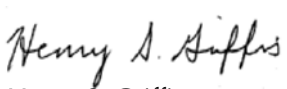
Test and Evaluation (T&E) Workforce Competency Assessment Report

Brooke Lasley-Hunter

CRM D0025930.A1/Final
September 2011

Approved for distribution: September 2011



Henry S. Griffis
Director, Defense Workforce Analyses
Resource Analysis Division

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Executive summary

In response to a request from the Director of Human Capital Initiatives (HCI) for the Department of Defense's (DoD) Acquisition, Technology, and Logistics (AT&L) workforce, CNA is working with HCI and workforce representatives to develop competency models for each of the major career fields within the AT&L workforce. This report focuses on the competencies identified for the Test and Evaluation (T&E) career field.

T&E workforce challenges

The demand for T&E expertise will remain strong as the acquisition community supports major acquisition programs, addresses Joint Interoperability Emphasis, ensures Information and System Assurance, and adapts to Baby Boomer Departure. The loss of experienced T&E workforce members represents increased performance risk associated with T&E functions that ensure high quality, affordable, supportable, and effective defense systems are delivered.

Approach

Together, HCI, T&E leadership and subject matter experts (SMEs), with guidance from CNA, developed and validated a model of performance consisting of competencies determined to be necessary to meet T&E's mission goals (presented in Appendix A). We used the model to create a competency assessment, in which we invited employees that perform T&E functions to participate. Respondents reported on their proficiency on each competency element. They also indicated how critical each competency element was to their job. Employees indicated how frequently they perform each competency element and responded to a series of demographic and intentions questions.

Competency analysis

Approximately 10,700 employees were invited to participate in the T&E workforce assessment. Slightly more than 3,300 employees participated in the competency assessment across all workforce segments, which represents 31 percent of the employees asked to participate in the T&E workforce assessment.

We used average employee criticality and frequency ratings to determine the relative importance of competencies to assessment respondents across career levels. We then calculated mean proficiency ratings for each competency.

Findings

We found that the relative importance of most competencies increases with increasing career level. Competencies determined to be highly important to all T&E respondents, by career level, are presented in Figure 1. Results across service segments are similar. We found minor differences between service and 4th Estate responses as it relates to importance. There are several competencies which T&E leaders expressed are critical to the T&E career field that were rarely identified as highly important to the various career levels and segments: Data Verification and Validation, Data Reduction and Assimilation, Determination of Test Adequacy, Validation of Test Results, and Evaluative Conclusions.

Results

Most service respondents report *basic* to *advanced* proficiency in most competencies they identified as highly important to their respective segments. Most 4th Estate respondents report *basic* to *expert* proficiency in the competencies they identified as highly important. All respondents reported relatively higher proficiency in specific professional competencies: Communication, Professional Ethics, and Leadership and Management.

We recommend T&E leaders consider taking steps to inform/emphasize to the workforce the competencies they deem to be of high, medium, and low importance to T&E respondents. We also recommend T&E leaders further investigate the proficiency of the workforce for competencies of particular concern to them. These investigations may lead to the identification of proficiency gaps.

Finally, we recommend that a strong emphasis be placed on the development of professional competencies given the importance that respondents placed on them.

Figure 1. Most important competencies to T&E respondents, by career level

Unit of Competence		Competencies	Entry	Journey	Senior
Planning	1	Risk Identification		X	X
	2	Capabilities Assessment		X	X
	3	Program T&E Strategy Development			X
	4	Test Cost Estimating			X
Preparation	5	Coordination of T&E Activities and Events		X	X
	6	Test Readiness		X	X
Test Execution	7	Risk Management		X	X
	8	Test Control Management	X	X	X
	9	Data Management		X	X
Analysis	10	Data Verification and Validation			
	11	Data Reduction and Assimilation			
Evaluation	12	Determination of Test Adequacy		X	X
	13	Validation of Test Results			
	14	Evaluative Conclusions			
Reporting	15	Technical Reviews			
	16	Lessons Learned			X
	17	Documentation		X	X
Professional	18	Customer Service		X	X
	19	External Awareness			X
	20	Flexibility			X
	21	Communication	X	X	X
	22	Technical Credibility	X	X	X
	23	Critical Thinking	X	X	X
	24	Professional Ethics	X	X	X
	25	Leadership and Management	X	X	X

The T&E certification levels held by assessment respondents who provided their career level are as follows:
Entry-level respondents: 83% Level 1 certified, 15% Level 2 certified, 2% Level 3 certified
Journey-level respondents: 34% Level 1 certified, 36% Level 2 certified, 31% Level 3 certified
Senior-level respondents: 9% Level 1 certified, 14% Level 2 certified, 77% Level 3 certified

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Section 1: Background and model overview

Personnel challenges within the AT&L community must be addressed in order for the DoD to effectively perform its mission. As part of the AT&L workforce, the T&E career field is responsible for planning and conducting tests and evaluating results for prototype, new, or modified weapons; command, control, communications, computers, intelligence, surveillance and reconnaissance; and IT systems. T&E emphasis areas include interoperability, information and system assurance, reliability and maintainability, and enhanced use of modeling and simulation.

The fundamental purpose of T&E is to provide knowledge to assist in managing the risks involved in developing, producing, operating, and sustaining systems and capabilities. T&E provides knowledge of system capabilities and limitations to the acquisition community for use in improving the system performance, and the user community for optimizing system use and sustainment in operations. T&E enables the acquisition community to learn about limitations (technical or operational) of the system under development, so that they can be resolved prior to production and deployment.[1]

Rapid changes in the acquisition environment, retirement eligibility of baby boomers, and potential talent shortages threaten the strength and stability of AT&L to meet its mission goals. Acquisition personnel are a key focus of government-wide initiatives to enhance recruiting, training, and retention.[2]

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[1] Defense Acquisition Guidebook, Jul. 29, 2011 (https://acc.dau.mil/CommunityBrowser.aspx?id=315922)

[2] Department of Defense, Acquisition, Technology & Logistics, *AT&L Human Capital Strategic Plan v3.0,* 2007.

This report presents the most recent assessment of the competencies of the AT&L T&E career field, (henceforth referred to as the T&E workforce), which consists of two main groups of employees: Test and Evaluation coded (Datamart) and NON Test and Evaluation coded (NON T coded) employees[3].

The Office of Personnel Management (OPM) describes a competency as "an observable, measurable pattern of skills, knowledge, abilities, behaviors and other characteristics that an individual needs to perform work roles or occupational functions successfully." OPM's definition of a competency is the foundation on which AT&L workforce competency models are built. The T&E workforce competency-based assessment described here aligns with the AT&L Human Capital Strategic Plan and is one element of an approach by the Human Capital Initiatives (HCI) Office to prepare the AT&L workforce for the future.[4]

The T&E workforce assessment is part of a larger competency assessment program addressing several career fields within the AT&L community.

Research objectives

The research goals for the overall AT&L Competency Program are[5]:

[3] "Datamart" represents those T&E Coded persons from Datamart that were automatically invited to participate in the assessment. "NON T" represents those additions from the Services and 4th Estate that were added and invited to participate in the assessment.

[4] Ken Krieg, Under Secretary of Defense for Acquisition, Technology & Logistics, *AT&L Human Capital Strategic Plan v3.0,* 2007.

[5] Department of Defense, Acquisition, Technology & Logistics, *AT&L Human Capital Strategic Plan v3.0,* 2007.

- AT&L Goal-1: Define the competencies required to deliver (needed) capabilities
- AT&L Goal-2: Assess the workforce to identify current and future gaps

The T&E expert panel provided additional guidance on specific goals for the T&E workforce. The T&E-specific research goals are:

- T&E Goal-1: Develop a profile of the T&E workforce
- T&E Goal-2: Assess the current capability of the T&E workforce
- T&E Goal-3: Describe how those capabilities are distributed across various functional groupings (i.e., workforce community, military/civilian status, etc.)

The competency model used for this assessment satisfies the first AT&L goal. The T&E goals satisfy the second AT&L goal which we discuss in subsequent chapters of this report.

Model components

AT&L competency models have both a technical and a professional component. Technical competencies are functional-specific competencies associated with a career field (e.g., Risk Identification). Professional competencies are leadership, relational, cognitive, and management-focused and can be applied to all career fields (e.g., Communication). Competency models contain high-level units of competence that hold more descriptive competencies with concise descriptions of behaviors and the associated goal of the behavior needed to demonstrate the competency (referred to as competency elements). In addition, competencies often include short statements about the knowledge required to perform the behaviors (referred to as knowledge items).

Model development

The T&E competency model was developed and validated in four phases. In **Phase I,** the competency assessment model development phase, career field leadership served as an expert panel (EP). They identified the behaviors, skills, characteristics, and knowledge they believe are required to be a successful T&E employee. Through successive discussions between T&E leadership and CNA, this information was developed into a competency model framework, which was then used to solicit more detailed competency information from a larger group of subject matter experts (SMEs).

At the end of Phase I, EP members identified 265 successful T&E employees from all representative DoD services and agencies to serve as SMEs and to support development of a model from the framework. Criteria to serve as a SME ensured that participants represented the entire T&E workforce population and that they were experienced, superior employees. This ensured that the final competency model would accurately reflect successful performance criteria.

In **Phase II**, SMEs were asked to provide data about what makes them successful in their jobs. The CNA research team devised a multifaceted approach to collecting the data. Use of CNA's online data collection tool facilitated collection of demographic information, framework validation, and descriptions of key situations. T&E SMEs were first asked to provide demographic information. SMEs were also asked to add or suggest removal of competencies, elements, and knowledge items. Finally, a structured set of questions asked SMEs to compare their job responsibilities with the framework of competencies and provide examples from their own experiences of successful job performance. This process allowed CNA to collect both qualitative and quantitative data needed to validate competencies required for superior performance. Feedback was collected from 106 T&E SMEs.

In **Phase III,** CNA worked with T&E leadership and workforce experts to decide how to use the information provided by the

SMEs to refine the T&E competency framework developed by the expert panel. CNA used this resulting competency model to build a web-based assessment tool to capture workforce-wide assessment data.

The T&E competency model consists of 66 elements and 25 competencies, all organized into seven units of competence. Figure 2, below, shows the final T&E competency model and the detailed elements are listed in Appendix A. The Phase IV assessment of the T&E workforce used this competency model.

Figure 2. T&E Competency Model

Competencies in the **Planning** Unit of Competence		Competencies in the **Preparation** Unit of Competence		Competencies in the **Test Execution** Unit of Comptence		Competencies in the **Analysis** Unit of Competence		Competencies in the **Evaluation** Unit of Competence		Competencies in the **Reporting** Unit of Competence		Competencies in the **Professional** Unit of Competence	
1	Risk Identification	5	Coordination of T&E Activities and Events	7	Risk Management	10	Data Verification and Validation	12	Determination of Test Adequacy	15	Technical Reviews	18	Customer Service
2	Capabilities Assessment	6	Test Readiness	8	Test Control Management	11	Data Reduction and Assimilation	13	Validation of Test Results	16	Lessons Learned	19	External Awareness
3	Program T&E Strategy			9	Data Management			14	Evaluative Conclusions	17	Documentation	20	Flexibility
4	Test Cost Estimating											21	Communication
												22	Technical Credibility
												23	Critical Thinking
												24	Professional Ethics
												25	Leadership and Management

In **Phase IV,** CNA sent the T&E competency assessment to approximately 10,700 T&E employees. The analysis of employee-provided proficiency and importance ratings are described in this report.

Survey approval

The Director of HCI submitted the Systems Planning, Research Development, and Engineering (SPRDE) assessment survey to

the Defense Manpower Data Center (DMDC) and Washington Headquarters Services (WHS) for survey approval in late 2009. The SPRDE assessment survey became the core template which the T&E assessment was modeled after. We received survey approval in July 2010, under WHS survey license number DD-AT&L (AR) 2431.

Section summary

We developed the Competency Model for the T&E workforce using the same process used for each other DoD Acquisition workforce. This process starts with a small group of EP members who develop a framework for the model. The process then expands the audience to a larger group of SMEs from across the workforce, who validate the content in the framework to produce the recommended model. Finally, we assess the still broader workforce population against this model. This final assessment provides further validation of the model, as well as demographic, proficiency, and importance ratings. The assessment survey was approved, prior to the launch of the assessment, by both DMDC and WHS.

Section 2: Rating and analysis methodology

The original intent of this assessment was to conduct as close to a T&E census as possible rather than a sampling of employees. Although we received over 3,300 assessment responses, the response rate did not achieve a census level. This was especially true for supervisors. The response rate forced changes in our planned methodology, in order to understand the degree to which the participants are reflective of the population. Therefore, our discussion of methodology starts with a discussion of the observed participation rates.

Participation rates

Overall, 31 percent of the T&E workforce contributed in some way to the assessment. Across all services and agencies, employees completed 3,365 self-assessments and supervisors assessed 678 employees, not all of whom participated in the assessment. The T&E workforce has employees in all three service departments (Air Force, Army, and Navy) as well as in several 4th Estate agencies (i.e., the Business Transformation Agency (BTA), the Defense Information Systems Agency (DISA), and the Missile Defense Agency (MDA)), as well as the Office of the Secretary of Defense (OSD) personnel. Participation rates for the overall T&E workforce and for each of the four segments of the workforce; Air Force, Army, Navy, and 4th Estate, are shown in Table 1.

As we previously mentioned, the 31 percent of the workforce that responded needs to be a random sample in order to extrapolate to the workforce as a whole. In the demographic dimensions that we were able to explore, we found no major evidence that our sample is not random. However, caution should still be exercised in extrapolating these results to represent the entire workforce. These results **do** represent the 31 percent of the workforce who responded to the survey.

Table 1. Participation rates by T&E workforce segment

	T&E-All		Air Force		Army		Navy		4th Estate	
Final Assessment Status	**Count of Participants**	**%**	**Count of Participants**	**%**	**Count of Participants**	**%**	**Count of Participants**	**%**	**Count of Participants**	**%**
Number of People **Invited**	10,689	100	3,943	100	2,636	100	3458	100	649	100
Completed or Partially Completed **Employee** Assessments	3,365	31	947	24	966	37	1085	31	354	55
Completed or Partially Completed **Supervisory** Assessments	678	6	150	4	225	9	183	5	111	17
Completed or Partially Completed **Employee and Supervisory** Assessments	505	5	104	3	171	6	125	4	101	16

T&E-All totals represent the total number of assessments received, including respondents that did not identify themselves with one of the four workforce segments.

Methodology changes driven by participation rates

Changes in the data used for analysis

We have used a multi-rater approach for some prior DoD Acquisition workforce assessments, by capturing criticality and proficiency ratings for each employee from both the employee and his or her supervisor. The response rate for paired T&E employee-supervisor assessments was, however, too low to provide sufficient data for analysis. Therefore, we modified our methodology to use only employee responses. This approach provides the largest consistent set of responses for our analysis. The number of employee responses is reasonably representative of the overall T&E workforce population. The results are, however, less verifiable than employee-supervisor paired responses, because the employee proficiency and criticality responses have not been validated against supervisor responses. See the section on ***Data used for analysis*** for a further discussion of this topic.

Changes to how data is aggregated and reported

In this report, we provide results at the overall T&E workforce level and for specific workforce segments. This methodology for data aggregation and reporting eliminates most of the problems associated with low response analysis which require masking of responses due to privacy and confidentiality issues.

Competency ratings

Employees rated their own proficiency for each element of the competency model, how critical they believe the competency element is in performing their current job, and how frequently they use that competency element. Each employee's supervisor was also asked to rate the proficiency and criticality of the employee for each element in the competency model. Behavioral descriptions for each competency element assisted the participant in selecting the most appropriate rating for each element. Each rating scale contained five usable ratings, enumerated one through five, and one rating of zero, which indicated that the employee or supervisor could not respond for this element and for this rating category (proficiency, criticality, or frequency). We excluded all zero ratings in calculating average response rates. The rating scales used are below:

Criticality: How critical is this activity in your job? (Employee) / How critical is this behavior to the employee whom you are rating? (Supervisor)

0. N/A: Not needed in my job
1. Not Critical
2. Somewhat Critical
3. Fairly Critical
4. Very Critical
5. Extremely Critical

Proficiency: How proficient are you at the competency element behaviors? (Employee) / How proficient is the employee whom you are rating? (Supervisor)

0. No Exposure to or awareness of this competency
1. Awareness: Applies the competency in the *simplest* situations
2. Basic: Applies the competency in *somewhat complex* situations
3. Intermediate: Applies the competency in *complex* situations
4. Advanced: Applies the competency in *considerably complex* situations
5. Expert: Applies the competency in *exceptionally complex* situations

Frequency: How often do you do this activity in your job? (Employee only)

0. Never: Not needed in my job
1. Almost Never
2. Rarely
3. Occasionally
4. Frequently
5. Very Frequently

Career level

We asked employees to select a career level from the following three options:

Entry: Employees in Entry-level positions generally understand the competency principals and can execute with guidance. Typical Years of Experience: 0-2 years of test and evaluation experience.

Journey: Employees in Journey-level positions are able to perform on their own with some/limited guidance. At this level, they are gaining depth and different office/agency/mission perspectives. Typical Years of Experience: 3-5 years of test and evaluation experience.

Senior: Employees in Senior-level positions provide expert advice to management, have extensive practical application and experience across different offices/agencies/missions, and/or serve at the management/executive level. May lead teams and organizations composed of entry and Journeyman levels. Typical Years of Experience: 6+ years of test and evaluation experience.

Analysis of importance

We asked employees to rate the criticality and frequency of use of each competency element against a standard five-point scale. We computed the mean of both ratings, by competency and T&E workforce segment (i.e., Air Force, Army, Navy, and 4th Estate) in order to assign relative importance. We categorized competencies as high, medium, or low based on their mean criticality and frequency values. We also computed mean criticality and frequency ratings by career level within each segment and categorized them according to relative importance.

In order to determine how many competencies lie within each importance category (high, medium, or low), we compared mean criticality against mean frequency ratings. Comparing high importance competencies between segments allowed us to identify similarities and differences between these four groups of respondents. Comparing mean criticality and frequency ratings across career levels within each segment grouping revealed the relative importance of competencies based on career progression.

Prior to analyzing importance data, we eliminated any responses that did not include a value of one through five for criticality or frequency of use and calculated the sample sizes for importance of each competency by counting respondents who provided

reliable frequency or criticality responses at the competency element level. Eliminating responses using our validation criteria (outlined separately) changed the sample sizes for each question in the assessment.

Analysis of proficiency

We analyzed proficiency data received from all respondents by T&E segment. We compared mean proficiency levels across career levels to determine the reported proficiency status for each. We used the same process to remove incomplete/invalid data from our proficiency data set as we did for our importance analysis.

Data used for analysis

We obtained only 505 sets of paired responses from an employee and his or her supervisor, out of the 10,689 T&E workforce members invited to take the assessment. If we were to perform our analysis using the multi-rater approach, this low level of response would be insufficient for the level and types of analysis expected by T&E workforce management and would force us to mask substantial portions of any report, due to privacy and confidentiality restrictions.

To ensure that the data set contained reliable data for analysis, we validated the data set and excluded the following scenarios from the analysis:

- *If the employee selected 0 (not needed in my job) in the frequency or criticality rating for an element.*
- *If the employee selected 0 (no Exposure to or awareness of this competency) in the proficiency rating for an element.*
- *If the criticality, proficiency, or frequency ratings were blank for an element.*
- *If the responding employee was identified as a contractor by ".ctr" in their email address.*

- *If a systematic response pattern was identified (i.e., AAA, ABA, ABB, etc).*

Section summary

Overall, 31 percent of the T&E workforce contributed to the assessment, completing 3,365 self-assessments, with reasonably consistent response rates across the service departments (i.e., Air Force, Army, and Navy) and slightly higher response rates among 4th Estate agencies. The lower than expected response rates, especially from supervisors, dictated several methodological changes, including:

- Only employee responses were used for analysis,
- Results were reported for workforce segments which, in some cases, are aggregated at a higher level than planned.

The methodologies for analysis of importance and proficiency are consistent with the other DoD Acquisition workforces, and the rating scales used are identical.

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Section 3: Workforce demographics

Respondents were asked a series of demographic and intentions questions. These questions and the selections available to each respondent are shown in Appendix B. Supervisors were presented the same demographic questions when they responded as an employee, but provided no demographic input in their supervisory responses.

We found that the data we collected is reasonably representative of the T&E workforce. Our results closely match demographic data published in the AT&L Workforce Strategy in 2009:[6]

- We found the civilian (and military) percentages to be 84 percent (and 16 percent) which is similar to the 78 percent (and 22 percent) found by AT&L in the population.
- We found that 45 percent of respondents were Level 3 certified which, again, is similar to the 42 percent found by AT&L in the population.
- Ninety-three percent of T&E assessment respondents report holding a Bachelor's Degree or higher compared to the 94 percent reported in the 2009 AT&L data.

What follows helps create a profile of the T&E workforce obtained from their responses to select demographic questions.

[6] https://acc.dau.mil/adl/en-US/364230/file/50213/16%20-%20ATL%20HCSP%20Sec%20Apdx%208%20TestEval%20v47%20D.pdf

Experience

Just over half of T&E respondents have 10 years of test and evaluation experience or less.

Results presented in Table 2 are derived from the following demographic question: *How many years of experience have you had in T&E?*

The majority of T&E respondents have 10 years of test and evaluation experience or less (52 percent). The Air Force segment has the largest percentage of respondents with less than 5 years of experience (40 percent). Less than a fifth of T&E respondents have more than 25 years of test and evaluation experience.

Table 2. Test and Evaluation experience responses by T&E segment

	T&E-All		Air Force		Army		Navy		4th Estate	
Years of Experience	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%
Less than 5	986	29.4	379	40	209	21.6	300	27.6	98	27.7
5 to 10	768	22.9	205	21.6	259	26.8	221	20.4	83	23.4
11 to 15	426	12.7	111	11.7	116	12.0	129	11.9	70	19.8
16 to 25	686	20.5	171	18.1	209	21.6	235	21.7	71	20.1
More than 25	486	14.5	81	8.6	173	17.9	200	18.4	32	9.0
All Respondents	3352	100.0	947	100.0	966	100.0	1085	100.0	354	100.0

Military vs. civilian status

Just over half of T&E respondents are federal civilians with no prior military experience.

Results presented in Table 3 are derived from the following demographic question: *What is your current status?*

Most of the T&E respondents consist of federal civilians (84 percent) and most civilian respondents have no prior military experience. Slightly less than half of the T&E respondents (47 percent) have military experience. Most respondents with military experience are civilians while the remaining respondents are active duty military. The Air Force segment has

the largest percentage of respondents with military experience (66 percent).

Table 3. Military versus civilian responses by T&E segment

	T&E-All		Air Force		Army		Navy		4th Estate	
Military/Civilian Status	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%
Active Duty Military	548	16.3	337	35.6	25	2.6	141	13.0	45	12.7
Federal Civilian, No Prior Military Service	1761	52.5	321	33.9	605	62.6	683	62.9	152	42.9
Federal Civilian, Prior Military Service	1041	31.1	289	30.5	334	34.6	261	24.1	157	44.4
Unknown	2	0.1	0	0.0	2	0.2	0	0.0	0	0.0
All Respondents	3352	100.0	947	100.0	966	100.0	1085	100.0	354	100.0

Certification and career level

Slightly less than half of T&E respondents are Level 3 certified in the T&E acquisition specialty area.

Results presented in Table 4 are derived from the following demographic question: *What is your current certification level within T&E?*

Approximately 45 percent of T&E respondents are Level 3 certified in the T&E acquisition specialty area. The number of respondents within the Air Force segment is more evenly distributed between the three certification levels. Most respondents in both the Army and the Navy segments are Level 3 certified (61 percent and 51 percent, respectively). These T&E respondents have already attained the highest certification level possible. T&E management should consider creating an additional certification level in order to encourage employees to stay motivated and competitive.

Assessment results indicate that 18 percent of T&E respondents do not know their certification level or report that T&E certification is not applicable to their job. The 4th Estate segment has the largest percentage of respondents in this category (42 percent).

Table 4. T&E certification level responses by T&E segment

	T&E-All		Air Force		Army		Navy		4th Estate	
T&E Level	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%
One	676	20.2	282	29.8	135	14.0	196	18.1	63	17.8
Two	549	16.4	247	26.1	116	12.0	151	13.9	35	9.9
Three	1511	45.1	266	28.1	589	61.0	548	50.5	108	30.5
Don't Know - N/A	607	18.1	149	15.7	120	12.4	190	17.5	148	41.8
Unknown	9	0.3	3	0.3	6	0.6	0	0.0	0	0.0
All Respondents	3352	100.0	947	100.0	966	100.0	1085	100.0	354	100.0

Slightly less than half of T&E respondents hold certifications in acquisition specialties other than test and evaluation. Most respondents who are certified in another acquisition specialty area have one additional certification.

Results presented in Table 5 are derived from the following demographic question: *Are you currently certified in any other acquisition specialty? If so, please identify domain and level certified (one, two, or three).*

Just over half of T&E respondents are not certified in specialty areas other than test and evaluation (53 percent). T&E respondents who hold additional certifications have anywhere from one (70 percent) to eight additional certifications (less than one percent).

Table 5. Other certification responses by T&E segment

	T&E-All		Air Force		Army		Navy		4th Estate	
Level	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%
Number of respondents that hold certifications in acquisition specialty areas other than T&E	1516	45.2	549	58.0	389	40.3	457	42.1	121	34.2
Number of respondents that DO NOT hold a certification in an acquisition specialty area outside of T&E	1791	53.4	387	40.9	560	58.0	614	56.6	230	65.0
Unknown	45	1.3	11	1.1	17	1.7	14	1.3	3	0.8
All Respondents	3352	100.0	947	100.0	966	100.0	1085	100.0	354	100.0
Number of respondents that have the specified number of additional certifications										
Number of Certifications	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%
One	1058	69.8	333	60.7	274	70.4	363	79.4	88	72.7
Two	314	20.7	156	28.4	60	15.4	75	16.4	23	19.0
Three	107	7.1	49	8.9	40	10.3	13	2.9	5	4.1
Four	28	1.8	9	1.6	12	3.1	4	0.9	3	2.5
Five	8	0.5	2	0.4	3	0.8	1	0.2	2	1.7
Eight	1	0.1	0	0.0	0	0.0	1	0.2	0	0.0
All respondents with certifications in other acquisition specialty areas	1516	100.0	549	100.0	389	100.0	457	100.0	121	100.0

Just over half of T&E respondents are at the senior career level.

Employee participants were asked to provide their current career level. The results of what they provided are presented in Table 6.

Most T&E respondents are at the senior career level (54 percent). Over half of the respondents in the Army, Navy, and the 4th Estate segments are at the senior career level (59, 57, and 55 percent, respectively). A relatively smaller percentage of Air

Force segment respondents are in the senior career level category.

Table 6. Career level responses by T&E segment

	T&E-All		Air Force		Army		Navy		4th Estate	
Career Level	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%
Entry	477	14.2	182	19.2	91	9.4	155	14.3	49	13.8
Journey	768	22.9	242	25.6	223	23.1	209	19.3	94	26.6
Senior	1796	53.6	418	44.1	570	59.0	613	56.5	195	55.1
Unknown	311	9.3	105	11.1	82	8.5	108	10.0	16	4.5
All Respondents	3352	100.0	947	100.0	966	100.0	1085	100.0	354	100.0

Education

Almost all T&E respondents have achieved a bachelor's degree or higher.

Results presented in Table 7 are derived from the following demographic question: *What is your highest level of educational attainment?*

Most T&E respondents hold either a bachelor's degree (47 percent) or a master's degree (44 percent). The Army and Navy segments have the largest percentages of respondents whose highest level of educational attainment is a bachelor's degree (48 percent and 57 percent, respectively) and the Air Force segment has the largest percentage of respondents holding a master's degree (58 percent). A relatively small percentage of T&E respondents hold a doctoral degree (for T&E respondents as a whole and across the segments).

Table 7. Education level responses by T&E segment

	T&E-All		Air Force		Army		Navy		4th Estate	
Highest Level of Educational Achievement	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%
High School	93	2.8	25	2.6	18	1.9	22	2.0	28	7.9
Associate Degree	74	2.2	29	3.1	18	1.9	10	0.9	17	4.8
Bachelor's Degree	1572	46.9	335	35.4	462	47.8	620	57.1	155	43.8
Master's Degree	1488	44.4	528	55.8	419	43.4	400	36.9	141	39.8
Doctoral Degree	83	2.5	21	2.2	33	3.4	21	1.9	8	2.3
Other	19	0.6	3	0.3	6	0.6	5	0.5	5	1.4
Unknown	23	0.7	6	0.6	10	1.0	7	0.6	0	0.0
All Respondents	3352	100.0	947	100.0	966	100.0	1085	100.0	354	100.0

Workforce community

Most T&E respondents identify themselves with the T&E workforce community.

Results presented in Table 8 are derived from the following demographic question: *Please identify the workforce community with which you are most closely associated?*

As one might expect, the T&E workforce community was chosen most frequently (87 percent of responses), followed by the Systems Engineering and Program Management communities (both 3 percent). Information Technology/Information Management (IT/IM) received the fourth largest percentage of responses among all T&E respondents.

T&E, Systems Engineering, and Program Management are also the three most frequently selected workforce communities by T&E respondents across the service segments. T&E is the top response to this workforce community demographic question among 4th Estate segment respondents; however, the IT/IM community has the second highest percentage of respondents (12 percent) in this segment followed by the Systems Engineering community (5 percent).

Five percent of T&E respondents classified themselves as one of 20 named workforce community categories or as one of an

unknown number of other unnamed communities. We group these respondents as "Other/None."

Table 8. Workforce community responses by T&E segment

	T&E-All		Air Force		Army		Navy		4th Estate	
Workforce Community	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%
Information Technology/ Information Management	79	2.4	14	1.5	10	1.0	13	1.2	42	11.9
Program Management	86	2.6	42	4.4	16	1.7	23	2.1	5	1.4
Systems Engineering	98	2.9	30	3.2	5	0.5	53	4.9	10	2.8
Test and Evaluation	2916	87.0	808	85.3	870	90.1	954	87.9	284	80.2
Other/None	173	5.2	53	5.6	65	6.7	42	3.9	13	3.7
All Respondents	3552	100.0	947	100.0	966	100.0	1085	100.0	354	100.0

Other demographic and intentions data

Additional data were collected about assessment respondents. The remaining data—years of experience in acquisition, civilian grade level, military rank and years of experience, civilian years in the workforce, retirement program, years to retirement, and age category—are presented in Appendix C.

Section summary

The responses we received to the demographic portion of the competency assessment provide insight into the composition of the T&E workforce.

Results indicate that just over half of respondents have 10 years of test and evaluation experience or less. Also, just over half of respondents are federal civilians with no prior military experience. Slightly less than half of respondents are Level 3 certified in T&E. Almost all respondents are certified in T&E and almost half hold certifications in other acquisition specialty areas. We also found that just over half of respondents are at the Senior career level and that 93 percent of respondents in the T&E workforce have a bachelor's degree or higher.

Finally, 87 percent of T&E respondents identified themselves with the T&E workforce community. The second and third workforce communities for which we received responses from service segments are Systems Engineering and Program Management. IT/IM and Systems Engineering are the second and third top choices among 4th Estate segment respondents.

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Section 4: Relative importance of competencies by career level

Each assessment participant ranked the criticality and frequency of use for each of the 66 competency elements. We computed the mean criticality and the mean frequency of each competency, which we then used to assign relative importance. We categorize competencies in terms of importance as follows:

- Competencies that have **both a mean criticality rating AND a mean frequency rating of 3.0 or above** have ***high importance.***
- Competencies that have **either a mean criticality rating OR a mean frequency rating of 3.0 or above** have ***medium importance.***
- Competencies that have **both a mean criticality rating AND a mean frequency rating <u>below 3.0</u>** have ***lower importance.***

In this section we discuss the relative importance of competencies for the T&E workforce as a whole and by T&E segment (Air Force, Army, Navy, 4th Estate). We present relative importance for each segment by career level, highlighting the high and medium importance competencies.[7]

Important competencies within T&E-All

Our analysis of importance data across career levels for all T&E assessment responses (T&E-All) suggests that the relative importance of competencies generally increases with increasing

[7] Mean criticality and frequency values for T&E-All and each segment are presented in Appendix D.

career level. Some competencies increase in importance to respondents between Entry- and Journey-levels and others increase in importance between Journey- and Senior-level. However, some competencies are highly important to all three career levels, including both technical and professional competencies. We present our aggregate importance results in Table 9. In order to understand the relative importance of competencies to service and 4th Estate respondents we analyze importance by segment in the subsequent subsections.

Table 9. Relative importance of competencies for all T&E respondents, by competency and career level

#	Competency Name	Entry	Journey	Senior
1	Risk Identification	Lower	High	High
2	Capabilities Assessment	Lower	High	High
3	Program T&E Strategy Development	Lower	Lower	High
4	Test Cost Estimating	Lower	Lower	High
5	Coordination of T&E Activities and Events	Lower	High	High
6	Test Readiness	Medium	High	High
7	Risk Management	Medium	High	High
8	Test Control Management	High	High	High
9	Data Management	Medium	High	High
10	Data Verification and Validation	Lower	Medium	Medium
11	Data Reduction and Assimilation	Lower	Medium	Medium
12	Determination of Test Adequacy	Lower	Medium	High
13	Validation of Test Results	Lower	Lower	Medium
14	Evaluative Conclusions	Lower	Medium	Medium
15	Technical Reviews	Lower	Medium	High
16	Lessons Learned	Lower	Medium	High
17	Documentation	Lower	High	High
18	Customer Service	High	High	High
19	External Awareness	Lower	Lower	High
20	Flexibility	High	High	High
21	Communication	High	High	High
22	Technical Credibility	High	High	High
23	Critical Thinking	Medium	High	High
24	Professional Ethics	High	High	High
25	Leadership and Management	High	High	High

Shading indicates relative importance of each competency by T&E-All: green = high importance; yellow = medium importance; no shading = lower importance.

Important competencies within the Air Force segment

Importance increases with increasing career level for most competencies of high importance to Senior-level Air Force respondents; however, there are a few exceptions. Data Verification and Validation is of medium importance to Entry-

and Journey-level Air Force respondents, but it is less important to Senior-level Air Force respondents. Data Reduction and Assimilation, Validation of Test Results, and Documentation increase in importance to Air Force respondents between the Entry- and Journey-level and then decrease between Journey- and Senior-level. Risk Management, Test Control Management, Customer Service, Communication, Technical Credibility, Professional Ethics, and Leadership and Management are highly important to Air Force respondents at all three career levels (Table 10).

Table 10. Relative importance of competencies for T&E respondents in the Air Force segment, by competency and career level

#	Competency Name	Entry	Journey	Senior
1	Risk Identification	Lower	High	High
2	Capabilities Assessment	Lower	High	High
3	Program T&E Strategy Development	Lower	Lower	High
4	Test Cost Estimating	Lower	Lower	Medium
5	Coordination of T&E Activities and Events	Lower	High	High
6	Test Readiness	Medium	High	High
7	Risk Management	High	High	High
8	Test Control Management	High	High	High
9	Data Management	Medium	Medium	Medium
10	Data Verification and Validation	Medium	Medium	Lower
11	Data Reduction and Assimilation	Lower	Medium	Lower
12	Determination of Test Adequacy	Lower	Medium	Medium
13	Validation of Test Results	Lower	Medium	Lower
14	Evaluative Conclusions	Lower	Medium	Medium
15	Technical Reviews	Lower	Medium	High
16	Lessons Learned	Lower	Medium	Medium
17	Documentation	Lower	High	Medium
18	Customer Service	High	High	High
19	External Awareness	Lower	Lower	Medium
20	Flexibility	Medium	High	High
21	Communication	High	High	High
22	Technical Credibility	High	High	High
23	Critical Thinking	Medium	High	High
24	Professional Ethics	High	High	High
25	Leadership and Management	High	High	High

Shading indicates relative importance of each competency by career level: green = high importance; yellow = medium importance; no shading = lower importance.

Important competencies within the Army segment

Most competencies increase in importance with increasing career level among Army responses. However, 11 competencies (five technical and six professional) were identified as highly

important by all three career levels. These competencies include:

- Competency 2: Capabilities Assessment
- Competency 6: Test Readiness
- Competency 7: Risk Management
- Competency 8: Test Control Management
- Competency 9: Data Management
- Competency 18: Customer Service
- Competency 20: Flexibility
- Competency 21: Communication
- Competency 22: Technical Credibility
- Competency 24: Professional Ethics
- Competency 25: Leadership and Management

Program T&E Strategy Development, Lessons Learned, and External Awareness are of lower importance to Entry- and Journey-level Army respondents, but are highly important to Army respondents at the Senior-level. All competencies are considered highly important to Senior-level Army respondents except Data Verification and Validation, Data Reduction and Assimilation, and Validation of Test Results. We present all of our Army segment importance results in Table 11.

Table 11. Relative importance of competencies for T&E respondents in the Army segment, by competency and career level

#	Competency Name	Entry	Journey	Senior
1	Risk Identification	Medium	High	High
2	Capabilities Assessment	High	High	High
3	Program T&E Strategy Development	Lower	Lower	High
4	Test Cost Estimating	Medium	High	High
5	Coordination of T&E Activities and Events	Medium	High	High
6	Test Readiness	High	High	High
7	Risk Management	High	High	High
8	Test Control Management	High	High	High
9	Data Management	High	High	High
10	Data Verification and Validation	Lower	Medium	Medium
11	Data Reduction and Assimilation	Lower	Medium	Medium
12	Determination of Test Adequacy	Lower	Medium	High
13	Validation of Test Results	Lower	Lower	Medium
14	Evaluative Conclusions	Lower	Medium	High
15	Technical Reviews	Lower	Medium	High
16	Lessons Learned	Lower	Lower	High
17	Documentation	Medium	High	High
18	Customer Service	High	High	High
19	External Awareness	Lower	Lower	High
20	Flexibility	High	High	High
21	Communication	High	High	High
22	Technical Credibility	High	High	High
23	Critical Thinking	Medium	High	High
24	Professional Ethics	High	High	High
25	Leadership and Management	High	High	High

Shading indicates relative importance of each competency by career level: green = high importance; yellow = medium importance; no shading = lower importance.

Important competencies within the Navy segment

As we found in our analysis of other segment responses, most competencies show some increase in importance as career level increases. However, some competencies are considered to have the same level of importance to Entry-, Journey- and Senior-level Navy respondents. Competencies that are highly important to Navy respondents at all three career levels include Test Control Management, Flexibility, Communication, Technical Credibility, Professional Ethics, and Leadership and Management (Table 12).

Table 12. Relative importance of competencies for T&E respondents in the Navy segment, by competency and career level

#	Competency Name	Entry	Journey	Senior
1	Risk Identification	Lower	Medium	High
2	Capabilities Assessment	Lower	High	High
3	Program T&E Strategy Development	Lower	Lower	High
4	Test Cost Estimating	Lower	Lower	High
5	Coordination of T&E Activities and Events	Medium	Medium	High
6	Test Readiness	Medium	High	High
7	Risk Management	Medium	High	High
8	Test Control Management	High	High	High
9	Data Management	Medium	High	High
10	Data Verification and Validation	Medium	Medium	Medium
11	Data Reduction and Assimilation	Medium	Lower	Medium
12	Determination of Test Adequacy	Medium	Medium	High
13	Validation of Test Results	Lower	Lower	Medium
14	Evaluative Conclusions	Medium	Medium	Medium
15	Technical Reviews	Medium	Medium	High
16	Lessons Learned	Lower	Medium	High
17	Documentation	Medium	High	High
18	Customer Service	Medium	High	High
19	External Awareness	Lower	Lower	Lower
20	Flexibility	High	High	High
21	Communication	High	High	High
22	Technical Credibility	High	High	High
23	Critical Thinking	Medium	High	High
24	Professional Ethics	High	High	High
25	Leadership and Management	High	High	High

Shading indicates relative importance of each competency by career level: green = high importance; yellow = medium importance; no shading = lower importance.

Important competencies within the 4th Estate segment

Communication, Professional Ethics, and Leadership and Management were identified as highly important by Entry-level 4th Estate respondents. These three competencies are also considered highly important to Journey- and Senior-level 4th Estate respondents. The remaining competencies identified as highly important by Journey-level 4th Estate respondents include many of the other competencies in the T&E competency model (both technical and professional), but are a subset of the competencies identified as highly important to Senior-level 4th Estate respondents. All competencies were identified as highly important to Senior-level 4th Estate respondents except Data Verification and Validation, Data Reduction and Assimilation, and Validation of Test Results (Table 13).

Table 13. Relative importance of competencies for T&E respondents in the 4th Estate segment, by competency and career level

#	Competency Name	Entry	Journey	Senior
1	Risk Identification	Lower	Medium	High
2	Capabilities Assessment	Lower	High	High
3	Program T&E Strategy Development	Lower	High	High
4	Test Cost Estimating	Lower	High	High
5	Coordination of T&E Activities and Events	Lower	High	High
6	Test Readiness	Lower	High	High
7	Risk Management	Lower	High	High
8	Test Control Management	Lower	High	High
9	Data Management	Lower	High	High
10	Data Verification and Validation	Lower	Medium	Medium
11	Data Reduction and Assimilation	Lower	Medium	Medium
12	Determination of Test Adequacy	Lower	Medium	High
13	Validation of Test Results	Lower	Lower	Medium
14	Evaluative Conclusions	Lower	Medium	High
15	Technical Reviews	Lower	High	High
16	Lessons Learned	Lower	Medium	High
17	Documentation	Lower	High	High
18	Customer Service	Lower	High	High
19	External Awareness	Lower	Medium	High
20	Flexibility	Lower	High	High
21	Communication	High	High	High
22	Technical Credibility	Medium	High	High
23	Critical Thinking	Lower	High	High
24	Professional Ethics	High	High	High
25	Leadership and Management	High	High	High

Shading indicates relative importance of each competency according to each listed category: green = high importance; yellow = medium importance; no shading = lower importance.

Relative importance of competencies by career level for other demographic groupings

We analyzed several other groupings of importance and proficiency data: by Datamart and NON T position codes within the T&E workforce community: by IT, PM and SPRDE certification levels; and by military and civilian status. These results are presented in Appendix E.

Section summary

We classified competencies by their relative importance to the T&E workforce as a whole (T&E-All) and across segments and career levels. Through this analysis, we found that the relative

importance of competencies generally increases across career levels among T&E-All responses. However, within the Air Force segment, three competencies are of medium importance to Journey-level respondents, but of lower importance to Senior-level respondents.

Communication, Professional Ethics, and Leadership and Management (all professional competencies) were consistently determined to be highly important to T&E respondents across all segments and career levels. Technical Credibility was identified as highly important to all service respondents and Journey- and Senior-level 4th Estate respondents.

Entry-level respondents consistently identified more professional than technical competencies as highly important to their jobs. There was a high degree of overlap between Senior- and Journey-level respondents—most of the competencies considered highly important by Senior-level respondents were also considered highly important by Journey-level respondents. This was true overall, and for each segment except the Navy.

Data Verification and Validation, Data Reduction and Assimilation, Determination of Test Adequacy, Validation of Test Results, and Evaluative Conclusions were identified by T&E leaders as highly important competencies to the T&E discipline yet assessment respondents rarely identified these competencies as highly important. Given this finding, T&E management should consider providing a greater awareness of and/or emphasis on the importance of these competencies.

Section 5: Proficiency ratings

In this section we present the average proficiency ratings provided by assessment participants for all competencies in the T&E competency model. We display our results by segment and career level at the competency level. We finish our discussion by highlighting the proficiency of the highly important competencies.

Proficiency ratings of T&E-All respondents

Journey- and Senior-level proficiency responses for T&E-All are above 3.0 for most highly important competencies while most Entry-level T&E-All responses are below 3.0.

We summarize the mean proficiency results of high importance competencies by career level, as rated by all T&E respondents (T&E-All):

- *Entry-level:* Mean proficiency ratings are **between 2.0 (*basic*) and 3.0 (*intermediate*) for <u>five of seven</u> high importance competencies**. Professional Ethics and Leadership and Management are the only highly important competencies with mean proficiency ratings above 3.0.

- *Journey-level:* Mean proficiency ratings are **between 3.0 (*intermediate*) and 4.0 (*advanced*) for <u>11 of 15</u> high importance competencies.** The mean proficiency ratings for Risk Identification, Capabilities Assessment, Coordination of T&E Activities and Events, and Documentation fall slightly below 3.0.

- *Senior-level:* Mean proficiency levels are **between 3.0 (*intermediate*) and 4.0 (*advanced*) for <u>17 of 21</u> high importance competencies.** The mean proficiency ratings for Customer Service, Communication, Professional Ethics, and Leadership and Management are above 4.0.

We present our results in Table 14.

Table 14. Mean proficiency ratings for T&E-All respondents, by competency and career level

Unit of Competence	Competency Name	Entry	Journey	Senior	T&E-All
Planning	Risk Identification	2.28	2.91	3.69	3.29
	Capabilities Assessment	2.31	2.96	3.82	3.39
	Program T&E Strategy Development	2.16	2.78	3.64	3.22
	Test Cost Estimating	2.04	2.58	3.55	3.10
Preparation	Coordination of T&E Activities and Events	2.28	2.92	3.75	3.34
	Test Readiness	2.38	3.06	3.83	3.44
Test Execution	Risk Management	2.41	3.11	3.88	3.49
	Test Control Management	2.43	3.12	3.82	3.46
	Data Management	2.39	3.05	3.76	3.38
Analysis	Data Verification and Validation	2.23	2.80	3.50	3.16
	Data Reduction and Assimilation	2.25	2.82	3.51	3.17
Evaluation	Determination of Test Adequacy	2.28	2.85	3.62	3.26
	Validation of Test Results	2.15	2.67	3.42	3.07
	Evaluative Conclusions	2.21	2.84	3.60	3.24
Reporting	Technical Reviews	2.22	2.99	3.93	3.47
	Lessons Learned	2.35	3.05	3.78	3.41
	Documentation	2.31	2.99	3.73	3.36
Professional	Customer Service	2.42	3.18	4.03	3.60
	External Awareness	2.06	2.62	3.40	3.04
	Flexibility	2.54	3.23	3.93	3.57
	Communication	2.93	3.57	4.18	3.72
	Technical Credibility	2.71	3.26	3.89	3.57
	Critical Thinking	2.55	3.18	3.92	3.55
	Professional Ethics	3.17	3.78	4.33	4.03
	Leadership and Management	3.05	3.59	4.21	3.90

Shading of proficiency cells indicates relative importance of each competency by career level: green = high importance; yellow = medium importance; no shading = lower importance.

Proficiency ratings of Air Force respondents

Journey- and Senior-level proficiency responses for the Air Force segment are above 3.0 for most highly important competencies while most Entry-level Air Force responses are below 3.0.

The mean proficiency results of highly important competencies as rated by T&E Air Force respondents are as follows:

- *Entry-level:* Mean proficiency ratings are **between 2.0 (*basic*) and 3.0 (*intermediate*) for six of seven high importance competencies**. Professional Ethics is the only highly important competency with a mean proficiency rating above 3.0.

- *Journey-level:* Mean proficiency ratings are **between 3.0 (*intermediate*) and 4.0 (*advanced*) for 11 of 14 high importance competencies.** The mean proficiency ratings for Risk Identification, Capabilities Assessment, and Coordination of T&E Activities and Events fall slightly below 3.0.

- *Senior-level:* Mean proficiency levels are **between 3.0 (*intermediate*) and 4.0 (*advanced*) for 13 of 16 high importance competencies.** The mean proficiency ratings for Communication, Professional Ethics, and Leadership and Management are above 4.0.

We present our results in Table 15.

Table 15. Mean proficiency ratings for Air Force respondents, by competency and career level

Unit of Competence	Competency Name	Entry	Journey	Senior	T&E-All
Planning	Risk Identification	2.22	2.94	3.74	3.29
	Capabilities Assessment	2.31	2.97	3.90	3.39
	Program T&E Strategy Development	2.15	2.78	3.67	3.22
	Test Cost Estimating	1.83	2.41	3.35	3.10
Preparation	Coordination of T&E Activities and Events	2.19	2.94	3.72	3.34
	Test Readiness	2.29	3.06	3.86	3.44
Test Execution	Risk Management	2.46	3.17	3.96	3.49
	Test Control Management	2.36	3.11	3.84	3.46
	Data Management	2.37	2.98	3.70	3.38
Analysis	Data Verification and Validation	2.24	2.74	3.45	3.16
	Data Reduction and Assimilation	2.31	2.82	3.50	3.17
Evaluation	Determination of Test Adequacy	2.25	2.88	3.71	3.26
	Validation of Test Results	2.17	2.73	3.47	3.07
	Evaluative Conclusions	2.16	2.82	3.64	3.24
Reporting	Technical Reviews	2.24	2.98	3.96	3.47
	Lessons Learned	2.44	3.12	3.75	3.41
	Documentation	2.28	3.03	3.69	3.36
Professional	Customer Service	2.41	3.14	3.98	3.60
	External Awareness	2.04	2.63	3.44	3.04
	Flexibility	2.47	3.24	3.90	3.57
	Communication	2.97	3.62	4.22	3.72
	Technical Credibility	2.72	3.31	3.94	3.57
	Critical Thinking	2.50	3.17	3.94	3.55
	Professional Ethics	3.18	3.80	4.34	4.03
	Leadership and Management	2.98	3.60	4.25	3.90

Shading of proficiency cells indicates relative importance of each competency by career level: green = high importance; yellow = medium importance; no shading = lower importance.

Proficiency ratings of Army respondents

Journey- and Senior-level proficiency responses for the Army segment are above 3.0 for most highly important competencies while most Entry-level Army responses are below 3.0.

The mean proficiency results of highly important competencies as rated by T&E Army respondents are as follows:

- *Entry-level:* Mean proficiency ratings are **between 2.0 (*basic*) and 3.0 (*intermediate*) for ten of eleven high importance competencies**. Professional Ethics is the only highly important competency with a mean proficiency rating above 3.0.

- *Journey-level:* Mean proficiency ratings are **between 3.0 (*intermediate*) and 4.0 (*advanced*) for 13 of 16 high importance competencies.** The mean proficiency ratings for Risk Identification, Test Cost Estimating, and Coordination of T&E Activities and Events fall slightly below 3.0.

- *Senior-level:* Mean proficiency levels are **between 3.0 (*intermediate*) and 4.0 (*advanced*) for 18 of 22 high importance competencies.** The mean proficiency ratings of for Customer Service, Communication, Professional Ethics, and Leadership and Management are above 4.0.

We present our results in Table 16.

Table 16. Mean proficiency ratings for Army respondents, by competency and career level

Unit of Competence	Competency Name	Entry	Journey	Senior	T&E-All
Planning	Risk Identification	2.39	2.88	3.65	3.29
	Capabilities Assessment	2.47	3.00	3.86	3.39
	Program T&E Strategy Development	2.26	2.79	3.66	3.22
	Test Cost Estimating	2.42	2.75	3.62	3.10
Preparation	Coordination of T&E Activities and Events	2.33	2.96	3.78	3.34
	Test Readiness	2.51	3.07	3.82	3.44
Test Execution	Risk Management	2.61	3.03	3.83	3.49
	Test Control Management	2.68	3.09	3.83	3.46
	Data Management	2.61	3.08	3.81	3.38
Analysis	Data Verification and Validation	2.35	2.87	3.58	3.16
	Data Reduction and Assimilation	2.30	2.88	3.59	3.17
Evaluation	Determination of Test Adequacy	2.31	2.78	3.60	3.26
	Validation of Test Results	2.05	2.66	3.44	3.07
	Evaluative Conclusions	2.19	2.82	3.58	3.24
Reporting	Technical Reviews	2.15	2.99	3.89	3.47
	Lessons Learned	2.29	2.96	3.82	3.41
	Documentation	2.34	3.00	3.79	3.36
Professional	Customer Service	2.56	3.22	4.08	3.60
	External Awareness	2.07	2.50	3.37	3.04
	Flexibility	2.49	3.17	3.96	3.57
	Communication	2.93	3.52	4.18	3.72
	Technical Credibility	2.71	3.25	3.91	3.57
	Critical Thinking	2.52	3.14	3.90	3.55
	Professional Ethics	3.21	3.83	4.37	4.03
	Leadership and Management	2.99	3.59	4.23	3.90

Shading of proficiency cells indicates relative importance of each competency by career level: green = high importance; yellow = medium importance; no shading = lower importance.

Proficiency ratings of Navy respondents

Journey- and Senior-level proficiency responses for the Navy segment are above 3.0 for most highly important competencies while most Entry-level Navy responses are below 3.0.

The mean proficiency results of highly important competencies as rated by T&E Navy respondents are as follows:

- *Entry-level:* Mean proficiency ratings are **between 2.0 (*basic*) and 3.0 (*intermediate*) for <u>four of six</u> high importance competencies**. Professional Ethics and Leadership and Management are the only highly important competencies with mean proficiency ratings above 3.0.

- *Journey-level:* Mean proficiency ratings are **between 3.0 (*intermediate*) and 4.0 (*advanced*) for 11 of 13 high importance competencies.** The mean proficiency ratings for Capabilities Assessment and Documentation fall slightly below 3.0.

- *Senior-level:* Mean proficiency levels are **between 3.0 (*intermediate*) and 4.0 (*advanced*) for 18 of 21 high importance competencies.** The mean proficiency ratings for Communication, Professional Ethics, and Leadership and Management are above 4.0.

We present our results in Table 17.

Table 17. Mean proficiency ratings for Navy respondents, by competency and career level

Unit of Competence	Competency Name	Entry	Journey	Senior	T&E-All
Planning	Risk Identification	2.31	2.91	3.65	3.29
	Capabilities Assessment	2.28	2.91	3.67	3.39
	Program T&E Strategy Development	2.17	2.73	3.48	3.22
	Test Cost Estimating	2.06	2.51	3.52	3.10
Preparation	Coordination of T&E Activities and Events	2.40	2.83	3.64	3.34
	Test Readiness	2.47	3.05	3.76	3.44
Test Execution	Risk Management	2.37	3.13	3.82	3.49
	Test Control Management	2.49	3.16	3.76	3.46
	Data Management	2.44	3.06	3.68	3.38
Analysis	Data Verification and Validation	2.30	2.79	3.44	3.16
	Data Reduction and Assimilation	2.26	2.76	3.39	3.17
Evaluation	Determination of Test Adequacy	2.34	2.90	3.56	3.26
	Validation of Test Results	2.24	2.63	3.32	3.07
	Evaluative Conclusions	2.32	2.84	3.53	3.24
Reporting	Technical Reviews	2.26	2.99	3.86	3.47
	Lessons Learned	2.37	3.05	3.72	3.41
	Documentation	2.44	2.92	3.66	3.36
Professional	Customer Service	2.45	3.19	3.94	3.60
	External Awareness	2.12	2.62	3.31	3.04
	Flexibility	2.65	3.27	3.82	3.57
	Communication	2.91	3.53	4.10	3.72
	Technical Credibility	2.70	3.19	3.77	3.57
	Critical Thinking	2.64	3.19	3.85	3.55
	Professional Ethics	3.17	3.71	4.25	4.03
	Leadership and Management	3.11	3.52	4.11	3.90

Shading of proficiency cells indicates relative importance of each competency by career level: green = high importance; yellow = medium importance; no shading = lower importance.

Proficiency ratings of 4th Estate respondents

Mean proficiency ratings of most highly important 4th Estate competencies are above 3.0.

The mean proficiency results of highly important competencies as rated by T&E Navy respondents are as follows:

- *Entry-level:* Mean proficiency ratings are **between 2.0 (*basic*) and 3.0 (*intermediate*) for <u>two of three</u> high importance competencies**. Leadership and Management is the only highly important competency with a mean proficiency rating above 3.0.

- *Journey-level:* Mean proficiency ratings are **between 3.0 (*intermediate*) and 4.0 (*advanced*) for <u>13 of 17</u> high importance competencies.** The mean proficiency ratings for Capabilities Assessment, Program T&E Strategy Development, Test Cost Estimating, and Coordination of T&E Activities and Events fall slightly below 3.0.

- *Senior-level:* Mean proficiency levels are **between 4.0 (*advanced*) and 5.0 (*expert*) for <u>12 of 22</u> high importance competencies.** Mean proficiency ratings for the remaining highly important competencies are between 3.0 and 4.0.

We present our results in Table 18.

Table 18. Mean proficiency ratings for 4th Estate respondents, by competency

Unit of Competence	Competency Name	Entry	Journey	Senior	T&E-All
Planning	Risk Identification	2.15	2.90	3.85	3.29
	Capabilities Assessment	2.14	2.98	4.01	3.39
	Program T&E Strategy Development	2.00	2.85	3.96	3.22
	Test Cost Estimating	1.95	2.76	3.83	3.10
Preparation	Coordination of T&E Activities and Events	2.13	2.99	4.04	3.34
	Test Readiness	2.19	3.09	4.04	3.44
Test Execution	Risk Management	2.03	3.15	4.04	3.49
	Test Control Management	2.07	3.11	3.98	3.46
	Data Management	1.85	3.12	3.82	3.38
Analysis	Data Verification and Validation	1.77	2.79	3.54	3.16
	Data Reduction and Assimilation	1.85	2.79	3.64	3.17
Evaluation	Determination of Test Adequacy	2.16	2.82	3.73	3.26
	Validation of Test Results	1.96	2.67	3.57	3.07
	Evaluative Conclusions	2.02	2.97	3.83	3.24
Reporting	Technical Reviews	2.12	3.00	4.17	3.47
	Lessons Learned	2.14	3.05	3.93	3.41
	Documentation	2.00	3.03	3.90	3.36
Professional	Customer Service	2.15	3.18	4.21	3.60
	External Awareness	1.93	2.81	3.72	3.04
	Flexibility	2.51	3.30	4.25	3.57
	Communication	2.88	3.65	4.33	3.72
	Technical Credibility	2.71	3.33	4.06	3.57
	Critical Thinking	2.51	3.29	4.13	3.55
	Professional Ethics	2.98	3.73	4.44	4.03
	Leadership and Management	3.16	3.69	4.40	3.90

Shading of proficiency cells indicates relative importance of each competency by career level: green = high importance; yellow = medium importance; no shading = lower importance.

Frequency distribution of proficiency rating responses for T&E respondents, by segment and career level

We also investigated the frequency distribution of proficiency responses for each competency by career level for each T&E segment (Air Force, Army, Navy, 4th Estate). In most cases we observed, for a given competency, a somewhat even distribution of responses across two or three ratings with a much smaller number of responses for the remaining ratings. We also observed that the center of the proficiency distribution shifts to the right (toward higher ratings) with increasing career level, which is consistent with our average proficiency findings. Finally, our analysis suggests that the percentage of *experts* (scale rating of 5) in each grouping increases with increasing career level and the largest percentage of experts are Senior-level respondents in

each segment. We present the full set of frequency distributions in Appendix F.

Section summary

We observe that mean proficiency ratings for most competencies identified as highly important to Entry-level respondents, across all segments, are between *basic* (scale rating of 2) and *intermediate* (scale rating of 3). Mean proficiency ratings for most highly important competencies among Journey- and Senior-level respondents in the service segments and Journey-level 4th Estate respondents are between *intermediate* and *advanced* (scale rating of 4). However, mean proficiency ratings for Senior-level 4th Estate respondents are between *advanced* and *expert* (scale rating of 5) for most highly important competencies. These findings apply to all competencies identified as highly important to the T&E discipline.

The results of our proficiency analyses should not be used to judge whether adequate levels of proficiency have been achieved for each grouping we investigated. Given that no proficiency standards exist for the T&E workforce, a lower than *intermediate* proficiency rating does not necessarily indicate a deficiency. Likewise, one grouping of the workforce may have consistently rated itself above *intermediate* proficiency in a given competency, but the proficiency rating might fall well short of what is actually needed to get the job done. Alternately, it may not be necessary for employees at certain career levels and/or in certain segments to be proficient in some competencies.

Therefore, T&E leadership should consider using the proficiency analyses in this report as the impetus for developing proficiency standards. Once standards are set, results such as these can be used to discover if and where deficiencies exist in the T&E workforce.

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Section 6: Conclusion and next steps

Our importance analysis shows that the relative importance of competencies to T&E assessment respondents generally increases with increasing career level. However, many respondents do not share the same view of importance as T&E leaders on some key competencies (i.e., Data Verification and Validation, Data Reduction and Assimilation, Determination of Test Adequacy, Validation of Test Results, Evaluative Conclusions). Based on these findings, T&E leaders should consider taking steps to inform/emphasize to the workforce the competencies they deem to be of high, medium, and low importance to T&E assessment respondents.

Our proficiency analysis does not reveal any obvious deficiencies, but it does highlight some similarities and differences between the responses given by respondents in the various career levels and segments. We found that the proficiency of T&E respondents generally progresses from *basic* (scale rating of 2) to *advanced* (scale rating of 4) across career levels among service segment respondents and between *basic* and *expert* (scale rating of 5) across career levels among 4th Estate respondents. If T&E leaders have areas of concerns about particular competencies presented here, we suggest further investigation into the proficiency of employees in those areas of concern. These investigations may lead to the identification of proficiency gaps.

Finally, we recommend that a strong emphasis be placed on the development of professional competencies given the importance respondents placed on them.

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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

Units of Competence	Competencies	Competency Elements
		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-

Units of Competence	Competencies	Competency Elements
		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.
	Competency 8. Test Control Management	**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.
		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.
	Competency 9. Data Management	**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.
		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.

Units of Competence	Competencies	Competency Elements
		Element 34. Confirm that modeling and simulation met test objectives to ensure adequacy of evaluation.
	Competency 13. Validation of Test Results	**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).

Units of Competence	Competencies	Competency Elements
	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.

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Appendix B: T&E demographic and intentions questions

This table contains the demographic and intentions questions provided to T&E assessment participants and the possible response options.

Table 20. T&E demographic and intentions questions, response options, and planned usage of responses

Demographic/Intentions Question	Response Options
1. Please identify the workforce community with which you are most closely associated.	1. Administration 2. Analyst 3. Community Support 4. Contracts 5. Education and Training 6. Environment 7. Facilities 8. Financial 9. Human Resources 10. Industrial Trades 11. Information Technology / Information Management 12. Intelligence 13. Legal 14. Logistics 15. Manufacturing and Production 16. Media and Public Affairs 17. Medical 18. Program Management 19. Safety and Occupational Health 20. Science 21. Science and Other Engineering 22. Security and Law Enforcement 23. Systems Engineering 24. Test and Evaluation 25. Other/None
2. How many years of experience have you had in Test and Evaluation?	1. Less than 5 2. 5 to 10 3. 11 to 15 4. 16 to 25 5. More than 25
3. How many years of experience have you had within the Acquisition workforce?	1. Less than 5 2. 5 to 10 3. 11 to 15 4. 16 to 25 5. More than 25
4. If you are in the civil service (or Acq Demo) system, what is your current grade level (or pay-band)?	1. N/A: Not civil service (or NSPS) 2. GS-10 or below 3. GS-11 to GS-13

Demographic/Intentions Question	Response Options
	4. GS-14 or higher 5. Broadband I 6. Broadband II 7. Broadband III 8. Broadband IV 9. Other Pay Plan
5. What is your current status?	1. Active Duty Military 2. Federal Civilian – Prior Military Service 3. Federal Civilian – No Prior Military Service
6. If you are active-duty military, what is your current rank?	1. N/A: Not active-duty military 2. E1 to E5 3. E6 to E9 4. O1 to O3 5. O4 or higher
7. If you are currently active-duty military, for how many years on active-duty have you served?	1. N/A: Not active-duty military 2. Less than 5 years 3. Between 5 to 10 years 4. Between 11 to 15 years 5. Between 16 to 20 years 6. Between 21 to 25 years 7. More than 25 years
8. If you are currently a federal civilian, how long have you been in the federal civilian workforce?	1. N/A: Not civil service 2. Less than 5 years 3. Between 5 to 10 years 4. Between 11 to 15 years 5. Between 16 to 20 years 6. Between 21 to 25 years 7. More than 25 years
9. What retirement program/system are you currently under or eligible for?	1. Not Applicable 2. CSRS 3. FERS 4. Active Duty Military 5. Currently Retired Military
10. What is your current certification level within T&E?	1. One 2. Two 3. Three 4. Don't Know – N/A
11. Are you currently certified in any other acquisition specialty? If so, please identify domain and level certified (one, two, or three). To select multiple options, use the Ctrl key.	1. Business 2. Contracting 3. Facilities Engineering 4. IT 5. Logistics 6. PM 7. Production, Quality, and Management 8. Property 9. Purchasing 10. SPRDE-PSE 11. SPRDE-SE 12. SPRDE-STM 13. None
12. What is your highest level of educational attainment?	1. High school diploma 2. Associate degree 3. Bachelors degree 4. Masters degree 5. Doctoral degree 6. Other

13. What DoD Component do you mainly support?	1. Air Force 2. Army 3. Navy 4. Other Defense/4th Estate
What DoD Acquisition: Air Force organization do you mainly support?	1. Aberdeen Test Center 2. Aeronautical Systems Center 3. Air Armament Center 4. Air Force Flight Test Center 5. Air Force Materiel Command 6. Air Force Medical Evaluation Support Activity 7. Air Force Research Laboratory 8. Air Force Space Command 9. Air Force Test Squadrons 10. Air Force Operational Test Center (AFOTEC) 11. Ogden-Air Logistics Center 12. Oklahoma-Air Logistics Center 13. Warner-Robins-Air Logistics Center 14. Other
What DoD Acquisition: Army organization do you mainly support?	1. Army Ammunition Plants 2. Army Armament Research, Development and Engineering Center (ARDEC) 3. Army Audiology and Speech Center 4. Army Aviation and Missile Research Development and Engineering Center (AMRDEC) 5. Army Aviation Integration Directorate 6. Army Aviation Missile Command 7. Army Chemical Management Agency 8. Army Communications Electronics Command (CECOM) 9. Army Communications Electronics Research, Development and Engineering Center (CERDEC) 10. Army Contracting Command 11. Army Corps of Engineers 12. Army Ctr for Environment Health Rsch 13. Army Depots 14. Army Edgewood Chemical Biological Center (ECBC) 15. Army Evaluation Center 16. Army Forces Command 17. Army Geospatial Center 18. Army Human Resources Command 19. Army Installation Management Agency 20. Army Intelligence Command 21. Army Joint Munitions Agency 22. Army Logistics Innovation Agency 23. Army Materiel Command 24. Army Materiel Systems Analysis Activity (AMSAA) 25. Army Medical Materiel Agency 26. Army Natick Soldier Research, Development and Engineering Center (NSRDEC) 27. Army National Guard Bureau 28. Army NETCOM 29. Army PEO - Ammo (Ammunition) 30. Army PEO - C3T (Command, Control & Communications Tactical) 31. Army PEO - FCS (Future Combat Systems) 32. Army PEO - GCS (Ground Combat Systems) 33. Army PEO – Soldier 34. Army PEO CBD

	35. Army PEO EIS 36. Army PEO GCSS 37. Army PEO Integration 38. Army PEO-STRI (Simulation, Training & Instrumentation) 39. Army Program Executive Office (PEO) Aviation 40. Army Redstone Arsenal 41. Army Research Development and Engineering Command 42. Army Research Laboratory (ARL) 43. Army Simulation Training and Testing Center (STTC) 44. Army Space & Missile Defense Command 45. Army Special OPS Command 46. Army Sustainment Command 47. Army Tank and Automotive Research, Development and Engineering Center (TARDEC) 48. Army Tank-Automotive and Armaments Command 49. Army Test & Evaluation Command 50. Army Training and Doctrine Command 51. Army-HQ 52. Other
What DoD Acquisition: Navy organization do you mainly support?	1. Commander Operational Test & Evaluation Force, USN 2. Marine Corps Operational Test & Evaluation Activity 3. Marine Corps PEO-LS (Land Systems) 4. Marine Corps Systems Command 5. Missile Defense Agency 6. Naval Air Systems Command 7. Naval Air Warfare Center Aircraft Division (NAWCAD) 8. Naval Air Weapons Station China Lake 9. Naval Facilities Engineering Command 10. Naval Sea Systems Command 11. Naval Supply Systems Command 12. Naval Undersea Warfare Center (NUWC) 13. Space and Naval Warfare Systems Command 14. Other
What DoD Acquisition: Other Defense Agency/4th Estate organization do you mainly support?	1. Chemical Materials Agency 2. Director, Operational Test an Evaluation 3. DISA Europe 4. DISA HQ 5. DISA Pacific 6. DITCO (Defense Information Technology Contracting Organization) 7. Electronics Systems Center 8. JTF-GNO (Joint Task Force-Global Network Operations) 9. OSD (AT&L) 10. Space and Missiles Center 11. U.S. Special Operations Command 12. Test Resources Management Center (TRMC) 13. Joint Interoperability Test Command (JITC) 14. Other
14. When do you plan to retire or resign?	1. Less than 4 years 2. In 4 to 10 years 3. More than 10 years
15. Which age category do you fall under?	1. Less than 35 years 2. 36 to 45 years 3. 46 to 55 years 4. Over 55 years
16. Do you intend to leave the T&E career-field within the next 6 months?	1. Yes 2. No

17. Select the top three competencies in which you plan to boost your proficiency during the next 12 month period. (to select multiple competencies use the Ctrl key)	1. Capabilities Assessment 2. Communication 3. Coordination of T&E Activities and Events 4. Critical Thinking 5. Customer Service 6. Data Management 7. Data Reduction and Assimilation 8. Data Verification and Validation 9. Determination of Test Adequacy 10. Documentation 11. Evaluative Conclusions 12. External Awareness 13. Flexibility 14. Leadership and Management 15. Lessons Learned 16. Professional Ethics 17. Program T&E Strategy Development 18. Risk Identification 19. Risk Management 20. Technical Credibility 21. Technical Reviews 22. Test Control Management 23. Test Cost Estimating 24. Test Readiness 25. Validation of Test Results
18. Have you enrolled or do you intend to enroll in a program of graduate study to further your T&E expertise, within the next 6 months?	1. Yes 2. No 3. Unsure of intent
19. Career Level	1. Entry 2. Journey 3. Senior

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Appendix C: Workforce demographic and intentions analyses

Most T&E respondents have 10 years of acquisition experience or less.

Results presented in Table 21 are derived from the following demographic question: *How many years of experience have you had within the Acquisition workforce?*

As was found with Test and Evaluation experience, the slight majority of T&E respondents have 10 years of acquisition experience or less (59 percent). The 4th Estate segment has the largest percentage of respondents in this category (74 percent). The remaining groupings of respondents by years of experience are fairly comparable across the three service segments.

Table 21. Acquisition years of experience responses by T&E segment

	T&E-All		Air Force		Army		Navy		4th Estate	
Acquisition Years of Experience	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%
Less than 5	1207	36.0	392	41.4	288	29.8	348	32.1	179	50.6
5 to 10	764	22.8	206	21.8	243	25.2	233	21.5	82	23.2
11 to 15	403	12.0	114	12.0	125	12.0	130	12.0	34	9.6
16 to 25	633	18.9	158	16.7	205	21.2	230	21.2	40	11.3
More than 25	339	10.1	76	8.0	103	13.0	141	13.0	19	5.4
Unknown	6	0.2	1	0.1	2	0.2	3	0.3	0	0.0
All Respondents	3352	100.0	947	100.0	966	100.0	1085	100.0	354	100.0

Most active duty military T&E respondents are officers.

Results presented in Table 22 are derived from the following demographic question: *If you are active-duty military, what is your current rank?*

Most active-duty military respondents in the T&E workforce either categorized themselves in the O-1 to O-3 range (226 respondents, which is 41 percent of the military respondents) or the O-4 or higher category (47 percent). The remaining active duty military respondents categorized themselves as enlisted (65 respondents) with the exception of one person who did not report his/her rank. Army and Navy had the fewest enlisted respondents.

Table 22. Military rank responses by T&E segment

	T&E-All		Air Force		Army		Navy		4th Estate	
Rank	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%
E-1 to E-5	18	3.3	12	3.6	0	0.0	0	0.0	6	13.3
E-6 to E-9	47	8.6	34	10.1	0	0.0	4	2.8	9	20.0
O-1 to O-3	226	41.2	162	48.1	3	12.0	52	36.9	9	20.0
O-4 or higher	256	46.7	128	38.0	22	88.0	85	60.3	21	46.7
Unknown	1	0.2	1	0.3	0	0.0	0	0.0	0	0.0
All Military Respondents	548	100.0	337	100.0	25	100.0	141	100.0	45	100.0

Most military T&E respondents have served 15 years of active-duty or less.

Results presented in Table 23 are derived from the following demographic question: *If you are currently active-duty military, for how many years on active-duty have you served?*

Most active-duty military respondents in the T&E workforce report providing 15 years of service or less (57 percent). Approximately 40 percent of the remaining active duty military respondents report serving for 16 to 24 years. A relatively small percentage of active duty T&E respondents report providing over 25 years of service.

The Air Force segment has a relatively large percentage of active duty respondents with less than 5 years of service.

Table 23. Military years of experience responses by T&E segment

	T&E-All		Air Force		Army		Navy		4th Estate	
Active Duty Years	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%
Less than 5	88	16.1	84	24.9	1	4.0	1	0.7	2	4.4
5 to 10	123	22.4	72	21.4	4	16.0	39	27.7	8	17.8
11 to 15	102	18.6	63	18.7	3	12.0	24	17.0	12	26.7
16 to 20	132	24.1	74	22.0	7	28.0	36	25.5	15	33.3
21 to 25	82	15.0	38	11.3	9	36.0	32	22.7	3	6.7
More than 25	20	3.6	5	1.5	1	4.0	9	6.4	5	11.1
Unknown	1	0.2	1	0.3	0	0.0	0	0.0	0	0.0
All Military Respondents	548	100.0	337	100.0	25	100.0	141	100.0	45	100.0

Just over half of civilian T&E respondents have worked in the federal civilian workforce for 10 years or less.

Results presented in Table 24 are derived from the following demographic question: *If you are currently a federal civilian, how long have you been in the federal civilian workforce?*

Just over half of civilian respondents in the T&E workforce have served 10 or fewer years in the federal civilian workforce (52 percent). The Air Force and 4th Estate segments have the largest percentages of respondents in the less than 5 year category (41 percent and 39 percent, respectively). The Army and Navy segments have the largest percentages of respondents with more than 25 years of service as a federal civilian.

Table 24. Civilian years in workforce responses by T&E segment

	T&E-All		Air Force		Army		Navy		4th Estate	
Federal Civilian Years	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%
Less than 5	830	29.6	251	41.1	227	24.2	231	24.5	121	39.2
5 to 10	619	22.1	128	21.0	245	26.1	178	18.9	68	22.0
11 to 15	238	8.5	48	7.9	72	7.7	78	8.3	40	12.9
16 to 20	146	5.2	28	4.6	61	6.5	43	4.6	14	4.5
21 to 25	388	13.8	75	12.3	125	13.3	163	17.3	25	8.1
More than 25	570	20.3	79	13.0	202	21.5	249	26.4	40	12.9
N/A	6	0.2	0	0.0	3	0.3	2	0.2	1	0.3
Unknown	5	0.2	1	0.2	4	0.4	0	0.0	0	0.0
All Civilian Respondents	2802	100.0	610	100.0	939	100.0	944	100.0	309	100.0

Most civilian T&E respondents are paid according to the GS-Level pay scale and reside in the GS-11 to GS-13 grade level range.

Results presented in Table 25 are derived from the following demographic question: *If you are in the civil service (or Acq Demo) system, what is your current grade level (or pay-band)?*

Most T&E civilian respondents are paid according to the GS-Level pay scale (1,806 respondents which is 65 percent of the civilian workforce). Within the GS-Level pay scale system, most civilian respondents fall in the GS-11 to GS-13 range.

Twenty-five percent of civilian respondents categorized themselves in the Broadband pay structure. Within this pay structure, most civilian respondents categorized themselves in Broadbands III and IV. Eight percent of civilian respondents categorized themselves in the "Other Pay Plan" category. Most of the civilians in this category work in the Navy segment.

Table 25. Civil grade level responses by T&E segment

	T&E-All		Air Force		Army		Navy		4th Estate	
Grade Level/ Pay Band	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%
Broadband I	9	0.3	3	0.5	2	0.2	4	0.4	0	0.0
Broadband II	97	3.5	24	3.9	43	4.6	26	2.8	4	1.3
Broadband III	312	11.1	106	17.4	151	16.1	39	4.1	16	5.2
Broadband IV	303	10.8	35	5.7	135	14.4	103	10.9	30	4.7
GS-10 or below	100	3.6	19	3.1	48	5.1	29	3.1	4	1.3
GS-11 to GS-13	1211	43.2	315	51.6	411	43.8	339	35.9	146	47.2
GS-14 or higher	495	17.7	77	12.6	106	11.3	216	22.9	96	31.1
N/A	46	1.6	10	1.6	15	1.6	17	1.8	4	1.3
Other Pay Plan	229	8.2	21	3.4	28	3.0	171	18.1	9	2.9
All Civilian Respondents	2802	100.0	610	100.0	939	100.0	944	100.0	309	100.0

Most T&E respondents participate in the FERS retirement program.

Results presented in Table 26 are derived from the following demographic question: *What retirement program/system are you currently under or eligible for?*

More than half of T&E respondents are enrolled in the Federal Employees' Retirement System (FERS) retirement program (68 percent). Eleven percent of the workforce is enrolled in the Civil Service Retirement System (CSRS). The remaining respondents (20 percent) are active duty or retired military, currently under a retirement program/system that was not provided as an option for this question, or did not respond to this demographic question.

Table 26. Retirement program responses by T&E segment

	T&E-All		Air Force		Army		Navy		4th Estate	
Retirement Program	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%
Active Duty Military	512	15.3	310	32.7	24	2.5	133	12.3	45	12.7
CSRS	377	11.2	52	5.5	138	14.3	155	14.3	32	9.0
Currently Retired Military	101	3.0	40	4.2	28	2.9	23	2.1	10	2.8
FERS	2269	67.7	505	53.3	753	78.0	751	69.2	260	73.4
N/A	81	2.4	36	3.8	17	1.8	21	1.9	7	2.0
Unknown	12	0.4	4	0.4	6	0.6	2	0.2	0	0.0
All Respondents	3352	100.0	947	100.0	966	100.0	1085	100.0	354	100.0

Fifteen percent of T&E respondents plan to retire within the next 4 years.

Results presented in Table 27 are derived from the following demographic question: *When do you plan to retire or resign?*

Approximately 15 percent of T&E respondents report intent to retire within the next 4 years. This trend is consistent across all T&E segments. Slightly more than half of T&E respondents report being more than 10 years away from retirement (55 percent).

Table 27. Years to retirement responses by T&E segment

	T&E-All		Air Force		Army		Navy		4th Estate	
Years to Retirement	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%
Less than 4 years	488	14.6	149	15.7	137	14.2	158	14.6	44	12.4
In 4 to 10 years	983	29.3	294	31.0	254	26.3	322	29.7	113	31.9
More than 10 years	1854	55.3	496	52.4	566	58.6	595	54.8	197	55.6
Unknown	27	0.8	8	0.8	9	0.9	10	0.9	0	0.0
All Respondents	3352	100.0	947	100.0	966	100.0	1085	100.0	354	100.0

Most T&E respondents are either less than 35 years old or between the ages of 46 and 55.

Results presented in Table 28 are derived from the following demographic question: *Which age category do you fall under?*

The largest age group of T&E respondents we received responses from was between the ages of 46 and 55 represent (36 percent). The next largest age group we received responses from was under the age of 35 (26 percent). Relatively more Air Force segment respondents under the age of 35 responded to the assessment than in the other segments. We received the smallest percentage of responses from respondents in the over 55 years of age category.

Table 28. Age category responses by T&E segment

	T&E-All		Air Force		Army		Navy		4th Estate	
Age category	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%
Less than 35	858	25.6	313	33.1	234	24.2	256	23.6	55	15.5
36 to 45	710	21.2	216	22.8	152	15.7	241	22.2	101	28.5
46 to 55	1208	36.0	282	29.8	360	37.3	427	39.4	139	39.3
Over 55	552	16.5	130	13.7	212	21.9	152	14.0	58	16.4
Unknown	24	0.7	6	0.6	8	0.8	9	0.8	1	0.3
All Respondents	3352	100.0	947	100.0	966	100.0	1085	100.0	354	100.0

Most T&E respondents do not intend to leave the T&E career-field within the next 6 months.

Results presented in Table 29 are derived from the following demographic questions: *Do you intend to leave the T&E career-field within the next 6 months?*

Table 29. Intent to leave the T&E career-field within the next 6 months by T&E segment

	T&E-All		Air Force		Army		Navy		4th Estate	
Use and Familiarity	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%
No	3041	90.7	838	88.5	887	91.8	987	91.0	329	92.9
Yes	250	7.5	90	9.5	63	6.5	75	6.9	22	6.2
Unknown	61	1.8	19	2.0	16	1.7	23	2.1	3	0.8
All Respondents	3352	100.0	947	100.0	966	100.0	1085	100.0	354	100.0

Most T&E respondents do not plan to enroll in a program of graduate study to further their T&E expertise.

Results presented in Table 30 are derived from the following demographic questions: *Have you enrolled or do you intend to enroll in a program of graduate study to further your T&E expertise within the next 6 months?*

Table 30. Intent to enroll in a program of graduate study within the next 6 months by T&E segment

	T&E-All		Air Force		Army		Navy		4th Estate	
Use and Familiarity	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%	Participant Count	%
No	2245	67.0	613	64.7	654	67.7	761	70.1	217	61.3
Unsure	541	16.1	139	14.7	148	15.3	168	15.5	86	24.3
Yes	509	15.2	179	18.9	149	15.4	134	12.4	47	13.3
Unknown	57	1.7	16	1.7	15	1.6	22	2.0	4	1.1
All Respondents	3352	100.0	947	100.0	966	100.0	1085	100.0	354	100.0

Appendix D: Mean competency data

Table 31. Mean criticality, frequency, and proficiency ratings for T&E-All respondents, by segment and by career level

		T&E All			Air Force			Army			Navy			4th Estate		
#	Competencies	Crit	Freq	Prof	Crit	Freq	Prof	Crit	Freq	Prof	Crit	Freq	Prof	Crit	Freq	Prof
1	Risk Identification	3.17	3.27	3.29	3.13	3.18	3.20	3.19	3.31	3.34	3.15	3.29	3.29	3.26	3.36	3.39
2	Capabilities Assessment	3.35	3.34	3.39	3.32	3.25	3.31	3.43	3.45	3.51	3.27	3.28	3.30	3.49	3.41	3.49
3	Program T&E Strategy Development	3.07	3.01	3.22	2.97	2.86	3.12	3.16	3.14	3.32	2.99	2.94	3.13	3.32	3.23	3.42
4	Test Cost Estimating	3.17	3.03	3.10	2.91	2.69	2.79	3.32	3.27	3.30	3.14	3.00	3.10	3.48	3.24	3.30
5	Coordination of T&E Activities and Events	3.28	3.23	3.34	3.16	3.06	3.20	3.37	3.34	3.45	3.23	3.19	3.29	3.47	3.40	3.51
6	Test Readiness	3.40	3.25	3.44	3.28	3.13	3.32	3.49	3.38	3.52	3.41	3.25	3.42	3.48	3.28	3.54
7	Risk Management	3.36	3.21	3.49	3.29	3.14	3.45	3.40	3.27	3.53	3.37	3.21	3.47	3.41	3.22	3.55
8	Test Control Management	3.39	3.20	3.46	3.08	3.28	3.35	3.32	3.47	3.55	3.40	3.22	3.45	3.16	3.40	3.51
9	Data Management	3.33	3.06	3.38	3.16	2.83	3.24	3.48	3.26	3.53	3.38	3.08	3.37	3.29	3.04	3.41
10	Data Verification and Validation	3.14	2.76	3.16	3.02	2.58	3.04	3.29	2.95	3.31	3.12	2.76	3.14	3.07	2.68	3.14
11	Data Reduction and Assimilation	3.08	2.73	3.17	3.01	2.60	3.10	3.20	2.90	3.31	3.03	2.68	3.10	3.12	2.78	3.21
12	Determination of Test Adequacy	3.22	2.92	3.26	3.17	2.84	3.20	3.23	2.98	3.30	3.27	2.94	3.25	3.23	2.91	3.31
13	Validation of Test Results	3.04	2.69	3.07	2.99	2.61	3.02	3.08	2.78	3.14	3.04	2.66	3.03	3.11	2.72	3.16
14	Evaluative Conclusions	3.17	2.86	3.24	3.08	2.72	3.15	3.17	2.91	3.29	3.21	2.89	3.21	3.32	3.01	3.40
15	Technical Reviews	3.34	3.13	3.47	3.24	3.04	3.37	3.36	3.19	3.52	3.37	3.10	3.45	3.47	3.26	3.62
16	Lessons Learned	3.17	3.04	3.41	3.08	2.91	3.33	3.19	3.13	3.48	3.20	3.04	3.39	3.23	3.08	3.47
17	Documentation	3.22	3.07	3.36	3.11	2.91	3.24	3.32	3.24	3.48	3.20	3.04	3.33	3.28	3.10	3.46
18	Customer Service	3.57	3.56	3.60	3.48	3.46	3.45	3.67	3.70	3.74	3.54	3.51	3.57	3.60	3.58	3.68
19	External Awareness	2.93	2.87	3.04	2.89	2.81	2.95	2.91	2.86	3.06	2.89	2.83	3.00	3.23	3.11	3.27
20	Flexibility	3.50	3.43	3.57	3.40	3.29	3.44	3.54	3.57	3.64	3.50	3.38	3.54	3.63	3.53	3.78
21	Communication	3.66	3.58	3.72	3.63	3.54	3.66	3.68	3.62	3.76	3.62	3.51	3.67	3.78	3.72	3.86
22	Technical Credibility	3.46	3.41	3.57	3.45	3.38	3.53	3.52	3.50	3.64	3.37	3.31	3.49	3.62	3.56	3.70
23	Critical Thinking	3.41	3.30	3.55	3.36	3.21	3.45	3.43	3.33	3.58	3.37	3.27	3.54	3.56	3.48	3.71
24	Professional Ethics	4.13	4.12	4.03	4.10	4.05	3.97	4.17	4.21	4.13	4.11	4.09	3.98	4.13	4.08	4.07
25	Leadership and Management	3.90	3.76	3.90	3.85	3.69	3.82	3.95	3.84	3.96	3.85	3.70	3.85	3.99	3.87	4.04

Shading indicates relative importance of each competency by career level: green = high importance; yellow = medium importance; no shading = lower importance. Proficiency Key: 1-Awareness, 2-Basic, 3-Intermediate, 4-Advanced, 5-Expert

Table 32. Competency criticality, frequency, and proficiency ratings for Entry-level respondents, by segment and by career level

		Entry														
		T&E All			Air Force			Army			Navy			4th Estate		
#	Competencies	Crit	Freq	Prof	Crit	Freq	Prof	Crit	Freq	Prof	Crit	Freq	Prof	Crit	Freq	Prof
1	Risk Identification	2.79	2.88	2.28	2.79	2.83	2.22	2.84	3.02	2.39	2.83	2.94	2.31	2.53	2.70	2.15
2	Capabilities Assessment	2.91	2.90	2.31	2.90	2.85	2.31	3.03	3.08	2.47	2.91	2.91	2.28	2.73	2.71	2.14
3	Program T&E Strategy Development	2.66	2.58	2.16	2.64	2.55	2.15	2.83	2.76	2.26	2.68	2.60	2.17	2.37	2.30	2.00
4	Test Cost Estimating	2.75	2.54	2.04	2.60	2.42	1.83	3.13	2.92	2.42	2.75	2.49	2.06	2.51	2.36	1.95
5	Coordination of T&E Activities and Events	2.93	2.86	2.28	2.92	2.85	2.19	3.05	2.87	2.33	3.00	2.94	2.40	2.53	2.63	2.13
6	Test Readiness	3.07	2.89	2.38	3.06	2.86	2.29	3.21	3.06	2.51	3.19	2.95	2.47	2.50	2.48	2.19
7	Risk Management	3.11	2.95	2.41	3.25	3.08	2.46	3.16	3.06	2.61	3.12	2.92	2.37	2.52	2.42	2.03
8	Test Control Management	3.19	3.01	2.43	3.21	3.02	2.36	3.39	3.21	2.68	3.32	3.11	2.49	2.36	2.34	2.07
9	Data Management	3.16	2.84	2.39	3.12	2.84	2.37	3.36	3.07	2.61	3.25	2.93	2.44	2.18	2.16	1.85
10	Data Verification and Validation	2.92	2.62	2.23	3.02	2.72	2.24	2.85	2.57	2.35	3.10	2.71	2.30	2.03	2.02	1.77
11	Data Reduction and Assimilation	2.91	2.63	2.25	2.99	2.70	2.31	2.89	2.66	2.30	3.07	2.69	2.26	2.14	2.11	1.85
12	Determination of Test Adequacy	2.96	2.64	2.28	2.90	2.62	2.25	2.88	2.63	2.31	3.22	2.72	2.34	2.48	2.49	2.16
13	Validation of Test Results	2.80	2.47	2.15	2.84	2.55	2.17	2.70	2.45	2.05	2.98	2.50	2.24	2.19	2.08	1.96
14	Evaluative Conclusions	2.93	2.61	2.21	2.88	2.56	2.16	2.93	2.63	2.19	3.18	2.77	2.32	2.31	2.26	2.02
15	Technical Reviews	2.92	2.66	2.22	2.96	2.78	2.24	2.75	2.54	2.15	3.09	2.64	2.26	2.47	2.48	2.12
16	Lessons Learned	2.89	2.73	2.35	2.99	2.83	2.44	2.84	2.68	2.29	2.99	2.75	2.37	2.34	2.42	2.14
17	Documentation	2.98	2.83	2.31	2.99	2.82	2.28	3.04	2.88	2.34	3.15	2.94	2.44	2.32	2.44	2.00
18	Customer Service	3.10	3.01	2.42	3.13	3.09	2.41	3.29	3.16	2.56	3.13	2.97	2.45	2.54	2.57	2.15
19	External Awareness	2.61	2.51	2.06	2.61	2.51	2.04	2.69	2.53	2.07	2.67	2.56	2.12	2.30	2.28	1.93
20	Flexibility	3.18	3.09	2.54	3.05	2.96	2.47	3.24	3.20	2.49	3.39	3.25	2.65	2.92	2.89	2.51
21	Communication	3.48	3.37	2.93	3.51	3.37	2.97	3.54	3.51	2.93	3.54	3.35	2.91	3.11	3.19	2.88
22	Technical Credibility	3.21	3.16	2.71	3.19	3.13	2.72	3.28	3.28	2.71	3.28	3.19	2.70	2.96	3.01	2.71
23	Critical Thinking	3.06	2.91	2.55	3.08	2.91	2.50	3.09	2.94	2.52	3.13	2.95	2.64	2.74	2.80	2.51
24	Professional Ethics	3.90	3.86	3.17	4.00	3.94	3.18	3.98	4.02	3.21	3.91	3.86	3.17	3.36	3.38	2.98
25	Leadership and Management	3.57	3.38	3.05	3.52	3.34	2.98	3.59	3.45	2.99	3.69	3.41	3.11	3.35	3.31	3.16

Shading indicates relative importance of each competency by career level: green = high importance; yellow = medium importance; no shading = lower importance. Proficiency Key: 1-Awareness, 2-Basic, 3-Intermediate, 4-Advanced, 5-Expert

Table 33. Competency criticality, frequency, and proficiency ratings for Journey-level respondents, by segment and by career level

		Journey														
		T&E All			Air Force			Army			Navy			4th Estate		
#	Competencies	Crit	Freq	Prof	Crit	Freq	Prof	Crit	Freq	Prof	Crit	Freq	Prof	Crit	Freq	Prof
1	Risk Identification	3.00	3.14	2.91	3.08	3.10	2.94	3.00	3.16	2.88	2.94	3.14	2.91	2.90	3.21	2.90
2	Capabilities Assessment	3.21	3.20	2.96	3.25	3.11	2.97	3.30	3.33	3.00	3.11	3.12	2.91	3.16	3.26	2.98
3	Program T&E Strategy Development	2.88	2.87	2.78	2.86	2.75	2.78	2.94	2.98	2.79	2.79	2.80	2.73	3.03	3.07	2.85
4	Test Cost Estimating	2.91	2.82	2.58	2.73	2.49	2.41	3.19	3.22	2.75	2.70	2.64	2.51	3.18	3.09	2.76
5	Coordination of T&E Activities and Events	3.11	3.12	2.92	3.11	3.01	2.94	3.19	3.26	2.96	2.97	3.02	2.83	3.26	3.30	2.99
6	Test Readiness	3.30	3.18	3.06	3.30	3.11	3.06	3.36	3.31	3.07	3.21	3.11	3.05	3.34	3.24	3.09
7	Risk Management	3.33	3.18	3.11	3.40	3.17	3.17	3.27	3.21	3.03	3.29	3.18	3.13	3.35	3.13	3.15
8	Test Control Management	3.33	3.19	3.12	3.35	3.16	3.11	3.34	3.25	3.09	3.30	3.19	3.16	3.32	3.16	3.11
9	Data Management	3.36	3.08	3.05	3.23	2.89	2.98	3.41	3.21	3.08	3.31	3.06	3.06	3.32	3.20	3.12
10	Data Verification and Validation	3.11	2.75	2.80	3.09	2.58	2.74	3.25	2.97	2.87	3.00	2.71	2.79	3.08	2.73	2.79
11	Data Reduction and Assimilation	3.06	2.73	2.82	3.09	2.62	2.82	3.08	2.85	2.88	2.98	2.66	2.76	3.10	2.83	2.79
12	Determination of Test Adequacy	3.14	2.85	2.85	3.24	2.87	2.88	3.08	2.85	2.78	3.13	2.86	2.90	3.09	2.79	2.82
13	Validation of Test Results	2.95	2.57	2.67	3.08	2.61	2.73	2.90	2.63	2.66	2.87	2.46	2.63	2.95	2.55	2.67
14	Evaluative Conclusions	3.08	2.76	2.84	3.14	2.70	2.82	3.03	2.78	2.82	3.03	2.75	2.84	3.13	2.85	2.97
15	Technical Reviews	3.16	2.95	2.99	3.27	2.98	2.98	3.09	2.97	2.99	3.07	2.83	2.99	3.22	3.08	3.00
16	Lessons Learned	3.06	2.96	3.05	3.13	2.98	3.12	2.98	2.99	2.96	3.04	2.94	3.05	3.15	2.93	3.05
17	Documentation	3.16	3.06	2.99	3.12	3.01	3.03	3.18	3.12	3.00	3.16	3.03	2.92	3.23	3.07	3.03
18	Customer Service	3.39	3.38	3.18	3.42	3.37	3.14	3.41	3.48	3.22	3.32	3.34	3.19	3.43	3.28	3.18
19	External Awareness	2.76	2.64	2.62	2.78	2.63	2.63	2.66	2.60	2.50	2.71	2.59	2.62	3.01	2.80	2.81
20	Flexibility	3.48	3.40	3.23	3.52	3.28	3.24	3.45	3.55	3.17	3.46	3.40	3.27	3.48	3.34	3.30
21	Communication	3.70	3.64	3.57	3.71	3.63	3.62	3.71	3.73	3.52	3.64	3.53	3.53	3.75	3.66	3.65
22	Technical Credibility	3.37	3.34	3.26	3.43	3.36	3.31	3.40	3.38	3.25	3.23	3.23	3.19	3.48	3.41	3.33
23	Critical Thinking	3.24	3.12	3.18	3.25	3.06	3.17	3.21	3.14	3.14	3.17	3.08	3.19	3.43	3.28	3.29
24	Professional Ethics	4.06	4.05	3.78	4.07	4.03	3.80	4.06	4.11	3.83	4.01	4.07	3.71	4.06	4.00	3.73
25	Leadership and Management	3.76	3.64	3.59	3.81	3.63	3.60	3.77	3.67	3.59	3.61	3.55	3.52	3.91	3.78	3.69

Shading indicates relative importance of each competency by career level: green = high importance; yellow = medium importance; no shading = lower importance. Proficiency Key: 1-Awareness, 2-Basic, 3-Intermediate, 4-Advanced, 5-Expert

Table 34. Competency criticality, frequency, and proficiency ratings for Senior-level respondents, by segment and by career level

		Senior														
		T&E All			Air Force			Army			Navy			4th Estate		
#	Competencies	Crit	Freq	Prof	Crit	Freq	Prof	Crit	Freq	Prof	Crit	Freq	Prof	Crit	Freq	Prof
1	Risk Identification	3.34	3.42	3.69	3.29	3.37	3.74	3.33	3.42	3.65	3.30	3.43	3.65	3.58	3.56	3.85
2	Capabilities Assessment	3.52	3.49	3.82	3.52	3.48	3.90	3.53	3.55	3.86	3.41	3.42	3.67	3.79	3.62	4.01
3	Program T&E Strategy Development	3.24	3.16	3.64	3.15	3.04	3.67	3.27	3.24	3.66	3.13	3.06	3.48	3.66	3.48	3.96
4	Test Cost Estimating	3.37	3.21	3.55	3.12	2.88	3.35	3.39	3.34	3.62	3.37	3.22	3.52	3.83	3.50	3.83
5	Coordination of T&E Activities and Events	3.43	3.35	3.75	3.27	3.16	3.72	3.47	3.43	3.78	3.37	3.31	3.64	3.78	3.61	4.04
6	Test Readiness	3.52	3.36	3.83	3.35	3.24	3.86	3.57	3.44	3.82	3.53	3.36	3.76	3.74	3.45	4.04
7	Risk Management	3.43	3.27	3.88	3.25	3.14	3.96	3.48	3.32	3.83	3.45	3.29	3.82	3.61	3.40	4.04
8	Test Control Management	3.45	3.24	3.82	3.28	3.06	3.84	3.52	3.35	3.83	3.45	3.25	3.76	3.64	3.31	3.98
9	Data Management	3.45	3.12	3.76	3.12	2.78	3.70	3.51	3.30	3.81	3.43	3.13	3.68	3.54	3.14	3.82
10	Data Verification and Validation	3.19	2.78	3.50	2.96	2.51	3.45	3.36	2.99	3.58	3.17	2.79	3.44	3.24	2.76	3.54
11	Data Reduction and Assimilation	3.13	2.76	3.51	2.97	2.55	3.50	3.29	2.95	3.59	3.04	2.69	3.39	3.30	2.86	3.64
12	Determination of Test Adequacy	3.31	3.00	3.62	3.23	2.90	3.71	3.32	3.07	3.60	3.33	3.02	3.56	3.43	3.03	3.73
13	Validation of Test Results	3.13	2.77	3.42	2.99	2.61	3.47	3.18	2.87	3.44	3.11	2.76	3.32	3.34	2.89	3.57
14	Evaluative Conclusions	3.26	2.95	3.60	3.10	2.76	3.64	3.25	3.00	3.58	3.28	2.97	3.53	3.58	3.22	3.83
15	Technical Reviews	3.51	3.30	3.93	3.31	3.16	3.96	3.53	3.36	3.89	3.52	3.29	3.86	3.75	3.45	4.17
16	Lessons Learned	3.27	3.13	3.78	3.07	2.89	3.75	3.33	3.24	3.82	3.29	3.14	3.72	3.44	3.27	3.93
17	Documentation	3.29	3.12	3.73	3.13	2.89	3.69	3.39	3.32	3.79	3.24	3.06	3.66	3.49	3.23	3.90
18	Customer Service	3.73	3.74	4.03	3.63	3.63	3.98	3.80	3.84	4.08	3.69	3.67	3.94	3.88	3.89	4.21
19	External Awareness	3.07	3.03	3.40	3.04	2.99	3.44	3.02	3.00	3.37	2.99	2.96	3.31	3.51	3.40	3.72
20	Flexibility	3.58	3.52	3.93	3.46	3.41	3.90	3.61	3.64	3.96	3.55	3.40	3.82	3.85	3.75	4.25
21	Communication	3.94	3.89	4.18	3.93	3.89	4.22	3.94	3.91	4.18	3.89	3.82	4.10	4.11	4.08	4.33
22	Technical Credibility	3.55	3.50	3.89	3.54	3.48	3.94	3.59	3.57	3.91	3.43	3.36	3.77	3.81	3.73	4.06
23	Critical Thinking	3.55	3.45	3.92	3.51	3.39	3.94	3.54	3.46	3.90	3.49	3.40	3.85	3.78	3.68	4.13
24	Professional Ethics	4.21	4.20	4.33	4.15	4.11	4.34	4.22	4.27	4.37	4.19	4.16	4.25	4.33	4.26	4.44
25	Leadership and Management	4.02	3.89	4.21	4.00	3.86	4.25	4.05	3.95	4.23	3.96	3.81	4.11	4.17	4.04	4.40

Shading indicates relative importance of each competency by career level: green = high importance; yellow = medium importance; no shading = lower importance. Proficiency Key: 1-Awareness, 2-Basic, 3-Intermediate, 4-Advanced, 5-Expert

Appendix E: Other importance and proficiency analyses

T&E workforce community

Important competencies within the Test and Evaluation workforce community

In this appendix, we present the importance and proficiency results for respondents for which we were able to identify their position code (Datamart or NON T coded) within the T&E workforce community, only. In this section, we discuss our importance results for the T&E workforce community which represents 87 percent of assessment respondents

Datamart responses

Our analysis suggests that most competencies (64 percent) are of high importance to Datamart respondents who associate themselves with the T&E workforce community. A fewer number of competencies (16 percent) are considered to be of medium importance to this group of respondents based on mean criticality ratings. The remaining competencies rank at the lower end of the importance spectrum. Competencies identified as highly important to Datamart respondents are:

- Competency 1: Risk Identification
- Competency 2: Capabilities Assessment
- Competency 5: Coordination of T&E Activities and Events
- Competency 6: Test Readiness
- Competency 7: Risk Management

- Competency 8: Test Control Management
- Competency 9: Data Management
- Competency 15: Technical Reviews
- Competency 16: Lessons Learned
- Competency 17: Documentation
- Competency 18: Customer Service
- Competency 20: Flexibility
- Competency 21: Communication
- Competency 22: Technical Credibility
- Competency 23: Critical Thinking
- Competency 24: Professional Ethics
- Competency 25: Leadership and Management

NON T coded responses

NON T coded in the T&E workforce community respondents find a similar number of competencies to be highly important to their job as do Datamart respondents in the T&E workforce community and most of them are the same. Slightly more than a fourth of the remaining competencies are of medium importance to NON T coded respondents (28 percent). Competencies identified as highly important to NON T coded respondents are:

- Competency 1: Risk Identification
- Competency 2: Capabilities Assessment
- Competency 3: Program T&E Strategy Development
- Competency 4: Test Cost Estimating

- Competency 5: Coordination of T&E Activities and Events
- Competency 6: Test Readiness
- Competency 7: Risk Management
- Competency 8: Test Control Management
- Competency 9: Data Management
- Competency 15: Technical Reviews
- Competency 17: Documentation
- Competency 18: Customer Service
- Competency 20: Flexibility
- Competency 21: Communication
- Competency 22: Technical Credibility
- Competency 23: Critical Thinking
- Competency 24: Professional Ethics
- Competency 25: Leadership and Management

Relative importance of competencies by career level and position code within the T&E workforce community

In this section we discuss competency importance within the T&E workforce community relative to respondent-supplied career levels.

The relative importance of competencies increases with increasing career level among Datamart respondents in the T&E workforce community.

Competencies of high importance to Entry-level Datamart respondents are a subset of those identified by Journey-level Datamart respondents. Senior-level Datamart respondents find

all competencies identified by Entry- and Journey-level Datamart respondents to be highly important and more. Competencies not identified as highly important to Senior-level Datamart respondents are of medium importance to these respondents (Table35).

Table 35. Importance ratings for Datamart respondents in the T&E workforce community, by competency and career level

#	Competency Name	Entry		Journey		Senior	
		Mean Crit	Mean Freq	Mean Crit	Mean Freq	Mean Crit	Mean Freq
1	Risk Identification	2.87	2.91	3.03	3.15	3.34	3.43
2	Capabilities Assessment	2.99	2.95	3.26	3.22	3.51	3.50
3	Program T&E Strategy Development	2.66	2.58	2.88	2.85	3.21	3.14
4	Test Cost Estimating	2.71	2.54	2.86	2.77	3.36	3.22
5	Coordination of T&E Activities and Events	2.96	2.87	3.13	3.12	3.42	3.36
6	Test Readiness	3.17	2.94	3.35	3.23	3.56	3.41
7	Risk Management	3.17	3.00	3.35	3.22	3.47	3.33
8	Test Control Management	3.33	3.11	3.38	3.26	3.50	3.30
9	Data Management	3.24	2.90	3.37	3.10	3.43	3.16
10	Data Verification and Validation	3.03	2.67	3.19	2.81	3.25	2.87
11	Data Reduction and Assimilation	3.03	2.68	3.10	2.76	3.16	2.82
12	Determination of Test Adequacy	3.02	2.63	3.18	2.88	3.34	3.06
13	Validation of Test Results	2.84	2.45	2.98	2.57	3.15	2.81
14	Evaluative Conclusions	3.02	2.64	3.10	2.79	3.27	2.97
15	Technical Reviews	2.99	2.73	3.23	2.99	3.51	3.31
16	Lessons Learned	2.96	2.80	3.10	3.01	3.28	3.15
17	Documentation	3.11	2.90	3.20	3.12	3.33	3.18
18	Customer Service	3.15	3.07	3.43	3.43	3.75	3.76
19	External Awareness	2.62	2.51	2.72	2.60	3.04	3.00
20	Flexibility	3.27	3.19	3.52	3.40	3.60	3.53
21	Communication	3.61	3.48	3.76	3.66	3.95	3.89
22	Technical Credibility	3.30	3.26	3.40	3.34	3.55	3.49
23	Critical Thinking	3.11	2.96	3.28	3.13	3.55	3.45
24	Professional Ethics	4.02	3.99	4.12	4.12	4.24	4.23
25	Leadership and Management	3.60	3.40	3.77	3.63	4.01	3.89

Shading indicates relative importance of each competency according to Datamart respondents in the T&E workforce community: green = high importance; yellow = medium importance; no shading = lower importance.

Junior- and Senior-level NON T coded respondents in the T&E workforce community find most competencies to be highly important; however, Entry-level NON T coded respondents only find professional competencies to be highly important.

The relative importance of competencies also increases across career levels among NON T coded respondents, but the type of competencies that are highly important to each career level grouping varies. Entry-level NON T coded respondents find

most professional competencies to be highly important. They identified no technical competencies as highly important. However, Journey- and Senior-level NON T coded respondents identified almost all of the same competencies to be highly important (20 competencies), including both technical and professional competencies. Competencies not identified as highly important to Journey- and Senior-level NON T coded respondents are considered to be of medium importance (Table 36).

Table 36. Importance ratings for NON T coded respondents in the T&E workforce community, by competency and career level

#	Competency Name	Entry		Journey		Senior	
		Mean Crit	Mean Freq	Mean Crit	Mean Freq	Mean Crit	Mean Freq
1	Risk Identification	2.82	3.10	3.00	3.25	3.45	3.51
2	Capabilities Assessment	2.95	3.02	3.33	3.45	3.74	3.66
3	Program T&E Strategy Development	2.68	2.58	3.13	3.18	3.49	3.37
4	Test Cost Estimating	2.91	2.62	3.23	3.16	3.64	3.37
5	Coordination of T&E Activities and Events	2.97	2.89	3.22	3.30	3.77	3.57
6	Test Readiness	2.90	2.71	3.24	3.13	3.60	3.40
7	Risk Management	3.17	2.81	3.49	3.36	3.56	3.34
8	Test Control Management	3.08	2.94	3.37	3.23	3.57	3.24
9	Data Management	3.10	2.93	3.36	3.17	3.54	3.19
10	Data Verification and Validation	2.78	2.58	3.03	2.65	3.25	2.78
11	Data Reduction and Assimilation	2.84	2.72	3.17	2.90	3.31	2.91
12	Determination of Test Adequacy	3.00	2.74	3.23	2.95	3.38	2.99
13	Validation of Test Results	2.78	2.50	3.10	2.72	3.24	2.83
14	Evaluative Conclusions	2.82	2.70	3.29	3.01	3.49	3.16
15	Technical Reviews	2.70	2.42	3.28	3.12	3.78	3.44
16	Lessons Learned	2.81	2.65	3.22	3.03	3.48	3.18
17	Documentation	2.77	2.69	3.44	3.31	3.46	3.26
18	Customer Service	2.91	2.84	3.52	3.42	3.95	3.92
19	External Awareness	2.56	2.45	3.05	2.94	3.37	3.25
20	Flexibility	3.06	2.86	3.49	3.35	3.84	3.72
21	Communication	3.29	3.12	3.73	3.68	4.12	4.03
T22	Technical Credibility	3.10	3.03	3.48	3.44	3.76	3.68
23	Critical Thinking	2.89	2.71	3.37	3.28	3.68	3.55
24	Professional Ethics	3.77	3.70	4.14	4.09	4.34	4.28
25	Leadership and Management	3.62	3.46	3.92	3.83	4.20	4.02

Shading indicates relative importance of each competency according to NON T coded respondents in the T&E workforce community: green = high importance; yellow = medium importance; no shading = lower importance.

Proficiency ratings of respondents in the T&E workforce community by career level and position code

Mean proficiency ratings of Journey- and Senior-level Datamart respondents for most competencies identified as highly important are above 3.0. Mean proficiency ratings of Entry-level Datamart respondents for most highly important competencies are below 3.0

We summarize the mean proficiency results of high importance competencies as rated by Datamart respondents in the T&E workforce community:

- *Entry-level:* Mean proficiency ratings are **between 3.0 (*intermediate*) and 4.0 (*advanced*) for one of eight high importance competencies**.

- *Journey-level:* Mean proficiency ratings are **between 3.0 (*intermediate*) and 4.0 (*advanced*) for 13 of 16 high importance competencies.**

- *Senior-level:* Mean proficiency levels are **between 3.0 (*intermediate*) and 4.0 (*advanced*) for 17 of 21 high importance competencies.**

The mean proficiency ratings of Entry- and Journey-level Datamart respondents for all other highly important competencies are between *basic* (scale rating of 2) and *intermediate*. The mean proficiency ratings of the remaining highly important competencies to Senior-level Datamart respondents are between advanced and expert (scale rating of 5). These competencies are professional competencies. Our results are presented in Table 37.

Table 37. Mean proficiency ratings for Datamart respondents in the T&E workforce community, by competency and career level

#	Competency	Entry	Journey	Senior
1	Risk Identification	2.32	2.94	3.70
2	Capabilities Assessment	2.35	2.99	3.83
3	Program T&E Strategy Development	2.16	2.79	3.62
4	Test Cost Estimating	2.04	2.54	3.56
5	Coordination of T&E Activities and Events	2.29	2.94	3.75
6	Test Readiness	2.40	3.11	3.85
7	Risk Management	2.49	3.18	3.91
8	Test Control Management	2.52	3.18	3.86
9	Data Management	2.46	3.10	3.79
10	Data Verification and Validation	2.31	2.86	3.56
11	Data Reduction and Assimilation	2.32	2.88	3.56
12	Determination of Test Adequacy	2.33	2.90	3.66
13	Validation of Test Results	2.19	2.71	3.45
14	Evaluative Conclusions	2.26	2.90	3.61
15	Technical Reviews	2.26	3.07	3.93
16	Lessons Learned	2.42	3.12	3.80
17	Documentation	2.42	3.08	3.78
18	Customer Service	2.50	3.26	4.04
19	External Awareness	2.10	2.63	3.39
20	Flexibility	2.59	3.27	3.92
21	Communication	2.95	3.61	4.17
22	Technical Credibility	2.75	3.30	3.89
23	Critical Thinking	2.57	3.21	3.93
24	Professional Ethics	3.19	3.83	4.35
25	Leadership and Management	2.98	3.60	4.21

Shading indicates relative importance of each competency according to Datamart respondents in the T&E workforce community: green = high importance; yellow = medium importance; no shading = least important.

Mean proficiency ratings of NON T coded respondents for most competencies identified as highly important are above 3.0.

The mean proficiency results of high importance competencies as rated by NON T coded respondents in the T&E workforce community are as follows:

- *Entry-level:* Mean proficiency levels are **between 3.0 (*intermediate*) and 4.0 (*advanced*) for <u>two of four</u> high importance competencies.**
- *Journey-level:* Mean proficiency levels are **between 3.0 (*intermediate*) and 4.0 (*advanced*) for <u>16 of 20</u> high importance competencies**.
- *Senior-level:* Mean proficiency levels are **between 3.0 (*intermediate*) and 4.0 (*advanced*) for <u>13 of 21</u> high importance competencies**.

We present our results in Table 38.

Table 38. Mean proficiency ratings for NON T coded respondents in the T&E workforce community, by competency and career level

#	Competency	Entry	Journey	Senior
1	Risk Identification	2.27	2.84	3.79
2	Capabilities Assessment	2.33	3.04	3.94
3	Program T&E Strategy Development	2.16	2.91	3.82
4	Test Cost Estimating	2.08	2.74	3.70
5	Coordination of T&E Activities and Events	2.31	2.96	3.99
6	Test Readiness	2.29	2.97	3.95
7	Risk Management	2.30	3.15	3.99
8	Test Control Management	2.39	3.05	3.89
9	Data Management	2.38	3.07	3.86
10	Data Verification and Validation	2.14	2.74	3.51
11	Data Reduction and Assimilation	2.18	2.88	3.60
12	Determination of Test Adequacy	2.36	2.89	3.65
13	Validation of Test Results	2.12	2.77	3.48
14	Evaluative Conclusions	2.19	3.01	3.71
15	Technical Reviews	2.05	3.04	4.03
16	Lessons Learned	2.41	3.01	3.83
17	Documentation	2.23	3.11	3.83
18	Customer Service	2.23	3.17	4.13
19	External Awareness	1.96	2.78	3.66
20	Flexibility	2.44	3.25	4.16
21	Communication	2.92	3.55	4.30
22	Technical Credibility	2.63	3.31	4.03
23	Critical Thinking	2.47	3.22	4.00
24	Professional Ethics	3.13	3.70	4.42
25	Leadership and Management	3.18	3.67	4.37

Shading indicates relative importance of each competency according to NON T coded respondents in the T&E workforce community: green = high importance; yellow = medium importance; no shading = least important.

Other certification

In this section we present the results of our analyses of competency data by specific certification types. Valid response numbers were too low to analyze some certification types further by Datamart and NON T coded levels. Therefore, in order to allow for comparisons across certification types, we limited our analysis to career level.

IT certification

Table 39 presents the results of our importance analysis of IT certified assessment respondents.

Table 39. Importance ratings for respondents who are IT certified, by competency and career level

#	Competency Name	Entry		Journey		Senior	
		Mean Crit	Mean Freq	Mean Crit	Mean Freq	Mean Crit	Mean Freq
1	Risk Identification	2.33	2.91	2.86	3.09	3.35	3.42
2	Capabilities Assessment	2.60	2.62	3.03	3.26	3.61	3.59
3	Program T&E Strategy Development	2.54	2.54	2.69	2.87	3.38	3.32
4	Test Cost Estimating	2.44	1.96	2.60	2.76	3.55	3.42
5	Coordination of T&E Activities and Events	2.75	2.76	2.74	2.79	3.51	3.67
6	Test Readiness	2.73	2.78	2.86	3.02	3.58	3.50
7	Risk Management	3.20	2.65	2.86	2.83	3.21	3.31
8	Test Control Management	2.87	2.71	2.93	2.96	3.43	3.47
9	Data Management	2.55	2.47	3.31	3.23	3.43	3.32
10	Data Verification and Validation	2.69	2.40	3.18	3.04	3.26	3.01
11	Data Reduction and Assimilation	2.60	2.29	3.34	3.04	3.43	2.85
12	Determination of Test Adequacy	2.63	2.70	3.07	3.02	3.42	3.07
13	Validation of Test Results	2.58	2.51	2.83	2.81	3.31	2.59
14	Evaluative Conclusions	2.65	2.53	2.96	2.77	3.53	3.04
15	Technical Reviews	2.93	2.50	2.67	2.78	3.55	3.26
16	Lessons Learned	2.71	2.75	2.46	2.91	3.27	3.21
17	Documentation	2.73	2.70	2.78	2.65	3.41	3.13
18	Customer Service	2.89	2.68	3.24	3.52	3.66	3.65
19	External Awareness	3.00	2.77	2.92	3.05	3.17	3.16
20	Flexibility	3.33	3.25	3.09	3.28	3.66	3.71
21	Communication	3.19	3.33	3.15	3.37	4.01	3.90
22	Technical Credibility	3.36	3.46	3.18	3.53	3.78	3.71
23	Critical Thinking	3.25	3.42	2.98	3.14	3.72	3.62
24	Professional Ethics	3.77	3.88	3.51	3.84	4.14	4.40
25	Leadership and Management	4.14	4.05	3.32	3.38	4.03	3.95

Shading indicates relative importance of each competency according to IT certified respondents: green = high importance; yellow = medium importance; no shading = lower importance.

Table 40 presents the results of our proficiency analysis of IT certified assessment respondents.

Table 40. Mean proficiency responses for IT certified T&E respondents, by competency and career level

#	Competency	Entry	Journey	Senior
1	Risk Identification	2.01	2.85	3.65
2	Capabilities Assessment	2.26	3.10	3.81
3	Program T&E Strategy Development	2.20	2.68	3.63
4	Test Cost Estimating	2.13	2.43	3.65
5	Coordination of T&E Activities and Events	2.36	2.66	3.74
6	Test Readiness	2.50	2.87	3.81
7	Risk Management	2.50	2.90	3.68
8	Test Control Management	2.45	2.89	3.71
9	Data Management	2.31	3.00	3.71
10	Data Verification and Validation	2.43	2.90	3.45
11	Data Reduction and Assimilation	2.31	3.16	3.51
12	Determination of Test Adequacy	2.58	2.98	3.49
13	Validation of Test Results	2.45	2.71	3.33
14	Evaluative Conclusions	2.26	2.74	3.54
15	Technical Reviews	2.25	2.73	3.78
16	Lessons Learned	2.25	2.87	3.60
17	Documentation	2.29	2.76	3.67
18	Customer Service	2.52	3.09	3.96
19	External Awareness	2.33	2.91	3.32
20	Flexibility	2.55	3.06	3.88
21	Communication	2.94	3.39	4.17
22	Technical Credibility	2.87	3.19	3.89
23	Critical Thinking	3.06	2.92	3.89
24	Professional Ethics	3.23	3.52	4.19
25	Leadership and Management	3.72	3.41	4.11

Shading indicates relative importance of each competency according to IT certified respondents: green = high importance; yellow = medium importance; no shading = lower importance.

PM certification

Table 41 presents the results of our importance analysis of PM certified assessment respondents.

Table 41. Importance ratings for respondents who are PM certified, by competency and career level

#	Competency Name	Entry		Journey		Senior	
		Mean Crit	Mean Freq	Mean Crit	Mean Freq	Mean Crit	Mean Freq
1	Risk Identification	3.06	3.34	3.13	3.21	3.65	3.59
2	Capabilities Assessment	3.21	3.21	3.25	3.18	3.70	3.59
3	Program T&E Strategy Development	3.15	3.04	3.03	2.85	3.50	3.26
4	Test Cost Estimating	3.26	3.05	3.26	2.95	3.47	3.17
5	Coordination of T&E Activities and Events	3.32	3.22	3.17	3.06	3.55	3.31
6	Test Readiness	3.29	3.18	3.38	3.16	3.61	3.31
7	Risk Management	3.57	3.48	3.26	3.03	3.36	3.00
8	Test Control Management	3.54	3.50	3.21	3.01	3.32	2.95
9	Data Management	3.33	3.19	3.21	2.83	3.19	2.61
10	Data Verification and Validation	3.01	2.93	2.89	2.41	2.89	2.18
11	Data Reduction and Assimilation	3.26	3.07	2.93	2.40	2.93	2.38
12	Determination of Test Adequacy	3.23	2.92	3.25	2.69	3.23	2.75
13	Validation of Test Results	3.12	2.83	3.03	2.50	2.99	2.50
14	Evaluative Conclusions	3.19	3.00	3.09	2.60	3.22	2.78
15	Technical Reviews	3.13	2.98	3.36	3.02	3.75	3.47
16	Lessons Learned	3.19	3.22	3.03	2.75	3.28	3.03
17	Documentation	3.26	3.21	3.08	2.81	3.20	2.88
18	Customer Service	3.14	3.17	3.50	3.41	3.85	3.81
19	External Awareness	2.98	3.04	2.94	2.73	3.30	3.23
20	Flexibility	3.46	3.44	3.49	3.21	3.75	3.60
21	Communication	3.56	3.57	3.72	3.64	4.08	3.99
22	Technical Credibility	3.22	3.33	3.50	3.36	3.72	3.64
23	Critical Thinking	3.17	3.05	3.25	3.04	3.68	3.54
24	Professional Ethics	4.29	4.24	3.94	3.98	4.26	4.19
25	Leadership and Management	4.06	4.02	3.79	3.62	4.15	3.98

Shading indicates relative importance of each competency according to PM certified respondents: green = high importance; yellow = medium importance; no shading = lower importance.

Table 42 presents the results of our proficiency analysis of PM certified assessment respondents.

Table 42. Mean proficiency responses for PM certified T&E respondents, by competency and career level

#	Competency	Entry	Journey	Senior
1	Risk Identification	2.62	2.97	4.01
2	Capabilities Assessment	2.59	3.01	4.07
3	Program T&E Strategy Development	2.50	2.96	4.00
4	Test Cost Estimating	2.41	2.69	3.68
5	Coordination of T&E Activities and Events	2.56	3.02	4.00
6	Test Readiness	2.55	3.16	4.06
7	Risk Management	2.71	3.35	4.15
8	Test Control Management	2.67	3.17	3.97
9	Data Management	2.58	3.09	3.69
10	Data Verification and Validation	2.35	2.64	3.28
11	Data Reduction and Assimilation	2.38	2.71	3.46
12	Determination of Test Adequacy	2.52	2.98	3.71
13	Validation of Test Results	2.33	2.77	3.44
14	Evaluative Conclusions	2.44	2.91	3.73
15	Technical Reviews	2.40	3.16	4.21
16	Lessons Learned	2.59	3.19	3.93
17	Documentation	2.52	3.08	3.82
18	Customer Service	2.44	3.47	4.16
19	External Awareness	2.31	2.85	3.72
20	Flexibility	2.57	3.35	4.18
21	Communication	2.94	3.72	4.37
22	Technical Credibility	2.74	3.39	4.11
23	Critical Thinking	2.53	3.25	4.10
24	Professional Ethics	3.41	3.81	4.46
25	Leadership and Management	3.49	3.72	4.37

Shading indicates relative importance of each competency according to PM certified respondents: green = high importance; yellow = medium importance; no shading = lower importance.

SPRDE certification

Table 43 presents the results of our importance analysis of SPRDE certified (i.e., SE, PSE, and STM) assessment respondents.

Table 43. Importance ratings for respondents who are SPRDE certified, by competency and career level

#	Competency Name	Entry		Journey		Senior	
		Mean Crit	Mean Freq	Mean Crit	Mean Freq	Mean Crit	Mean Freq
1	Risk Identification	2.57	2.87	3.02	3.08	3.45	3.52
2	Capabilities Assessment	2.71	2.71	3.07	3.05	3.52	3.45
3	Program T&E Strategy Development	2.66	2.46	2.87	2.75	3.36	3.22
4	Test Cost Estimating	2.56	2.12	2.95	2.75	3.41	3.15
5	Coordination of T&E Activities and Events	2.74	2.55	2.79	2.81	3.35	3.22
6	Test Readiness	3.03	2.86	3.15	2.93	3.42	3.26
7	Risk Management	3.00	3.01	3.03	2.73	3.22	2.92
8	Test Control Management	3.26	3.16	3.12	2.93	3.21	2.90
9	Data Management	3.11	2.99	3.10	2.86	3.09	2.70
10	Data Verification and Validation	2.87	2.75	2.79	2.44	2.84	2.36
11	Data Reduction and Assimilation	3.08	2.79	2.88	2.60	2.91	2.43
12	Determination of Test Adequacy	3.35	2.89	3.19	2.74	3.23	2.85
13	Validation of Test Results	2.96	2.45	3.03	2.61	3.09	2.66
14	Evaluative Conclusions	3.07	2.79	2.85	2.54	3.23	2.86
15	Technical Reviews	3.03	2.54	3.14	2.85	3.69	3.41
16	Lessons Learned	2.99	2.58	2.99	2.73	3.24	2.97
17	Documentation	3.39	2.83	3.14	2.89	3.17	2.88
18	Customer Service	2.97	2.65	3.38	3.27	3.79	3.75
19	External Awareness	2.99	2.52	2.90	2.54	3.25	3.18
20	Flexibility	3.38	3.03	3.07	2.90	3.48	3.39
21	Communication	3.46	3.21	3.69	3.54	3.98	3.95
22	Technical Credibility	3.01	2.83	3.36	3.30	3.57	3.53
23	Critical Thinking	2.93	2.54	3.03	2.80	3.47	3.36
24	Professional Ethics	4.05	3.93	3.83	3.90	4.17	4.08
25	Leadership and Management	3.76	3.53	3.50	3.26	3.96	3.83

Shading indicates relative importance of each competency according to SPRDE certified respondents: green = high importance; yellow = medium importance; no shading = lower importance.

Table 44 presents the results of our proficiency analysis of SPRDE certified (i.e., SE, PSE, and STM) assessment respondents.

Table 44. Mean proficiency responses for SPRDE certified T&E respondents, by competency and career level

#	Competency	Entry	Journey	Senior
1	Risk Identification	2.36	2.87	3.92
2	Capabilities Assessment	2.23	2.90	3.91
3	Program T&E Strategy Development	2.12	2.80	3.83
4	Test Cost Estimating	1.80	2.39	3.60
5	Coordination of T&E Activities and Events	2.06	2.76	3.87
6	Test Readiness	2.28	2.98	3.92
7	Risk Management	2.11	3.16	3.94
8	Test Control Management	2.34	3.16	3.83
9	Data Management	2.46	3.18	3.68
10	Data Verification and Validation	2.31	2.88	3.35
11	Data Reduction and Assimilation	2.32	2.98	3.48
12	Determination of Test Adequacy	2.41	3.22	3.74
13	Validation of Test Results	2.26	2.99	3.54
14	Evaluative Conclusions	2.35	2.91	3.68
15	Technical Reviews	2.16	3.11	4.07
16	Lessons Learned	2.39	3.21	3.84
17	Documentation	2.47	3.10	3.77
18	Customer Service	2.13	3.36	4.07
19	External Awareness	1.85	2.65	3.69
20	Flexibility	2.36	3.11	4.02
21	Communication	2.97	3.56	4.33
22	Technical Credibility	2.61	3.32	4.00
23	Critical Thinking	2.36	3.12	3.96
24	Professional Ethics	3.45	3.68	4.37
25	Leadership and Management	3.25	3.29	4.25

Shading indicates relative importance of each competency according to SPRDE certified respondents: green = high importance; yellow = medium importance; no shading = lower importance.

Military vs. civilian

In this section we present the results of our analyses of competency data by military/civilian status. We received a sufficient number of valid responses to analyze these groupings in terms of Datamart and NON T coded position codes.

Active duty military

Table 45 presents the results of our importance analysis of Datamart coded active duty military respondents.

Table 45. Importance ratings for active duty military Datamart coded respondents, by competency and career level

#	Competency Name	Entry		Journey		Senior	
		Mean Crit	Mean Freq	Mean Crit	Mean Freq	Mean Crit	Mean Freq
1	Risk Identification	2.96	2.97	3.10	3.22	3.58	3.59
2	Capabilities Assessment	3.03	2.99	3.35	3.29	3.52	3.44
3	Program T&E Strategy Development	2.82	2.70	2.96	2.88	3.22	3.10
4	Test Cost Estimating	2.72	2.45	2.83	2.64	3.14	2.64
5	Coordination of T&E Activities and Events	3.06	2.91	3.32	3.23	3.49	3.23
6	Test Readiness	3.17	2.85	3.40	3.18	3.56	3.40
7	Risk Management	3.20	3.04	3.48	3.27	3.67	3.47
8	Test Control Management	3.27	3.05	3.41	3.20	3.44	3.14
9	Data Management	3.24	2.76	3.26	2.85	3.03	2.60
10	Data Verification and Validation	2.93	2.54	2.94	2.46	2.68	2.13
11	Data Reduction and Assimilation	2.97	2.57	3.08	2.57	2.78	2.27
12	Determination of Test Adequacy	3.12	2.61	3.34	2.91	3.46	2.95
13	Validation of Test Results	3.02	2.44	3.21	2.56	3.16	2.70
14	Evaluative Conclusions	3.06	2.58	3.36	2.80	3.52	3.11
15	Technical Reviews	3.08	2.76	3.41	3.08	3.62	3.43
16	Lessons Learned	2.89	2.70	3.16	2.90	3.24	2.94
17	Documentation	3.01	2.76	3.26	3.12	3.19	2.97
18	Customer Service	2.97	2.86	3.46	3.35	3.64	3.67
19	External Awareness	2.57	2.46	2.86	2.76	3.21	2.96
20	Flexibility	3.31	3.11	3.67	3.46	3.69	3.55
21	Communication	3.54	3.42	3.77	3.70	4.12	3.97
22	Technical Credibility	3.15	3.09	3.33	3.32	3.46	3.25
23	Critical Thinking	2.99	2.80	3.30	3.11	3.49	3.26
24	Professional Ethics	4.03	3.91	4.17	4.16	4.23	4.21
25	Leadership and Management	3.64	3.47	3.89	3.75	4.16	4.02

Shading indicates relative importance of each competency according to active duty military Datamart respondents: green = high importance; yellow = medium importance; no shading = lower importance.

Table 46 presents the results of our proficiency analysis of active duty military Datamart assessment respondents.

Table 46. Mean proficiency responses for active duty military Datamart coded respondents, by competency and career level

#	Competency	Entry	Journey	Senior
1	Risk Identification	2.30	3.00	3.77
2	Capabilities Assessment	2.27	3.12	3.74
3	Program T&E Strategy Development	2.18	2.94	3.65
4	Test Cost Estimating	1.87	2.49	3.15
5	Coordination of T&E Activities and Events	2.27	3.10	3.84
6	Test Readiness	2.32	3.18	3.97
7	Risk Management	2.44	3.36	4.24
8	Test Control Management	2.35	3.26	3.93
9	Data Management	2.23	3.03	3.59
10	Data Verification and Validation	2.02	2.68	3.12
11	Data Reduction and Assimilation	2.07	2.80	3.19
12	Determination of Test Adequacy	2.16	2.98	3.61
13	Validation of Test Results	2.05	2.81	3.46
14	Evaluative Conclusions	2.17	2.98	3.76
15	Technical Reviews	2.19	3.10	3.91
16	Lessons Learned	2.37	3.17	3.69
17	Documentation	2.26	3.07	3.63
18	Customer Service	2.27	3.15	3.82
19	External Awareness	2.01	2.74	3.39
20	Flexibility	2.44	3.30	3.98
21	Communication	2.78	3.67	4.17
22	Technical Credibility	2.58	3.31	3.81
23	Critical Thinking	2.42	3.22	3.84
24	Professional Ethics	3.12	3.86	4.29
25	Leadership and Management	3.02	3.72	4.27

Shading indicates relative importance of each competency according to active duty military Datamart respondents: green = high importance; yellow = medium importance; no shading = lower importance.

Table 47 presents the results of our importance analysis of NON T coded active duty military assessment respondents.

Table 47. Importance ratings for active duty military NON T coded respondents, by competency and career level

#	Competency Name	Entry		Journey		Senior	
		Mean Crit	Mean Freq	Mean Crit	Mean Freq	Mean Crit	Mean Freq
1	Risk Identification	2.80	3.03	3.16	3.17	4.04	3.96
2	Capabilities Assessment	2.94	2.87	3.27	3.19	4.08	3.92
3	Program T&E Strategy Development	2.73	2.54	3.03	3.01	3.78	3.58
4	Test Cost Estimating	2.95	2.58	3.05	2.81	3.78	2.89
5	Coordination of T&E Activities and Events	2.97	2.85	3.18	3.05	3.93	3.56
6	Test Readiness	2.95	2.65	3.18	2.91	4.00	3.59
7	Risk Management	3.21	2.89	3.42	3.00	4.00	3.43
8	Test Control Management	3.08	2.90	3.32	2.94	3.86	3.36
9	Data Management	2.98	2.69	3.28	2.80	3.90	3.10
10	Data Verification and Validation	2.48	2.27	2.82	2.47	4.08	2.58
11	Data Reduction and Assimilation	2.69	2.48	3.14	2.69	4.12	2.63
12	Determination of Test Adequacy	2.96	2.65	3.34	2.97	3.50	3.08
13	Validation of Test Results	2.71	2.33	3.29	2.90	3.58	2.75
14	Evaluative Conclusions	2.70	2.53	3.47	2.90	3.89	2.94
15	Technical Reviews	2.57	2.35	3.22	2.78	4.00	3.33
16	Lessons Learned	2.74	2.63	3.11	2.75	3.50	3.00
17	Documentation	2.58	2.45	3.19	2.92	3.58	2.50
18	Customer Service	2.74	2.63	3.50	3.18	3.75	3.83
19	External Awareness	2.43	2.38	3.05	2.52	3.67	3.22
20	Flexibility	3.14	2.81	3.53	3.11	3.83	3.17
21	Communication	3.23	3.05	3.78	3.49	4.39	4.22
22	Technical Credibility	3.02	2.87	3.60	3.13	3.76	3.51
23	Critical Thinking	2.82	2.60	3.30	2.81	3.82	3.67
24	Professional Ethics	3.80	3.62	4.16	4.04	4.67	4.50
25	Leadership and Management	3.61	3.40	4.04	3.81	4.68	4.42

Shading indicates relative importance of each competency according to active duty military NON T coded respondents: green = high importance; yellow = medium importance; no shading = lower importance.

Table 48 presents the results of our proficiency analysis of active duty military NON T coded assessment respondents.

Table 48. Mean proficiency responses for active duty military NON T coded respondents, by competency and career level

#	Competency	Entry	Journey	Senior
1	Risk Identification	2.21	2.92	4.00
2	Capabilities Assessment	2.12	2.97	3.70
3	Program T&E Strategy Development	2.09	2.80	3.76
4	Test Cost Estimating	2.07	2.50	3.22
5	Coordination of T&E Activities and Events	2.25	2.76	3.96
6	Test Readiness	2.21	2.86	4.31
7	Risk Management	2.27	3.05	4.29
8	Test Control Management	2.25	3.08	4.14
9	Data Management	2.10	3.05	3.71
10	Data Verification and Validation	1.70	2.61	3.00
11	Data Reduction and Assimilation	1.85	2.69	3.43
12	Determination of Test Adequacy	2.19	3.02	3.83
13	Validation of Test Results	1.95	2.96	3.42
14	Evaluative Conclusions	2.02	2.93	3.72
15	Technical Reviews	2.00	2.84	4.00
16	Lessons Learned	2.28	2.95	3.33
17	Documentation	2.01	2.94	3.58
18	Customer Service	2.10	3.08	3.67
19	External Awareness	1.83	2.69	3.50
20	Flexibility	2.37	3.21	3.83
21	Communication	2.84	3.59	4.61
22	Technical Credibility	2.51	3.13	4.06
23	Critical Thinking	2.39	3.17	3.99
24	Professional Ethics	3.06	3.84	4.68
25	Leadership and Management	3.30	3.88	4.70

Shading indicates relative importance of each competency according to active duty military NON T coded respondents: green = high importance; yellow = medium importance; no shading = lower importance.

Federal civilian with no prior military service

Table 49 presents the results of our importance analysis of Datamart coded federal civilian assessment respondents with no prior military service.

Table 49. Importance ratings for federal civilian Datamart coded respondents (with no prior military service), by competency and career level

#	Competency Name	Entry		Journey		Senior	
		Mean Crit	Mean Freq	Mean Crit	Mean Freq	Mean Crit	Mean Freq
1	Risk Identification	2.71	2.80	2.98	3.10	3.24	3.32
2	Capabilities Assessment	2.88	2.88	3.18	3.14	3.42	3.44
3	Program T&E Strategy Development	2.52	2.48	2.78	2.80	3.10	3.03
4	Test Cost Estimating	2.72	2.66	2.81	2.77	3.31	3.19
5	Coordination of T&E Activities and Events	2.91	2.87	3.01	3.03	3.31	3.28
6	Test Readiness	3.14	2.96	3.26	3.17	3.47	3.35
7	Risk Management	3.13	2.99	3.28	3.18	3.39	3.28
8	Test Control Management	3.29	3.11	3.33	3.27	3.46	3.30
9	Data Management	3.20	2.93	3.37	3.18	3.43	3.22
10	Data Verification and Validation	3.05	2.71	3.23	3.01	3.28	2.96
11	Data Reduction and Assimilation	3.02	2.75	3.08	2.88	3.16	2.87
12	Determination of Test Adequacy	2.92	2.61	3.06	2.86	3.27	3.04
13	Validation of Test Results	2.74	2.50	2.84	2.58	3.08	2.77
14	Evaluative Conclusions	2.94	2.67	2.96	2.78	3.15	2.89
15	Technical Reviews	2.93	2.66	3.09	2.90	3.47	3.26
16	Lessons Learned	3.02	2.77	3.03	3.03	3.28	3.12
17	Documentation	3.13	2.98	3.16	3.13	3.28	3.15
18	Customer Service	3.30	3.24	3.35	3.41	3.73	3.75
19	External Awareness	2.65	2.54	2.64	2.53	2.98	2.94
20	Flexibility	3.26	3.20	3.42	3.39	3.48	3.43
21	Communication	3.66	3.50	3.71	3.63	3.89	3.83
22	Technical Credibility	3.35	3.31	3.36	3.32	3.47	3.43
23	Critical Thinking	3.19	3.08	3.24	3.14	3.47	3.38
24	Professional Ethics	3.97	3.98	4.05	4.09	4.16	4.17
25	Leadership and Management	3.57	3.35	3.66	3.54	3.94	3.81

Shading indicates relative importance of each competency according to federal civilian respondents with no prior military service and who are coded as Datamart: green = high importance; yellow = medium importance; no shading = lower importance.

Table 50 presents the results of our proficiency analysis of federal civilian Datamart assessment respondents with no prior military service.

Table 50. Mean proficiency responses for federal civilian Datamart coded respondents with no prior military service, by competency and career level

#	Competency	Entry	Journey	Senior
1	Risk Identification	2.32	2.94	3.70
2	Capabilities Assessment	2.35	2.99	3.83
3	Program T&E Strategy Development	2.16	2.79	3.62
4	Test Cost Estimating	2.04	2.54	3.56
5	Coordination of T&E Activities and Events	2.29	2.94	3.75
6	Test Readiness	2.40	3.11	3.85
7	Risk Management	2.49	3.18	3.91
8	Test Control Management	2.52	3.18	3.86
9	Data Management	2.46	3.10	3.79
10	Data Verification and Validation	2.31	2.86	3.56
11	Data Reduction and Assimilation	2.32	2.88	3.56
12	Determination of Test Adequacy	2.33	2.90	3.66
13	Validation of Test Results	2.19	2.71	3.45
14	Evaluative Conclusions	2.26	2.90	3.61
15	Technical Reviews	2.26	3.07	3.93
16	Lessons Learned	2.42	3.12	3.80
17	Documentation	2.42	3.08	3.78
18	Customer Service	2.50	3.26	4.04
19	External Awareness	2.10	2.63	3.39
20	Flexibility	2.59	3.27	3.92
21	Communication	2.95	3.61	4.17
22	Technical Credibility	2.75	3.30	3.89
23	Critical Thinking	2.57	3.21	3.93
24	Professional Ethics	3.19	3.83	4.35
25	Leadership and Management	2.98	3.60	4.21

Shading indicates relative importance of each competency according to federal civilian respondents with no prior military service and who are coded as Datamart: green = high importance; yellow = medium importance; no shading = lower importance.

Table 51 presents the results of our importance analysis of NON T coded federal civilian assessment respondents with no prior military service.

Table 51. Importance ratings for federal civilian NON T coded respondents (with no prior military service), by competency and career level

#	Competency Name	Entry		Journey		Senior	
		Mean Crit	Mean Freq	Mean Crit	Mean Freq	Mean Crit	Mean Freq
1	Risk Identification	2.67	2.89	2.85	3.07	3.23	3.30
2	Capabilities Assessment	2.79	2.82	2.76	3.02	3.45	3.45
3	Program T&E Strategy Development	2.42	2.50	2.97	3.07	3.20	3.12
4	Test Cost Estimating	2.56	2.52	2.79	2.91	3.17	3.04
5	Coordination of T&E Activities and Events	2.66	2.78	2.93	3.09	3.48	3.32
6	Test Readiness	2.64	2.62	2.87	2.83	3.34	3.19
7	Risk Management	2.62	2.60	3.06	2.94	3.23	3.06
8	Test Control Management	2.70	2.80	2.89	2.87	3.26	2.92
9	Data Management	2.72	3.00	2.89	2.86	3.26	2.86
10	Data Verification and Validation	2.89	2.90	2.69	2.46	2.98	2.54
11	Data Reduction and Assimilation	2.55	2.69	2.75	2.63	3.08	2.61
12	Determination of Test Adequacy	2.70	2.70	2.82	2.60	3.14	2.96
13	Validation of Test Results	2.55	2.55	2.84	2.51	3.11	2.76
14	Evaluative Conclusions	2.65	2.62	2.88	2.64	3.30	2.97
15	Technical Reviews	2.57	2.24	3.04	2.86	3.72	3.25
16	Lessons Learned	2.74	2.70	2.93	2.78	3.36	3.04
17	Documentation	2.70	2.79	2.98	3.11	3.31	3.14
18	Customer Service	2.85	2.93	3.28	3.12	3.78	3.75
19	External Awareness	2.48	2.31	2.88	2.78	3.14	3.06
20	Flexibility	2.74	2.82	3.10	3.00	3.68	3.67
21	Communication	3.20	3.13	3.52	3.53	4.04	3.96
22	Technical Credibility	3.00	3.09	3.29	3.35	3.54	3.56
23	Critical Thinking	2.78	2.78	3.09	3.18	3.60	3.49
24	Professional Ethics	3.39	3.50	3.83	3.84	4.15	4.05
25	Leadership and Management	3.37	3.27	3.62	3.56	4.07	3.89

Shading indicates relative importance of each competency according to federal civilian NON T coded respondents with no prior military service: green = high importance; yellow = medium importance; no shading = lower importance.

Table 52 presents the results of our proficiency analysis of federal civilian NON T coded assessment respondents with no prior military service.

Table 52. Mean proficiency responses for federal civilian NON T coded respondents with no prior military service, by competency and career level

#	Competency	Entry	Journey	Senior
1	Risk Identification	2.35	2.71	3.61
2	Capabilities Assessment	2.37	2.69	3.85
3	Program T&E Strategy Development	2.08	2.70	3.61
4	Test Cost Estimating	1.92	2.46	3.42
5	Coordination of T&E Activities and Events	2.14	2.70	3.87
6	Test Readiness	2.18	2.67	3.78
7	Risk Management	1.96	2.74	3.82
8	Test Control Management	2.22	2.67	3.61
9	Data Management	2.36	2.74	3.57
10	Data Verification and Validation	2.48	2.52	3.28
11	Data Reduction and Assimilation	2.29	2.63	3.40
12	Determination of Test Adequacy	2.33	2.57	3.60
13	Validation of Test Results	2.16	2.48	3.40
14	Evaluative Conclusions	2.09	2.57	3.52
15	Technical Reviews	1.92	2.75	3.95
16	Lessons Learned	2.26	2.75	3.85
17	Documentation	2.18	2.74	3.80
18	Customer Service	2.12	2.95	4.08
19	External Awareness	1.88	2.61	3.56
20	Flexibility	2.33	2.90	4.18
21	Communication	2.81	3.39	4.25
22	Technical Credibility	2.55	3.14	3.97
23	Critical Thinking	2.32	2.92	3.92
24	Professional Ethics	2.97	3.31	4.33
25	Leadership and Management	2.82	3.31	4.24

Shading indicates relative importance of each competency according to federal civilian NON T coded respondents with no prior military service: green = high importance; yellow = medium importance; no shading = lower importance.

Federal civilian with prior military service

Table 53 presents the results of our importance analysis of Datamart coded federal civilian assessment respondents with prior military service.

Table 53. Importance ratings for federal civilian Datamart coded respondents (with prior military service), by competency and career level

#	Competency Name	Entry		Journey		Senior	
		Mean Crit	Mean Freq	Mean Crit	Mean Freq	Mean Crit	Mean Freq
1	Risk Identification	2.86	2.88	2.92	3.02	3.38	3.49
2	Capabilities Assessment	2.96	2.93	3.19	3.16	3.56	3.51
3	Program T&E Strategy Development	2.61	2.52	2.86	2.75	3.30	3.22
4	Test Cost Estimating	2.50	2.04	2.84	2.67	3.37	3.21
5	Coordination of T&E Activities and Events	2.55	2.51	3.03	3.04	3.46	3.35
6	Test Readiness	2.97	2.90	3.26	3.17	3.55	3.35
7	Risk Management	2.79	2.82	3.28	3.16	3.42	3.22
8	Test Control Management	3.10	2.91	3.26	3.09	3.42	3.17
9	Data Management	3.02	2.91	3.31	3.02	3.34	3.00
10	Data Verification and Validation	3.07	2.73	3.16	2.57	3.16	2.71
11	Data Reduction and Assimilation	2.79	2.54	3.06	2.57	3.10	2.69
12	Determination of Test Adequacy	2.70	2.57	3.16	2.80	3.31	2.98
13	Validation of Test Results	2.49	2.35	2.97	2.53	3.14	2.77
14	Evaluative Conclusions	2.88	2.50	3.06	2.67	3.31	2.97
15	Technical Reviews	2.76	2.63	3.18	2.91	3.44	3.28
16	Lessons Learned	2.58	2.70	3.15	2.97	3.16	3.10
17	Documentation	2.90	2.86	3.09	2.92	3.28	3.09
18	Customer Service	2.99	2.97	3.52	3.47	3.69	3.69
19	External Awareness	2.52	2.49	2.80	2.58	3.06	3.07
20	Flexibility	2.96	3.22	3.53	3.38	3.65	3.59
21	Communication	3.35	3.49	3.74	3.64	3.97	3.94
22	Technical Credibility	3.36	3.39	3.44	3.34	3.61	3.56
23	Critical Thinking	3.14	2.99	3.23	3.02	3.58	3.50
24	Professional Ethics	3.91	3.99	4.04	3.98	4.27	4.22
25	Leadership and Management	3.40	3.36	3.75	3.58	4.04	3.92

Shading indicates relative importance of each competency according to federal civilian respondents with prior military service and who are coded as Datamart: green = high importance; yellow = medium importance; no shading = lower importance.

Table 54 presents the results of our proficiency analysis of federal civilian Datamart assessment respondents with prior military service.

Table 54. Mean proficiency responses for federal civilian Datamart coded respondents with prior military service, by competency and career level

#	Competency	Entry	Journey	Senior
1	Risk Identification	2.44	2.92	3.83
2	Capabilities Assessment	2.55	2.99	3.91
3	Program T&E Strategy Development	2.34	2.80	3.81
4	Test Cost Estimating	1.97	2.61	3.61
5	Coordination of T&E Activities and Events	2.33	2.98	3.88
6	Test Readiness	2.63	3.14	3.96
7	Risk Management	2.52	3.25	3.99
8	Test Control Management	2.57	3.18	3.91
9	Data Management	2.66	3.17	3.79
10	Data Verification and Validation	2.72	2.79	3.54
11	Data Reduction and Assimilation	2.62	2.78	3.58
12	Determination of Test Adequacy	2.54	2.87	3.76
13	Validation of Test Results	2.35	2.67	3.57
14	Evaluative Conclusions	2.51	2.85	3.78
15	Technical Reviews	2.65	3.16	4.09
16	Lessons Learned	2.46	3.11	3.90
17	Documentation	2.66	3.01	3.83
18	Customer Service	2.71	3.33	4.09
19	External Awareness	2.38	2.68	3.53
20	Flexibility	2.85	3.23	4.08
21	Communication	3.28	3.64	4.29
22	Technical Credibility	3.16	3.31	4.03
23	Critical Thinking	2.82	3.27	4.09
24	Professional Ethics	3.55	3.89	4.45
25	Leadership and Management	3.24	3.66	4.34

Shading indicates relative importance of each competency according to federal civilian respondents with prior military service and who are coded as Datamart: green = high importance; yellow = medium importance; no shading = lower importance.

Table 55 presents the results of our importance analysis of NON T coded federal civilian assessment respondents with prior military service.

Table 55. Importance ratings for federal civilian NON T coded respondents (with prior military service), by competency and career level

#	Competency Name	Entry		Journey		Senior	
		Mean Crit	Mean Freq	Mean Crit	Mean Freq	Mean Crit	Mean Freq
1	Risk Identification	2.67	2.82	2.99	3.35	3.53	3.55
2	Capabilities Assessment	3.04	3.01	3.54	3.62	3.79	3.65
3	Program T&E Strategy Development	2.41	2.14	3.23	3.29	3.59	3.52
4	Test Cost Estimating	2.86	2.33	3.61	3.47	3.80	3.60
5	Coordination of T&E Activities and Events	2.87	2.58	3.45	3.54	3.76	3.65
6	Test Readiness	2.88	2.63	3.47	3.41	3.64	3.48
7	Risk Management	3.00	2.33	3.80	3.69	3.64	3.42
8	Test Control Management	3.04	2.79	3.66	3.55	3.61	3.35
9	Data Management	3.14	3.06	3.69	3.57	3.54	3.28
10	Data Verification and Validation	2.86	2.50	3.32	2.87	3.21	2.78
11	Data Reduction and Assimilation	3.05	2.71	3.27	2.96	3.20	2.94
12	Determination of Test Adequacy	3.43	3.30	3.23	2.97	3.45	2.96
13	Validation of Test Results	2.75	2.63	2.95	2.63	3.21	2.83
14	Evaluative Conclusions	3.25	2.93	3.36	3.12	3.48	3.22
15	Technical Reviews	3.17	2.75	3.33	3.33	3.64	3.49
16	Lessons Learned	2.83	2.80	3.33	3.25	3.43	3.23
17	Documentation	3.07	3.30	3.56	3.37	3.42	3.29
18	Customer Service	2.86	2.35	3.54	3.60	4.01	3.97
19	External Awareness	2.69	2.35	3.06	3.07	3.43	3.35
20	Flexibility	2.86	2.43	3.66	3.64	3.80	3.75
21	Communication	3.19	3.04	3.78	3.81	4.05	3.99
22	Technical Credibility	3.10	3.01	3.60	3.63	3.83	3.72
23	Critical Thinking	3.05	2.67	3.63	3.54	3.66	3.51
24	Professional Ethics	3.79	3.53	4.22	4.26	4.36	4.31
25	Leadership and Management	3.41	2.91	4.05	4.02	4.17	4.00

Shading indicates relative importance of each competency according to federal civilian NON T coded respondents with prior military service: green = high importance; yellow = medium importance; no shading = lower importance.

Table 56 presents the results of our proficiency analysis of federal civilian NON T coded assessment respondents with prior military service.

Table 56. Mean proficiency responses for federal civilian NON T coded respondents with prior military service, by competency and career level

#	Competency	Entry	Journey	Senior
1	Risk Identification	2.40	2.93	3.84
2	Capabilities Assessment	2.46	3.24	3.95
3	Program T&E Strategy Development	2.00	3.07	3.89
4	Test Cost Estimating	2.13	3.27	3.89
5	Coordination of T&E Activities and Events	2.37	3.32	3.97
6	Test Readiness	2.53	3.30	3.96
7	Risk Management	2.29	3.50	3.98
8	Test Control Management	2.93	3.36	3.97
9	Data Management	2.90	3.42	3.95
10	Data Verification and Validation	2.62	3.06	3.60
11	Data Reduction and Assimilation	2.48	3.05	3.64
12	Determination of Test Adequacy	2.75	2.99	3.62
13	Validation of Test Results	2.70	2.84	3.48
14	Evaluative Conclusions	2.63	3.30	3.79
15	Technical Reviews	2.67	3.30	4.06
16	Lessons Learned	2.67	3.30	3.79
17	Documentation	2.73	3.44	3.80
18	Customer Service	2.29	3.33	4.18
19	External Awareness	2.39	2.91	3.70
20	Flexibility	2.57	3.58	4.10
21	Communication	3.19	3.75	4.26
22	Technical Credibility	2.98	3.54	4.03
23	Critical Thinking	2.60	3.48	4.03
24	Professional Ethics	3.06	3.96	4.37
25	Leadership and Management	3.03	3.84	4.37

Shading indicates relative importance of each competency according to federal civilian NON T coded respondents with prior military service: green = high importance; yellow = medium importance; no shading = lower importance.

Appendix F: Frequency distribution of proficiency ratings for T&E respondents

T&E-All

Entry-level

Table 57. Frequency distribution of proficiency rating responses of Entry-level T&E assessment participants

Competency	Awareness	Basic	Intermediate	Advanced	Expert	Mean	Mode
1. Risk Identification	19%	42%	33%	5%	1%	2.28	2
2. Capabilities Assessment	20%	40%	32%	7%	2%	2.31	2
3. Program T&E Strategy Development	25%	42%	27%	5%	1%	2.16	2
4. Test Cost Estimating	34%	36%	22%	6%	1%	2.04	2
5. Coordination of T&E Activities and Events	24%	34%	32%	9%	2%	2.28	2
6. Test Readiness	20%	37%	30%	11%	2%	2.38	2
7. Risk Management	19%	37%	32%	9%	3%	2.41	2
8. Test Control Management	19%	36%	31%	12%	2%	2.43	2
9. Data Management	22%	34%	30%	12%	2%	2.39	2
10. Data Verification and Validation	25%	40%	23%	9%	2%	2.23	2
11. Data Reduction and Assimilation	26%	38%	25%	10%	2%	2.25	2
12. Determination of Test Adequacy	23%	38%	28%	9%	2%	2.28	2
13. Validation of Test Results	28%	39%	23%	8%	1%	2.15	2
14. Evaluative Conclusions	26%	39%	27%	8%	2%	2.21	2
15. Technical Reviews	25%	38%	28%	8%	1%	2.22	2
16. Lessons Learned	20%	38%	31%	10%	1%	2.35	2
17. Documentation	21%	38%	29%	9%	2%	2.31	2
18. Customer Service	18%	37%	31%	10%	3%	2.42	2
19. External Awareness	30%	41%	22%	5%	1%	2.06	2
20. Flexibility	15%	35%	33%	14%	3%	2.54	2
21. Communication	8%	26%	38%	22%	6%	2.93	3
22. Technical Credibility	11%	30%	39%	15%	4%	2.71	3
23. Critical Thinking	14%	35%	36%	11%	4%	2.55	3
24. Professional Ethics	8%	22%	30%	24%	16%	3.17	3
25. Leadership and Management	8%	26%	32%	22%	12%	3.05	3

*High importance competency (highlighted in green) which has mean criticality and frequency ratings greater than or equal to 3.

**Medium importance competency (highlighted in yellow) which has a mean criticality rating below 3, but a mean frequency rating greater than or equal to 3.

Journey-level

Table 58. Frequency distribution of proficiency rating responses of Journey-level T&E assessment participants

Competency	Awareness	Basic	Intermediate	Advanced	Expert	Mean	Mode
1. Risk Identification	7%	20%	50%	21%	2%	2.91	3
2. Capabilities Assessment	8%	21%	43%	23%	5%	2.96	3
3. Program T&E Strategy Development	12%	25%	41%	20%	3%	2.78	3
4. Test Cost Estimating	19%	27%	36%	14%	4%	2.58	3
5. Coordination of T&E Activities and Events	11%	20%	38%	25%	5%	2.92	3
6. Test Readiness	8%	18%	40%	27%	7%	3.06	3
7. Risk Management	9%	16%	39%	28%	8%	3.11	3
8. Test Control Management	8%	17%	40%	27%	8%	3.12	3
9. Data Management	9%	17%	41%	25%	8%	3.05	3
10. Data Verification and Validation	15%	23%	37%	21%	6%	2.80	3
11. Data Reduction and Assimilation	14%	24%	34%	21%	6%	2.82	3
12. Determination of Test Adequacy	14%	22%	36%	22%	6%	2.85	3
13. Validation of Test Results	17%	25%	35%	18%	5%	2.67	3
14. Evaluative Conclusions	13%	22%	39%	21%	5%	2.84	3
15. Technical Reviews	8%	19%	43%	25%	5%	2.99	3
16. Lessons Learned	7%	19%	42%	27%	5%	3.05	3
17. Documentation	10%	19%	39%	26%	7%	2.99	3
18. Customer Service	6%	15%	42%	30%	7%	3.18	3
19. External Awareness	17%	26%	38%	15%	3%	2.62	3
20. Flexibility	5%	15%	41%	30%	9%	3.23	3
21. Communication	2%	8%	36%	39%	15%	3.57	4
22. Technical Credibility	4%	13%	44%	32%	7%	3.26	3
23. Critical Thinking	5%	16%	41%	31%	7%	3.18	3
24. Professional Ethics	2%	6%	29%	37%	26%	3.78	4
25. Leadership and Management	2%	9%	34%	37%	18%	3.59	4

*High importance competency (highlighted in green) which has mean criticality and frequency ratings greater than or equal to 3.

**Medium importance competency (highlighted in yellow) which has a mean criticality rating below 3, but a mean frequency rating greater than or equal to 3.

Senior-level

Table 59. Frequency distribution of proficiency rating responses of Senior-level T&E assessment participants

Competency	Awareness	Basic	Intermediate	Advanced	Expert	Mean	Mode
1. Risk Identification	4%	7%	24%	44%	20%	3.69	4
2. Capabilities Assessment	3%	7%	22%	41%	27%	3.82	4
3. Program T&E Strategy Development	5%	10%	24%	38%	23%	3.64	4
4. Test Cost Estimating	6%	13%	23%	36%	22%	3.55	4
5. Coordination of T&E Activities and Events	6%	8%	20%	40%	27%	3.75	4
6. Test Readiness	5%	6%	20%	40%	29%	3.83	4
7. Risk Management	5%	6%	18%	39%	32%	3.88	4
8. Test Control Management	4%	8%	19%	39%	30%	3.82	4
9. Data Management	5%	9%	21%	38%	27%	3.76	4
10. Data Verification and Validation	8%	12%	25%	34%	22%	3.50	4
11. Data Reduction and Assimilation	8%	12%	24%	33%	23%	3.51	4
12. Determination of Test Adequacy	6%	10%	22%	37%	25%	3.62	4
13. Validation of Test Results	9%	13%	25%	35%	19%	3.42	4
14. Evaluative Conclusions	7%	10%	23%	38%	23%	3.60	4
15. Technical Reviews	3%	5%	19%	40%	32%	3.93	4
16. Lessons Learned	4%	6%	22%	41%	26%	3.78	4
17. Documentation	5%	8%	22%	38%	27%	3.73	4
18. Customer Service	2%	4%	18%	42%	34%	4.03	4
19. External Awareness	8%	14%	26%	34%	18%	3.40	4
20. Flexibility	3%	5%	19%	42%	31%	3.93	4
21. Communication	1%	3%	14%	44%	39%	4.18	4
22. Technical Credibility	2%	5%	22%	44%	27%	3.89	4
23. Critical Thinking	2%	5%	19%	44%	29%	3.92	4
24. Professional Ethics	1%	2%	9%	36%	51%	4.33	5
25. Leadership and Management	1%	2%	13%	41%	42%	4.21	5

*High importance competency (highlighted in green) which has mean criticality and frequency ratings greater than or equal to 3.

**Medium importance competency (highlighted in yellow) which has a mean criticality rating below 3, but a mean frequency rating greater than or equal to 3.

Air Force

Entry-level

Table 60.Frequency distribution of proficiency rating responses of Entry-level Air Force assessment participants

Competency	Awareness	Basic	Intermediate	Advanced	Expert	Mean	Mode
1. Risk Identification	22%	41%	30%	5%	2%	2.22	2
2. Capabilities Assessment	22%	37%	33%	6%	3%	2.31	2
3. Program T&E Strategy Development	27%	39%	28%	5%	1%	2.15	2
4. Test Cost Estimating	44%	35%	16%	4%	1%	1.83	2
5. Coordination of T&E Activities and Events	27%	35%	30%	6%	2%	2.19	2
6. Test Readiness	23%	38%	28%	8%	2%	2.29	2
7. Risk Management	15%	42%	31%	7%	5%	2.46	2
8. Test Control Management	21%	38%	29%	9%	3%	2.36	2
9. Data Management	22%	36%	28%	12%	2%	2.37	2
10. Data Verification and Validation	23%	44%	21%	9%	3%	2.24	2
11. Data Reduction and Assimilation	24%	39%	23%	11%	4%	2.31	2
12. Determination of Test Adequacy	24%	40%	23%	9%	3%	2.25	2
13. Validation of Test Results	27%	42%	21%	8%	3%	2.17	2
14. Evaluative Conclusions	27%	42%	22%	7%	3%	2.16	2
15. Technical Reviews	24%	38%	28%	8%	2%	2.24	2
16. Lessons Learned	17%	37%	32%	11%	2%	2.44	2
17. Documentation	23%	41%	26%	8%	3%	2.28	2
18. Customer Service	19%	39%	28%	9%	5%	2.41	2
19. External Awareness	31%	44%	18%	5%	2%	2.04	2
20. Flexibility	19%	34%	31%	13%	3%	2.47	2
21. Communication	9%	25%	37%	20%	9%	2.97	3
22. Technical Credibility	12%	30%	38%	14%	6%	2.72	3
23. Critical Thinking	17%	37%	30%	10%	6%	2.50	2
24. Professional Ethics	8%	25%	26%	21%	20%	3.18	3
25. Leadership and Management	10%	29%	28%	20%	13%	2.98	2

*High importance competency (highlighted in green) which has mean criticality and frequency ratings greater than or equal to 3.

**Medium importance competency (highlighted in yellow) which has a mean criticality rating below 3, but a mean frequency rating greater than or equal to 3.

Journey-level

Table 61. Frequency distribution of proficiency rating responses of Journey-level Air Force assessment participants

Competency	Awareness	Basic	Intermediate	Advanced	Expert	Mean	Mode
1. Risk Identification	7%	17%	52%	21%	2%	2.94	3
2. Capabilities Assessment	7%	21%	43%	22%	6%	2.97	3
3. Program T&E Strategy Development	10%	26%	43%	18%	3%	2.78	3
4. Test Cost Estimating	21%	31%	36%	11%	1%	2.41	3
5. Coordination of T&E Activities and Events	11%	19%	41%	23%	6%	2.94	3
6. Test Readiness	7%	16%	46%	25%	6%	3.06	3
7. Risk Management	8%	13%	41%	28%	9%	3.17	3
8. Test Control Management	7%	16%	45%	25%	8%	3.11	3
9. Data Management	12%	16%	43%	23%	7%	2.98	3
10. Data Verification and Validation	17%	18%	41%	20%	4%	2.74	3
11. Data Reduction and Assimilation	12%	22%	40%	20%	5%	2.82	3
12. Determination of Test Adequacy	14%	17%	39%	24%	5%	2.88	3
13. Validation of Test Results	17%	19%	41%	20%	3%	2.73	3
14. Evaluative Conclusions	14%	20%	44%	18%	5%	2.82	3
15. Technical Reviews	9%	15%	48%	26%	3%	2.98	3
16. Lessons Learned	6%	15%	47%	28%	5%	3.12	3
17. Documentation	10%	16%	41%	28%	5%	3.03	3
18. Customer Service	7%	13%	46%	31%	5%	3.14	3
19. External Awareness	15%	27%	41%	14%	3%	2.63	3
20. Flexibility	5%	14%	44%	26%	11%	3.24	3
21. Communication	2%	7%	34%	41%	16%	3.62	4
22. Technical Credibility	4%	8%	49%	32%	7%	3.31	3
23. Critical Thinking	6%	13%	46%	30%	6%	3.17	3
24. Professional Ethics	3%	6%	27%	36%	28%	3.80	4
25. Leadership and Management	3%	8%	34%	39%	17%	3.60	4

*High importance competency (highlighted in green) which has mean criticality and frequency ratings greater than or equal to 3.

**Medium importance competency (highlighted in yellow) which has a mean criticality rating below 3, but a mean frequency rating greater than or equal to 3.

Senior-level

Table 62. Frequency distribution of proficiency rating responses of Senior-level Air Force assessment participants

Competency	Awareness	Basic	Intermediate	Advanced	Expert	Mean	Mode
1. Risk Identification	4%	7%	23%	44%	22%	3.74	4
2. Capabilities Assessment	2%	5%	21%	43%	28%	3.90	4
3. Program T&E Strategy Development	4%	9%	25%	39%	23%	3.67	4
4. Test Cost Estimating	9%	15%	26%	35%	16%	3.35	4
5. Coordination of T&E Activities and Events	5%	9%	20%	41%	26%	3.72	4
6. Test Readiness	4%	5%	20%	41%	29%	3.86	4
7. Risk Management	4%	6%	16%	40%	35%	3.96	4
8. Test Control Management	4%	7%	20%	38%	31%	3.84	4
9. Data Management	6%	8%	22%	38%	26%	3.70	4
10. Data Verification and Validation	8%	15%	25%	30%	22%	3.45	4
11. Data Reduction and Assimilation	7%	13%	26%	30%	24%	3.50	4
12. Determination of Test Adequacy	6%	9%	21%	37%	27%	3.71	4
13. Validation of Test Results	9%	12%	24%	36%	20%	3.47	4
14. Evaluative Conclusions	6%	9%	24%	39%	23%	3.64	4
15. Technical Reviews	3%	5%	20%	39%	34%	3.96	4
16. Lessons Learned	5%	7%	23%	40%	25%	3.75	4
17. Documentation	7%	8%	20%	39%	26%	3.69	4
18. Customer Service	3%	4%	18%	44%	32%	3.98	4
19. External Awareness	7%	14%	26%	35%	18%	3.44	4
20. Flexibility	3%	5%	20%	43%	29%	3.90	4
21. Communication	0%	2%	13%	45%	39%	4.22	4
22. Technical Credibility	2%	4%	21%	45%	28%	3.94	4
23. Critical Thinking	3%	5%	18%	45%	30%	3.94	4
24. Professional Ethics	2%	2%	7%	37%	52%	4.34	5
25. Leadership and Management	1%	2%	12%	42%	44%	4.25	5

*High importance competency (highlighted in green) which has mean criticality and frequency ratings greater than or equal to 3.

**Medium importance competency (highlighted in yellow) which has a mean criticality rating below 3, but a mean frequency rating greater than or equal to 3.

Army

Entry-level

Table 63. Frequency distribution of proficiency rating responses of Entry-level Army assessment participants

Competency	Awareness	Basic	Intermediate	Advanced	Expert	Mean	Mode
1. Risk Identification	11%	45%	39%	4%	1%	2.39	2
2. Capabilities Assessment	12%	41%	37%	9%	1%	2.47	2
3. Program T&E Strategy Development	18%	47%	28%	6%	1%	2.26	2
4. Test Cost Estimating	18%	37%	30%	13%	1%	2.42	2
5. Coordination of T&E Activities and Events	19%	40%	29%	11%	0%	2.33	2
6. Test Readiness	14%	38%	34%	12%	3%	2.51	2
7. Risk Management	15%	27%	44%	10%	4%	2.61	3
8. Test Control Management	10%	35%	34%	19%	2%	2.68	2
9. Data Management	15%	32%	35%	14%	4%	2.61	3
10. Data Verification and Validation	20%	40%	28%	9%	3%	2.35	2
11. Data Reduction and Assimilation	22%	38%	30%	9%	1%	2.30	2
12. Determination of Test Adequacy	21%	36%	32%	10%	1%	2.31	2
13. Validation of Test Results	31%	38%	25%	5%	1%	2.05	2
14. Evaluative Conclusions	23%	41%	29%	6%	1%	2.19	2
15. Technical Reviews	26%	40%	28%	5%	2%	2.15	2
16. Lessons Learned	23%	38%	29%	9%	2%	2.29	2
17. Documentation	18%	40%	33%	8%	2%	2.34	2
18. Customer Service	13%	31%	45%	10%	1%	2.56	3
19. External Awareness	27%	42%	27%	4%	0%	2.07	2
20. Flexibility	15%	37%	35%	12%	1%	2.49	2
21. Communication	7%	22%	44%	24%	3%	2.93	3
22. Technical Credibility	9%	33%	40%	13%	5%	2.71	3
23. Critical Thinking	12%	37%	39%	8%	4%	2.52	3
24. Professional Ethics	7%	20%	31%	25%	16%	3.21	3
25. Leadership and Management	5%	28%	39%	19%	9%	2.99	3

*High importance competency (highlighted in green) which has mean criticality and frequency ratings greater than or equal to 3.

**Medium importance competency (highlighted in yellow) which has a mean criticality rating below 3, but a mean frequency rating greater than or equal to 3.

Journey-level

Table 64. Frequency distribution of proficiency rating responses of Journey-level Army assessment participants

Competency	Awareness	Basic	Intermediate	Advanced	Expert	Mean	Mode
1. Risk Identification	8%	21%	48%	22%	2%	2.88	3
2. Capabilities Assessment	8%	20%	42%	25%	6%	3.00	3
3. Program T&E Strategy Development	13%	24%	36%	24%	3%	2.79	3
4. Test Cost Estimating	16%	26%	31%	20%	7%	2.75	3
5. Coordination of T&E Activities and Events	12%	19%	35%	29%	5%	2.96	3
6. Test Readiness	11%	17%	36%	29%	8%	3.07	3
7. Risk Management	12%	16%	34%	30%	7%	3.03	3
8. Test Control Management	11%	17%	35%	27%	10%	3.09	3
9. Data Management	10%	18%	36%	26%	10%	3.08	3
10. Data Verification and Validation	14%	25%	30%	22%	9%	2.87	3
11. Data Reduction and Assimilation	15%	23%	29%	22%	10%	2.88	3
12. Determination of Test Adequacy	16%	23%	33%	20%	8%	2.78	3
13. Validation of Test Results	18%	30%	29%	17%	7%	2.66	2
14. Evaluative Conclusions	12%	26%	35%	21%	6%	2.82	3
15. Technical Reviews	9%	20%	39%	26%	6%	2.99	3
16. Lessons Learned	9%	22%	37%	26%	5%	2.96	3
17. Documentation	12%	19%	37%	23%	10%	3.00	3
18. Customer Service	6%	15%	42%	27%	10%	3.22	3
19. External Awareness	19%	32%	32%	12%	4%	2.50	3
20. Flexibility	5%	19%	38%	30%	8%	3.17	3
21. Communication	1%	10%	38%	37%	13%	3.52	3
22. Technical Credibility	4%	16%	40%	33%	8%	3.25	3
23. Critical Thinking	6%	20%	36%	30%	8%	3.14	3
24. Professional Ethics	2%	5%	28%	39%	27%	3.83	4
25. Leadership and Management	2%	10%	34%	35%	19%	3.59	4

*High importance competency (highlighted in green) which has mean criticality and frequency ratings greater than or equal to 3.

**Medium importance competency (highlighted in yellow) which has a mean criticality rating below 3, but a mean frequency rating greater than or equal to 3.

Senior-level

Table 65. Frequency distribution of proficiency rating responses of Senior-level Army assessment participants

Competency	Awareness	Basic	Intermediate	Advanced	Expert	Mean	Mode
1. Risk Identification	4%	9%	23%	44%	20%	3.65	4
2. Capabilities Assessment	3%	7%	20%	40%	30%	3.86	4
3. Program T&E Strategy Development	6%	10%	22%	38%	25%	3.66	4
4. Test Cost Estimating	5%	13%	21%	35%	25%	3.62	4
5. Coordination of T&E Activities and Events	6%	8%	18%	40%	29%	3.78	4
6. Test Readiness	6%	6%	18%	39%	31%	3.82	4
7. Risk Management	5%	7%	18%	38%	32%	3.83	4
8. Test Control Management	5%	8%	17%	39%	31%	3.83	4
9. Data Management	4%	10%	18%	37%	31%	3.81	4
10. Data Verification and Validation	7%	12%	22%	33%	25%	3.58	4
11. Data Reduction and Assimilation	8%	12%	21%	33%	27%	3.59	4
12. Determination of Test Adequacy	7%	12%	22%	34%	26%	3.60	4
13. Validation of Test Results	8%	13%	25%	33%	20%	3.44	4
14. Evaluative Conclusions	8%	10%	21%	38%	23%	3.58	4
15. Technical Reviews	5%	4%	19%	40%	32%	3.89	4
16. Lessons Learned	4%	6%	22%	42%	27%	3.82	4
17. Documentation	5%	8%	20%	40%	28%	3.79	4
18. Customer Service	2%	3%	16%	42%	37%	4.08	4
19. External Awareness	8%	14%	27%	34%	17%	3.37	4
20. Flexibility	3%	5%	18%	41%	33%	3.96	4
21. Communication	1%	3%	14%	40%	42%	4.18	5
22. Technical Credibility	2%	5%	21%	45%	27%	3.91	4
23. Critical Thinking	3%	5%	20%	44%	28%	3.90	4
24. Professional Ethics	1%	2%	8%	35%	53%	4.37	5
25. Leadership and Management	1%	3%	12%	41%	43%	4.23	5

*High importance competency (highlighted in green) which has mean criticality and frequency ratings greater than or equal to 3.

**Medium importance competency (highlighted in yellow) which has a mean criticality rating below 3, but a mean frequency rating greater than or equal to 3.

Navy

Entry-level

Table 66. Frequency distribution of proficiency rating responses of Entry-level Navy assessment participants

Competency	Awareness	Basic	Intermediate	Advanced	Expert	Mean	Mode
1. Risk Identification	17%	43%	32%	8%	0%	2.31	2
2. Capabilities Assessment	19%	43%	29%	9%	0%	2.28	2
3. Program T&E Strategy Development	24%	43%	27%	5%	1%	2.17	2
4. Test Cost Estimating	31%	39%	24%	3%	2%	2.06	2
5. Coordination of T&E Activities and Events	21%	31%	36%	11%	1%	2.40	3
6. Test Readiness	16%	36%	34%	13%	2%	2.47	2
7. Risk Management	19%	36%	34%	10%	1%	2.37	2
8. Test Control Management	19%	31%	35%	13%	2%	2.49	2
9. Data Management	22%	30%	32%	14%	1%	2.44	3
10. Data Verification and Validation	24%	37%	26%	11%	1%	2.30	2
11. Data Reduction and Assimilation	25%	37%	27%	11%	1%	2.26	2
12. Determination of Test Adequacy	20%	35%	34%	10%	1%	2.34	2
13. Validation of Test Results	26%	35%	28%	10%	1%	2.24	2
14. Evaluative Conclusions	23%	33%	33%	10%	1%	2.32	2
15. Technical Reviews	22%	39%	31%	9%	0%	2.26	2
16. Lessons Learned	16%	41%	34%	8%	1%	2.37	2
17. Documentation	17%	36%	33%	13%	1%	2.44	2
18. Customer Service	16%	39%	33%	11%	2%	2.45	2
19. External Awareness	27%	42%	25%	6%	1%	2.12	2
20. Flexibility	13%	34%	33%	17%	4%	2.65	2
21. Communication	6%	29%	38%	21%	6%	2.91	3
22. Technical Credibility	10%	32%	38%	17%	3%	2.70	3
23. Critical Thinking	10%	33%	41%	13%	3%	2.64	3
24. Professional Ethics	6%	20%	35%	26%	13%	3.17	3
25. Leadership and Management	7%	22%	35%	23%	12%	3.11	3

*High importance competency (highlighted in green) which has mean criticality and frequency ratings greater than or equal to 3.

**Medium importance competency (highlighted in yellow) which has a mean criticality rating below 3, but a mean frequency rating greater than or equal to 3.

Journey-level

Table 67. Frequency distribution of proficiency rating responses of Journey-level Navy assessment participants

Competency	Awareness	Basic	Intermediate	Advanced	Expert	Mean	Mode
1. Risk Identification	7%	21%	48%	22%	2%	2.91	3
2. Capabilities Assessment	9%	22%	43%	23%	4%	2.91	3
3. Program T&E Strategy Development	13%	25%	40%	20%	2%	2.73	3
4. Test Cost Estimating	21%	25%	39%	13%	2%	2.51	3
5. Coordination of T&E Activities and Events	12%	23%	36%	25%	3%	2.83	3
6. Test Readiness	7%	21%	37%	29%	6%	3.05	3
7. Risk Management	8%	17%	37%	30%	8%	3.13	3
8. Test Control Management	7%	17%	36%	33%	7%	3.16	3
9. Data Management	8%	17%	43%	26%	6%	3.06	3
10. Data Verification and Validation	14%	22%	40%	20%	5%	2.79	3
11. Data Reduction and Assimilation	14%	28%	30%	22%	6%	2.76	3
12. Determination of Test Adequacy	10%	26%	33%	24%	7%	2.90	3
13. Validation of Test Results	18%	27%	34%	17%	5%	2.63	3
14. Evaluative Conclusions	13%	22%	37%	23%	5%	2.84	3
15. Technical Reviews	6%	23%	40%	25%	5%	2.99	3
16. Lessons Learned	7%	20%	40%	28%	5%	3.05	3
17. Documentation	11%	20%	39%	26%	4%	2.92	3
18. Customer Service	5%	18%	38%	33%	7%	3.19	3
19. External Awareness	18%	23%	40%	17%	2%	2.62	3
20. Flexibility	4%	13%	43%	31%	8%	3.27	3
21. Communication	1%	8%	39%	38%	13%	3.53	3
22. Technical Credibility	3%	16%	44%	33%	4%	3.19	3
23. Critical Thinking	5%	15%	42%	32%	6%	3.19	3
24. Professional Ethics	2%	6%	33%	39%	21%	3.71	4
25. Leadership and Management	2%	10%	36%	37%	15%	3.52	4

*High importance competency (highlighted in green) which has mean criticality and frequency ratings greater than or equal to 3.

**Medium importance competency (highlighted in yellow) which has a mean criticality rating below 3, but a mean frequency rating greater than or equal to 3.

Senior-level

Table 68. Frequency distribution of proficiency rating responses of Senior-level Navy assessment participants

Competency	Awareness	Basic	Intermediate	Advanced	Expert	Mean	Mode
1. Risk Identification	4%	7%	26%	43%	19%	3.65	4
2. Capabilities Assessment	5%	9%	23%	40%	23%	3.67	4
3. Program T&E Strategy Development	6%	11%	28%	37%	18%	3.48	4
4. Test Cost Estimating	7%	12%	23%	39%	20%	3.52	4
5. Coordination of T&E Activities and Events	6%	8%	24%	39%	23%	3.64	4
6. Test Readiness	4%	8%	22%	40%	26%	3.76	4
7. Risk Management	6%	6%	20%	38%	30%	3.82	4
8. Test Control Management	4%	8%	22%	39%	27%	3.76	4
9. Data Management	5%	10%	23%	39%	24%	3.68	4
10. Data Verification and Validation	8%	12%	25%	37%	18%	3.44	4
11. Data Reduction and Assimilation	10%	13%	25%	34%	19%	3.39	4
12. Determination of Test Adequacy	7%	11%	23%	38%	22%	3.56	4
13. Validation of Test Results	10%	13%	26%	35%	16%	3.32	4
14. Evaluative Conclusions	7%	12%	24%	36%	21%	3.53	4
15. Technical Reviews	3%	7%	21%	39%	30%	3.86	4
16. Lessons Learned	5%	8%	23%	39%	25%	3.72	4
17. Documentation	5%	8%	26%	35%	25%	3.66	4
18. Customer Service	2%	5%	21%	43%	30%	3.94	4
19. External Awareness	9%	15%	28%	33%	15%	3.31	4
20. Flexibility	3%	6%	22%	42%	26%	3.82	4
21. Communication	1%	3%	16%	46%	35%	4.10	4
22. Technical Credibility	2%	7%	25%	42%	23%	3.77	4
23. Critical Thinking	2%	7%	20%	44%	26%	3.85	4
24. Professional Ethics	1%	3%	12%	37%	47%	4.25	5
25. Leadership and Management	2%	3%	15%	43%	37%	4.11	4

*High importance competency (highlighted in green) which has mean criticality and frequency ratings greater than or equal to 3.

**Medium importance competency (highlighted in yellow) which has a mean criticality rating below 3, but a mean frequency rating greater than or equal to 3.

4th Estate

Entry-level

Table 69. Frequency distribution of proficiency rating responses of Entry-level 4th Estate assessment participants

Competency	Awareness	Basic	Intermediate	Advanced	Expert	Mean	Mode
1. Risk Identification	28%	32%	36%	4%	0%	2.15	3
2. Capabilities Assessment	32%	34%	25%	5%	3%	2.14	2
3. Program T&E Strategy Development	38%	34%	20%	6%	2%	2.00	1
4. Test Cost Estimating	41%	29%	22%	7%	0%	1.95	1
5. Coordination of T&E Activities and Events	36%	26%	29%	8%	2%	2.13	1
6. Test Readiness	29%	38%	20%	11%	2%	2.19	2
7. Risk Management	38%	41%	5%	14%	3%	2.03	2
8. Test Control Management	28%	44%	22%	7%	0%	2.07	2
9. Data Management	36%	43%	20%	2%	0%	1.85	2
10. Data Verification and Validation	46%	40%	6%	6%	2%	1.77	1
11. Data Reduction and Assimilation	41%	38%	16%	3%	1%	1.85	1
12. Determination of Test Adequacy	30%	39%	18%	12%	1%	2.16	2
13. Validation of Test Results	34%	43%	15%	8%	0%	1.96	2
14. Evaluative Conclusions	34%	39%	20%	6%	1%	2.02	2
15. Technical Reviews	39%	27%	18%	12%	3%	2.12	1
16. Lessons Learned	35%	27%	27%	11%	0%	2.14	1
17. Documentation	34%	38%	22%	6%	0%	2.00	2
18. Customer Service	33%	36%	16%	14%	1%	2.15	2
19. External Awareness	41%	30%	23%	6%	0%	1.93	1
20. Flexibility	14%	34%	37%	14%	0%	2.51	3
21. Communication	10%	27%	32%	25%	5%	2.88	3
22. Technical Credibility	13%	21%	46%	17%	4%	2.71	3
23. Critical Thinking	17%	30%	37%	15%	1%	2.51	3
24. Professional Ethics	11%	23%	27%	25%	14%	2.98	3
25. Leadership and Management	8%	23%	26%	30%	13%	3.16	4

*High importance competency (highlighted in green) which has mean criticality and frequency ratings greater than or equal to 3.

**Medium importance competency (highlighted in yellow) which has a mean criticality rating below 3, but a mean frequency rating greater than or equal to 3.

Journey-level

Table 70. Frequency distribution of proficiency rating responses of Journey-level 4th Estate assessment participants

Competency	Awareness	Basic	Intermediate	Advanced	Expert	Mean	Mode
1. Risk Identification	4%	22%	54%	19%	1%	2.90	3
2. Capabilities Assessment	6%	20%	47%	24%	3%	2.98	3
3. Program T&E Strategy Development	10%	22%	47%	17%	5%	2.85	3
4. Test Cost Estimating	16%	21%	41%	13%	9%	2.76	3
5. Coordination of T&E Activities and Events	9%	18%	45%	21%	7%	2.99	3
6. Test Readiness	6%	20%	42%	23%	9%	3.09	3
7. Risk Management	2%	21%	46%	21%	10%	3.15	3
8. Test Control Management	5%	17%	48%	23%	7%	3.11	3
9. Data Management	6%	16%	47%	23%	8%	3.12	3
10. Data Verification and Validation	10%	30%	36%	22%	3%	2.79	3
11. Data Reduction and Assimilation	13%	23%	38%	22%	3%	2.79	3
12. Determination of Test Adequacy	14%	21%	41%	18%	6%	2.82	3
13. Validation of Test Results	16%	27%	34%	20%	3%	2.67	3
14. Evaluative Conclusions	10%	20%	39%	25%	6%	2.97	3
15. Technical Reviews	10%	13%	49%	21%	6%	3.00	3
16. Lessons Learned	6%	21%	41%	26%	6%	3.05	3
17. Documentation	8%	22%	36%	26%	8%	3.03	3
18. Customer Service	7%	14%	41%	30%	8%	3.18	3
19. External Awareness	12%	22%	43%	18%	5%	2.81	3
20. Flexibility	5%	13%	39%	32%	10%	3.30	3
21. Communication	3%	5%	32%	41%	18%	3.65	4
22. Technical Credibility	3%	11%	45%	31%	10%	3.33	3
23. Critical Thinking	4%	14%	39%	35%	8%	3.29	3
24. Professional Ethics	2%	7%	32%	30%	28%	3.73	3
25. Leadership and Management	3%	8%	30%	36%	23%	3.69	4

*High importance competency (highlighted in green) which has mean criticality and frequency ratings greater than or equal to 3.

**Medium importance competency (highlighted in yellow) which has a mean criticality rating below 3, but a mean frequency rating greater than or equal to 3.

Senior-level

Table 71. Frequency distribution of proficiency rating responses of Senior-level 4th Estate assessment participants

Competency	Awareness	Basic	Intermediate	Advanced	Expert	Mean	Mode
1. Risk Identification	2%	5%	24%	47%	23%	3.85	4
2. Capabilities Assessment	1%	2%	21%	44%	31%	4.01	4
3. Program T&E Strategy Development	2%	5%	20%	42%	32%	3.96	4
4. Test Cost Estimating	4%	8%	20%	35%	32%	3.83	4
5. Coordination of T&E Activities and Events	3%	4%	15%	40%	38%	4.04	4
6. Test Readiness	2%	4%	18%	42%	35%	4.04	4
7. Risk Management	2%	5%	15%	43%	35%	4.04	4
8. Test Control Management	2%	5%	18%	43%	32%	3.98	4
9. Data Management	4%	7%	19%	41%	29%	3.82	4
10. Data Verification and Validation	7%	9%	29%	33%	22%	3.54	4
11. Data Reduction and Assimilation	6%	10%	22%	38%	24%	3.64	4
12. Determination of Test Adequacy	5%	9%	21%	40%	26%	3.73	4
13. Validation of Test Results	7%	11%	24%	35%	23%	3.57	4
14. Evaluative Conclusions	4%	6%	21%	43%	27%	3.83	4
15. Technical Reviews	1%	2%	13%	46%	37%	4.17	4
16. Lessons Learned	3%	2%	19%	49%	26%	3.93	4
17. Documentation	4%	6%	17%	41%	32%	3.90	4
18. Customer Service	1%	3%	14%	41%	42%	4.21	5
19. External Awareness	4%	10%	23%	36%	27%	3.72	4
20. Flexibility	0%	1%	15%	41%	42%	4.25	5
21. Communication	0%	1%	11%	43%	46%	4.33	5
22. Technical Credibility	1%	3%	18%	46%	32%	4.06	4
23. Critical Thinking	1%	2%	17%	44%	36%	4.13	4
24. Professional Ethics	1%	1%	8%	34%	57%	4.44	5
25. Leadership and Management	0%	1%	10%	37%	52%	4.40	5

*High importance competency (highlighted in green) which has mean criticality and frequency ratings greater than or equal to 3.

**Medium importance competency (highlighted in yellow) which has a mean criticality rating below 3, but a mean frequency rating greater than or equal to 3.

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