OSD Perspective of DT&E in Navy Shipbuilding Programs

Do Additional DT&E Opportunities Exist?

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15 March 2011

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

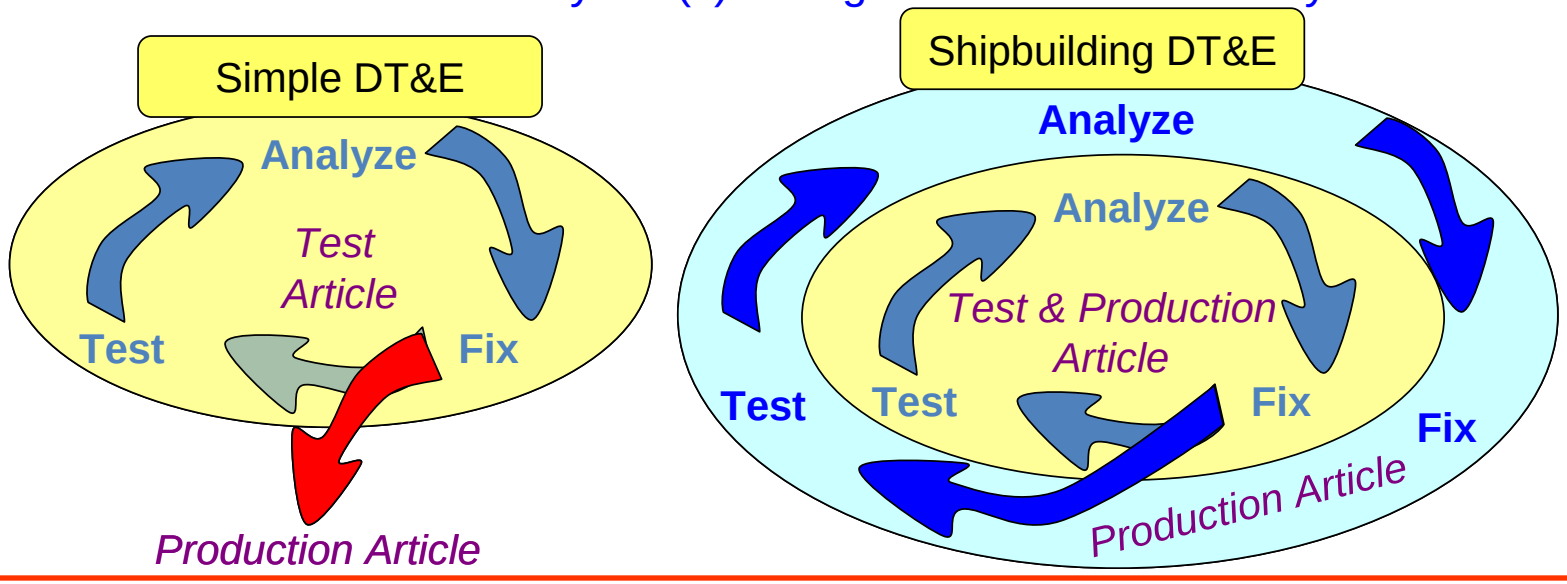
- Limited use of Prototypes, EDMs, “Fly-before buy”
  - Prohibitive cost for test articles
- Larger Scope
  - Long construction time leads to parallel design and building
- Complexity
  - Many programs in one (i.e., weapons, propulsion, aviation, C^4I, navigation, habitability, etc.)

- 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

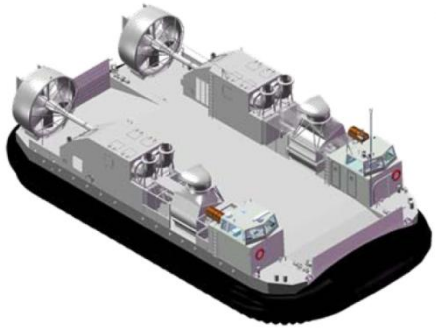
Shipbuilding DT&E Best Practice

- 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

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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