

# **TRANSFORMATIONAL TIMES**

## **“Driving Operational Solutions”**

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## **Test and Evaluation (T&E) Methodology for Business Systems**

**27 October 2010**

**Dr. Aaron Drew**  
Senior Systems Engineer

# ***How it all Started...***

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- **Two Documents**
  - **DBSAE T&E White Paper**
  - **Integrated Test and Evaluation Methodology for Business Systems**
- **The documents posed questions about the testing of business systems opposed to weapon systems**



# Testing Challenges

## ➤ Tools

- Effectively Manage Data
- Automate Test Tools
- Use Checklists and Templates

## ➤ Time

- Conduct event (not time) based T&E
- Integrate Testing and Development

## ➤ Talent

- Address risk with “Risk Leadership”
- Adjust strategies based on COTS and custom development

## ➤ Transition

- *Deliver* capability to the warfighter

## ➤ Tradition

- Overcome rigid and inflexible approaches to testing

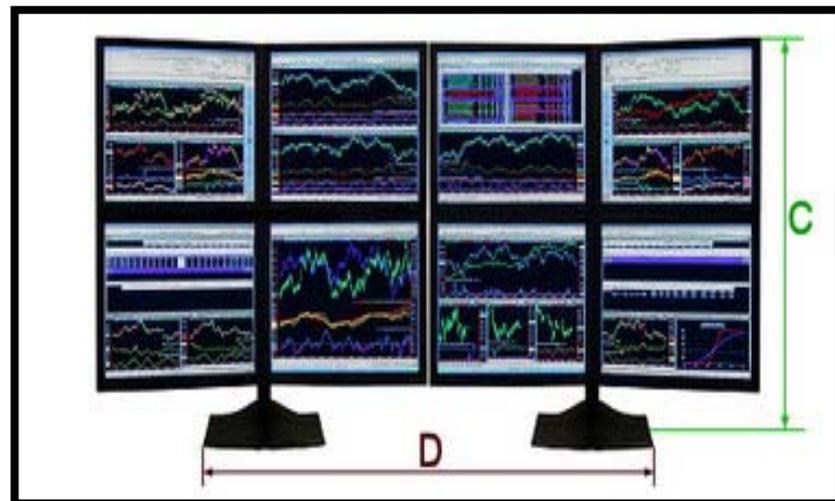


***Integrated Business Testing Requires Transformation!***



# ***Transforming Testing!!!***

## ***Improve Product Quality and Predictability***



- **Focus on Single Programs (not Enterprise)**
- **Test Activities Often Duplicated**
- **Lack of Common Test Tools**
- **Lack of Focus Early in the Program**
- **Business IT Tested Like Weapon Systems**
- **Decision Makers Lack Early Indicators**

- **Establish Centralized Testing Environments**
- **Merge Development & Ops Testing**
- **Reuse of Tools and Test Events**
- **Integrate Teams Prior to Development**
- **Create Business IT Testing Processes**
- **Early Visibility Improves ROI**

***Goal: Greater insight throughout the program lifecycle!***

# ***5 T&E Approaches***

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- **Testing as a Service (TaaS)**
- **Signed DOT&E Letter**
- **Integrated Testing Team (ITT Charter)**
- **Shared Resources, specifically a T&E expert**
- **Smaller iterative testing and releases**

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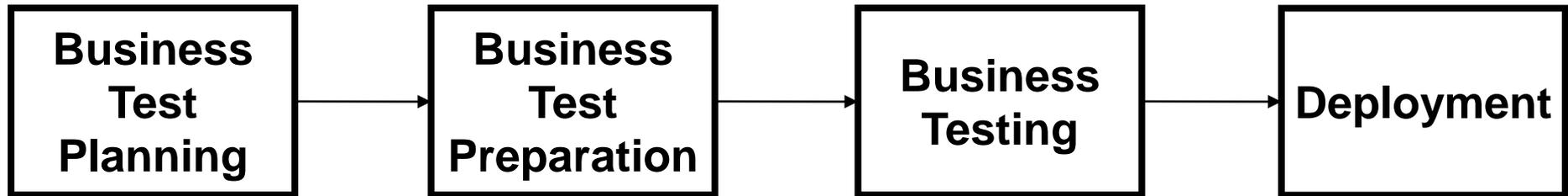
# ***Business Testing Methodology***

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*It's Not About Technology... It's About Capability*

# ***Business Testing Overview***

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## **Purpose:**

- Establish a business testing framework to guide test and evaluation in PMOs
- Identify requirements and key stakeholders, assess testability of requirements. Establish test cases, schedule, funding, and key documents. Assess system risk and minimize testing within mature components (e.g. COTS).
- Activate discrepancy reporting processes, evaluate training materials, and establish test environment
- Conduct testing, identify discrepancies, evaluate
- Transition capability to operations

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# ***Testing as a Service***

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*It's Not About Technology... It's About Capability*



# Overview

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- **Programs currently required to pay high upfront costs when acquiring T&E capabilities, this limits their adoption, restricts information sharing, and creates islands of unused capabilities**
- **Establishing a “Test as a Service” option provides programs an opportunity to lease an established capability, share costs and best practices, and maximize utilization of the tools**



# ***Bottom Line Upfront***

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- **Cost estimates for licensing and hosting shows savings for small programs using TaaS:**
  - Performance: Savings of ~\$211K – 50% over 5 years
  - Test management: Savings of ~\$94K – 55% over 5 years
- **TaaS cost structure rewards advance planning**
- **Centralization of T&E management provides greater opportunities to influence T&E processes**
- **Policy obstacles are:**
  - JITC cost re-imburement structure and limitations of RDT&E funding
  - Absence of a standard, pre-approved Memorandum of Agreement based on established rates



# ***Reduces Cost to Small Programs***

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- **Performance testing**

- Licensing and hosting for a basic (HP) test package (ability to generate/monitor 1K VUs) for 5 years
- Current (program restricted) approach:  
\$418K + functional expertise
- TaaS (enterprise focused) approach:  
5 years x 6 months / year x \$12K /month =  
\$206K + functional expertise

- **Test Management Support**

- Licensing and hosting for a basic (HP) test package (ability to generate/monitor 1K VUs) for 5 years
- Current (program restricted) approach:  
\$166K
- TaaS (enterprise focused) approach:  
\$72K

*Programs Enabled to Purchase Only the Capabilities They Need - Effective Planning  
Minimizes Program Costs*



# ***Increases JITC Influence***

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- **JITC becomes better positioned to become a (the) business test authority**
  - Increased visibility across multiple programs
  - Economical offerings pull programs towards JITC
- **JITC can promote standardization of Test & Evaluation activities with creation and administration of templates and reports**

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# ***ITT Charter***

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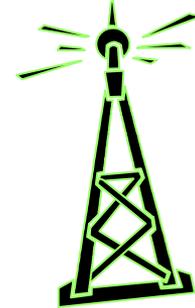
***It's Not About Technology... It's About Capability***



# ***Starting Integrated Testing (by Program)***

## ➤ **Form the ITT**

- **Establish a Charter based on Standard Template**
- **ITT planning**
- **Define the T&E Strategy that addresses a Business System Model**
- **Participate in the Design Process to ensure a Testable Outcome**
- **Participate in the RFI/RFQ and follow-on competitive planning processes to ensure testing considerations are included**
- **Identify and communicate Risks to the Risk Management Team**
- **Participate in drafting the Tailored Information Support Plan**



# ***Sections***

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- **Mission**
- **References**
- **Purpose**
- **Membership (Program & JITC)**
- **Responsibilities**
- **Deliverables**
- **Meetings**
- **Duration**

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# ***Shared T&E Resource***

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# Business Systems $\neq$ Weapon Systems



"IT".360



Requirements

Politics

Funding

AoA

Testing

Security

Legal

Finance

Training

Engineering

Contracts

Leadership

Acquisition

Business "IT" Acquisition Speed bumps

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# ***DOT&E Letter***

*It's Not About Technology... It's About Capability*

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# DOT&E Letter



OPERATIONAL TEST  
AND EVALUATION

OFFICE OF THE SECRETARY OF DEFENSE  
1700 DEFENSE PENTAGON  
WASHINGTON, DC 20301-1700

SEP 14 2010

MEMORANDUM FOR DEPUTY UNDER SECRETARY OF THE ARMY, TEST & EVALUATION COMMAND  
DEPUTY, DEPARTMENT OF THE NAVY TEST & EVALUATION EXECUTIVE  
DIRECTOR, TEST & EVALUATION HEADQUARTERS, U.S. AIR FORCE  
TEST AND EVALUATION EXECUTIVE, DEFENSE INFORMATION SYSTEMS AGENCY  
COMMANDER, ARMY TEST AND EVALUATION COMMAND  
COMMANDER, OPERATIONAL TEST AND EVALUATION FORCE  
COMMANDER, AIR FORCE OPERATIONAL TEST AND EVALUATION CENTER  
DIRECTOR, MARINE CORPS OPERATIONAL TEST AND EVALUATION ACTIVITY  
COMMANDER, JOINT INTEROPERABILITY TEST COMMAND

SUBJECT: Guidelines for Operational Test and Evaluation of Information and Business Systems

To support agile acquisition of Information and Business Systems, the attached guidelines may be substituted in place of the traditional operational test and evaluation approach described in DoD Instruction 5000.02 of December 8, 2008, *Operation of the Defense Acquisition System*.

It is expected a large portion of the test strategy for Information and Business Systems will utilize an integrated test approach. The degree of independent operational testing appropriate for each software increment or capability can be tailored by using the risk analysis described in the attached guidelines. The guidelines also permit delegation of test plan approval using the same criteria. These guidelines do not apply to weapons systems or strategic and tactical command and control systems.



**Signed  
September 14,  
2010**

# *Synopsis*

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- **Business Systems and Weapon Systems are separate**
  - **A risk analysis is conducted by the lead OTA**
    - This determines the degree of risk and impact on the mission accomplishment.
    - The risk assessment looks at the impact of a capability failing to be operationally effective, suitable, and survivable/secure.
    - There are 4 categories the risk analysis will address.
      - Technology and Software Development, Integration & Deployment, Training, Utilization & Management, and IA
  - **There three levels of Operational Assessment**
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# ***Iterative Testing and Releases***

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# *Examples*

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- **P2P Portal**
- **Performance Data Automation (PDA)**
  - As driven by the metrics in the SMP
- **Enterprise Information Web (EIW)**
  - PoDs released every 60-90 days.



# *Testing for Business Systems*

Early Planning -- The way ahead to establishing integrated T&E

- **Design Integrated T&E Models based on Risk**
  - Account for risk in an applied framework
  - System maturity influences testing activities
  - **Risk leadership requires accepting appropriate risk**
- **Develop an inclusiveness across the four disciplines of T&E**
  - Developmental Testing, Information Assurance, Interoperability, Operational Testing working cooperatively vice independently
- **Establish an Integrated Test Team (ITT) early**
  - Membership extends beyond testing disciplines
  - Includes functional proponent and the program office



*It's Not About Technology... It's About Capability*

# *Questions*

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***Dr. Aaron J. Drew***  
***Senior Systems Engineer***  
***Defense Business System Acquisition Executive***  
***Business Transformation Agency***

***[Aaron.Drew@bta.mil](mailto:Aaron.Drew@bta.mil)***  
***571-481-8403***