meaningful data products to support evaluation and reporting.
		Element 31. 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 32. Align data to support specific test objective in support of the overall evaluation.
Evaluation	Competency 12. Determination of Test Adequacy	Element 33. Confirm that the tests conducted support the stated test objectives (i.e. does the product satisfy system requirements) to ensure adequacy of evaluation.

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	Competency 13. Validation of Test Results	Element 34. Confirm that modeling and simulation met test objectives to ensure adequacy of evaluation.
		Element 35. Determine if the collected data are sufficient to accurately and completely support measurability metrics (e.g. effectiveness, suitability, survivability etc).
		Element 36. Determine if the data collected via M&S tools are sufficient to adequately supplement data collected during live T&E to facilitate a credible evaluation of the system (or system-of-systems) under test.
	Competency 14. Evaluative Conclusions	Element 37. Confirm that the collected data can sufficiently and accurately support the evaluation framework in the Test & Evaluation Master Plan.
		Element 38. Relate test conclusion to performance specification and performance results to report on operational significance.
		Element 39. Evaluate how hardware/software components are brought together to function properly as required in capability documents and what its performance brings to the larger System of Systems or Family of Systems designed to achieve required capability.
Reporting	Competency 15. Technical Reviews	Element 40. Determine and provide T&E input to all technical and programmatic reviews to support decision-making.
	Competency 16. Lessons Learned	Element 41. Assess and document lessons learned on conduct of test data collection, analysis and evaluation processes to ensure constant improvement of methods and processes.
	Competency 17. Documentation	Element 42. Provide the required programmatic T&E reports and/or presentation (such as test reports, analysis reports and evaluation reports) to capture test background, methodology, limitations, results, evaluation, and recommendations to support decision making.
		Element 43. 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 44. Anticipate and support the needs of both internal and external customers of the acquisition community.
		Element 45. Deliver high quality T&E products/services and commit to continuous improvement.
	Competency 19. External Awareness	Element 46. 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 47. Assess T&E impact on the external environment (e.g. social, political, economic) and end user.
		Element 48. Remain actively involved and partner with other elements in the acquisition process (e.g., systems engineering, information assurance).

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	Competency 20. Flexibility	Element 49. Respond to changes and new information and rapidly adapt to changing circumstances impacting the test and evaluation strategy, approach, and overall plan.
	Competency 21. Communication	Element 50. Listen effectively and clarify information as needed.
		Element 51. Make clear and convincing oral presentations of technical data, analysis, and evaluation for the intended audience.
		Element 52. Write in a clear, concise, organized, and convincing manner for the intended audience.
	Competency 22. Technical Credibility	Element 53. 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 54. Pursue self-development to advance technical and management skill sets and prepare for future advancement and changing technologies.
		Element 55. Maintain currency of technical knowledge and skills.
	Competency 23. Critical Thinking	Element 56. Independently and objectively anticipate, identify, analyze challenges/problems, weighing relevance and accuracy of information to affect solutions.
		Element 57. Generate and evaluate alternative T&E strategies and solutions.
	Competency 24. Professional Ethics	Element 58. Provide unbiased T&E results, analysis, and evaluation.
		Element 59. Exhibit personal conduct in accordance with Department of Defense ethical standards.
	Competency 25. Leadership and Management	Element 60. Hold self and others accountable for measurable, high quality, timely, and cost effective data, and unbiased test and evaluation results.
		Element 61. Determine objectives, sets priorities, delegates work to the right person/group, and monitors progress.
		Element 62. Accept responsibility for his/her team mistakes and shortfalls.
		Element 63. Make well-informed, effective and timely decisions, even when data are limited or solutions produce negative consequences.
		Element 64. Anticipate and articulate implications of decisions, test, and evaluation results.
		Element 65. Inspire and foster team building and partnering.
		Element 66. 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.