Helping Acquisition Leaders Make Better Informed Decisions

(Presentation for The DATAWorks 2019 Workshop)

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Test and Evaluation
Discussion

• **Office of the Deputy Director for DTE&P**
  – Roles and Functions
  – Key Lines of Effort

• **Developmental Evaluation Framework and STAT**
  – Program Engagements
  – Enterprise-Wide Efficiencies

• **Progress in Cybersecurity T&E**
  – Requirements, Policy, and Guidance
  – Cybersecurity T&E Process and Guidebooks
  – Cybersecurity T&E Challenges
Responsibilities and Functions

- Establishes policies on and supervises **prototyping, experimentation, and developmental testing activities and programs**, including the allocation of resources and unifying these efforts across the Department...
- Supports ITRAs and advises the Secretary on **progress towards meeting KPPs, technology maturation, reliability growth projections, I/O, and cybersecurity posture**...
- Provides independent sufficiency assessments of and advises the DAB Chairperson on MDAP programs prior to Milestone B and C decisions with respect to the **sufficiency of developmental test plans, schedules, resources, risks, and readiness for operational testing** and production...
- Serves as advisor to JROC on **prototyping and experimentation**...
- Reviews and oversees **developmental test processes across the Services**, especially during formative stages of programs, to include **prototyping and experimentation**.
- Provides **independent developmental test assessments** in support of USD(A&S) and Service MDAPs.
- Serves as the Functional Leader for **Developmental Test and Evaluation (DT&E) acquisition career field** in accordance with DoDI 5000.66.
- Oversees and manages curriculum review, development and certification for the **T&E Career Fields** for all DAU related courses and CLM to ensure consistency with ... policy and practice.
- Leads departmental activities in programmatic processes related to... **prototyping, experimentation and developmental testing activities and programming**.
- Coordinates with the DoD IG to ensure that... **developmental test components and activities of the Department** are in compliance with statutory and regulatory guidance and departmental and national policies and directives.
- Advises the USD(A&S) on... **developmental test...mission engineering...prototyping and experimentation outcomes, development test results**, and related programs.
DD(DTEP) Lines of Effort

**Major Program Engagement (DT&E)**
- Engage Early – Help programs develop innovative and effective strategies and capabilities
- Maintain program engagement throughout the acquisition lifecycle with the goal of helping programs to succeed
- Provide decision/quality assessments to inform production or modernized capability fielding decisions

**Technology Insertion and Rapid Acquisition Support (DT&E / P&CE)**
- Assist Military Services with technology development, including DT&E
- Advance a DT&E enterprise approach for Mission Engineering / Integration
- Help Military Services develop tailored DT&E for rapid acquisition systems
- Improve state-of-the-Art planning, execution, and reporting for the developmental activities of USD(R&E)'s modernization priorities, including DT&E and Prototyping

**Policy, Guidance, Congressional Reporting & T&E Workforce (DT&E / P&CE)**
- Streamline policy to reduce cost, schedule, and performance risks
- Support sufficiency assessments and milestone summary reporting
- Improve the T&E Workforce to support priority emerging technologies
- Develop, improve, and certify DAU T&E curriculum
- Increase the number of qualified chief developmental testers

**Prototyping and Concept Experimentation (P&CE)**
- Execute Joint and Interagency prototypes and experiments
- Facilitate Military Service and CCMD prototyping and experimentation efforts
- Anticipate emerging threats and develop counters
- Leverage ally and partner investments by assessing and fielding foreign capabilities that support U.S. Joint warfighter needs
Progress in DEF and STAT
Defense Acquisition System Guidance (January 2015)

Developmental Evaluation Framework (DEF)
• “Describe an evaluation methodology in the TEMP... to identify key data that will contribute to assessing progress toward achieving: key performance parameters, critical technical parameters, key system attributes, ...... and others as needed.”

Scientific Test and Analysis Techniques (STAT)
• “The Program Manager will...use scientific test and analysis techniques to design an effective and efficient test program that will produce the required data to characterize system behavior across an appropriately selected set of factors and conditions.” ......
• “Resource estimates ... will be derived from defensible statistical measures of merit (power and confidence) associated with quantification of the differences among the factors affecting operational performance as well as the risk to the government of accepting a poorly performing system or incorrectly rejecting a system with acceptable performance.”

The integration of STAT and DEF enable the delivery of decision-quality information
“The purpose of developmental testing is simple: to provide data to program leadership so that good decisions can be made as early as possible.”
Progress in Cybersecurity T&E Requirements, Policy, and Guidance

• Policy
  – Aug 2017: DoDI 5000.02, Encl 14

• Requirements
  – Jan 2017: JROCM 009-17

• Guidance
  – Sep 2015: DoD PM’s Cybersecurity Guidebook
  – Jan 2017: Cyber Survivability Implementation Guide
  – Feb 2017: Defense Acquisition Guidebook Update
  – Apr 2018: DoD Cybersecurity T&E Guidebook
  – Jul 2018: DoD Cyber Table Top Guidebook

• Training
  – Defense Acquisition University
  – Cyber Tabletop Exercises
  – Cross-Service Working Groups

• Investments
Advancing the DT&E ‘State of Practice’

• **Evolve “the state of practice” of DT&E to keep pace with emerging technology and improve test efficiency to field systems faster**
  – Increase the efficiency and effectiveness of T&E across the DT&E, OT&E and Test Resources communities.
  – Increase the use of Statistical Test Design to improve test efficiency.
  – Shift critical DT and OT testing left in the development cycle – leverage integrated testing and mission based T&E.
  – Ensure DT&E policy, guidance, techniques, infrastructure keep pace and support testing of emerging capabilities and technologies.
  – Develop and document a DT&E approach for software testing that informs DT&E assessments.
DD(DTEP) 18 Month Look Ahead

**Major Program Engagement**
- **Shift Left**: Focus critical DT&E activities earlier to shape and optimize developmental test designs.
- **Cyber**: Help programs understand security requirements and develop an initial plan for conducting Cybersecurity 
  T&E.
- **STAT**: Provide independent advice and assistance to programs in the application of scientific test and 
  analysis techniques.
- **DEF**: Engage with programs to identify evaluation criteria and data requirements needed to 
  support critical program decisions.

**Technology Insertion and Rapid Acquisition Support**
- **Accelerate technology transition to Joint and Service warfighting capabilities that achieve NDS modernization 
  objectives.**
- **Operationalize the Road to Dominance and achieve the goals of the 2018 NDS.**
- **Facilitate military Service prototyping and experimentation efforts.**
- **Support to the Combatant Commands transition new capabilities.**

**Prototyping and Concept Experimentation**
- **Evaluate current prototyping and experimentation portfolio to determine if the projects are achieving the 
  goals of the NDS with focus on AD technology and roadmap priorities.**
- **Expand DT&E engagement in the Middle Tier Rapid Prototyping/Fielding acquisition processes.**
- **Redefining how OSD sponsored prototyping and experimentations projects are solicited and approved to 
  reduce onboarding timelines and approvals.**

**Policy & T&E Workforce**
- **Advance DT&E policy for prototyping and experimentation, autonomy, and interoperability.**
- **Develop policy and guidance to support Program Managers and Chief Developmental Testers to develop 
  cyber resilient systems.**
- **Support T&E Workforce development by improving T&E curriculum to address USD(R&E) priorities.**
- **Maintain close collaboration with the Test Resource Management Center to improve test infrastructure.**
Closing Remarks

• Developmental Evaluation Framework and Statistical Test Design provide for more efficient and effective testing
  – Seamless transition from test design to data analysis, assessment, and reporting.
  – Comprehensive understanding of program risk.
  – Ensures testing produces valuable data that increases the information gained in testing to support knowledge-based decisions and technical assessments.
  – Provides the essential means for transforming data into information, information into knowledge, and knowledge into decision-quality information to help acquisition leader make better informed decisions.

• Continue to improve Cyber Resiliency
  – Evolve Cyber DT&E best practices for application to the Defense Acquisition System and Middle-Tier of Acquisition programs.
  – Start early to finish before Milestone C -- Shift Left to Design Right!