

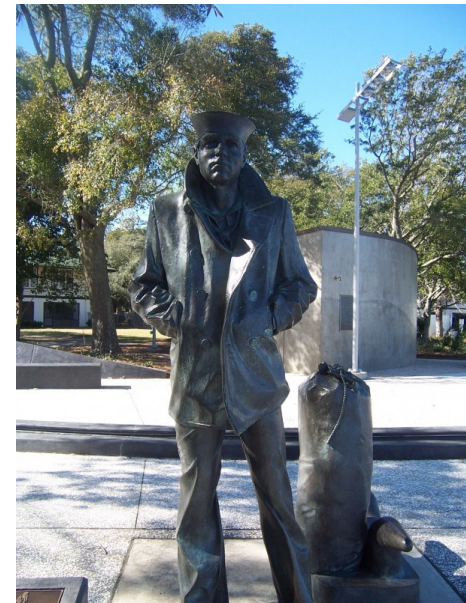
Capability vs. Capacity Resource Balancing

27 March 2012

Rear Admiral Tom Eccles

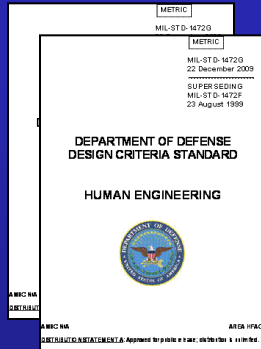
Chief Engineer

Naval Sea Systems Command



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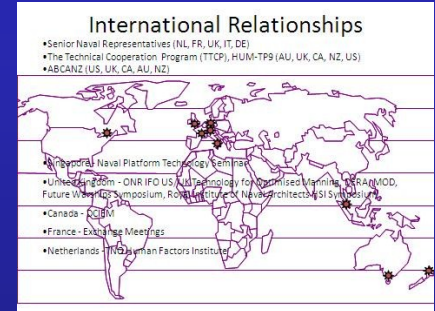
Standards, Engineering, Technical Authority & Certification



Development of DoD and Navy Specs and Standards, publications, tools and facilities



Technical Reviews / Certifications



International Best Practices with Coalition Partners

Technical Authority rigor and discipline applied to specifications, standards, plans, processes, and products, including effective risk management.

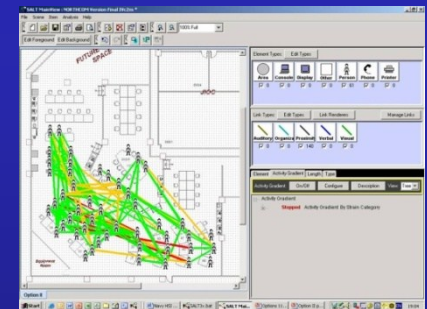
Technical Warrant Holder Pyramid



Ensure technical competency, expertise and infrastructures are maintained



Usable, Maintainable, Capable, Integrated, Safe & Reliable Warfare Systems



Prioritize gaps and risks; provide options and mitigations

Technical Authority Integrated Warfare Systems

Warfare Systems
delivered to 238
USN Ships, 8
USCG Ships,
and 25 Nations

INNOVATION

- Academia, UARCs
- Industry
- Warfare Centers
- ONR/DARPA
- SBIR/SST
- Aegis BMD
- Aegis Ashore
- FLEET

Detect

SEWIP



Control

SSDS



Engage

MK 41 VLS



Sea Sparrow



Amphib



SM-2 / SM-6



155+ Programs:
ACAT I, ACAT II,
ACAT III, ACAT IV,
Non ACAT, RDT&E

Strike Force Integration & Interoperability

CVN 72



E2 Hawkeye



GCCS



Warfare Systems Certification

- NAVSEA
- SPAWAR
- NAVAIR

DDG 1000



Band
ar



DDG 51



ESSM



FLEET Human Systems Integration,
CAPS & LIMS, TIC TECHAID, Workaround Workload

Naval Warfare Systems Certification Policy (NWSCP)

Warfare Systems Certification



- ♦ Approved 18 July 2005
- ♦ Multi-SYSCOM Policy
 - NAVAIRINST 5230.20
 - SPAWARINST 5234.1
 - NAVSEAINST 9410.2
- ♦ Supersedes G&PP 99-05

• Policy Mandate:

- CFFC 032037Z MAY 04 - COMFLTFORCOM C5IMP POLICY (Superseded by COMFLTFORCOM POLICY 4720.3B, Signed Oct 2008) Assigns NAVSEA 06 (now SEA 05H) Certification Responsibility and Authority for Platforms and Strike Groups
- Formally establishes the process and provides the required steps for certifying Warfare Systems for Navy Surface Ships, providing required information to support FLT C5IMP Baseline Decisions
- Primary method for ensuring Warfare Systems are fully developed, mature, reliable, and have completed System, Integration, and Strike Force Level Testing prior to delivery and operational use during Deployment
- Identifies the specific information (OQE) that key Stakeholders must provide in support of the Platform Certification Process

October 2011 Update

New Joint SYSCOM Naval Warfare Systems Certification Policy

- Incorporates recommendations from 2011 Certification Task Force and the five Task Force Pillars which include
 - alignment with the Fleet's C5I Modernization Policy,
 - integration of technical authority,
 - improvements in the definition and role of interoperability,
 - delineation and alignment with the combat system and element certification instructions, and
 - clearly defined certification criteria requiring *objective quality evidence as proof that criteria are met*.
- Improved problem reporting - more specific prioritization, frequency, and risk level definitions providing consistency in certification evaluations.
- Approved by stakeholders USFFC, CPF, COMOPTEVFOR, NAVAIR, NAVSEA, SPAWAR, PEO C4I, PEO IWS, PEO T, PEO Ships, PEO LCS, PEO Carriers, PEO Subs, SEA 21, and OPNAV



Automated Testing and Retest (ATRT)



SBIR III
Warfare Systems
Integration and
Interoperability Test
(WSIIT)
(POP: Sept 11-Sep 12)

Develop a Strategy and deliver a “self-throttling” test capability for use in WSIIT for Ship Self Defense System.

SBIR III
AEGIS Analysis
(POP: Aug 11 – Sept 12)

Apply ATRT to at-sea testing analysis to extend coverage of AEGIS 3.2 requirements (combat system level) and update scenario manager to assist with land-based testing for Advanced Capability Build (ACB) 08 and ACB 12 baselines.

SBIR III
Integrated Common
Processor (ICP) /
Acoustic Rapid COTS
Insertion (A-RCI)
(POP: Sept 11 – Sept 12)

ICP and A-RCI use common software components from submarine and surface USW systems. PMS 485 and 401 developed a combined plan to automate reliability tests that include: Performance Verification Tests (PVTs), System Services, and Data Storage.

SBIR III
LCS Mission Module
(MM)-Seaframe Interface
Test
(POP: July 11 – Sept 12)

Apply ATRT to automate message-based interface testing between LCS MM and Seaframe Combat Management System (CMS).

SBIR III
Submarine Warfare
Federated Tactical
Systems (SWFTS)
(POP: Sept 11 – Sept 12)

Automate SWFTS Integration and System Level tests for Advanced Process Build (APB)/Technical Insertion (TI) upgrades.

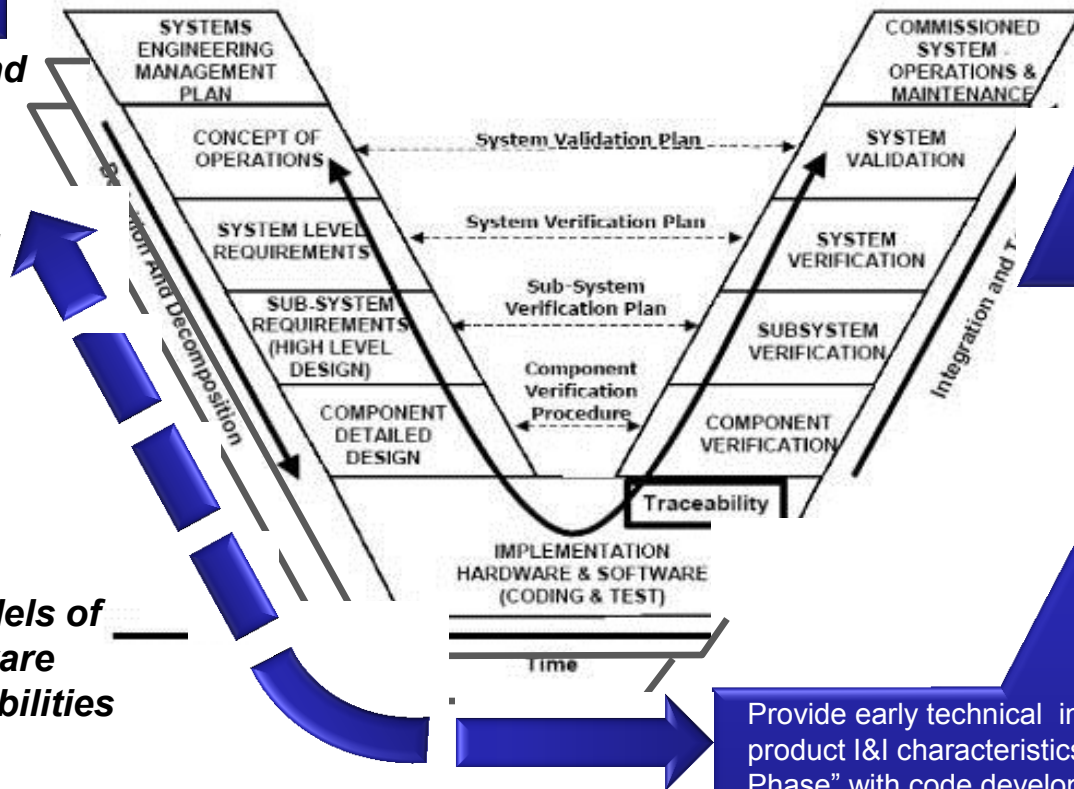
Shortens the test and analysis execution timeline
Maintains and/or improves software product quality
Reduces overall system development testing costs

Automated Test and Retest (ATRT) Virtual Test Bed

Mission Engineering

Assess Integration and Interoperability (I&I) Requirements in Current and Future Architectural Mission Threads

Exercise Models of New Software Enabled Capabilities



Classical I&I "Testing"

**COMPTUEX
BGSIT
DEP & Link Cert**

**ATRT
Virtual
Test Bed**

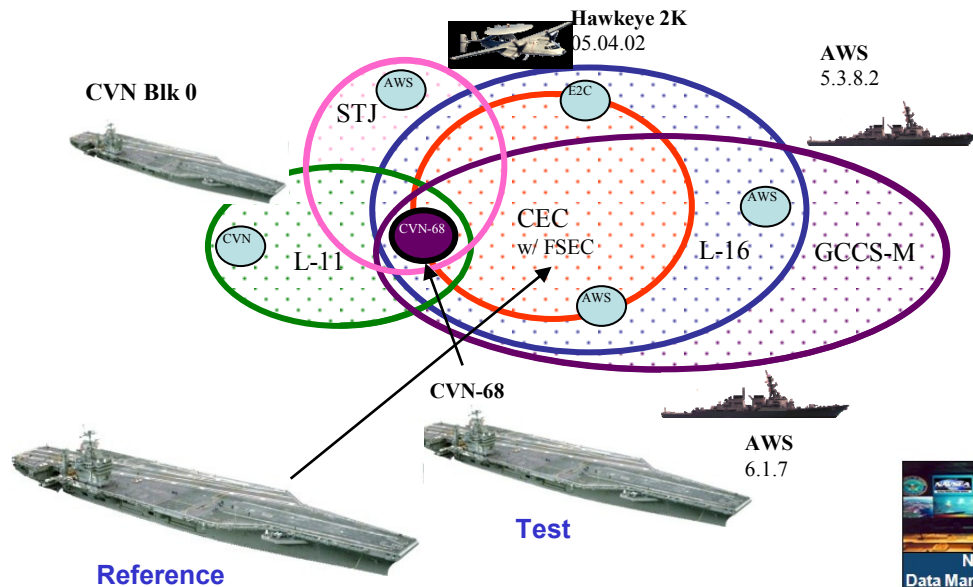
Provide early technical insight of product I&I characteristics "In Phase" with code development.

**Tactical Software Running
On "Virtual Machines"**

ATRT – Automated Test and Retest
COMPTUEX – Composite Unit Training Exercise
DEP – Distributed Engineering Plant
DGSIT – Deploying Group System Integration Testing

ATRT Virtual Test Bed Provides the Software Development Environment (Coding) for an Early (in-stride) I&I Assessment

Strike Force Interoperability Land Based Testing



Distributed Engineering Plant (DEP)
replicates a Strike Group
for land based testing



Land based testing essential for characterization of Strike Group Interoperability prior to delivery to the fleet.

Naval Sea Systems Command Naval Systems Engineering Directorate

Commonality & Seamless Integration



Quality First Time



Interoperability Built-in



Increased Capability via Integration

**Standards, Engineering,
Technical Authority & Certification**