Flexible Ships

Glen Sturtevant
PEO Ships – NAVSEA 21
Director for Science and Technology

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• Imperative for Change

• Flexible Ships Features

• Key Enablers
Challenges Facing Surface Navy

- Rapidly Evolving Threats and Missions
- Accelerating Pace of Technological Change
- Increasing Costs
- Readiness

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• Ships are costly to build and sustain
  • Current cost estimating methods result in minimal displacement ship designs
  • Warfighting capabilities are derived from complex systems
  • Ships are densely packed
  • Ship density is directly proportional to ship design, construction and sustainment costs

• Payloads (capabilities) are strongly coupled to platforms (ships)

• Legacy ship designs have limited allowance margins for modernization

• Closed and inflexible architectures result in lengthy and costly upgrades to ships

• Ships need to stay combat relevant over their entire service life or become irrelevant
FLEXIBLE
Affordable Warfighting Relevance Over the Entire Ship Service Life

FEATURES
- Payloads de-coupled from platforms
- Standard interfaces
- Rapid re-configuration
- Planned access routes
- Allowance margins for modernization

BENEFITS
- Separates payload development from platform production
- Affordable alternate business model to lengthy and costly ship production work
- Increased competition and innovation
- Cross-platform commonality
- Rapid prototyping of payloads enables rapid acquisition of new capabilities
- Modular open systems enable Acquisition Agility
- Efficient technology refresh and incremental upgrades
- Distributed Lethality enabler
- Paces the threat

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Payloads De-Coupled from Platforms

Laser Weapon System

Torpedo Defense

Enterprise Air Surveillance Radar (EASR)

SeaRAM
• Royal Danish Navy StanFlex

• LCS Interface Control Document (ICD)

• NATO Modularity Specialist Team Interface Document

Navy prescribe & manage interfaces but allow for industry innovation and technology advances
Rapid Re-Configuration

Flexible Infrastructure

Standard Modular Combat System Compartments
- Aegis Ashore
- Aegis Ships

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Planned Access Routes

- Rapid Removal Routes
- Soft Patches
- Bolted Equipment
  Removal Plates

Rapid Removal Routes on FLT III

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Allowance Margins for Modernization

- Space

- Weight

- Distributed Systems
  - Electric Power
  - Cooling
  - Networks
• Provide warfighting requirements that drive flexible, common and open architectures

• Invest in technology advancements that support flexibility

• Navy prescribe and manage common interfaces

• Conduct risk-reduction prototyping & experimentation

• Establish a business model that supports flexible ships

• Ensure strong central leadership and a powerful coalition

• Roadmap plans and future opportunities
• Imperative for Change

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http://www.navsea.navy.mil/Home/Team-Ships/
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