Test Enterprise Coordination Committee
2016
May 19th, 2016
Kick-Off

TECC May 19, 2016 Agenda

07:30 – 08:30	Continental Breakfast	
08:30 – 08:40	Welcome	Joe Manas, NDIA
08:40 – 09:00	Opening Remarks	Dr. Brown, TRMC
09:00 – 09:15	TECC Charter & Org	Joe Manas, NDIA
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Test Enterprise Coordination Committee Kick-off Meeting

Dr. C. Dave Brown
Director, Test Resource Management Center
and
Deputy Assistant Secretary of Defense for Developmental Test and Evaluation
May 19, 2016

History & Context
TRMC-Sponsored DIF

- Held in response to industry feedback from the 2012 Infrastructure Study – "need for a persistent forum to address national planning for T&E infrastructure"
- Stated Purpose: to determine the most appropriate means to collaborate between government and industry to lower the total cost of testing
- Series of 3 Collaborative Analysis Events held using third party facilitator (JHU/APL) –Sept 17/18 2014, Jan 21/22 & April 9, 2015
- Participants: Raytheon, Boeing, Lockheed-Martin, Northrup-Grumman, EWA, Oshkosh, ATK, Orbital Sciences, DefTec, Rolls Royce, L3, Trideum, Exelis, Cobham Advanced Electronic Solutions, Battelle and Services T&E HQ and range reps
- Final JHU/APL briefing delivered Aug 2015

History & Context [JHU Chart]

Summary of Recommendations

	Recommendation	Rationale	Issue
1	Continue and formalize the existence of the DIF with a third-party, non-government/non-industrial partner responsible for assuring close cooperation on critical topics, to include contracting best practices.	"Enterprise" capability solutions as desired by Mr. Kendall, require close collaboration and between government and industry partners.	1
2	Encourage the use of broad omnibus-like contracts with multiple unfunded task order options to achieve greater efficiencies in contracting overhead cost and time.	This recommendation reflects a low risk approach to gaining marginal efficiencies consistent with Better Buying Power 3.0	1a
3	TRMC should make the existing TRMC-based Test Capabilities Directory format available to industry partners. In the interim, TMC should compile a list of important points of contact at each of the MRTFBs and make it available to the T&E enterprise as soon as possible.	Accomplishment of this recommendation is a necessary step to improving visibility of MRTFB resources.	1b
4	TRMC should expand the TCD to include industry data.	Industry capabilities listed in the FY12 Infrastructure Study can be incorporated into a broader enterprise directory that captures both government and industry test resources.	1b
5	TRMC should encourage flexible overtime policies that are consistent across all ranges to eliminate unnecessary time restrictions on developmental testing.	Adoption of this policy would help build trust among industry partners that schedule windows will be executable.	4
6	The DIF should lead an effort to develop common scheduling metrics across the DT&E enterprise.	This will enable data to be shared across organizational boundaries in order to identify best practices.	4
7	TRMC should recommend that all MRTFBs maintain scheduling data and publish annual logs releasable to TRMC for incorporation into the TCD.	Visibility of schedule performance will improve efficiency and build trust with industry partners.	4

History & Context

- Value of a persistent industry-government forum on test infrastructure reaffirmed through TRMC-sponsored 2014/2015 Defense Industry Forum (DIF) Collaborative Analysis Events

- In January 2016, NDIA agreed to host a persistent follow-on forum (Test Enterprise Coordination Committee) to discuss test capabilities and resources, near and far-term needs and issues

- Given the current environment (e.g., Third Offset, Emerging Technologies, Budget Pressures, etc) this new forum should prove invaluable to ensuring a rationalized national test infrastructure that can meet the foreseeable needs of DoD acquisition programs

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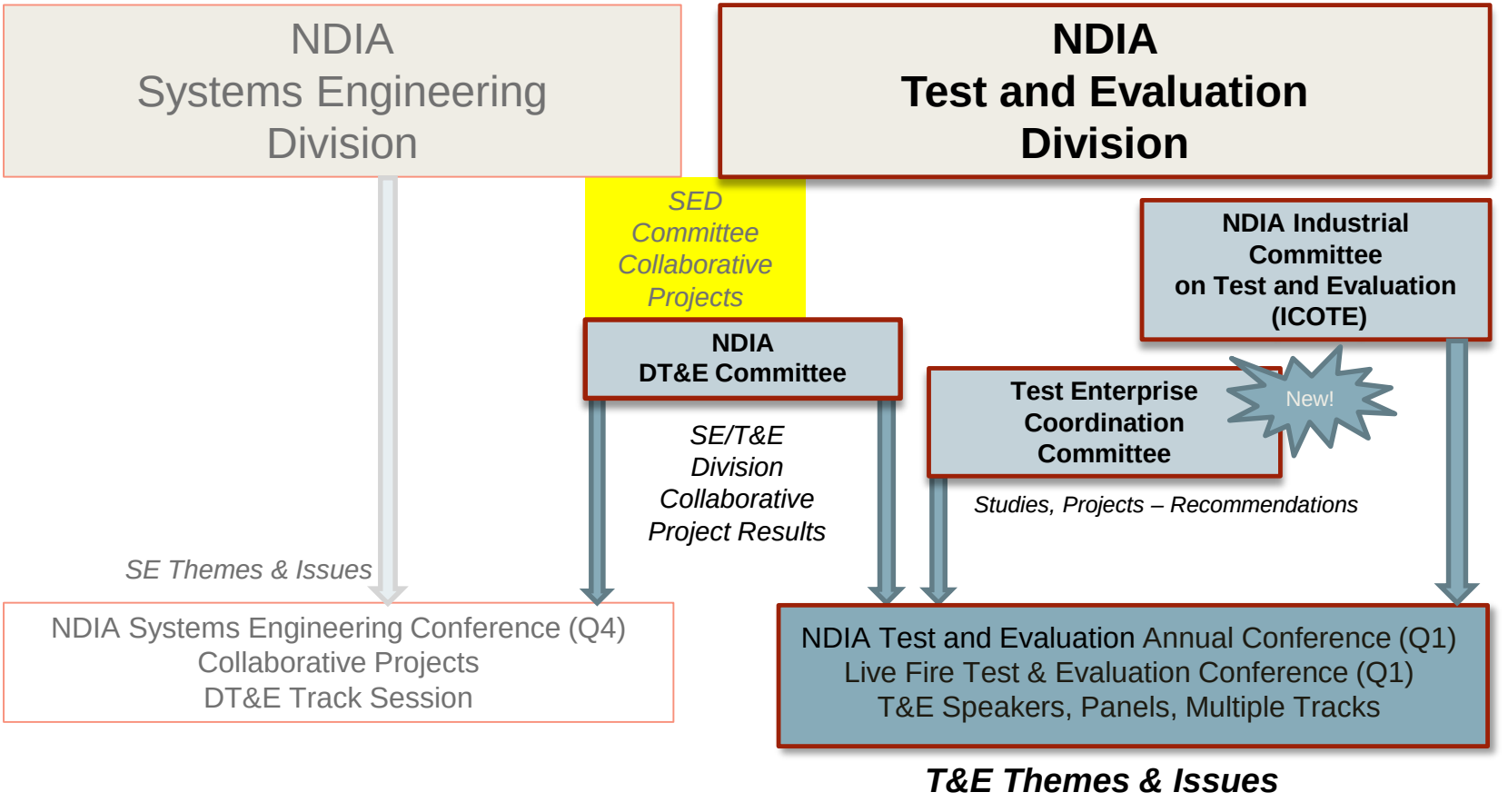
NDIA T&E Division



Test Enterprise Coordination Committee

National Defense Industrial Association

TECC Charter / Purpose

- Provide a regularly occurring forum for industry and government to meet every 6 months and review issues of common interest and concerns regarding the **T&E infrastructure**.
- Identify areas for improvement (Near & Far Term Needs) in government and industry **T&E infrastructure**.

TECC Organization:

- Sub-Committee organized under the NDIA T&E Division

ICOTE MISSION – *For Reference*

Industrial Committee on Test & Evaluation (ICOTE)

- *To provide a forum for the senior test and evaluation representatives from the Defense Department and senior executives of representative U.S. defense system manufacturers to periodically meet every four months and review issues of common interest and concerns.* ***Discussions encompass test and evaluation policies and procedures which impact weapons systems development, procurement, and use****.*

ICOTE has much broader scope than TECC

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Industry Survey

- **Conducted in April 2016**
- **Short list (5 topics) sent out to 10 Companies**
  - Topics were based on recent discussions / topics during ICOTE, T&E Division Conference
  - Strategy: neck down, focus, keep it simple and doable
- **Eight (8) companies responded**
  - Boeing
  - Battelle
  - Raytheon
  - Northrop Grumman
  - DefTec
  - Lockheed Martin
  - General Dynamics
  - Orbital ATK

Short List Topic Overview

Topics	Brief Overview
Autonomous Vehicle Testing	What do we need to be thinking about for how to test autonomous ground and air vehicles on our test ranges? What are the range safety considerations? What involvement should test systems engineers have early up front in the design phase to influence the design for testing on our ranges? Is the test community influencing the acquisition community for requirements (SRD, SOW) for testing these systems on our ranges?
Cybersecurity Testing	Does the government have the resources (facilities and personnel) to meet the demand of perform cybersecurity testing on weapon systems (new and legacy) in an operationally relevant environment? Are there opportunities for Industry to partner with the government by utilizing Industry resources (connecting cyber ranges).
Test Range Protocol & process	Is there an opportunity to improve the process required for planning and conducting test events? What is the process at each range for Test Plan approval, range safety approval, personnel access, etc. It is similar, yet slightly different on every test range and also with each service on the range. Is there a website that I can go as a user to gain knowledge on the who, what, where, when, how and why for conducting a test on a range?
Test Execution Efficiency	How do we improve the efficiency of test execution? Test efficiency rate can vary from 1.3 - 2.0. (i.e. It takes us 1.75 attempts to conduct 1 event). A test which was conducted but the system failed (did not meet the test objectives) does not factor into this rate, that is separate issue. The rate we are referring to here is score by whether a planned test is executed. What are the significant contributors for causing retest?: Weather? Contractor prime item not ready?, Range Resource availability (maintenance, resource not available, failure, etc.)? Do we currently have a baseline metric that has been established for us to improve upon?
People	What is the status of the T&E workforce (both for Industry and Government)? Do we have people with the right skill sets required to perform testing and evaluation? How do we know? Is there an established competency model, has gap analsyis been completed recently? Is there training available? How are we growing the future T&E workforce (pipeline) to replace the experienced workforce that will be retiring?

Survey Results Table

Rank these 5 topics from most important "1" to least important "5"					
Company Name	**Autonomous Vehicle Testing**	**Cybersecurity Testing**	**Test Range Protocol & Process**	**Test Execution Efficiency (retest rate)**	**People**
A	1	2	4	5	3
B	5	4	2	1	3
C	3	2	5	4	1
D	3	2	4	1	5
E	3	2	4	5	1
F	3	4	2	1	5
G	5	3	4	1	2
H	5	4	1	2	3

Topic Overview

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TOP THREE TOPICS

Survey Analysis – Rank Approach

Method 1: Rank by overall sum (lower score the better)
Method 2: Rank by number of votes in the top 2
Method 3: Rank by number of votes in the top 3

Method 1. Rank by overall score result::
- Test Execution Efficiency (20)
- Cybersecurity Testing (23)
- People (23)

Result: Using this method, both Test Range Protocol & Process (26) and Autonomous Vehicle Testing (28) fall below the cut line.

Method 2. Rank by number of votes in the top 2:
- Test Execution Efficiency (5)
- Cybersecurity Testing (4)
- People (3)
- Test Range Protocol & Process (3)

Result: Using this method, Autonomous Vehicle Testing (1) falls below the cut line.

Method 3. Rank by number of votes in the top 3:
- People (6)
- Test Execution Efficiency (5):
- Cybersecurity Testing (5)
- Autonomous Vehicle Testing (5)

Result: Using this method, Test Range Protocol & Process (3) falls below the cut line.

Overall results...

- The **Test Execution Efficiency**, **Cybersecurity Testing** and **People** topics are the only three that make the cut using all three methods while the other two (Test Range Protocol & Process and Autonomous Vehicle Testing) only made the cut once each using the three methods. Therefore, I recommend going forward with **Test Execution Efficiency**, **Cybersecurity Testing**, & **People** as project opportunities.

Test Execution Efficiency, Cyber Testing & People

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TRMC Responsibilities &

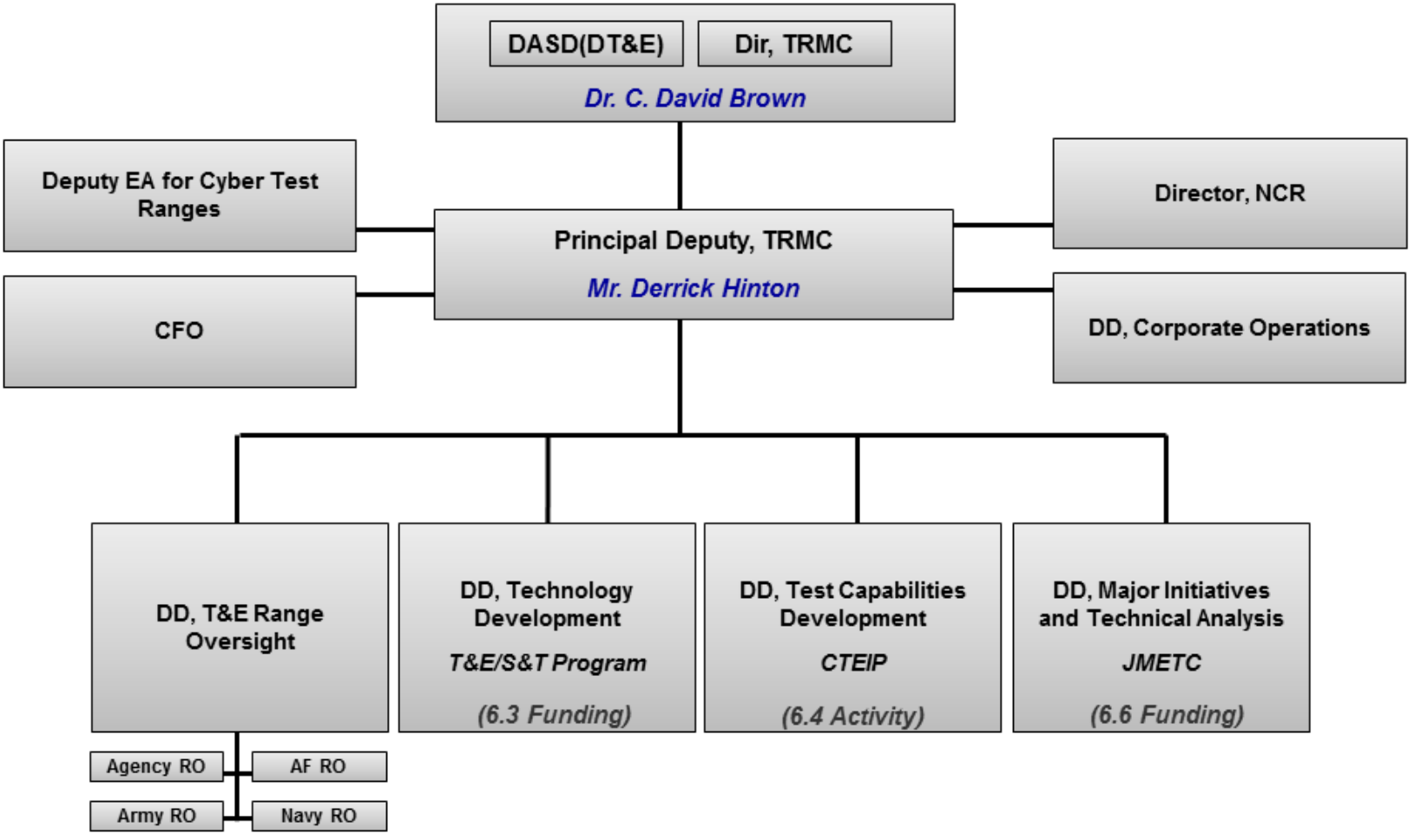
2016 Strategic Plan for DoD T&E Resources Overview

Mr. Bruce Bailey
Deputy Director, T&E Range Oversight
Test Resource Management Center
May 19, 2016

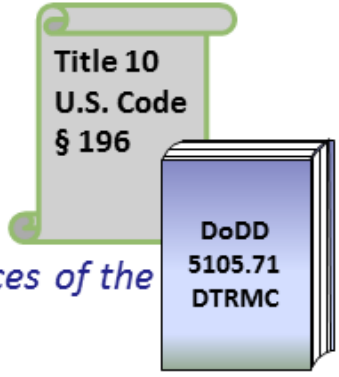
Briefing Outline

- TRMC Organization & Responsibilities
- Priorities & Initiatives
- 2016 Strategic Plan

TRMC Organization



Summary of TRMC Responsibilities
DoD (Charter) Directive 5105.71



- ***Plan for and assess the adequacy*** *of the MRTFB to provide adequate testing in support of the development, acquisition, fielding, and sustainment of defense systems*
  - Approve significant changes to T&E facilities and resources of the MRTFB before they are implemented by the DoD Components
- ***Approve*** *[all] significant modifications of the T&E facilities and resources of the Department*
- *Complete a strategic plan not less often than once every 2 fiscal years*
- *Submit a report to the Secretary of Defense containing the comments of the Director concerning all such proposed budgets, together with the Director's certification as to whether such proposed budgets are* ***adequate and balanced***
- *Administer the Central Test and Evaluation Investment Program (**CTEIP**)*
- *Administer the Test and Evaluation / Science and Technology (**T&E/S&T**) program*
- Administer the Joint Mission Environment Test Capability (**JMETC**) program
- Manage the National Cyber Range (**NCR**)
- Administer the Test and Training Enabling Architecture Software Development Activity (**TENA SDA**) to foster interoperability and reuse among test and training facilities and resources, in coordination with the USD(P&R)

Statutory **Regulatory**

TRMC "Blueprint": Putting Test Capabilities on the DoD Map

CTEIP	Central Test and Evaluation Investment Program
JMETC	Joint Mission Environment Test Capability Program
NCR	National Cyber Range
T&E/S&T	Test and Evaluation / Science and Technology Program
TERO	Test and Evaluation Range Oversight Division
TRMC	Test Resource Management Center

Defense Strategic Guidance

Acquisition Process

Service T&E Needs and Solutions Process

TERO
Annual T&E Budget Certification

TERO
Strategic Plan for DoD T&E Resources

TERO
DT&E / TRMC Annual Report

Transition

Service Modernization and Improvement Programs

Acquisition Programs and Advanced Concept Technology Demonstrations

TRMC JOINT INVESTMENT PROGRAMS

Risk Mitigation Needs Technology Shortfalls

Risk Mitigation Solutions Advanced Development

T&E/S&T (6.3 Funding)

CTEIP (6.4 Activity)

Transition

T&E Multi-Service/Agency Capabilities

DoD CORPORATE DISTRIBUTED TEST CAPABILITY

JMETC (6.6 Funding)

Requirements

Capabilities

Customers

Requirements

Capabilities

National Cyber Range

Strategic Plan for DoD T&E Resources

Title 10 U.S. Code § 196

Not less than every two fiscal years, in conjunction with DOT&E, Services and Defense Agencies, develop and publish a Strategic Plan covering 10 fiscal years

- Assessment of the Department's T&E requirements
- Identification of performance measures associated with the successful achievement of T&E objectives
- Assessment of the T&E facilities and resources needed to meet objectives
- Assessment of the current state of the T&E facilities and resources
- Itemization of required acquisitions, upgrades, and improvements to ensure that the T&E facilities and resources are adequate
- An assessment of the required budgetary resources

DoDD 5105.71 DTRMC

2014 – Major Findings – Capability Gaps

- Land Combat: High-Fidelity Real-Time Casualty Assessment
- Sea Combat: Aegis Self Defense Ship Capability
- Air Combat: Automated Kill Removal; Dense and Diverse EW environment
- Space Flight and Strategic Warfare: Long Range Flight Test Capability
- Other: Increasing encroachment; Cyberspace T&E Infrastructure; 5th Gen Aerial Target; Hypersonic Ground Test Infrastructure; T&E Enterprise Knowledge Management

Budget Certification

Title 10 U.S. Code § 196

DoDD 5105.71 DTRMC

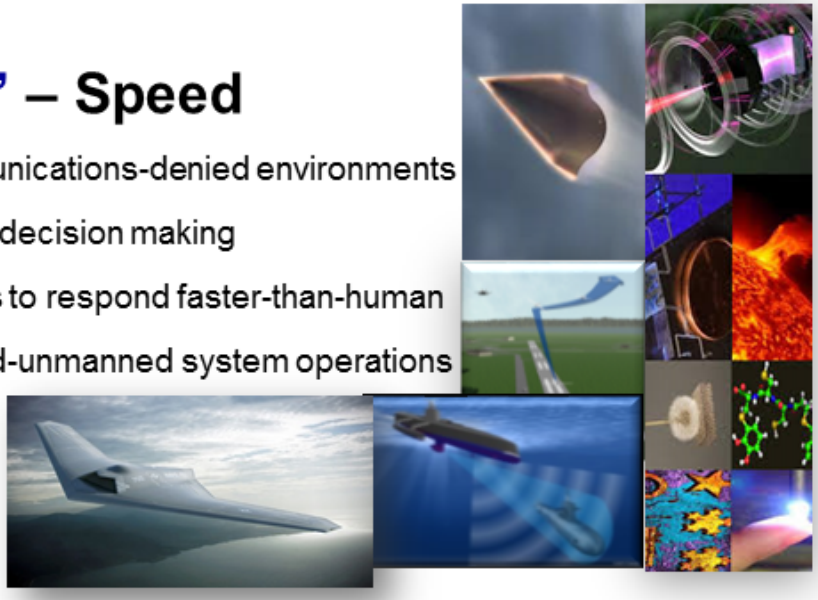
- **The Director (TRMC) shall submit to the Secretary of Defense:**
  - Comments of the Director with respect to the T&E budgets of the Military Departments and Defense Agencies, together with *certification of the Director as to whether such proposed budgets are adequate*.
  - *Additional certification as to whether such proposed budgets provide balanced support for the Strategic Plan*.
- By **March 31**, the Secretary of Defense shall submit to Congress a report on those proposed budgets which the Director has not certified to be adequate.

Budget Certification Review Status	
FY	**Comments**
2012	Army and AF funding inadequate- DSD directed year of execution mitigation. Mitigation occurred.
2013	All budgets were adequate.
2014	Army sequester impacts put on TRMC watch list.
2015	DSD directed AF funding increase to avoid TRMC non-certification.
2016	DSD directed Army funding increase to avoid TRMC non-certification
2017	DSD directed DISA funding increase to avoid TRMC non-certification

Certified | Certified w/ Negotiations | Certified w/risk | Non-certified

DoD Technology Offset Strategies

- **Past: "First Offset Strategy" – Nuclear**
  - Emphasis on **nuclear deterrence** to overcome the numerical advantages of Warsaw Pact
- **Current: "Second Offset Strategy" – Precision/Stealth**
  - Emphasizes **advanced targeting** and **precision weapons** to overcome the numerical advantages held by U.S. adversaries (more "bang for the buck")
    - Examples: GPS, ISR platforms, Space-based Comms, Precision-Guided Weapons; Deep Strike Weapons; and Stealth
- **Future: "Third Offset Strategy" – Speed**
  - Faster Weapons: Hardened to operate in communications-denied environments
  - Faster Decisions: Human-machine collaborative decision making
  - Faster Reactions: Autonomous learning systems to respond faster-than-human
  - Faster Coordinated Attacks: Advanced manned-unmanned system operations
  - Faster to Market: An important aspect of speed



Focus on Prototyping and Rapid Fielding

- **Strategic Use of Prototyping**
  - Hedge against technical uncertainty, emerging capabilities, or unanticipated threats
  - Enhance interoperability; reduce lifecycle cost; explore the realm of the possible
  - Experiment with TTPs to select the most appropriate opportunities/options
- **New approaches**
  - Evaluate concepts, guide technology development
  - Sustain the defense industrial base
  - Simulate design to advance the state of the practice
  - Improve development methods and manufacturing
  - Promote open standards, and competition
  - Determine maturity using sound DT&E practices (e.g. DEF)

- **Accelerate technologies, products, concepts to the warfighter**
  - With tested TTPs and potential operational concepts

Testing Characterizes Safety, Capabilities, and Limitations

TRMC and DT&E Priorities and Initiatives

1. Improve TRMC/DT&E collaboration
2. Emphasize Shift Left
3. Institutionalize the Developmental Evaluation Framework
4. Implement the TEMP at MS A
5. Advocate for the T&E Workforce
6. Improve support to PMs and Chief Developmental Testers
7. Improve reliability T&E
8. **Improve cyber T&E and cyber test capability**
9. Improve Interoperability T&E
10. **Improve/maintain the hypersonics test infrastructure**
11. Incorporate big data/knowledge management into T&E
12. Understand/improve T&E of autonomous systems
13. Improve Mission Context in DT

2016 Strategic Plan for DoD T&E Resources

Strategic Plan for DoD T&E Resources 2016-2026

The *2016 Strategic Plan for DoD T&E Resources* is being developed

- Planned delivery to Congress is December 2016

Additions to improve the value and usefulness of the Strategic Plan include:

- MRTFB Readiness assessment ("health and readiness")
- Top capability needs tracking metrics
- Strategic T&E Roadmaps included for the first time
- Future T&E Resource Challenges topics provide a 10-year and out focus
- Sustainability section outlines issues and encroachment factors impacting T&E ranges
- T&E facility changes over the past three years documented (IAW DoDI 3200.18 and the 2015 NDAA)

2016 Strategic Plan Outline

Director's Foreward

Executive Summary

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1.0 Director's Assessment

2.0 Strategic T&E Roadmaps

3.0 Future T&E Resource Challenges

4.0 Sustainability

5.0 MRTFB Funding, Investment and Manpower Trends

Appendix A: Summary of Test Capability Assessment Needs

Appendix B: Performance Measures

Appendix C: List of T&E Investments

Appendix D: Summary of T&E Facility Changes

Appendix E: *Test and Evaluation Executive Agent Board of Directors Reliance Report Supporting FY16-26 Investments* (CD)

Appendix F: Acronyms

(Draft) Director's 2016 Assessment of MRTFB T&E Readiness

Near-term (1-2 years) and Future (3-5 years) State of T&E Infrastructure and Resources		
Major Assessment Elements	**MRTFB**	
	Near-term	**Future**
Workforce		
Funding		
- Sustainment		
- Investment		
Infrastructure		
- Buildings/Structures		
- Test Equipment/Instrumentation		
Range Sustainability		

- **Workforce:** Aging Workforce; and Budget Cuts
- **Funding:** Sustainment; and Modernization of Range Capabilities
- **Infrastructure:** Aging Buildings/Structures; and Test Footprint of Modern Weapon Systems
- **Range Sustainability:** Spectrum; Urban Encroachment; and Renewable Energy Expansion

Green: Test infrastructure, resources, and capability support the T&E mission requirements, but some limitations may require mitigations.

Yellow: Moderate capability limitations exist impacting the ability to meet T&E mission requirements. Proposed mitigations would minimize negative impacts to the test mission but create additional burdens or costs to users or facility managers.

Red: Significant/severe capability limitations exist impacting the ability to meet T&E mission requirements. Proposed mitigations would involve prohibitive costs or actions for the customer or infrastructure manager.

(Draft) Director's 2016 T&E Capability Needs Summary

- **The following (in alphabetical order) are the top T&E capability needs required to support acquisition program test requirements.**
  - Aegis Ship Self Defense Test Capability
  - Automated Kill Removal
  - Cyberspace Test and Evaluation Infrastructure
  - Fifth-Generation Aerial Target
  - Hardened and Deeply Buried Targets
  - High Altitude Electromagnetic Pulse Threat Level Simulator (full ship)
  - Hypersonics T&E Infrastructure
  - Infrared Countermeasure Test Capability Modernization
  - Long Range Flight Test Capability (for ICBM testing)
  - Miniature Automated Flight Termination System
  - Modern Anti-Ship Cruise Missile (ASCM) Threat Capability
  - Radar Cross Section (RCS) Test Capability Enhancements
  - Space Threat Test Environment
  - Spectrum
  - Sustainability/MRTFB Encroachment Protection
  - Unmanned and Autonomous Systems (UAAS)

2016 Strategic Plan Section Overview (cont.)

2.0 Strategic T&E Roadmaps

- **Introduces T&E roadmaps for seven subjects in which TRMC either led or collaborated with stakeholders to develop**
- **Represents key test capability areas with DoD-wide applicability and impact across multiple acquisition programs:**
  - Cyberspace T&E Infrastructure
  - Electromagnetic Spectrum for T&E
  - Electronic Warfare Test Infrastructure Improvements
  - Hypersonics
  - Infrared Countermeasures
  - Nuclear Survivability
  - Targets

2016 Strategic Plan Section Overview (cont.)

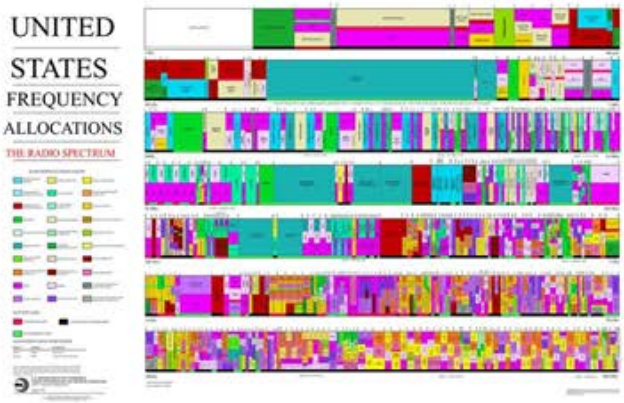
3.0 Future T&E Resource Challenges

- **Presents seven T&E resource challenge topics derived from an analysis of technology developments at or near the 10-year horizon**
- **Addresses technologies to shape future test capabilities and provide insight into future T&E capability investments:**
  - Alternate Navigation Systems
  - Arctic Environment Testing
  - Battlefield Agility
  - Countering Unmanned and Autonomous Systems
  - Cyber Resiliency
  - Micro-Unmanned Vehicles
  - Testing the Human as a Sub-system
- **Includes an Autonomy Assessment outlining ongoing efforts of a TRMC-led study that will identify and develop plans for future autonomy test capability needs**

2016 Strategic Plan Section Overview (cont.)

4.0 Sustainability

- Inability to stop energy development near MRTFB facilities
- Pending legislation has limiting effects
- Gulf oil and gas moratorium ends in 2022
- Long range strike weapons need more test space, not less
- Spectrum pressures from many directions - congress, business, etc.

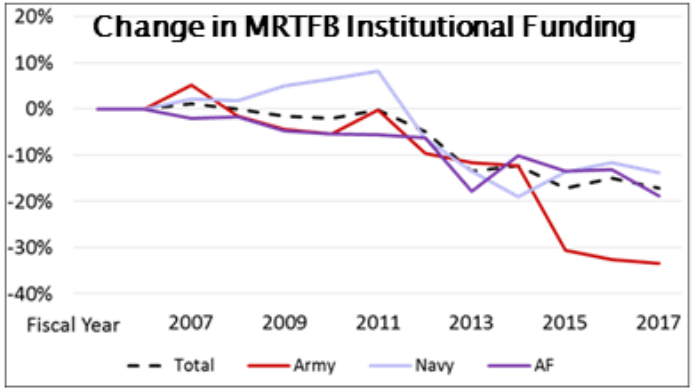


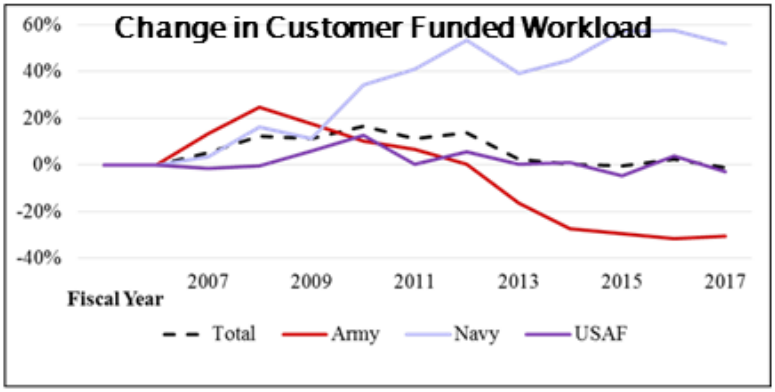
Possible Encroachment to T&E Infrastructure and Ranges is Significant

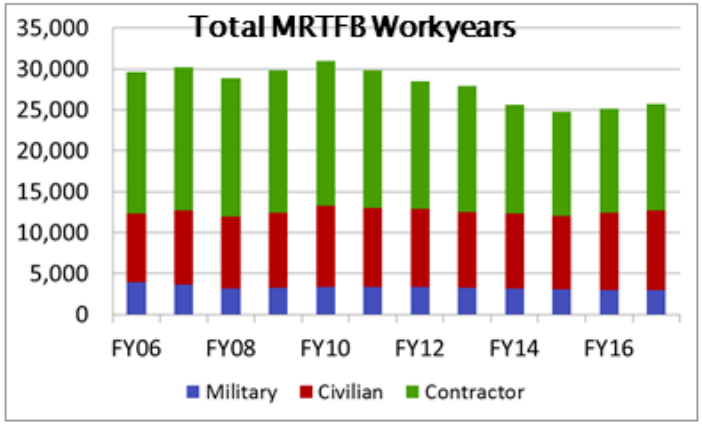
2016 Strategic Plan Section Overview (cont.)

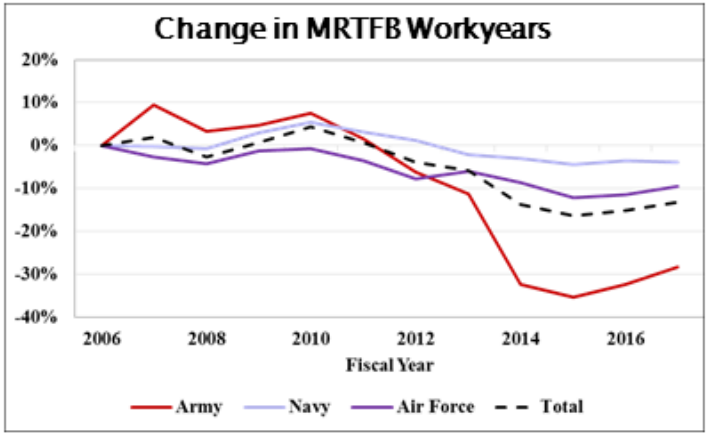
5.0 MRTFB Funding, Investment and Manpower Trends

- **Documents the general trends for T&E resources:**

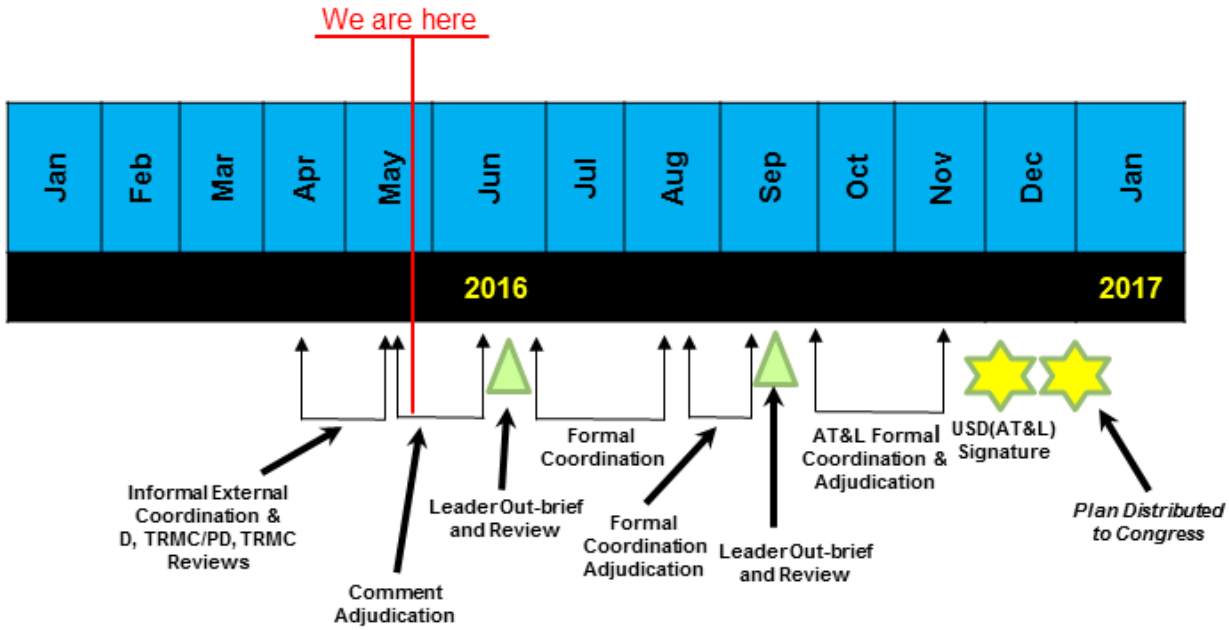








2016 Strategic Plan Timeline



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Test Capabilities Directory (TCD) Overview

Ms. Denise De La Cruz
Test Resource Management Center

May 2016

What is the TCD?

TCD is an Online Database of T&E Capabilities in the Department of Defense to aid test planners in identifying T&E assets to support program T&E planning

- Developed and designed to support test planners in locating T&E assets when planning a test
- Central, searchable database of T&E test capabilities
- Development site online to support testing
- Supports CAC-authenticated login

The Need for TCD

How does a Test Planner decide where to test?

Today

- Go where they know
- Internet search
- Extensive, costly, analysis of test range information brochures / websites
- Align with similar programs
- Site Visits
- Develop new T&E assets

With TCD

One-Stop-Shop with:

- Secure CAC-enabled access
- .MIL = trusted domain
- Robust search capability
- Service / Agency verified / validated data
- Program information
- Compare / contrast feature
- Obtain accurate POC

TCD v1.0 Data by Site

SERVICE	ARMY	NAVY	AIR FORCE	DISA
Managing Activities *(May represent multiple physical locations sites)*	• Aberdeen Test Center • Electronic Proving Ground • Yuma Test Center • Cold Regions Test Center • Tropic Regions Test Center • West Desert Test Center • White Sands Test Center • Reagan Test Site / Kwajalein Atoll • Operational Test Command* • Redstone Test Center*	• Naval Air Warfare Center – Aircraft Div (PAX River, MD) • Naval Air Warfare Center – Weapons Div (Pt. Mugu, CA) • Naval Air Warfare Center – Weapons Div (China Lake, CA) • Naval Undersea Warfare Center • Keyport Pacific Northwest Range Complex • Pacific Missile Range Facility • Atlantic Undersea Test & Evaluation Center • NAVSEA, Carderock Div, Crane, IN, Corona Div, Dahlgren, Newport Div* • NAVAIR, Cherry Point, Lakehurst, Orlando*	• 30th Space Wing • 412th Test Wing • 45th Space Wing • 96th Test Wing / Test Group • Air Force Test Center • Arnold Engineering Development Complex • Nevada Test & Training Range • Utah Test & Training Range • 505th Command & Control Wing* • 576 Flight Test Site*	• Joint Interoperability Test Command
Total	***354^***	***482***	***249***	***22***

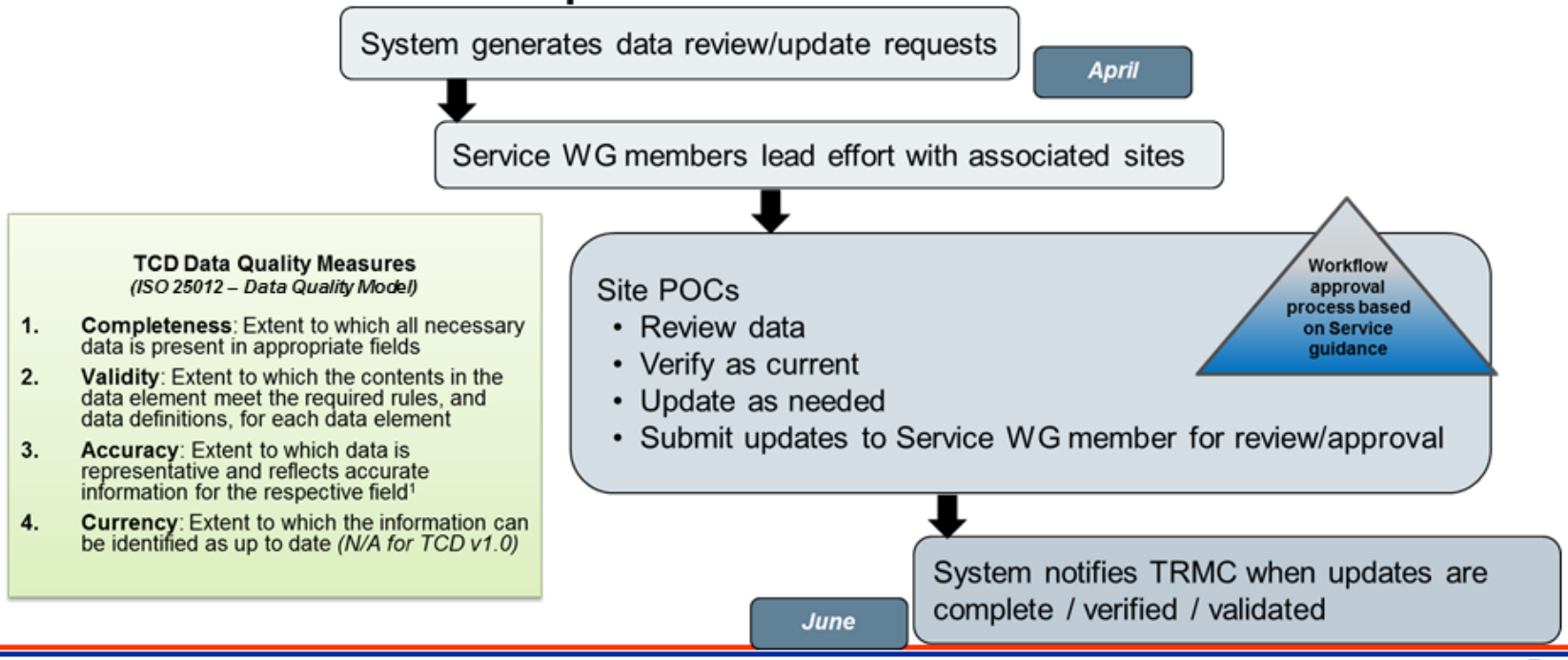
**Non-MRTFB*

^Total represents primary facilities and assets located within facilities

- **JIDA database records imported and aligned with associated Service.**
- **Ongoing discussions with DHS**
- **Pending data on Non-MRTFB Oversight List facilities**

Data Quality

- **Service Working Group provided baseline data**
- **Conducted Internal / External User Jury**
- **TRMC and Service Working Group collaborating to refine / scrub data**
- **Annual data review/update**



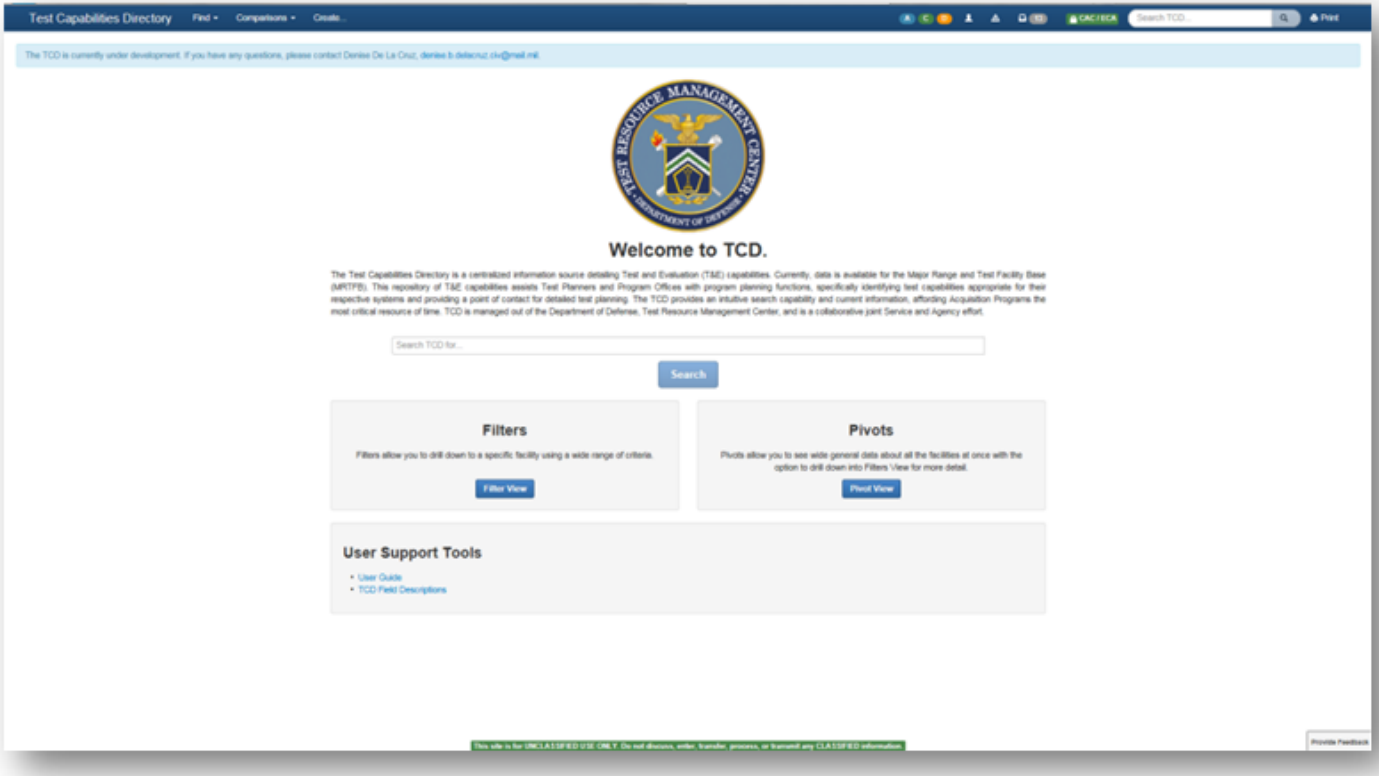
TCD Data Quality Measures
(ISO 25012 – Data Quality Model)

1. **Completeness**: Extent to which all necessary data is present in appropriate fields
2. **Validity**: Extent to which the contents in the data element meet the required rules, and data definitions, for each data element
3. **Accuracy**: Extent to which data is representative and reflects accurate information for the respective field[1]
4. **Currency**: Extent to which the information can be identified as up to date *(N/A for TCD v1.0)*

What can you do with TCD v1.0 Prototype?

- **Search T&E Capabilities**
  - ***Filter Search***: Drill-down into results using specific data elements (Service, Location, Test Capability Area (TCA), Test Infrastructure Category (TIC) and MRTFB status)
  - ***General Search***: Type custom term and locate instances of that throughout the database
  - ***Pivot Table***: Customizable grid comparison of entire database; high level to support sorting and general questions about the number of capabilities associated with a particular TCA, TIC or Service
- **Compare T&E Ranges / Facilities**
  - Conduct side-by-side review of related facilities to determine best fit for test needs
- **Obtain Detailed Range / Facility Descriptions**
  - Physical description (square footage, area)
  - Major elements (technical description of capability utility)
- **Locate Range / Facility Point of Contact**
  - Identify appropriate POC to contact in support of planning a test at corresponding range / facility
- **MRTFB Identification**
  - Determine which ranges / facilities are within the MRTFB

TCD v1.0 Prototype Demonstration



Status

- TCD v1.0 prototype delivered to TRMC on 4 Dec 15.
  - Migration to .MIL environment in process
- TRMC collaborating with OSD Emerging Capabilities & Prototyping to merge Test & Experimentation Directory (TED) with TCD.
- Data in TCD
  - Current: MRTFB +
  - Next
    - Test capabilities on Non-MRTFB oversight
    - Other Government Agencies (e.g., Depart of Homeland Security (DHS), Defense Threat Reduction Agency (DTRA)
    - Other DoD
    - Industry

Questions?

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Cybersecurity Testing

Does the government have the resources (facilities and personnel) to meet the demand of perform cybersecurity testing on weapon systems (new and legacy) in an operationally relevant environment? Are there opportunities for Industry to partner with the government by utilizing Industry resources (connecting cyber ranges)?

- Idea #1 – Awareness exchange of information / capabilities between Industry and TRMC
  - TRMC to offer Cyber T&E and National Cyber Range (NCR) briefing to Industry
  - 23 June NCR Customer Day – open to Govt and SETA contractors
- Idea #2 –
- Idea #3 -

Test Execution Efficiency

How do we improve the efficiency of test execution? Test efficiency rate can vary from 1.3 - 2.0. (i.e. It takes us 1.75 attempts to conduct 1 event). A test which was conducted but the system failed (did not meet the test objectives) does not factor into this rate, that is separate issue. The rate we are referring to here is score by whether a planned test is executed. What are the significant contributors for causing retest?: Weather? Contractor prime item not ready?, Range Resource availability (maintenance, resource not available, failure, etc.)? Do we currently have a baseline metric that has been established for us to improve upon?

- Idea #1 – NDIA received Range Reschedule Report from (sub-report from the DIF) on 5/11/16. Recommendation is Industry TECC members review the report and provide comments to the TECC chair.

- Idea #2 - TBD

People

What is the status of the T&E workforce (both for Industry and Government)? Do we have people with the right skill sets required to perform testing and evaluation? How do we know? Is there an established competency model, has gap analysis been completed recently? Is there training available? How are we growing the future T&E workforce (pipeline) to replace the experienced workforce that will be retiring?

- Idea #1 – Industry provide briefing to TRMC on Industry outlook for T&E workforce supporting Ranges.
- Idea #2 – Industry recommend emerging skill sets that will be required.
- Idea #3 – Potential opportunities for collaborative (Industry & Government) training engagements.

Autonomous Vehicle Testing

What do we need to be thinking about for how to test autonomous ground and air vehicles on our test ranges? What are the range safety considerations? What involvement should test systems engineers have early up front in the design phase to influence the design for testing on our ranges? Is the test community influencing the acquisition community for requirements (SRD, SOW) for testing these systems on our ranges?

- Idea #1 – Awareness exchange of information between Industry and TRMC

- Idea #2 - TBD

Test Range Protocol & Process

Is there an opportunity to improve the process required for planning and conducting test events? What is the process at each range for Test Plan approval, range safety approval, personnel access, etc. It is similar, yet slightly different on every test range and also with each service on the range. Is there a website that I can go as a user to gain knowledge on the who, what, where, when, how and why for conducting a test on a range?

- Idea#1 – Carry over from DIF. Question may be partially answered with TRMC tool demo and potential future enhancements of tool?
- Idea#2
- Idea#3

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Plus / Delta

What worked?

What didn't?

Please respond to a survey from NDIA that will be sent to you for feedback on this session and for future sessions.

THANK YOU!