OSD Perspective of DT&E in Navy Shipbuilding Programs

Do Additional DT&E Opportunities Exist?

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Outline

- Shipbuilding vs. other DoD acquisitions
- Challenge of Shipbuilding DT&E
- New Approach for DT&E on Ships
- Shipbuilding DT&E Best Practices
- PARMs
- Summary
- Q & A
Shipbuilding vs. Other DoD Acquisitions

- Limited use of Prototypes, EDMs, “Fly-before buy”
  - Prohibitive cost for test articles
- Larger Scope
  - Long construction time leads to parallel design and building
- Complexity
  - Many programs in one (i.e., weapons, propulsion, aviation, C4I, navigation, habitability, etc.)
- System-of-systems (SoS)
  - Virtually all mission capabilities require interaction of numerous sub-systems and components
  - Many SoS consist of mix of new and old systems or components
- Performance and schedule highly dependent on Participating Acquisition Resource Managers (PARMs)

Shipbuilding T&E Process
Inherently Leads to a Different T&E Approach
Challenge of Shipbuilding DT&E

- First ship is the test article in shipbuilding T&E
  - Is ultimately a production article
  - Often no time for test-analyze-fix in shipbuilding trials
  - Multiple follow-on ships being built while DT/OT being conducted on first of class

- Fixes often limited to mission-critical discrepancies
- Lower priority discrepancies are often forward fit to future hulls
  - Possible back-fit to early hull(s) during future maintenance cycle
A New Approach for DT&E on Ships

- Opportunities for concurrent DT&E and OT&E throughout Shipbuilding T&E continuum
  - Industrial Stage Tests
  - Fast Cruise
  - Builder’s Trials
  - Acceptance Trials
  - Post Delivery Test and Trials
  - Certifications
    - Aviation, ATO, HERO, UNREP SQT, CSSQT, etc
- Eliminate duplication, optimize efficiencies, increase opportunities to find & fix problems
- Requires access, partnerships, data sharing -- represents challenges
- A true acceptance of Integrated Testing across the T&E continuum

Taking Credit for ALL TESTING
Shipbuilding DT&E Best Practice

- Critical Risk Mitigation is done on Major Components at Land-Based Test Sites
  - Surface Combat Systems Center, Wallops Is
    - SSDS, AEGIS, DDG 1000
  - Test & Integration Facility (TIF), Charleston, SC
  - NAVSEA Panama City – LCS MCM MP
  - NAVSEA Dahlgren – LCS SUW MP
  - NUWC, Newport, RI – LCS ASW MP
  - DDG 1000 Integrated Power System LBTS, Philadelphia, PA
  - NAVAIR, EMALS/AAG, Lakehurst, NJ
  - NAVSEA Carderock, Acoustic Research Detachment – Lake Pend Oreille, Idaho
  - VASCIC, CVN-78, Newport News, VA
  - COATS, SSN-774, Groton, CT

What Other Testing is Being Done That Can be Used for DT&E Credit to Reduce Risk going into OT?
PARMs

- Participating Acquisition Resource Managers (PARMs) are responsible for developing their system independently, while meeting a defined in-yard date
  - Usually not under shipbuilding PM control
    - Relieves workload/But no direct authority
  - PARM can be resident from different PEO or SYSCOM
  - Matrix like: PM funds task/PARM funds staff
- PARMs add flexibility and efficiency by developing systems and equipment in parallel with ship construction
  - Ship PM defines interface specs
  - PARM develops sub-system solution
  - Ship schedule, cost and performance highly dependent on PARMs
- Challenge: Who is the systems integrator?

PARMs – Big Payoff if Successful
Summary

• **Shipbuilding is different from other acquisition programs**
  – Our approach to Shipbuilding T&E also needs to be different
  – Shipbuilding has a long cycle time to complete a test article
  – Test article is always a production article
  – Multiple follow-on ships are already well into construction when DT/OT are being conducted
  – All “fixes” need to be incorporated on all of these ships post-test

• **Ships and their major components go through a plethora of testing before DT/OT**
  – Many of these can be used as opportunities for DT/OT
  – Use of LBTS is a best practice that pays dividends
  – What other testing is being done that can contribute to DT&E?

• **Must take advantage and credit for developmental testing**
  – Will ultimately lead to more efficient and successful development
Points of Contact

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Back-ups
Does NAVSEA Have an RTO?

• Not by name, but many programs have an RTO by function
• Example: NAVSEA Port Hueneme Division (NAVSEA PHD) is non-AEGIS ship combat system RTO
  – SSDS In-Service Engineering Agent (ISEA)
  – Combat systems test lead for CVN, LHA, LHD, LPD, LSD ship classes
  – Operates the Self Defense Test Ship
  – With NAVSEA Dahlgren Division, performs systems integration at the Carrier and Amphib Land Based Test Site at Wallops Island, VA
  – Test conductor for all DT&E events on Pt. Mugu, CA range
  – Frequently assigned as COMOPTEVFOR trusted agent for OT&E data collection and test support
Navy Gate Review Process