PEO IWS X Program Overview and ICS Development

“Sea Power to the Hands of Our Naval Force”

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PEO IWS Evolution

**Legacy (Platform) Business Model**

<table>
<thead>
<tr>
<th>IWS 1.0</th>
<th>IWS 4.0</th>
<th>IWS 8.0</th>
<th>IWS 10.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>DDG CS</td>
<td>FMS Platforms</td>
<td>FFG CS</td>
<td>LHD CS</td>
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<td>CG CS</td>
<td>LUSV CS</td>
<td>MUSV CS</td>
<td>LPD CS</td>
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<tr>
<td>NSC CS</td>
<td>LCS CS</td>
<td>LCS CS</td>
<td>CVN CS</td>
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**Future (Force Level) Model**

- SW
- PaaS
- IaaS

**ICS Program Office is Technical Governance and driving force to ensure evolution to single ICS**

- Common Requirements
- Common HW and SW
- Reduced NRE bills
- Leverage common training
- Common Standards & Processes
- Common interfaces for Elements
- Element hosting
- Incorporate DDG 1000 efforts
- Small CS deliveries

**Processes**

- Independent businesses creating their own custom solution with tightly coupled HW and SW
  - Multiple NRE bills for Individual capability delivery
  - Large, monolithic deliveries
  - Custom HW solutions
  - Multiple CS, not necessarily interoperable
  - Different Fleet Training Pipelines
  - Different Standards & Processes
  - Driving different requirements onto elements

Teamwork across stakeholders will lead to faster delivery, higher quality, wider distribution - from requirements to production.
Mission: Converge to a common Integrated Combat System (HW/SW) across the Surface Fleet

Drive efficiency, increase the speed of delivery, and increase quality of the combat system

‘…align the ICS organization, processes, resources and acquisition strategy to develop a common tailorble ICS with focused effort’

— ICS Project charter
A Continuous Integration / Continuous Delivery (CI/CD) pipeline requires a modern computing infrastructure, Agile software development methodology, and Development, Security, Operations (DevSecOps) engineering culture and practices.

The Three Ways…

- Maximize flow of work and optimize the system of continuous delivery
- Ensure fast and constant feedback
- Create a generative, high-trust culture that supports disciplined experimentation

"The DevOps Handbook"
Kim, Humble, Debois, and Willis
2016

The Government owns the Development & Test Pipeline
Changing CS Software Development Paradigm to Focus on the User

User Focus, Technology to User, Iterate – Always Burning Down Risk

Software is NEVER Done!
Developing hypotheses based on user research
Validating solutions based on use in ops

Delivering a Feature at a Time

- Developers
- Users
- Systems Engineers
- System Architects
- Cybersecurity Experts
- Quality Assurance Team
- Agile Practitioners
- Industry Partners

Booz | Allen | Hamilton

LOCKHEED MARTIN

SOLUTE

Software
Enterprise Surface Combat System Software Factory
**Hardware**  
**HW Factory & HW Pipeline**

- HW Factory & HW Pipeline provide continuous, scalable, modernized Compute Infrastructure (CI) with common qualified, certified, & authorized catalog of universally managed products & services - for all ship classes
  - Components, LRUs, Assemblies, Cabinets, Tactical & Tactical Equivalent systems
  - CI SW Licenses & Support, Engineering Services
  - Data Analytics, Help Desk, Configuration Management, Sustainment, and Training
  - Obsolescence & DMS issues

**Virtualization Pilot Ship**

- Shipboard Installation of a modern IaaS CI using Other Transactional Authority (OTA) acquisition process

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**OTA Displays on Monterey (CG 61)**

**OTA used for CI on Monterey (CG 61) & Prototype Unmanned Surface Vessel (PUSV-4)**

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**Decoupling HW and SW enabling faster, more frequent capability delivery**
“Sea Power to the Hands of Our Sailors”