

February 10, 2011 Post-Summit Summary

Global Shipbuilding Executive Summit II

Sponsored by the American Society of Naval Engineers in conjunction with Siemens PLM Software

The Global Shipbuilding Executive Summit II, sponsored by the American Society of Naval Engineers (ASNE) in affiliation with Siemens PLM Software, was held on February 10, 2011. The Summit focused on several key topics that affect both commercial and defense shipbuilding in significant ways, including:

- How to improve the affordability of new ships
- How to lower the total ownership cost of new and existing ship classes
- How to improve design and production productivity
- How to automate fleet service and support
- What technology breakthroughs from other industries could be beneficial to shipbuilders

Improving the affordability of new naval ships and reducing Total Ownership Cost (TOC) were both identified as top priorities during the first Global Shipbuilding Executive Summit in April, 2010, and a Summit Advisory Board used them to develop the issues to be explored by the second Summit. The mission of the Summit is to bring industry leaders from around the globe together to explore solutions to the most pressing challenges and to share best practices and lessons learned.

For Summit II, the hosts were Ms. Kathleen Hinton, President, ASNE and RADM Jim Greene, USN (ret.). Keynote speakers included VADM Kevin McCoy, Commander Naval Sea Systems Command, and Mr. Hein van Ameijden, Managing Director, Damen Schelde Naval Shipbuilding. VADM McCoy emphasized in his introductory remarks the importance of improving the affordability of new ship classes while concurrently lowering the cost of maintaining a diverse and overworked fleet of highly complex surface ships, submarines and support vessels. The operational



demands on the fleet are challenging overall readiness, but he stressed that shipbuilders must develop innovative solutions that ensure optimum readiness without exceeding strict budget constraints.

Mr. van Ameijden presented an eyeopening set of results from recent naval programs in The Netherlands that suggest that they have achieved significant breakthroughs in the affordability of modern naval ships. From advanced naval destroyers to their newest and largest naval ship, a 28,000-ton naval logistics support ship, remarkable reductions in total man-hours and costs have been achieved. These improvements were attributed to a combination of factors including: close collaboration between the navy and ship designer during the concept development process leading to a firm-fixed-price contract, employing a blend of military and commercial specifications to avoid over-designing the ship where appropriate, and a clear commitment by the shipyard to innovation and productivity to guarantee its competitiveness in the international naval market.

The Summit was attended by a broad cross-section of shipbuilding leaders from both government and industry including senior officials from the U.S. Navy and U.S. Coast Guard and major U.S. shipbuilders and design agents plus representatives from the U.K. MoD Royal Navy, BAE Systems Submarines and Damen Schelde Naval Shipbuilding. For discussion purposes, the attendees were organized into five focus areas as follows:

- Acquisition process and requirements management
- Design, engineering and development
- Construction, production and sea trials
- Service, support and life extension/modernization
- Total lifecycle productivity

The audience of more than 100 (more than double the total of the first summit) was distributed among ten tables with two tables dedicated to each focus area above to answer the following questions:

What are the top two challenges, barriers and/or impediments shipbuilders face?

What are the top two recommendations to reduce TOC?

The teams produced a very focused and sound set of recommendations that they believed would improve the affordability of new ships and lower the Total Ownership Costs.

The top 6 recommendations from the list of more than 30 are listed here based on the voting of the GSES II Advisory Board:

Top 6 GSES II recommendations

1. Build TOC fact-based models for each major ship class to better understand cost drivers and where to focus initiatives to reduce TOC.
2. Implement Design-for-Manufacture and Design-for-Affordability.
3. Mandate Program Manager longevity, and use closed-loop detailing process to return AT&L experienced resources back into PMO leadership positions.
4. Mature design before production starts.
5. Make TOC count in the terms and conditions of each new contract.
6. Down select prime contractor earlier to involve the shipyard in the concept design process.

Below is brief summary of all of the recommendations grouped into the four primary focus areas:

Acquisition process and requirements management:

- To reduce personnel churn, mandate Program Manager longevity, and use closed-loop detailing process to return AT&L experienced resources back into PMO leadership positions.
- Establish a TOC CEO position for each ship class who is responsible for reducing TOC - both SCN and O&M.
- Write clear TOC requirements (allocate dollars, displacement and volume) and write TOC evaluation criteria. Then evaluate Navy and Shipbuilder Program Managers against those TOC evaluation criteria.
- Get the requirements right in the beginning.
- Make TOC count in the terms and conditions of each new contract.



- Re-invigorate the Value Engineering Change Proposal (VECP) process and handle VECPs expeditiously. Create a win-win scenario whereby shipbuilders are incentivized to suggest cost saving ideas and government receives a lower system TOC.
 - Create a better balance between Key Performance Parameters (KPPs) and Key System Attributes (KSAs) in assigning oversight to key system requirements. KPPs are provided oversight at JROC level while KSAs remain within the purview of the Services. Creating a better balance will increase program flexibility and more timely risk management.
 - Down select to winning shipbuilder earlier in the process, preferably at the end of preliminary design. This will allow early initiation of team building, good integration of industry/ government team and a shift from cost-plus to fixed-price type contracts.
 - Do cost vs. capability tradeoffs very early in the acquisition process.
 - Government take lead, and remain in the lead, in preliminary design and throughout the program from a technical and engineering standpoint.
 - Need a better balance between capabilities and total cost.
- Design, engineering and development:**
- Design to optimize productivity; more spacious designs can reduce costs by simplifying design and construction; reduce labor content.
 - Consider use of commercial classification rules where appropriate.
 - Consider a blend of military and commercial specifications – produced significant savings at Damen Group.
 - Conduct critical review of naval and commercial maintenance standards and processes.
 - Implement Design-for-Manufacture and Design-for-Affordability.
 - Implement rules-based CAD tools to control cost and requirements upfront.
 - Develop a formal process to better understand the TOC implications of each change.
 - Need more rigor and discipline in this phase of a program.
- Construction, production and sea trials:**
- Mature design before production starts.
 - Avoid concurrent design/build programs.
 - Minimize insertion of immature technologies.
 - Avoid/minimize changes once construction begins.
 - Avoid/minimize over-specifying.
 - To reduce the cost of material, engage the supply base earlier.
 - Stabilize the acquisition plan: multi-year procurement.
 - Establish a list of preferred prime naval suppliers.
 - Implement strategic sourcing plan across the Navy.

Service, support and life extension/modernization:

- Build TOC fact-based models for each major ship class to better understand cost drivers and where to focus initiatives to reduce TOC.
- Establish sound Class Maintenance Plans for each ship class: availability, use PBL to ensure reliability as a function of TOC.
- Enforce ship maintenance standards for all ship classes.
- Include logisticians and fleet maintenance specialists in the preliminary design phase, to consider maintenance drivers during the concept phase.

These recommendations will be shared with everyone who received an invitation to the Summit, and they will be briefed to Navy and Coast Guard acquisition officials. Additionally, the findings and recommendations will be shared with naval allies around the world to help them reduce the cost of future joint fleet operations and improve logistics-support interoperability and synergy.

Planning for the next Global Shipbuilding Executive Summit in Washington D.C. in February, 2012 will commence shortly.

The Summit validated that a like-minded and experienced group of industry leaders and government officials in a highly focused forum can explore top industry challenges and in a very short time produce a set of innovative and incisive solutions that can potentially impact near-term productivity and transform overall industry efficiency.

Innovation and transformation that produce sustainable and inexorable improvements in industry productivity can have a dramatic impact on performance, as shown in the presentation by Mr. van Ameijden. Moreover, the findings and recommendations of the Summit offer additional ways to improve affordability and lower Total Ownership Cost. Future Global Shipbuilding Executive Summits and related activities by summit members will focus on refining these recommendations and determining the best ways to apply them to drive real change and results.

If you have comments on this report or recommendations for the 2012 summit, please send them to GSES@navalengineers.org.

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