
Report of the Reliability Improvement Working Group



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September 2008

Report of the Reliability Improvement Working Group

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Executive Summary

The Reliability Improvement Working Group (RIWG) was chartered by the Director, Operational Test and Evaluation and the Deputy Under Secretary of Defense (Acquisition and Technology), in February 2008, to implement recommendations by the Defense Science Board (DSB) documented in their report on Developmental Test and Evaluation (T&E) of May, 2008.

Specifically, the RIWG was formed to implement the following recommendations:

- Ensure programs are formulated to execute a viable systems engineering strategy from the beginning, including a RAM growth program, as an integral part of design and development.
- Ensure government organizations reconstitute a cadre of experienced T&E and Reliability, Availability and Maintainability (RAM) personnel.
- Implement mandated integrated Developmental Test (DT) and Operational Test (OT), including the sharing and access to all appropriate contractor and government data and the use of operationally representative environments in early testing.

The Working Group's approach was to identify initiatives that would implement the recommendations and pursue their adoption by OSD or the Components. This often involved encouraging components to adopt initiatives similar to those already being pursued by other components. The RIWG proposed that Services and Components take several specific actions, including:

- Establish reliability improvement acquisition policy.
- Designate "Champions" to sustain reliability initiatives across the transition in administrations.
- Use proposed reliability language in solicitations and development contracts.
- Use proposed guidance for early RAM planning and evaluation of program compliance.
- Reconstitute trained RAM and T&E personnel across the workforce.
- Implement integrated T&E policy.

On July 21, 2008, the Under Secretary of Defense for Acquisition, Technology and Logistics established department policy for programs to be formulated to "execute a viable RAM strategy that includes a reliability growth program as an integral part of design and development." The Under Secretary directed the Secretaries of the Military Departments to establish reliability improvement acquisition policy to implement RAM practices, and to respond with their plan to implement the policies.

In a memorandum dated June 25, 2008, the Director for Operational Test and Evaluation and the Deputy Under Secretary of Defense for Acquisition and Technology proposed that the Service

Secretaries consider establishing a permanent headquarters staff position to improve reliability, in effect to act as the “Champion” within the Component.

This report summarizes what the Components achieved during this period, and what remains to be done in order to fully realize the DSB recommendations. It is therefore a record of progress in steps taken by each Component and OSD, and a guide to what additional next steps could be taken either by a Component, after recognizing what other components have done and achieved, or by OSD.

Service implementation of the actions varies; responses include:

- Army:
 - Established a permanent headquarters staff position; named an executive to serve as the Department of the Army Reliability Chief.
 - Made reliability experts part of the acquisition executive’s staff.
 - Established early warning mechanism to identify systems in jeopardy of not meeting reliability requirements.
 - Modified Program Manager (PM) charters to include RAM focus.
 - Will include increased RAM scope in Acquisition Program Baselines and hold Program Executive Officers and PMs accountable.
 - Modifying reviews to focus on RAM as part of their processes.
 - Increasing scope of RAM training provided to workforce.
 - Will encourage use of GEIA-STD-0009 and associated contractual language.
 - Will use the new Reliability Scorecard for evaluations early in development.
- Navy:
 - Reinvigorating existing procedures and processes, and implementing key reforms. Additional policy will be created, as appropriate.
 - Instituted senior level reviews to ensure agreed to RAM requirements are implemented and funded prior to contract award.
 - Will include contract requirement for suppliers to implement effective RAM programs, as part of systems engineering review process.
 - Programs will ensure design and verification tests for RAM are planned. When not all are applicable, all programs will be required to provide rationale for not including RAM design analyses and verification. Progress toward RAM maturity included in review process for Acquisition Category I and II programs.
 - Executive-level task force developing recommendations for providing greater incentives for industry to improve RAM; findings to be reported.

- Air Force:
 - Will review and revise acquisition policies and guidance as needed to strengthen RAM considerations.
 - Will examine current acquisition and sustainment workforce capabilities and shortfalls and prepare strategies and plans as needed to develop acquisition logistics expertise.
 - Will review and revise acquisition program documentation requirements, as well as program review and reporting processes, to ensure persistent senior leader visibility and oversight of RAM-related matters.

Responses from U.S. Special Operations Command, U.S. Transportation Command, and Defense Information Systems Agency (DISA), all commit to reviewing and revising their policy and guidance where necessary to incorporate reliability improvement acquisition policy and implement RAM practices. DISA plans to create a new instruction to detail the requirements for a robust RAM improvement strategy.

CONCLUSION

Most RIWG recommendations have been met with agreement. Positive action has already occurred; for example, the Army has already named a senior level person to lead the Army's reliability improvement efforts.

However, many of the service responses promise future action with respect to implementing recommendations that will improve reliability and integrate test and evaluation. These may include publishing policy, incorporating actions to improve reliability, adjustments to ensure RAM expertise, and addressing challenges with respect to integrating test and evaluation.

Therefore, we recommend a review in nine to twelve months of actions completed and additional steps that may have been taken as a result of the mutual interaction begun with this work group.

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Report of the Reliability Improvement Working Group

Volume I - Report

Part 1. Introduction

Purpose: The department's Reliability Improvement Working Group (RIWG) was established to implement three specific recommendations made by the Defense Science Board (DSB) report on Developmental Test and Evaluation (T&E) of May 2008.

Specifically, the RIWG was formed to implement the following recommendations:

- Ensure programs are formulated to execute a viable systems engineering strategy from the beginning, including a Reliability, Availability and Maintainability (RAM) growth program, as an integral part of design and development.
- Ensure government organizations reconstitute a cadre of experienced T&E and RAM personnel.
- Implement mandated integrated developmental testing (DT) and operational testing (OT), including the sharing and access to all appropriate contractor and government data and the use of operationally representative environments in early testing.

The RIWG chartering document and the executive summary of the DSB report are included at Appendices 4 and 5, respectively.

Background:

The DSB examined the increasing number of systems not meeting suitability requirements during Initial Operational Test and Evaluation (IOT&E), finding that Reliability, Availability and Maintainability (RAM) deficiencies comprise the primary shortfall areas. The DSB found that acquisition personnel reductions combined with acquisition system changes in the last 15 years had a detrimental impact on RAM practices.

With some exceptions, the practice of reliability growth methodologies was discontinued during System Design and Development (SDD). Relevant military specifications, standards and other guidance were not used. Suitability criteria, including RAM, were de-emphasized. Improved RAM will not only enable systems to meet their suitability requirements during IOT&E and assure that systems delivered to the warfighter perform when needed, but also decrease life cycle costs and reduce demand on the logistics system.

The RIWG organized into three work groups – each aligned with one of the three objectives (outlined above) assigned to the RIWG. The three groups met on their own schedule, and presented bi-weekly progress reports to the co-chairs. The co-chairs met early with Service Acquisition Executives (SAE), or their deputies, to advise them of the direction for the RIWG.

A mid-course progress review was presented by the RIWG to the senior leadership. Finally, the co-chairs met a second time either with SAEs, or their deputies, to advise them of the RIWG's

emerging results and to elicit service views regarding implementation. In the memorandum dated July 21, 2008, the Under Secretary of Defense for Acquisition, Technology and Logistics established department policy for programs to be formulated to execute a viable RAM strategy that includes a reliability growth program as an integral part of design and development.

The Under Secretary directed the Secretaries of the military departments to establish reliability improvement acquisition policy to implement RAM practices, and to respond in 30 days with their plan to implement the policies. Service responses are presented with the appropriate objective in the next section of this report.

Part 2. Implementing DSB Recommendations to Improve RAM

The RIWG workgroups identified and pursued a variety of tasks to implement the three objectives assigned to the RIWG. For each task, the RIWG requested Service implementation responses and they are included following each task summary in this report.

Objective 1. Ensure Programs are Formulated with a RAM Growth Program

Ensure programs are formulated to execute a viable systems engineering strategy from the beginning, including a RAM growth program, as an integral part of design and development.

This first objective reflects the overarching conclusion of the DSB, “**The single most important step necessary to correct high suitability failure rates is to ensure programs are formulated to execute a viable systems engineering strategy from the beginning, including a robust RAM program, as an integral part of design and development. No amount of testing will compensate for deficiencies in RAM program formulation.**” The DSB recommended the following RAM-related actions as a minimum:

- Identify and define RAM requirements during the Joint Capabilities Integration Development System (JCIDS), and incorporate them in the Request for Proposal (RFP) as a mandatory contractual requirement.
- During source selection, evaluate the bidders’ approaches to satisfying RAM requirements.
 - Ensure flow-down of RAM requirements to subcontractors.
 - Require development of leading indicators to ensure RAM requirements are met.
- Make RAM, to include a robust reliability growth program, a mandatory contractual requirement and document progress as part of every major program review.
- Ensure that a credible reliability assessment is conducted during the various stages of the technical review process and that reliability criteria are achievable in an operational environment.
- Strengthen program manager accountability for RAM-related achievements.
- Develop a military standard for RAM development and testing that can be readily referenced in future DoD contracts.
- Ensure an adequate cadre of experienced RAM personnel is part of the Service acquisition and engineering office staffs.

With respect to the first bullet to better identify and define RAM requirements in the Joint Capabilities Integration Development System (JCIDS), a separate effort resulted in a manual for developing RAM requirements and documenting them with rationale. The manual will be referenced by other JCIDS manuals, and is useful in requirements development, contracting, design and development, and T&E.

To help define a robust reliability growth program that can be referenced in a mandatory contractual requirement, another effort developed a new standard, GEIA-STD-0009, *Reliability Program Standard for Systems Design, Development, and Manufacturing*. The standard has been approved, and the RIWG has incorporated its content in various recommendations and products.

The remaining recommendations were translated into a set of implementing tasks for this objective, as follows:

Task 1.1 Establish Reliability Improvement Policy

Task 1.2 Provide Sample Reliability Language for Acquisition Contracts

Task 1.3 Develop a Program Reliability and Maintainability Review Template

Task 1.4 Develop Standard Evaluation Criteria to Determine Whether Systems Are on the Right Path

Task 1.5 Designate a RAM Champion

Task 1.1 Establish Reliability Improvement Policy

The Defense Science Board DT&E Task Force concluded that the general practice of reliability growth was discontinued in the mid-to-late 1990s, concurrent with the implementation of Acquisition Reform. Further, with the current DoD policy, most development contracts do not include a robust reliability growth program.

The RIWG examined the relatively recent Army policy (December 6, 2007), directing a mandatory early-warning mechanism (threshold) to identify systems that are off-track from reliability objectives. The RIWG referred to this Army policy as the “Bolton memo.” It is available at: <https://acc.dau.mil/CommunityBrowser.aspx?id=214073&lang=en-US>.

The RIWG concluded that DoD must establish, across the acquisition enterprise, policy to ensure reliability in acquisition programs. The RIWG examined several alternatives for establishing this policy, including cross-DoD application of the policy in the “Bolton memo.” The RIWG recommended directing the Services and Components to establish their own reliability policy, based on certain key tenants, and also announce new DoD acquisition policy for reliability.

The RIWG recommended USD(AT&L) approve a memorandum to accomplish this. The approved memorandum established department policy for programs to be formulated to execute a viable RAM strategy that includes a reliability growth program as an integral part of design and development. The Under Secretary directed the Secretaries of the Military Departments to

establish reliability improvement acquisition policy to implement RAM practices, and respond within 30 days with a plan to implement the policies. That memo is at Appendix 1.1, and the responses follow. The memo may also be found at <http://www.acq.osd.mil/sse/dte/docs/USD-ATLMemo-RAM-Policy-21Jul08.pdf>.

Service Implementation Response
(Next pages)



DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY
ACQUISITION LOGISTICS AND TECHNOLOGY
103 ARMY PENTAGON
WASHINGTON DC 20310-0103

SEP 04 2008

SAAL-LP

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE (ACQUISITION,
TECHNOLOGY AND LOGISTICS)

SUBJECT: Army Reliability, Availability, and Maintainability (RAM) Improvement
Initiatives

The U.S. Army concurs with your July 21, 2008 memorandum indicating that RAM has not been sufficiently emphasized during weapon system development. Toward that end, in December 2007, the Army Acquisition Executive established an early-warning mechanism to identify those weapon systems in jeopardy of not meeting their RAM requirements. This mechanism is our cornerstone to improve RAM and will be included in revisions to our policy.

We are also working in parallel with the Department of Defense (DoD) Reliability Improvement Working Group, pursuing the following additional RAM improvement initiatives.

- a. Program Manager charters have been modified to include a RAM focus;
- b. Acquisition Program Baselines will include an increased RAM scope and hold Program Executive Officers and Program Managers accountable;
- c. Army Systems Acquisition Review Councils and other reviews will be modified to focus on RAM as part of their process;
- d. Reliability experts and points of contact are now part of my staff located in the newly established System of Systems Engineering Directorate;
- e. Future capabilities documents and acquisition contracts will include emphasis on RAM;
- f. RAM training provided to our acquisition and logistics workforces will be increased in scope and improved;
- g. We will sponsor RAM workshops and conferences, which will include providing the latest information on RAM improvement initiatives to our Program Managers.

h. We will encourage the use of GEIA-STD-0009, Reliability Program Standard for Systems Design, Development, and Manufacturing, and its associated contractual language.

i. We will apply the newly created Reliability Scorecard to evaluate weapon system reliability progress early in the developmental process.

With our current initiatives, increased oversight, and policy updates, to include adjustments to reflect the forthcoming changes to DoD Instruction 5000.2 and the Defense Acquisition Guidebook, we will provide our warfighter with a more reliable and maintainable weapon system.

My point of contact for this action is Mr. Larry W. Hill, commercial (703) 604-7450, DSN 664-7450, or e-mail: larry.w.hill1@us.army.mil.



Dean G. Popps
Principal Deputy Assistant Secretary of the Army
(Acquisition, Logistics and Technology)

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Navy and Marine Corps



THE ASSISTANT SECRETARY OF THE NAVY
(RESEARCH, DEVELOPMENT AND ACQUISITION)
1000 NAVY PENTAGON
WASHINGTON DC 20350-1000

AUG 28 2008

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE (ACQUISITION AND TECHNOLOGY)

Subj: Reliability, Availability and Maintainability (RAM) Policy

- Ref:
- (a) USD(AT&L) Memo dated 21 July 2008, Same Subject
 - (b) SECNAVNOTE 5000, DoN Requirements and Acquisition Improvements
 - (c) Sample Reliability Language for DoD Acquisition Contracts Based on GEIA-STD-0009
 - (d) DoD 4245.7-M Templates
 - (e) DoD Guide For Achieving Reliability, Availability and Maintainability, dated 3 Aug 2005

The Department of the Navy recognizes opportunities to improve RAM and is reinvigorating our processes to achieve it. The focus of this effort is to exercise a disciplined approach to ensuring definite and quantifiable RAM requirements are built into system design and that these requirements are accurately assessed at each stage of the acquisition process. To achieve the required discipline, we are reinvigorating existing RAM-focused procedures and processes, and implementing key reforms. Additional policy will be created, as appropriate, to support ongoing reforms. Reference (a) identified four specific RAM practices to be addressed:

(1) Improving Collaboration Between the Requirements and Acquisition Communities: The recently implemented Two Pass/Six Gate process, identified in reference (b), provides a series of senior level acquisition and user stakeholder reviews to ensure agreed to RAM requirements are implemented and funded prior to contract award.

(2) Building RAM into Acquisition Plans and the Contracts that Support Them: Contracts will include the requirement for suppliers to implement effective RAM programs and provide updated analyses toward achievement of those requirements as part of the systems engineering review process. RAM requirements will be fully funded prior to contract release. Reference (c) information will be utilized when developing tailored reliability program requirements for contracts and their management.

(3) Evaluating the Maturation of RAM Through Each Phase of the Acquisition Life Cycle: Programs will ensure design and verification tests for RAM are planned for and incorporated into contracts as applicable. This includes the appropriate RAM design activities such as development of a Design Reference Mission Profile, electrical/mechanical/ thermal stress analyses, worst case circuit/tolerance analyses, parts

Subj: Reliability, Availability and Maintainability (RAM) Policy

derating requirements, failure modes, effects, and criticality analyses, built-in-test/testability design, and RAM modeling & analysis. During Systems Development and Demonstration (SD&D), programs will address the use of in-process test and evaluation, such as highly accelerated life testing and other stress testing, and requirements for reliability growth development testing. These requirements also apply to systems that rely on the use of non-developmental items (NDI) or commercial off-the-shelf (COTS) items to field capabilities. Additional best practices are included in references (d) and (e). While not all analyses and tests will be applicable across the board, all Acquisition Category (ACAT) programs will be required to provide rationale for not including RAM design analyses and verification as part of their continuing business case analyses.

Assessment and verification of RAM requirements and progress toward RAM design maturity during the design phases and subsequent acquisition life cycle phase is included in the Two Pass/Six Gate Process for ACAT I/II programs; the Systems Engineering Technical Reviews; Independent Logistics Assessments, and independent risk assessments and program reviews. The assessments include comparison of the RAM requirement with the latest estimate as the design progresses (e.g., analyses and predictions, SD&D test results, Technical Evaluation/Initial Operational Test and Evaluation results, and fleet performance results).

(4) Evaluating Contract Incentives for Advancing RAM: Prior to the issuance of reference (a), the Secretary of the Navy formed an executive-level task force to develop recommendations for providing greater incentives for industry to improve RAM. The findings of this task force will be reported back in mid-September. A summary of the recommendations will be provided under separate cover.

Question can be directed to CAPT Kevin Redman, Director of Logistics, DASN(A&LM) at 703-693-2937 or e-mail: kevin.redman@navy.mil.



Sean J. Stackley

Air Force



OFFICE OF THE ASSISTANT SECRETARY

DEPARTMENT OF THE AIR FORCE
WASHINGTON DC

AUG 28 2008

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE (ACQUISITION,
TECHNOLOGY, AND LOGISTICS)

FROM: SAF/AQ
1060 Air Force Pentagon
Washington, DC 20330-1060

SUBJECT: Reliability, Availability, and Maintainability Policy

On behalf of Acting Secretary of the Air Force Donley, this memo provides the Air Force response to your 21 Jul 08 memorandum, same subject.

I share your concerns regarding the recent downward trend of reliability, availability, and maintainability (RAM) test results, and agree with your assessment that RAM considerations must be strengthened as our weapon systems move through the development and production phases and into operational service. Toward this end, I have asked my staff to:

- a. Review and revise our departmental acquisition policies and guidance as needed to strengthen RAM considerations and organizational responsibilities during requirements generation, acquisition program planning, test and evaluation planning, product support planning, program execution activities, and life cycle sustainment activities.
- b. Examine our current acquisition and sustainment workforce capabilities and shortfalls, and prepare workforce development strategies and implementation plans as needed to redevelop acquisition logistics expertise within the Air Force.
- c. Review and revise our acquisition program documentation requirements, as well as our program review and reporting processes, to ensure persistent senior leader visibility and oversight of RAM-related matters.

The attachment to this memo provides specific focus areas we are considering for opportunities to improve the RAM performance of AF weapon systems. If you have any questions regarding the actions we are taking in this area, please have your staff contact Mr. Mike McWilliams in SAF/AQXA, at (703) 588-7110, or joseph.mcwilliams@pentagon.af.mil.

A handwritten signature in blue ink, appearing to read "David M. Van Buren".

DAVID M. VAN BUREN
Principal Deputy Assistant Secretary
for Acquisition & Management

Attachment:
Air Force RAM Policy, Workforce, and Oversight Focus Areas

cc:
ASN, RDA
ASA (ALT)
SAF/IE
SAF/US (D)
AF/A1
AF/A3/5
AF/A4/7
AF/TE
AFMC/CC
AFSPC/CC
AFOTEC/CC

ATTACHMENT

Air Force (AF) RAM Policy, Workforce, and Oversight Focus Areas

Focus Area #1: RAM Policy and Guidance

- Ensuring early program office involvement – especially program management, systems engineering, logistics, and test and evaluation (T&E) functionals – with pre-Milestone A/B capability planning, requirements generation, and resource programming activities.
- Ensuring the AF requirements generation process produces quantifiable, verifiable RAM performance parameters and other suitability requirements that our program managers (PMs) can incorporate into acquisition program strategies, plans, and contracts.
- Ensuring PMs collaboratively analyze user-developed RAM requirements and provide the user and milestone decision authority (MDA) with recommendations that balance RAM requirements within system/program technical, cost, schedule, and/or risk constraints.
- Ensuring user RAM requirements are testable, and that contractor, developmental, and operational test and evaluation (T&E) activities provide comprehensive and accurate RAM test results and knowledge to support informed program decision making.
- Ensuring systems engineering plans and test and evaluation master plans are integrated and remain synchronized during program planning and execution, and include provisions to ensure RAM system design factors and reliability growth provisions are sound from an engineering perspective, and continually evaluated and refined from a T&E perspective.
- In accordance with statute and federal acquisition regulations, ensuring acquisition program contracts: contain accurate RAM technical specifications; include RAM requirements as key system design considerations; provide for RAM data generation/collection and deficiency reporting; include appropriate contractor incentives that reward RAM program successes.
- Ensuring user RAM requirements are appropriately integrated and evaluated during all acquisition program phases and activities, across organizational lines and interests, and throughout the system life cycle.

Focus Area #2: RAM Workforce and Expertise

- Examining the current acquisition logistics and systems engineering career fields for opportunities to revitalize and enhance the workforce, including training and educational programs, performance and retention bonuses, and career development opportunities.
- Bolstering RAM awareness in AF-conducted acquisition training courses, with a primary objective to broaden the understanding and consideration of RAM planning and execution considerations across all functional disciplines, including requirements, acquisition, test and evaluation, and sustainment.

- Establishing RAM ‘centers of excellence’ at our product, logistics, and test organizations to assist warfighter, program office, and T&E personnel as needed throughout the acquisition and sustainment life cycle, with emphasis on requirements generation and acquisition program planning activities.

Focus Area #3: Senior Leader Visibility and Oversight

- Ensuring acquisition program strategies, life cycle management plans, and other program documents specifically address RAM key performance parameters and key system attributes.
- Ensuring expectation management agreements contain mutually agreed-to expectations regarding RAM requirements, acquisition strategies, risks, costs, and test results.
- Ensuring product support strategies and plans specifically address RAM requirements, implementation plans, and program reporting and analysis needs.
- Ensuring acquisition milestone/decision and other recurring program reviews address system RAM maturity levels, action plans, and issues.
- Ensuring the AF has the proper RAM data collection and analysis tools necessary to assess RAM performance throughout the life cycle of a product or weapon system.
- Determining if modifications to AF-unique program reporting tools are needed to enhance RAM status and issue reporting, primarily through the use of RAM-specific program metrics.
- Ensuring materiel fielding-related events and weapon system beddown/deployment decisions consider system RAM maturity levels, action plans, and issues.
- Providing a means for Air Force executive level review of strategic RAM issues via the Integrated Life Cycle Management Executive Forum.
- Determining if additional oversight processes, tools, or reporting methods are needed to capture RAM-related lessons learned and/or feed continuous process improvement activities, future policy revisions, and RAM-related training courses.

Components – U.S. Special Operations Command



UNITED STATES SPECIAL OPERATIONS COMMAND

7701 TAMPA POINT BOULEVARD
MACDILL AIR FORCE BASE, FLORIDA 33621-5323

AUG 20 2008

SOAE

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR ACQUISITION,
TECHNOLOGY, AND LOGISTICS, 3010 DEFENSE PENTAGON, WASHINGTON, DC
20301-3010

SUBJECT: Reliability, Availability, and Maintainability Policy Implementation Plan

1. REFERENCES:

a. Under Secretary of Defense for Acquisition, Technology, and Logistics policy memorandum, Subject: Reliability, Availability, and Maintainability Policy, 21 July 2008.

b. Phonecon with DUSD(AT&L)/SSE Ms. Baldwin, 12 Aug 2008.

2. The United States Special Operations Command (USSOCOM) currently addresses Reliability, Availability, and Maintainability (RAM) in its various command-level acquisition, logistics, and requirements policies and directives which are applicable to all USSOCOM acquisition programs.

3. To address the concerns noted in reference 1.a. and comply with subsequent guidance provided by the forthcoming DUSD (A&T) RAM Manual, the following actions will be initiated:

a. Review, and revise as necessary, USSOCOM directives, policies, and guidance pertaining to:

- (1) Requirements
- (2) Acquisition
- (3) Systems Engineering
- (4) Logistics

b. Employ contract incentives, as appropriate, to achieve RAM objectives.

4. Reference (b) advised that formal responses were required from the component Acquisition Executives, including the USSOCOM.

SOAE

SUBJECT: Reliability, Availability, and Maintainability Policy Implementation Plan

5. The USSOCOM point of contact is Dr. Joseph Daum (Chief, Acquisition & International Analysis and Oversight Division), phone (813) 826-5721.



D. G. UHLER
Acquisition Executive

U.S. Transportation Command (TRANSCOM)

Darlene,

Following are the steps USTRANSCOM intends to implement to insure that reliability, availability and maintainability are built into our systems:

USTRANSCOM will review existing programs to ensure compliance with the Reliability, Availability, and Maintainability guidance. Where necessary, existing contracts will be modified to incorporate Reliability, Availability, and Maintainability requirements.

In addition, USTRANSCOM/TCAQ will incorporate the following language into the command program management instruction:

Reliability, Availability, and Maintainability. TCAQ, in coordination with program managers, the Chief Information Officer, USTRANSCOM test and evaluation office, functional users and developers, is responsible for establishing Reliability, Availability, and Maintainability (RAM) thresholds and objectives to be assessed at each phase of the acquisition lifecycle. RAM thresholds will be verified during initial operational test & evaluation (IOT&E). RAM requirements include:

- 1) Ensure effective collaboration to balance funding and schedule while ensuring system suitability and effectiveness in the anticipated operating environment;
- 2) Ensure development contracts and acquisition plans evaluate RAM during system design;
- 3) Evaluate the maturation of RAM through each phase of the acquisition life cycle;
- 4) Evaluate the appropriate use of contract incentives to achieve RAM objectives; and, where appropriate for the level of acquisition, ensure CDDs address a Materiel Availability Key Performance Parameter, and Materiel Reliability and Ownership Cost Key System Attributes.

Please contact me if you have any questions or comments.

Dean Peebels
Chief, Program Management Division
Directorate of Acquisitions
USTRANSCOM
618-256-4274 (DSN 576)

Defense Agencies - Defense Information Systems Agency



DEFENSE INFORMATION SYSTEMS AGENCY

P. O. Box 4502
ARLINGTON, VIRGINIA 22204-4502

AUG 13 2008

IN REPLY
REFER TO Component Acquisition Executive (CAE)

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE (ACQUISITION, TECHNOLOGY & LOGISTICS)

SUBJECT: Defense Information Systems Agency (DISA) Reliability, Availability and Maintainability (RAM) Policy Plan for Programs, Small Projects and Services

References: (a) USD (AT&L) Memo, RAM Policy, 21 Jul 08
(b) DISA Instruction 270-50-9, Integrated Logistics Supportability Strategy
(c) CAE Guideline Number 002, Logistics and Sustainment Requirements for DISA Programs, Projects and Service
(d) CAE Handbook, Independent Logistics Assessment (ILA)

1. In accordance with reference (a), the following plan is submitted to outline the DISA strategy to improve RAM practices throughout the life-cycle of all acquisition programs.
2. The first step will be to update reference (b), with current RAM philosophy, practices and procedures. This will include discussion of the new Material Availability Key Performance Parameter (KPP), and Materiel Reliability and Ownership Cost Key System Attributes (KSA).
3. The next step will be to update reference (c), with a new Handbook attachment that details RAM planning requirements and how to execute a RAM evaluation program from cradle to grave in the life-cycle of a program. This will include how to effectively collaborate among the requirements and acquisition communities during the Joint Capabilities Integration and Development System (JCIDS) process; how to design and test for critical RAM requirements; and how to effectively use appropriate contract requirements and incentives to obtain the most cost effective system that meets warfighter requirements. This new RAM Handbook will be used to update reference (d), to ensure that DISA program ILA's include a complete assessment for RAM improvement strategies and that this element plays a key part in the final assessment prior to all major acquisition milestones. The DISA Systems Engineering and Test & Evaluation Directorates will team with the CAE Logistics Division to ensure a complete and easily understood RAM Handbook is published for the Agency.
4. The final step will be to create a new DISA Instruction which details the requirements for a robust RAM Improvement Strategy to be implemented by all DISA programs, projects and services. This will direct use of the updated references (b, c, and d) as well as direct the DISA CAE to monitor its progress and report status during the regularly scheduled Integrated Program Reviews (IPR).
5. The milestones for completion of the above actions will be achieved within 90 days.


ANTHONY S. MONTEMARANO
Component Acquisition

Task 1.2 Develop Sample Reliability Language for Acquisition Contracts

A Best Practices Standard. The Defense Science Board DT&E Task Force concluded that a new reliability program standard is urgently needed. That standard would include reliability growth as an integral part of design and development and could be cited in DoD contracts. DoD worked closely with industry and the Government Electronics and Information Technology Association (GEIA) to develop the new standard, GEIA-STD-0009, *Reliability Program Standard for Systems Design, Development, and Manufacturing*. The final standard is available at: http://www.techstreet.com/cgi-bin/detail?product_id=1574525

In order to facilitate its use in DoD acquisition contracts, the RIWG developed template language for use by any program. It is available from the Defense Acquisition University's Acquisition Community Connection website at:

<https://acc.dau.mil/CommunityBrowser.aspx?id=219127&lang=en-US>.

In addition, an overview of the template and guidance for its use is available in related documents: *Guide for Integrating Systems Engineering into DoD Acquisition Contracts* found at <https://acc.dau.mil/CommunityBrowser.aspx?id=127987> and *Incorporating Test and Evaluation into DoD Acquisition Contracts* found at <http://www.acq.osd.mil/sse/dte/guidance.html>

Contractual Incentives. The RIWG also examined incentive language which has been used successfully in recent acquisition programs, and drafted an illustration of a performance incentive for reliability.

Sample Contract Language. The proposed template for reliability contract language consists of three parts, plus incentive language. This template provides consistent, concise, sample reliability program language for these Request For Proposal (RFP) sections:

1. Section C Statement of Work Reliability Language and Tailoring Instructions
2. Section L Proposal Instructions Reliability Language
3. Section M Evaluation Factors for Award Reliability Language, including a checklist for evaluating reliability program plans

The last item in this appendix is an example of reliability incentive language to include in contracts.

The template language is broadly applicable across acquisition programs and consists of “what to do”, i.e., top-level objectives and activities that are essential in order to design, build, and field reliable systems. They are distilled from the GEIA-STD-0009. The developer remains responsible to identify and propose methods, tools, and a set of Best Practices (i.e., “how to do it”). The template language for 3 sections of the RFP is included as Appendix 1.2.1, and the incentive language follows at Appendix 1.2.2.

Service Implementation Response

Army

Will encourage the use of GEIA-STD-0009 and associated contract language, per response to Task 1.1.

Navy and Marine Corps

Will utilize sample contract language when developing tailored reliability program requirements for contracts and their management, per response to Task 1.1. Also, per response to Task 1.1, executive level task force developing recommendations for incentives to industry to improve RAM.

Air Force

Provided a specific focus area being considered, for ensuring acquisition program contracts contain accurate RAM technical specifications; include RAM requirements as key system design considerations; provide for RAM data generation/collection and deficiency reporting; include appropriate contractor incentives that reward RAM program successes; as per response to Task 1.1.

Task 1.3 Develop a Guide to Early Planning for Reliability

Review Template. The DSB recommendations emphasized the importance of early and comprehensive planning activities for a robust RAM program as part of design and development. The RIWG developed a Program Reliability and Maintainability Review Template, based on evolved best practices (e.g., GEIA-STD-0009, *Reliability Program Standard for Systems Design, Development, and Manufacturing*), to facilitate early and effective RAM planning. The template provides a detailed checklist to use in connection with the program reviews specified in DoDI 5000.02. It is available at Appendix 1.3.1, and at <http://www.acq.osd.mil/sse/docs/RAM-Planning-Template.xls>

In addition, the RIWG worked with OSD systems engineering oversight office to draft a reliability section for the Defense Acquisition Program Support assessment methodology. That is available at Appendix 1.3.2, and at: http://www.acq.osd.mil/sse/docs/DAPS-Subsection-5_2-Suitability-RIWG-Draft-08-15-08.pdf

Service Implementation Response

Service responses do not specifically address the products of this task.

Task 1.4 Define Standard Criteria to Evaluate a Reliability Program

Reliability Scorecard. The DSB recommended that a credible reliability assessment be conducted during the various stages of the technical review process, that reliability criteria are achievable in an operational environment and that program manager accountability for RAM-related achievements are strengthened.

The RIWG developed a reliability scorecard to determine whether system contractors are employing reliability practices that will place the system on a path to achieving their reliability requirements. The scorecard tool can be used to quantitatively or qualitatively score the elements of a Reliability Program.

The scorecard includes elements in the categories of Reliability Requirements and Planning, Training and Development, Reliability Analysis, Reliability Testing, Supply Chain Management, Failure Tracking and Reporting, Verification and Validation, and Reliability Improvement.

Each Reliability Program element is scored using a series of questions, each of which can be coded green, yellow, or red. Individual scores can also be assigned. This scorecard is important for tracking the achievement of reliability and maintainability requirements and rating the adequacy of the overall Reliability Program. The scorecard can be accessed through the following website:

<https://acc.dau.mil/CommunityBrowser.aspx?id=210483&lang=en-US>. The scorecard is also included as Appendix 1.4.

Service Implementation Response

Army

Will apply the new scorecard to evaluate weapon system reliability progress early in the development process, per response to Task 1.1.

Navy and Marine Corps

Assessment and verification of RAM requirements and progress toward RAM design maturity is included in the “Two Pass/Six Gate Process.” Programs will ensure design and verification tests for RAM are planned for and incorporated into contracts as applicable, per response to Task 1.1.

Air Force

Provided a specific focus area being considered, for ensuring user RAM requirements are appropriately integrated and evaluated during all acquisition program phases and activities, across organizational lines and interests, and throughout the system life cycle, per response to Task 1.1.

Task 1.5 Designate Reliability Champions Across DoD

Reliability “Champions.” Achieving reliability capabilities requires the collaboration of many skilled and dedicated people and organizations. The key to developing and fielding military systems with satisfactory reliability is to:

- Recognize it as integral to program planning and the systems engineering process.
- Show how system reliability is maturing according to a reliability growth plan during integrated testing.
- Sustain it throughout the system life cycle.

The RIWG recommends OSD and the Services designate reliability “Champions” to ensure the reliability initiatives becomes an institutionalized part of the way they conduct business.

Within OSD, the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics, Systems and Software Engineering (USD(AT&L/SSE)) and the Director, Operational Test and Evaluation (DOT&E) play pivotal roles in achieving reliability capabilities and are therefore the appropriate reliability “Champions”.

- The Director, Systems and Software Engineering within USD(AT&L) is responsible for promoting early technical planning and the application of sound systems and software engineering. That organization includes reliability staff expertise, already engaged in assessing programs for reliability.
- DOT&E is responsible for ensuring OT&E plans for major DOD acquisition programs are adequate to determine operational effectiveness and suitability of the defense system in combat use. DOT&E is hiring four additional staff with RAM expertise to engage in requirements development.
- On June 25, 2008, the Director for Operational Test and Evaluation, and the Deputy Under Secretary of Defense for Acquisition and Technology proposed that the Service Secretaries consider establishing a permanent headquarters staff position to improve reliability (see memorandum at Appendix 1.5). The Army committed to establishing a permanent headquarters staff position, and named an executive to serve as the Department of the Army Reliability Chief

**Service Implementation Response
(next page)**

Army



SECRETARY OF THE ARMY
WASHINGTON

AUG 19 2008

MEMORANDUM FOR DR. CHARLES E. McQUEARY, DIRECTOR, OPERATIONAL
TEST & EVALUATION

SUBJECT: Continuing to Improve Reliability Across Administration Transition

The Army recognizes improving system reliability to be fundamental to both warfighting effectiveness and containing long term sustainment costs. Therefore, the Army has made a commitment to establishing a permanent headquarters staff position to continue to improve reliability across the administration's transition. Mr. Dean Popps, Acting Army Acquisition Executive announced on 25 July 2008, the selection of Mr. Ross Gukert, Assistant Deputy for Acquisition and Systems Integration. Mr. Gukert will serve as the Department of the Army Reliability Chief.



Pete Geren

Objective 2. Ensure government Organizations Reconstitute a Cadre of Experienced T&E and RAM Personnel

Ensure government organizations reconstitute a cadre of experienced T&E and RAM personnel.

Two tasks were associated with this objective. They were the following:

Task 2.1 Reconstitute RAM and T&E Personnel - Policy to Enable Workforce Reconstitution

Task 2.2 Train and Educate RAM and T&E Workforce

Task 2.1 Establish Policy to Enable RAM and T&E Workforce Reconstitution

Proper training and manning of the DoD workforce. The DSB found that the loss of experienced technical and managerial acquisition and test personnel has had a major negative impact on DoD's ability to successfully execute increasingly complex acquisition programs. The DSB recommended an adequate cadre of experienced RAM personnel be part of Service acquisition and engineering office staffs. The RIWG concluded that the desired emphasis within the Services includes:

- Enabling the Services to establish and staff Centers of Excellence with qualified RAM and T&E personnel.
- Ensuring RAM and T&E expertise influence Acquisition programs throughout the Acquisition Process.

The RIWG considered recommending a memorandum from USD(AT&L) to revitalize policy by directing proper manning and training of the DoD workforce for RAM and T&E. The RIWG concluded that the RAM policy memorandum issued on July 21, 2008 (at Appendix 1.1), directing the Secretaries of the Military Departments to establish reliability improvement acquisition policy to implement RAM practices, was a sufficient initial step for workforce reconstitution activity across DoD. In any future reviews of DoD implementation of this policy, the RIWG recommends that activity to assure workforce sufficiency be a focus area.

Service Implementation Response
(next pages)

Army

Revitalizing Policy

- Army NDAA §852 Workforce Development Fund
 - Designation of RAM and T&E as Critical Competencies
 - Strategy: Work with OSD, DAU, Services and Army Leadership to Implement 852 Initiatives
- Army AL&T Leadership Initiatives Approved
 - Ensure reliability is addressed in ASARC and other program reviews
 - Emphasize reliability requirements in capabilities documents and contracts thru reviews and comment periods
 - Revise PM Charter to ensure better attention to Reliability and the fielding of reliable systems
 - Revise the APB to increase coverage of reliability and to hold the PEO/PM accountable to field reliable systems

Updating Training & Education

- Emphasize Training of Combat Developers/Requirements Writers
- Increase Training in RAM for AL&T Workforce
 - Ensure Reliability Expertise in ASAALT in System of Systems Engineering Group
 - Better reliability training for Army Acquisition & Logistics Workforce
 - Sponsor reliability workshops/conferences/briefings at PM Conferences

Restoring Enterprise-wide RAM Expertise

- ASA(ALT) to Stand-Up New System of Systems (SoS) Engineering Group with Reliability Expertise

Navy and Marine Corps

Revitalizing Policy

The Department of the Navy (DoN) is finalizing SECNAVINST 5000.2D "IMPLEMENTATION AND OPERATION OF THE DEFENSE ACQUISITION SYSTEM AND THE JOINT CAPABILITIES INTEGRATION AND DEVELOPMENT SYSTEM" which will codify a Two Pass-Six Gate review and decision process for MDAPs. This process ensures that senior decision makers address RAM and T&E issues starting at pre-Milestone B and continuously throughout the acquisition process. A new DoN "Probability of Program Success (POPS)" guidebook will focus decision making attention on all aspects of RAM specification, development, acquisition, test and evaluation, affordability, and systems integration.

Updating Training and Education:

In addition to planned DoD-wide RAM and T&E education improvements, the OPNAV Action Officer Course curriculum will be updated with added emphasis on T&E and RAM performance capability criteria and considerations in the development of capabilities submitted into the Joint Capabilities Integration Development System (JCIDS).

In anticipation of the need for RAM expertise in the T&E career field, the Navy has taken advantage of DOT&E sponsored RAM training courses for Action Officers with direct exposure to RAM issues. The Navy envisions that Defense Acquisition University (DAU) RAM related courses, within several AT&L career fields, will eventually replace these DOT&E "Gap filler" courses.

To support the DAU curriculum and revised Requirements Officer courses, RAM functional experts have contributed to pending new Requirements Officer and Core Logistics courses.

Restoring Enterprise-wide RAM Expertise.

ASN(RD&A) has designated a new position, the Principal Civilian Deputy for Acquisition Workforce, to coordinate and oversee Acquisition Workforce Improvement actions, including investment to mitigate staffing capability gaps.

As an alternative to Centers of Excellence, Navy believes that optimal RAM performance capability integration into defense systems requires an unbroken chain of RAM expertise and advocacy; from those that establish and baseline RAM and associated Ownership Cost parameters via JCIDS (OPNAV), through systems design and development (PEO/PMs), through test and evaluation (OPNAV N091, SYSCOM T&E competencies, and COMOPTEVFOR), and throughout deployed sustainment and RAM/cost readiness and affordability reporting (SYSCOMs). To ensure this Acquisition continuity, Navy will augment or adjust staff to ensure that RAM expertise and advocacy is available to exert formal influence at pivotal Acquisition decision points.

Air Force

The AF is actively involved and focused on improving the reliability, availability, and maintainability of its weapon systems and has a number of ongoing activities. In order that we "ensure government organizations reconstitute a cadre of experienced T&E and RAM personnel," the Air Force has a three-pronged approach which includes policy, training and education, and personnel (work force). Some areas that will be addressed include:

Revitalizing Policy

- Create RAM Centers of Excellence at all Logistics and Product Centers and T&E organizations. These experts will direct and focus RAM knowledge into new and existing programs throughout the entire DOD Acquisition Management Framework. RAM knowledge will be uniformly and robustly injected into all programs regardless of ACAT and their stage of development, beginning pre-Milestone A, and continuing through demilitarization.
- Update AFI 63-1201, AFI 99-103, AFI 10-601, evaluate the effects of the current updates to AFI 63-101 which has major areas on RAM,
- Issue a SAF/AQ and AF/TE Memo reinvigorating R&M (similar to OSS&E Memos with associated reporting)
- Emphasize RAM Requirements in AFMCI 62-202, "AFMC Core Criteria for Critical Engineering Positions"
- Validate that the AFMCI is being enforced and that all current critical positions are qualified
- Require PMs, Contracting, other specialty areas to get RAM Awareness Training (at all Product Centers, Logistics Centers, and Test organizations)

Updating Training & Education

- Use existing: DAU, AFIT, Center Level, Academic, Short Courses/COTS courses, rather than waiting for updates
- Support updates to those DAU courses identified by the RIWG and others as needed
- Develop new, AF Focused and DoD (Non-Service specific)
- Develop an Air Force "All up" RAMS awareness/ training
- Focus on Degrees, Specialty Courses, Short Courses (Increase training budget)
- Apply for and use Section 852 funding
- Product a RAM Road Show (Awareness) going to all Product Centers, Logistics Centers, and T&E organizations over the next year

Restoring Enterprise-wide RAM Expertise

The Air Force Systems Engineering Functional Office will lead the following efforts:

- Create and fund new UMDs (R&M, Quality, Safety) – OPM
- Hire new Government R&M, Q&M specialists (review vacancies, NDAA, Sec.852)
- Interim Contractor Support (Program \$ or BP 3400/ 583)

- Use Palace Acquire with R&M Emphasis (Stop-gap: must place at end of 3 yrs)
- Institute an Intern program
- Renew and revise RAM KSAs in current work force (Training & Education)
- Use Incentives to have engineers change career fields and or get additional training/ education in RAM (NDAA, Sec. 852)
- Use Center-Level ENs and MANTECH for RAMS support
- Program Chief Engineer/Wing Design of Experiments - Focal Points
- Grow new RAM skills (SME) technical personnel in programs (Establish Military RAM Positions)

Defense Agencies: DISA

1. Revitalizing Policy

DISA has established the Acquisition Knowledge Environment for Sharing Toolkit. This is the Component Acquisition Executive (CAE) resources and support site. It encompasses DISA/CAE and OSD acquisition policies, processes, procedures, memos, guidelines, templates, glossaries, standard operating procedures and acquisition tools. All DISA programs and project personnel can explore this site for training and support to meet acquisition needs.

DISA has also developed an Independent Logistics Handbook (ILA) that assists Program Managers in addressing logistical concerns, to include reliability, availability, and maintainability. The ILA establishes a common assessment framework and support structure for evaluating programs and allows for continuity of program management practices with respect to logistics reliability, availability and sustainability. The ILA ensures key designs for support-related cost and performance parameters (e.g., availability, reliability, maintainability) are included in the Initial Capabilities Document and as design requirements for subsequent acquisition phases.

As a result of Mr. Young's "*Reliability, Availability, and Maintainability (RAM) Policy*" memorandum, dated July 21, 2008 directing the establishment of a RAM improvement policy, DISA is in the process of developing policies that: (1) ensure effective collaboration between the requirements and acquisition community;

(2) ensure development contracts and acquisition plans evaluate RAM during system design; (3) evaluate the maturation of RAM through each phase of the acquisition life cycle and (4) evaluate the appropriate use of contract incentives to achieve RAM objectives.

2. Updating Training and Education (List our efforts to find, review, and update existing courses; and list efforts to create new or revised courses at DAU and in each Service):

As a member of the T&E Functional Integrated Process Team (FIPT), DISA is working with DAU to ensure that new and revitalized courses are relevant to IT Systems. This effort will ensure DISA T&E professionals derive maximum benefit from DAU courses.

DISA is leading the development effort for the *Interoperability, Net-Ready Key Performance Parameter* Continuous Learning Module (CLM) for DAU.

DISA is also partnering with the DOT&E Joint Test & Evaluation, Joint Test & Evaluation Methodology (JT&E JTEM) project in the development of a *Joint T&E CLM*.

3. Restoring the Workforce (List the personnel actions such as cross-training, award and incentive programs, rewriting KSAs, Internal transfers, hiring interns & new personnel, and last but not least, Section 852 nominations and requests):

DISA views career development as an investment. The attraction, retention, and development of quality employees are given high priority in DISA's strategic plan. To this end DISA has

established a Career Management Program (CMP) to provide employees with a roadmap and structure to build capabilities for now and for the future. The Career Management Program provides a systematic, competency-based approach for managing employee development. It identifies the need for core, as well as, specialized training in sub-specialty areas such as Capability Test and Evaluation or RAM. The CMP will help DISA attract, develop, and retain professionals who provide timely, quality and relevant services to our customers. The program's objectives are to: (1) provide employees with a comprehensive list of competencies needed for performing major tasks in their occupations; (2) provide employees and their supervisors with a single-source reference to assist in determining appropriate training and prepare employees for more responsible positions; (3) assist supervisors in making effective use of scarce training resources by identifying critical competencies and training courses ;(4) enable employees to plan and sequence appropriate career training and development; and (5) strengthen employees' professional qualifications and leadership abilities.

In addition to the CMP, DISA has established a centrally managed Intern Development Program. This program was developed to attract recent college graduates and experienced individuals to join the DISA workforce. This three year program develops technical, leadership and interpersonal skills through core programs, education, on-the-job-experiences and diverse rotational assignments. The main objectives of Intern Program are to establish planned intake of personnel with high potential to meet DISA-wide career program staffing needs, give employees the competencies required to advance, and to successfully perform in target level positions in a specific career program.

Finally, DISA encourages cross functional training in secondary career fields towards DAWIA certification (e.g., System Engineering, T&E certification).

Task 2.2 Assure Current Training and Education for the Workforce

Strengthen the Acquisition University Curriculum. The DSB recommended modifying the curriculum at the Defense Acquisition University (DAU) to stress the importance of a robust reliability design and test effort as part of the systems engineering process. The RIWG recommended OUSD(AT&L) approve a memorandum to address Defense Acquisition University curriculum shortfalls for RAM. The approach was for RIWG representatives to discuss training and education issues with the Overarching- Functional Integrated Product Team (OFIPT), which would then direct DAU for appropriate adjustments for Systems Planning Research and Development and Engineering, Test & Evaluation, and Program Management. Such adjustments to stress RAM in DAU courses will enable a continuing process to provide the acquisition workforce necessary education to assure acquisition programs with robust RAM characteristics. The AT&L memo to DAU is at Appendix 2.

As proposed, RIWG representatives briefed the OFIPT on each provision of the USD(AT&L) policy for RAM (attachment 1.1), and recommendations for DAU curricula and DAWIA certification change (per attachment 2.2). The following summarizes the RIWG representatives' perspective of the results of this interaction with the OFIPT:

- Most OFIPT member had seen the memos and had begun to discuss them with their respective workforce communities.
- There was broad OFIPT concurrence that DAU can further the intent for a cohesive management approach to RAM effectiveness, by coordinating the education of the functional workforces (SPRDE/LOG/T&E/CON/PM) that play pivotal roles at various life cycle stages of systems development.
- A possible additional USD(AT&L) memorandum to improve manning and training of the workforce, which the RIWG had considered under Task 2.1, was discussed. As reported under Task 2.1, such a memorandum is not recommended at this time. Discussion with the OFIPT included how the Services could best hire and situate RAM expertise, and perpetuate it via human capital strategic plans.
- A final consideration was a part of the Acquisition process beyond DAWIA/DAU purview - those critical, temporary-duty military members that specify defense system RAM performance capability technical parameters via JCIDS. There was general agreement with the concept to require that those officers assigned directly from operational commands into that role, to first complete some form of Supportability/RAM online training module.

DAU Implementation Response

DAU executive management has underscored its support of RIWG activities and will respond in accordance with OFIPT direction.

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Objective 3. Implement Mandated Integrated Testing

Implement mandated integrated Developmental and Operational Testing, including the sharing and access to all appropriate contractor and government data and the use of operationally representative environments in early testing.

The DSB found there has been a significant decrease in government involvement in test planning, conduct and execution and concluded the time has come focus the somewhat ad-hoc implementation of integrated test concepts and pursue more consistency in integrated test planning and execution. While Service acquisition programs are incorporating integrated testing to varying degrees, the DSB recommended implementing OSD and Service policy mandating integrated DT&E and OT&E planning and execution throughout acquisition programs.

Task 3.1 Implement Integrated Test Processes into T&E Strategies

Define Integrated Testing. To implement the Integrated Test policy (22 December policy memo), the RIWG recommended a memorandum formally defining integrated T&E, as a basis for developing further guidance. The resulting OSD memorandum is at Appendix 3.1, defining integrated test. This agreed definition serves as the basis for further implementing actions.

Contractual Language for Data Sharing. The RIWG drafted implementing guidance for integrated testing for the Defense Acquisition Guidebook, Chapter 9. The language for implementing integrated T&E is at Appendix 3.2, for inclusion in Chapter 9, DAG. The DAG can be found at: <https://akss.dau.mil/dag/>

In addition, DD, DT&E developed a guidebook titled, “Incorporating Test and Evaluation into Department of Defense Acquisition Contracts” that includes contractual language for data sharing. The guidebook is located at <http://www.acq.osd.mil/sse/dte/guidance.html>. The point of contact for these products is: Darlene Mosser-Kerner, darlene.mosser-kerner@osd.mil, 703-697-3406.

Service Implementation Response

(next pages)

Army



DEPARTMENT OF THE ARMY
OFFICE OF THE DEPUTY UNDER SECRETARY OF THE ARMY
102 ARMY PENTAGON
WASHINGTON, DC 20310-0102

SAUS-TE

17 July 2008

MEMORANDUM FOR DEPUTY DIRECTOR, DEVELOPMENTAL TEST AND EVALUATION,
RIWG CO-LEAD (MR. CHRISTOPHER DIPETTO)

SUBJECT: Component Responses for Reliability Improvement Working Group (RIWG) Report

1. Reference. USD(AT&L) Memorandum, SAB, 2 July 2008 (attached).
2. As the Army Test and Evaluation Executive, I hereby provide those actions that I have already taken, or currently considering, to implement as related to the four specific emerging guidance areas requested at reference memorandum.
 - a. Implement Integrated Test Processes into T&E Strategies.

(1) Upon receipt of the 25 Apr 08 OSD memorandum defining the integrated testing process, I made Army-wide distribution. Moreover, I have posted a copy of the memorandum on the Army T&E Page of the Army Knowledge Online. It is my intent to incorporate the integrated testing definition in the ongoing rapid action revision (RAR) to AR 73-1 (T&E Policy). When I approve system T&E Master Plans (TEMPs) of behalf of HQDA, I will ensure that my staff remains vigilant in achieving efficiencies by integrating contractor and government testing. I will also encourage other Army TEMP approval authorities to do likewise.

(2) Per AR 73-1 (T&E Policy), Army TEMP policy and procedures comply with the Defense Acquisition Guidebook (DAG). Accordingly, when the proposed 3-Part TEMP format/content guidance gets incorporated into the DAG, it will be required for Army TEMPs. A grandfathering clause as related to the TEMP format is anticipated so as to allow each existing system T&E Working-level IPT (T&E WIPT) the flexibility to determine if, and when, conversion from the current 5-Part TEMP is appropriate. While the ongoing 3-Part TEMP initiative is useful to the desired outcome of deploying operationally effective, operationally suitable, and survivable systems to our Warfighters, it requires clear and definitive guidance for implementation. Based upon an informal Army-wide staffing of the 26 Jun 08 version of the proposed 3-Part TEMP format/content, over 130 comments were generated which is indicative that additional work should be pursued prior to incorporation into the DAG.

b. Early T&E Involvement in Requirements Development. As the Army T&E Executive, I serve as the Principal T&E Advisor to the Army Requirements Oversight Council (AROC). Commander, ATEC serves as an AROC Associate Member. This arrangement enables the Army T&E community to assess whether requirements are measureable and testable which, in turn, ensures that evaluations can be conducted in the mission context expected at the time of fielding, as described in the user's capability document, and consider any new validated threat environments that will alter operational effectiveness. Early establishment of a sound T&E strategy is essential in acquiring effective, suitable, and survivable systems for our Warfighters.

SAUS-TE

SUBJECT: Component Responses for Reliability Improvement Working Group (RIWG) Report

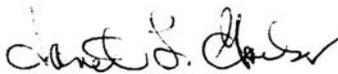
c. Early T&E Involvement in Request For Proposal (RFP) Development. As our independent Operational Test Agency, the Army T&E Command (ATEC) has established Liaison Offices (LNOs) at select PEO offices. Such an arrangement allows early T&E involvement in RFP development. Funding this type of early T&E involvement is defended annually by my office during the POM process. During the development of the ODUSD(A&T) guide entitled 'Incorporating T&E into DoD Acquisition Contracts,' my office coordinated an Army-wide review. Upon publication, I will post a copy to the Army T&E Page of the Army Knowledge Online.

d. Synchronizing Program T&E Strategies with Program Systems Engineering (SE) Plans and Processes. DA Pamphlet 73-1 (T&E in Support of Systems Acquisition) states the following: 'The primary purpose of test and evaluation (T&E) is to support system development and acquisition by serving as a feedback mechanism in the iterative systems engineering process.' I believe that Army T&E procedures adequately stress the needed synergy between the SE and T&E communities. DA Pamphlet 73-1 includes the following overview of developmental testing (DT) as related to systems engineering:

(1) DT is conducted throughout the acquisition process to assist in the systems engineering design and development of a system, provide safety verification, and to verify that performance specifications have been met with the goal being increased effectiveness of the systems engineering process.

(2) DT provides data with which to assess validity of performance levels of new technologies inserted into prototype hardware, achievement of systems engineering design goals, and compliance with critical technical parameters (CTP).

3. My point of contact is Larry D. Leiby. (703) 695-7389, DSN: 225-7389.
Larry.Leiby@HQDA.Army.mil



JANET L. GARBER
Director
Test and Evaluation Office

Attachment - USD(AT&L) Memorandum, Component Responses for Reliability Improvement Working Group (RIWG) Report, 2 July 2008

DISTRIBUTION:
Acting Army Acquisition Executive (Mr. Popps)
Commander, ATEC (MG Nadeau)

Navy and Marine Corps



DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
2000 NAVY PENTAGON
WASHINGTON, D.C. 20350-2000

IN REPLY REFER TO

July 21, 2008

MEMORANDUM FOR DEPUTY DIRECTOR, DEVELOPMENTAL TEST & EVALUATION

SUBJECT: Component Response for Reliability Improvement Working Group (RIWG)
Report

In response to your request for information on Component actions that have been taken or are under consideration to implement recommended guidance from the RIWG, the following is provided:

1. Integrated Test processes as defined in the 25 April 2008 OSD Memorandum for Component Acquisition Executives have been in development since 2005 within Navy.
 - a. Commander Operational Test and Evaluation Force (COMOPTEVFOR) took the initiative to develop an operational test and evaluation framework process that provides early identification of data collection requirements, and has offered this framework as a lead for programs to utilize in managing more collaborative test opportunities and resource efficiencies. As Chief of Naval Operations' T&E Executive, I have taken a conservative approach by endorsing the COMOPTEVFOR framework process, but allowing program managers to elect DODI 5000.2 standards of T&E integration, recognizing that the Operational Test framework process requires increased early investment and that cost to benefit relationships are not readily recognized across all commodity areas or acquisitions evenly. To date, 28 programs are currently under test or developing this framework that will use Integrated Testing.
 - b. The Navy Enterprise Enabler T&E Board of Directors adopted the definition of integrated testing provided in your Enclosure (2) and the 25 Apr 08 Memo, and incorporated it in the Department of Navy Acquisition and Capabilities Guidebook that will be published with the associated updated SECNAVINST 5000.2D (Implementation and Operation of the Defense Acquisition System and Joint Capabilities Integration and Development System).
 - c. Navy representatives have participated in the OSD T&E Work Group on the three part Test and Evaluation Master Plan (TEMP) template and have provided feedback on content of Enclosure (3). In general we see merit and opportunity for improved T&E strategy development and management; however, staff reviews indicate the current product needs more maturity and will require some dedicated training materials to realize intended benefits and not generate unintended consequences. I would strongly encourage AT&L and DOT&E to construct a pilot TEMP, either from a current approved TEMP or a volunteer pilot program, to understand the practicality of the proposed format before publishing the procedure DoD wide. To avoid unnecessary rework, a grandfathering clause that allows flexibility for programs to determine when and if they transition TEMPs that are in work, approved, or when updating, is anticipated.

2. Navy has always included T&E in the review process of requirements documents. CNO utilizes a Resources and Requirements Review Board (R3B) process that includes CNO N091 as an ad hoc voting member for JCIDS documents. This process is in transition to the new SECNAVNOTE 5000 (Capabilities and Acquisition Improvement Process) that utilizes a Two Pass/Six Gate Review procedure that will provide increased visibility and opportunity for T&E input at all Gate Reviews.

a. Operational test review and input on all Capabilities Documents is provided by COMOPTEVFOR through Commander Fleet Forces Command as well as coordination through my Action Officers in CNO N091 and the Gate Reviews. OPNAV N810 manages the process and distributes drafts of all Capabilities Documents to my staff and COMOPTEVFOR for comment.

b. Developmental test inputs are provided from Systems Commands' subject matter experts assigned to the program sponsor (or, when established, the program office) developing the requirements documents.

c. I view that the current processes provide adequate feedback and opportunity for T&E to influence the requirements development effort.

3. My staff is still reviewing your Enclosure (3) on T&E involvement in Request For Proposal development and coordinating with subject matter experts in contracting on ASN(RDA) staff. Recognizing the need for early and meaningful involvement by T&E subject matter experts, the publication of the guidebook should provide a ready reference for T&E personnel, but must be tempered with understanding that program contracting personnel are generally far more experienced with implications of content in contracts.

a. One area of concern, for which we are seeking more guidance from contract expertise, is on the numerous references to TEMP utilization and what appeared to be incorporation of TEMP references in the contracts.

b. While most every point or recommendation provided in the guidebook has potential value, we see a challenge in the implementation to ensure unintended consequences do not add cost without return in value.

4. Synchronizing program T&E strategies with Systems Engineering (SE) plans and processes is given visibility through the SECNAVNOTE 5000 Gate Review process.

a. The Systems Commands provide the foundation for the working level system engineering expertise within the Navy.

b. Staff reviews of the three part TEMP template in your Enclosure (3) indicate a renewed emphasis on these traditional standards. For this reason, I reemphasize the importance of providing educational materials as well as developing a more mature template before publication of the three part TEMP template. In feedback comments provided by my staff, we

identified the need to better clarify TEMP content to avoid duplication of information when we are seeking alignment and synchronization of T&E and SE processes.

In summary, my recommendations as the Naval T&E Executive are to support the RIWG efforts with recognition that current and pending SECNAV policy allows and supports these initiatives, and that we deliberately step through the transition to new procedures while utilizing the Gate Review process to evaluate measures of improvement.



WILLIAM E. LANDAY III
Rear Admiral, U.S. Navy
Director, Test and Evaluation
and Technology Requirements

Air Force



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON, DC

JUL 21 2008

MEMORANDUM FOR DEPUTY DIRECTOR, DEVELOPMENTAL TEST &
EVALUATION

FROM: HQ USAF/TE

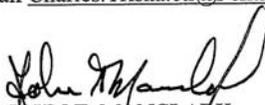
SUBJECT: Air Force Response for the Reliability Improvement Working Group (RIWG) Final Report

Thank you for affording us the opportunity to comment on the RIWG's emerging guidance recommendations and make inputs to the RIWG final report. Throughout the RIWG's deliberations, we have kept the Air Force test and evaluation (T&E), development, and acquisition communities engaged and solicited their ideas and inputs. The responses we provide have been generated from a broad cross-section of these communities.

In the past six months, we have updated the Air Force's primary T&E policy document, AFI 99-103, to address the issues highlighted in the Defense Science Board report and your memo of July 2, 2008. The Air Force Acquisition Community has also addressed these issues and will soon publish revised policies in AFI 63-101 that meld our acquisition and sustainment processes into a total life cycle management approach. In both of these core documents, the Air Force strengthens our commitment to improving system reliability, availability, and maintainability (RAM), and achieving the goals set out in the RIWG's charter.

Attached are three bullet background papers that summarize current Air Force guidance and future improvements we are considering (Atch 1). Also attached are recommended changes to the draft Defense Acquisition Contracts document (Atch 2). We have no additional comments on the Defense Acquisition Guidebook. Our comments on the 3-part Test and Evaluation Master Plan were forwarded earlier.

The points of contact for RIWG matters are Col Sam Kyle, Sam.Kyle@Pentagon.af.mil, (703) 697-0190, and Mr. Chuck Triska, e-mail Charles.Triska.ctr@Pentagon.af.mil, (703) 697-0299.


JOHN T. MANCLARK
Director, Test and Evaluation

2 Attachments:

1. Bullet Background Papers (3)
2. Comments on Defense Acquisition Contracts document

Defense Agencies - DISA



DEFENSE INFORMATION SYSTEMS AGENCY

P. O. BOX 4502
ARLINGTON, VIRGINIA 22204-4502

IN REPLY REFER TO: Test and Evaluation Executive (TE)

21 2008

MEMORANDUM FOR DEPUTY DIRECTOR, DEVELOPMENTAL TEST & EVALUATION, OUSD (AT&L)

SUBJECT: DISA Response to Reliability Improvement Working Group (RIWG) Draft Report

Reference: OUSD (AT&L) Memo, Component Responses for Reliability Improvement Working Group (RIWG) Report, 2 Jul 08

1. The Defense Information Systems Agency supports the work of the RIWG towards revising the Defense Acquisition Guidebook and incorporating early T&E involvement in contract language. The proposed revisions must be strengthened to bring about the fundamental shift needed to make integrated testing successful.
2. Integrated testing is more than combining the DT and OT communities together earlier in the program. A comprehensive "integrated" model must include interoperability testing and information assurance certifications, and their customers, the Joint Staff J6 and the Designated Approving Authority (DAA) respectively, must be treated as integral to the test concept approval and acquisition decision making processes. Additionally, the recommended revisions to the DAG and TEMP format should address the context in which integrated testing is conducted to reflect the conditions expected in the joint mission environment.
3. Detailed comments to the four response areas identified in reference memorandum are enclosed. For any questions, please contact Ms. Yvette Solomon, (703) 882-1809 or Mr. Michael Artis, (703) 882-1345.

1 Enclosure a/s


Dr. Steven J. Hutchison
Test and Evaluation Executive

1. Implement Integrated Test processes into T&E strategies.

DISA endorses the RIWG's recommendations for updating the DAU Guidebook and the template for the T&E Master Plan; however, we do not believe the proposed revisions are strong enough to bring about the fundamental shift needed to make integrated testing successful.

Although the revised TEMP merges previously separate parts of the TEMP, the consolidated Chapter 2 still treats DT and OT separately. The means to achieve the intent of "integrated testing" is to describe, in Chapter 2, the set of Integrated Test events necessary to execute the T&E strategy. Each Integrated Test event description should contain the purpose, scenario, and broad description of test scope containing key objectives for evaluating technical performance, effectiveness, suitability, interoperability, and information assurance. The Integrated Test Events should map to the Integrated Master Schedule and to the resources described in Chapter 3.

The recommended revisions to the DAG and TEMP format also do not adequately address testing in a joint mission environment. Integrated testing is not just about "types" of testing (DT, OT, Interoperability, Security). The context in which the capability is tested should reflect, whenever practical, the joint mission environment.

Because IT programs cycle faster than the traditional T&E approach allows, it is essential to bring all members of the test and certification communities together and approach all test events and the data generated from them as shared resources. DISA is moving toward a more comprehensive model for integrated testing referred to as "Capability Test and Evaluation" (CT&E). The CT&E model is essentially "one team, one test, one set of conditions." CT&E test designs are risk-based, mission-focused. Typical users exercise the capability under test. A Capability Test Team (CTT), formed with members of all test and certification organizations, plans and conducts the CT&E, and ideally, prepares *one report* for submission to all customers. Capability testing better captures the intent of integrated testing, and allows the test organizations to provide agile, responsive testing services to acquisition decision-makers.

Task 3.2 Early T&E Involvement in Requirements Development

Resources for Early Involvement in Requirements Development. The DOT&E signed a memorandum dated Apr 17, 2008, “Engagement in the Joint Capabilities Integration and Development System (JCIDS)” that established the resources and direction for early involvement in requirements development. The DD, DT&E developed the process for DT&E early participation in the requirements development within OSD and updated the Office of the Deputy Under Secretary of Defense for Acquisition and Technology, Systems and Software Engineering Directorate, Mission and Responsibilities.

Service Implementation Response

Army - (See task 3.1)

Navy and Marine Corps - (See task 3.1)

Air Force

Bullet Background Paper On Air Force Inputs on Early T&E Involvement in Requirements and RFP Development

PURPOSE: Provide an initial Air Staff perspective to the Reliability Improvement Working Group (RIWG) Sub-Group 3's request for inputs on Task 3.1, Early T&E Involvement in Requirements and RFP Development, by 30 June, 2008.

DISCUSSION: Air Force has already implemented multiple measures to ensure testers are involved in all phases of program development, beginning with early stages of requirements development. Once good requirements are approved, RAM and T&E needs can be included in acquisition contracts as appropriate. Additional measures are planned, and new items could be added as a result of this study.

- Current policy and initiatives:

-- AF T&E policy, AFI 99-103, requires testers to be involved as early as possible, i.e., to begin insertion of T&E and RAM considerations in FCBs and AOAs, and continuing with development of various CONOPs and ICDs, CDDs, and CPDs. Testers (both DT and OT) must participate in or review the products these writing teams produce.

--- The ITT is formed early and includes requirements writers (users), systems engineers, contractors, and contracting experts

--- AFMC and AFOTEC developed a guide, "*T&E SOW/SOO/RFP Language*" to help PMs and testers insert specific language about T&E needs into contracts

---- The language covers such areas as common T&E data bases, contractor support to T&E, deficiency reporting, and support of the ITT

-- AF Acquisition policies, AFPD 63/20-1 and AFI 63-101, have been extensively revised

--- Both require greater integration of acquisition and sustainment processes and program management responsibilities across the product life cycle

--- AFI 63-101 includes detailed guidance on early PM involvement/support to pre-MS B capability requirements development and program planning activities. Also includes numerous specific actions for PMs to ensure RAM requirements are properly integrated in acquisition program plans, product development and procurement contracts, program reviews, T&E activities, product support strategies, and materiel fielding plans.

-- AF provided substantive inputs to draft, "Integrating T&E into DOD Acquisition Contracts"

-- AF Requirements policy, AFI 10-601, now requires both DT and OT testers to be High Performance Team core members to help develop JCIDS documents.

- Policy and initiatives under consideration:

- More initiatives are under development under AFMC/CC's leadership via D&SWS¹ TE-1-16, "Early Tester Involvement"
- Expand the guide, "*T&E SOW/SOO/RFP Language*" to include language addressing RAM needs in contracts. Additional guides could be developed when identified
- Upgrade the contracting portions of AFIT, AFOTEC, Test Center, and DAU courses with more robust RAM and T&E content
- Adopt appropriate contract clauses from DFARS and AFARS
- The AF is completing a 150-page Air Force Pamphlet (AFPAM 63-128) that provides "how to" guidance to augment the policies in AFPD 63-1/20-1 and AFI 63-101. This publication could be used to implement supporting guidance for RAM-related processes and procedures that may result from the RIWG activities.

¹ D&SWS = "Develop and Sustain Warfighting Systems," is an Air Force-wide initiative using six sigma methods to explore and develop new ideas. One of their outputs is the Evaluation Framework concept that was adopted for use in the new 3-part TEMP format.

Defense Agencies: DISA

2. Early T&E involvement in requirements development.

DISA believes that early T&E community involvement in requirements development is essential to ensure that defined capability thresholds are testable, measurable, and represent an improvement over existing capability. DISA has established sound working relationships with the Joint Combat Capability Developers and Capability Portfolio Managers to ensure test expertise is considered as needed. Additionally, the Joint Interoperability Test Command reorganized to create Capability Testing Portfolios aligned with the IT Portfolio Management construct, to ensure requisite subject matter expertise across the capability portfolios. Additionally, DISA has established agreements with the NSA and DIA to ensure relevant Information Assurance expertise is available as initial capabilities documents are being prepared.

Task 3.3 Early T&E Involvement in RFP Development

Data Sharing in Contracts. The DD, DT&E developed a guidebook titled, “Incorporating Test and Evaluation into Department of Defense Acquisition Contracts”. The RIWG reviewed and provided inputs to this guidebook. The DD, DT&E also coordinated across DoD and with industry (NDIA Systems Engineering Committee). The RIWG included data sharing concepts in this draft T&E Contracting Guidance. The draft guide is included as attachment 3.3, and also is available at: <http://www.acq.osd.mil/sse/dte/guidance.html>

Service Implementation Response

Army (See Task 3.1)

Navy and Marine Corps (See task 3.1)

Air Force

Bullet Background Paper On Air Force Inputs on Contract Language Template

PURPOSE: Provide an initial Air Staff perspective to the Reliability Improvement Working Group (RIWG) Sub-Group 3's request for inputs on Task 3.2, Contract Language Template, by 30 June, 2008.

DISCUSSION: Air Force has already taken steps to ensure future contracts (SOW, SOW, and RFP) clearly address RAM and T&E in Sections C, L, and M. Additional measures are planned, and new items could be added as a result of this study.

- Current policy and initiatives:

-- AF T&E policy requires testers to review draft contract language (SOW and RFP) for T&E content

--- AF developed a guide, "*T&E SOW/SOW/RFP Language*" to help PMs and testers insert specific language about T&E needs into contracts

-- AF Acquisition policies, AFD 63-1/20-1 and AFI 63-101, have been extensively revised

--- Both require greater integration of acquisition and sustainment processes and program management responsibilities across the product life cycle

--- AFI 63-101 includes detailed guidance on early PM involvement/support to pre-MS B capability requirements development and program planning activities. Also includes numerous specific actions for PMs to ensure RAM requirements are properly integrated in acquisition program plans, product development and procurement contracts, program reviews, T&E activities, product support strategies, and materiel fielding plans.

-- AF provided substantive inputs to draft "Integrating T&E into DOD Acquisition Contracts"

- Policy and initiatives under consideration:

-- Expand the guide, "*T&E SOW/SOW/RFP Language*" to include language addressing RAM needs in contracts. Additional guides could be developed

-- Upgrade the contracting portions of AFIT, AFOTEC, test organization, and DAU courses with more robust RAM and T&E content

-- AFI 63-1201, *Life Cycle systems Engineering*, can be reviewed for updates, to include additional RAM policy and information

Defense Agencies - DISA

3. Early T&E Involvement in RFP development.

The DISA T&E Management Center provides liaisons for program support and guidance throughout the T&E acquisition life cycle, including participation in the RFP process, to ensure T&E language in the RFP is clear, concise, and support the Capability T&E model.

The proposed Guide for Incorporating Test and Evaluation into Department of Defense Acquisition Contracts is complete with no substantial or critical comments..

Task 3.4 Synchronize T&E Strategies with Program Systems Engineering Plans and Processes

New Defense Acquisition Guidebook Guidance. The RIWG completed a survey of current System Engineering Plan (SEP) and Test and Evaluation Master Plan (TEMP) definitions and guidance, of TEMP development via SEP established Program SE methodology, and of TEMP activities planned based upon technical reviews and milestones established in the SEP. A TEMP currency requirement is established in SEP entry criteria for all reviews and milestones "The TEMP should be consistent with and complimentary to the Systems Engineering Plan" is stated in DAG paragraph 9.6.2.1.

New TEMP Format. RIWG proposed to strengthen the link between the T&E working teams and the SE working teams and Boards. The RIWG concluded re-structuring TEMP guidance to include functional relationship of T&E WIPT to PMO IPTs and boards was necessary. The draft Incorporating Test and Evaluation into Department of Defense Acquisition Contracts guidebook. (Task 3.3 of this report) integrates critical TEMP processes with program management and engineering processes. DD, DT&E update of Defense Acquisition Program Support Methodology clarifies purpose and implementation of Critical Technical Parameters (CTPs) as key performance metrics in assessing system maturation through T&E process. The RIWG completed its work by defining a new format for the TEMP as a means to encourage the collaborative planning processes essential to integrated testing. This new format applies to new start programs, programs that are being restructured, and any other program at their discretion. The new TEMP format is at appendix 3.4, and will be included in the next DAG release. The DAG can be found at: <https://akss.dau.mil/dag/>.

Service Implementation Response

Army – (See task 3.1)

Navy and Marine Corps – (See task 3.1)

**Bullet Background Paper
On
Air Force Inputs on Synchronizing the SEP and TEMP**

PURPOSE: Provide an initial Air Staff perspective to the Reliability Improvement Working Group (RIWG) Sub-Group 3's request for inputs on Task 3.3, Synchronize the SEP and TEMP, by 30 June, 2008.

DISCUSSION: Air Force has already taken steps to ensure SEPs and TEMPs are mutually supportive and harmonized. Additional measures are planned, and new items could be added as a result of this study.

- Current policy and initiatives:

- AF T&E policy requires the PM and operational tester to co-chair an ITT as early as possible and throughout the life cycle
 - The ITT gathers experts from multiple disciplines who develop the TEMP and ensure it's harmonized with the SEP. SEP writers should be part of the ITT
 - The new TEMP process works hand-in-hand with the SEP process, ensures CTPs from DT are fully integrated with OT in support of JCIDS KPPs/KSAs
- AF Acquisition policy revitalized systems engineering which is now an integral part of these revised policy documents:
 - AFI 63-1201, *Life Cycle Systems Engineering*, (just published) charges systems engineers to help PMs develop the TEMP. AFI 63-101 also contains this direction.
 - AFPD 63-1/20-1 and AFI 63-101, have been extensively revised
 - Both require greater integration of acquisition and sustainment processes and program management responsibilities across the product life cycle
 - AFI 63-101 includes detailed guidance on early PM involvement/support to pre-MS B capability requirements development and program planning activities. Also includes numerous specific actions for PMs to ensure RAM requirements are properly integrated in acquisition program plans, product development and procurement contracts, program reviews, T&E activities, product support strategies, and materiel fielding plans.
 - AFPAM 63-128, *Guide to Acquisition and Sustainment Life Cycle Management*, nearing publication. This 150-page handbook has considerable content on SEPs and RAM

- Possible future policy and initiatives:

- Revise AFI 99-103 to ensure systems engineers are included in ITTs and TEMP working groups to ensure TEMP – SEP synchronization
- Draft new contracting language that emphasizes contractor use of systems engineering principles

-- New TEMP format, guidance, and content discusses linkage with SEP

-- The AF is completing a 150-page Air Force Pamphlet (AFPAM 63-128) that provides "how to" guidance to augment the policies in AFPD 63-1/20-1 and AFI 63-101. This publication could be used to implement supporting guidance for RAM-related processes and procedures that may result from the RIWG activities.

Defense Agencies – DISA

4. Synchronizing program T&E strategies with program Systems Engineering plans and processes.

DISA published a Capability Test Team (CTT) policy memorandum and the JITC published implementation instructions to ensure early representation of the T&E community. Membership consists of a lead and subject matter experts (SMEs) from the traditional areas of DT, OT, interoperability, and information assurance testing. Membership is expanded as necessary to include SMEs from other areas such as system engineering, reliability, availability, maintainability, human factors, and electromagnetic environmental effects. The CTT provides early and continuous expert T&E involvement during acquisition and technical reviews throughout the acquisition life cycle, ensuring a warfighter perspective.

DISA is also piloting a Federated Development and Certification Environment (FDCE) allowing collaboration among all capability development stakeholders (materiel developer, combat developer, T&E community, and warfighter), early capability use, and data collection throughout the systems engineering and capability development lifecycle.