Sustainment Panel Update

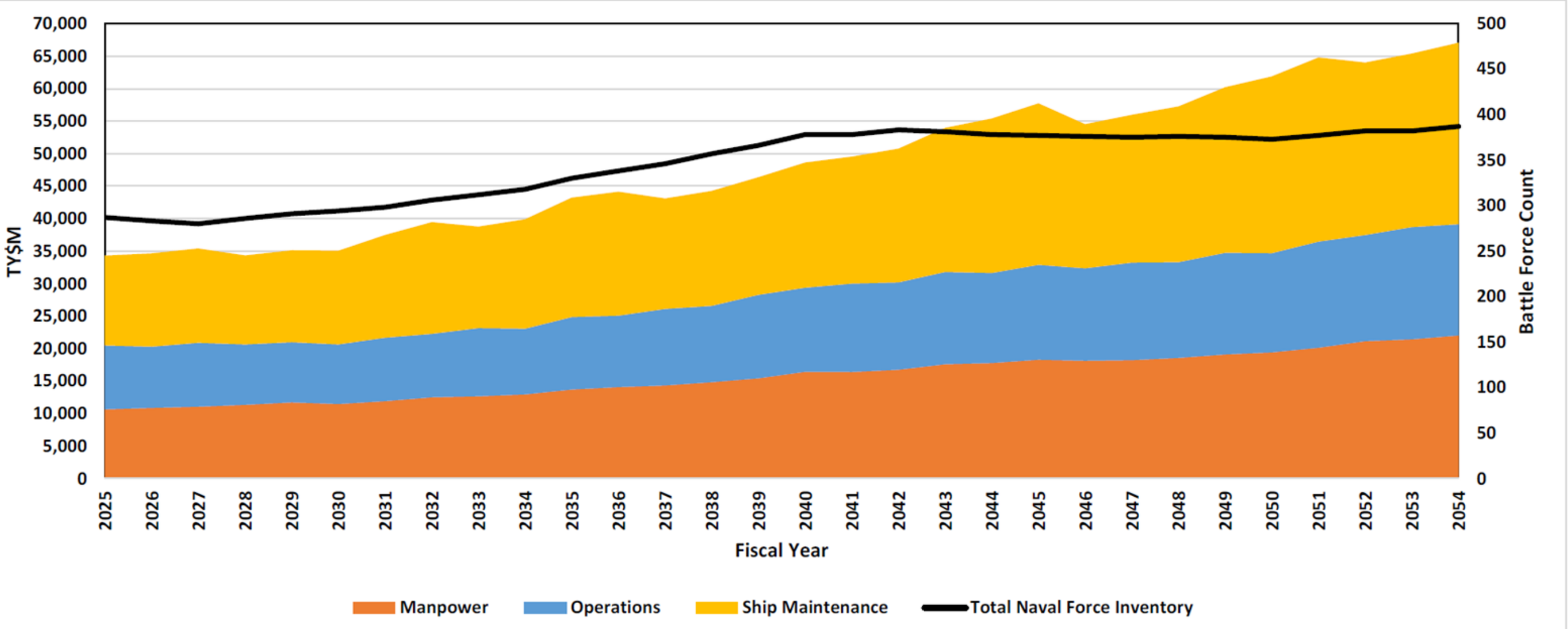
Kirsten Walkup, Panel Chair

General Dynamics-Bath Iron Works

2025 Sustainment Panel Meeting, 9/24 Agenda

	Presentation	Speaker
8:30 am	***FMMS Keynote – Symposium Event***	*VADM James Downey*
9:45 am	State of the Panel	Kirsten Walkup, Sustainment Panel Chair
10:00 am	Project Recap - Dronut	Cleo Robotics
10:30 am	Intumescent Fire Cable Protection	David Rice, Hepburn & Sons
11:00 am	Ship Hull Mapping for Improved Docking Block Placement	Alex Stiglich, DM Consulting
11:30 am	DDG 51 Planning Yard Overview	John Pescatello, GD-Bath Iron Works
12:00 pm	Lunch (Catered)	
12:45 pm	***FMMS Keynote – Symposium Event***	*RADM Seiko Okano*
2:00 pm	Potential for applying Artificial Intelligence (AI) in Shipyards Processes	HII – Newport News
2:30 pm	In-Situ Ballast Tank Inspection Update	Justus Rooker, SwRI
3:00 pm	Diagnosis of Ship Structures with Active UMI	Dr. Steven Ziola, Antech Systems
3:30 pm	Project Proposal Roundtable & Voting	
4:45 pm	Wrap-up & Adjourn	

Figure A3-1. PB2025 Shipbuilding Plan Annual Funding for Sustainment (FY2025-2054)[1]



Mission – Updated Language

"The Sustainment Panel has the mission of reducing the cost of ship logistics and sustainment activities to include repair, maintenance and modernization while increasing operational availability for manned and unmanned vessels. Panel focus will be placed on advancing technologies, materials, processes and procedures that realize greater efficiencies in lifecycle sustainment. The Panel also includes researching and evaluating opportunities for implementation of digital tools, new technology, and processes to increase fleet readiness."

Focus – Updated Language

7.3.2.4 Explore opportunities to leverage artificial intelligence/machine learning (AI/ML), and emerging technology for shipyard planning, operations, and execution:

1. Promote and develop AI/ML tools bridging technology gaps between design, planning, execution, and budgeting activities
2. Demonstrate data sciences and analytical tools and resources to achieve optimal level of planning to include shipyard availability staff skill sets
3. Optimize shipyard operations and/or execution through identification of inefficiencies, waste, and risk
4. Rapidly evaluate collected data and ~~trend analysis~~ use predictive analytics to in turn develop actionable best practices, tools, and processes with the goal of decreasing the impact of unplanned events and improve planning capabilities
5. Identify and introduce technologies enhancing first-time quality for data-gathering and design processes informing availability execution
6. Promote integration of mobile and digital devices aimed at accelerating the execution of procedures by providing technical guidance at the point of need. Examples include mobile 3D work instructions, XR devices, wireless pier-side connectivity, instant communication technologies, and local tooling/material locators, etc.

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Focus Areas - Updated Language

7.3.2.5 Incorporate sustainment considerations in the design phase of ~~manned and unmanned~~ vessels and components to support ship maintenance and modernization of hull, mechanical, and electrical as well as mission system infrastructure:

1. Develop improved design tools to standardize shipbuilding design practices across shipyards that facilitate sustainment
2. Develop innovative methods to leverage the use of existing equipment and components in modernization design efforts to minimize cost and in-service availability time
3. Identify and pursue advanced materials ~~(composites)~~ and processes that reduce~~s~~ the burdens associated with cost and longevity
4. Improve accuracy of engineering and design products supporting ship modernization and upgrades
5. Evaluate existing commercial advanced technologies for application in shipbuilding, modernization and repair
6. Leverage advanced technology to assist remote personnel to accurately determine locations of potential interferences when designing for modernization and ship upgrades
7. Develop ~~mobile~~ pier side facilities and the enabling technologies to facilitate ~~unmanned~~ vessel~~s~~ repair and modernization
8. Increase efficiency by leveraging best practices and technologies against material waste and unnecessary duplication during the planning and execution phases

Focus Areas - Updated Language

7.3.2.6 Implement new inspection and maintenance processes to support minimal time in availabilities:

1. Incorporate emerging technologies to advance inspection, sustainment and improved reliability
2. Evaluate digital ~~support~~ tools and processes to reduce time in availability
3. Develop capability to automate detection, non-destructive inspection, and assessment of corrosion and delamination on vessels
4. Mature capabilities for problem identification and rapid repair of ~~critical~~ shipboard systems ~~such as propulsion and steering system components~~
5. Adapt comprehensive production planning systems to develop an integrated plan tailored to short duration availabilities
6. Perform qualification efforts for advanced technologies that will be more reliable and/or require less maintenance than legacy technologies
7. Develop extended reality (XR) capabilities that can enhance ship check and planning processes

Focus Areas - Updated Language

7.3.2.7 Explore, develop, and implement processes to address supply chain limitations:

1. Investigate alternative additive manufacturing technology and materials to mitigate issues with parts obsolescence and/or long lead times
2. Develop data analytic and predictive modeling methods that support early identification of potential supply chain issues
3. Utilize technology to address supply gaps in the execution of Quality Management Systems such as welding, Non-Destructive Testing, shock and vibration
4. Evaluate the available supply chain and the competing program demands
5. Develop training methods to improve literacy, fluency, interpretation of Navy standards such as standard items, ship specification, and General Specifications of Overhaul of Surface Ships (GSO)
6. Leverage advancing technologies such as AI/ML to identify alternative supply chain resources with the intent of relieving bottlenecks during execution

Sustainment Panel Projects

2024 Panel Projects

- Enhanced 3D Mapping & High-Bandwidth Mesh Radio Projects – Cleo Robotics
  - Team Members: GD – Bath Iron Works
- Fire Protection Shipboard/Intumescent Coatings – Hepburn & Sons
  - Team Members: Hepburn and Sons, Fincantieri Marinette Marine, STI, NSWC Carderock, Southwest Research Institute
- Body Cooling Technology Study – HII - Ingalls Shipbuilding
  - Team Members: HII - Newport News, GD – Bath Iron Works

2025 Panel Projects

- Defect Characterization of Navy Ship Structures with Active UMI – Antech
  - Team Members: Norfolk Naval Ship Yard
- Evaluation of Digital Twin Technologies for In-Situ Ballast Tank Inspection – Southwest Research Institute
  - Team Members: HII – Ingalls Shipbuilding, HII – Newport News Shipbuilding, BAE - Jacksonville