Global Shipbuilding Executive Summit (GSES) V

The Global Shipbuilding Executive Summit (GSES) V took place on 20 February 2014, in Arlington, VA. The summit was sponsored by the American Society of Naval Engineers (ASNE) and Siemens PLM Software in conjunction with ASNE Day 2014. Bringing together the collective naval engineering expertise that resides in both government and private industry and conducting an open-dialogue on the issues impacting shipbuilding is the mission of the GSES. In a departure from previous summits, the goal of GSES V was to intensely drill into the thorny areas that impact shipbuilding, identify the most salient issues, and develop a specific implementation plan that could be credibly executed over the following year. Previous summits proved highly effective at identifying and cataloging the many issues affecting the global shipbuilding industry. While very useful in highlighting the range and depth of issues impacting the industry overall, it proved difficult to transform these collective recommendations into an effective action agenda for execution and implementation. The output of GSES IV, for example, eventually yielded more than 60 specific recommendations. Given this history, the overall goal of GSES V was to produce a streamlined set of recommendations that had the potential for rapid implementation by U.S. Navy organizations over the following year.

The shipbuilding leaders attending GSES V represented a broad spectrum of the industry, and possessed a diverse mix of expertise and detailed knowledge of naval engineering, acquisition processes, and shipyard operations. More than 75 leaders, including U.S. Navy flag officers and naval representatives from the New Zealand Embassy were in attendance. ASNE President Glenn Ashe, USN (Ret.) served as the host for the GSES V. Tim Nichols, Managing Director of Aerospace and Marine at Siemens PLM Software, represented the event’s sponsor. RDML Joe Carnevale, USN (Ret.) of the Shipbuilders Council of America moderated the summit. GSES V also featured a VIP panel that included RDML David H. Lewis, USN, Program Executive Officer (PEO), Ships; Hein van Ameijden, Damen Schelde Naval Shipbuilding; and Dr. Eric Rebentisch, Massachusetts Institute of Technology. The panel provided an expert perspective on general issues impacting shipbuilding. RDML Lewis spoke about the need to reduce costs in shipbuilding, and the importance of forums such as GSES in bringing government and industry together to engage in constructive information sharing. Mr. van Ameijden provided valuable insights into how naval shipbuilding relationships work in the Netherlands, and the close partnership that exists between the Dutch Navy and Damen Schelde in the design, development, and construction of naval ships. Dr. Rebentisch shared cogent research on how the aerospace industry confronted challenges similar to those now facing the shipbuilding sector.

Expert Perspective

With the focus of this year’s summit firmly fixed on the implementation of a discrete set of specific policy recommendations, attendance by senior leaders of the U.S. Naval Sea Systems Command (NAVSEA) was highly encouraging. Led by RDML Thomas Kearney, USN, NAVSEA Deputy Commander, other senior NAVSEA officials in attendance included RDML David H. Lewis, PEO, Ships; RDML Lawrence Creevy, USN, Commander, Naval Surface Warfare Center; and RDML William Galinis, USN, Commander, Regional Maintenance Center. The U.S. Coast Guard’s Chief Acquisition Officer, RDML Bruce Baffer, USCG, was also in attendance. In his keynote address, RDML Kearney emphasized that NAVSEA is fully committed to listening to industry’s concerns, finding and removing barriers to effective operations, and aggressively implementing vetted recommendations. NAVSEA’s foremost priority is designing, building, and maintaining ships. “It is all about the ships,” Kearney said, and ensuring that every ship meets its expected service life.
More to the point on addressing GSES issues, Kearney said NAVSEA is creating a new directorate, which he will lead, focused exclusively on the issue of commonality. Called SEA 06, the new entity will ensure that NAVSEA’s acquisition processes take commonality into consideration in the drafting and setting of standards for parts and other types of materials. Too often, small variances in how requirements for a certain part are established from one Navy office or program to another result in shipyards having to manufacture or maintain inventory for multiple versions of the same part. Kearney cited one shipyard having to maintain 10 different minute versions of the same standard Navy valve, due to slight variances in requirements between NAVSEA program offices, stating, “It is clear what this does to the cost of valves.” He cautioned, however, that SEA 06 will not impose any technical authority. All technical warrants will stay with the existing holder. The new SEA 06 will instead serve as a focal point for best practices, and develop policies for the larger NAVSEA organization to adopt. The objective, according to Kearney, is to ensure there is commonality in people, parts, and processes.

RADM Lewis, who also attended last year’s GSES, is a strong supporter of the Summit and its processes and overarching objectives, noting that PEO Ships will actively implement the recommendations contained in the GSES V report. He added that PEO Ships attains a lot of value from participating in the Summit and engaging in an open and continual dialogue with industry, shipyards, and suppliers. RADM Lewis understands Navy issues with the help of what he has learned over the course of his career, yet he remains full interested in “getting those other views” on issues/problems that impact shipbuilding. It is an absolute imperative for the Navy to get a much better handle on the total costs of shipbuilding and all of the processes, systems, and pieces that go into that overall calculation, Lewis said. NAVSEA has developed plenty of “bad habits” over the years when budgets were flush and costs were not such a concern. The Navy also has a tendency to rely too heavily on past data and past processes without fully thinking through how time, technology, and insight can change long-established patterns. These habits must stop now, Lewis said, adding, “We need to do this before we go over the abyss. It really forces us to challenge everything we do. We can’t just be stuck on the datasets of the past.”

**Task Statements and Recommendations**

The government and industry leaders who attended GSES IV reached consensus agreement on two specific issues:

1. Where should the use of commercial shipbuilding practices and processes be considered to reduce the cost of future naval ship classes?
2. What existing best practices from international shipbuilding could improve U.S. shipbuilding productivity?

These two general issues, however, generated more than 50 specific recommendations after the conclusion of a subsequent shipbuilding seminar held at MIT in Boston in September 2013. After a GSES working group traveled to the Netherlands in January 2014 to visit Dutch shipyards (Damen Schelde and IHC Merwede), the list of specific recommendations climbed to 66. To better manage this burgeoning list, GSES leaders opted to sort the detailed recommendations into four different issue categories. The four categories were:

1. **Pre-award/Systematic Recommendations:**
   - define requirements and specifications before award
   - develop requirements collaboratively with shipyards
   - establish and open, candid dialogue between government customer and the shipyards
   - establish requirements in alignment with budgets
   - challenge requirements that drive cost

2. **Design and Engineering Recommendations:**
3. Shipyard Operations Recommendations:
- optimize shipyard material flow and assembly processes with simulation technology
- implement digital technology to synchronize operations and supply chains
- incentivize shipyards to invest in productivity
- outsource systems to trusted partners
- order equipment and systems earlier in the process
- incentivize shipyards to focus on life cycle costs, sustainability, and availability

4. Shipyard Operations Recommendations:
- develop metrics that control costs, schedules, and deliveries
- reduce costs of oversight and compliance
- implement strong program management principles
- integrate all operations into the design and production process
- program management continuity is critical to shipyard and Navy

Once the detailed recommendations were grouped into one of the four general categories, GSES IV focus team members were then asked to vote for their top three recommendations in each of the categories. The recommendations that received the most votes in each category were then presented to GSES V attendees. Summit V members were each assigned to one of eight tables, where they were provided the results of the earlier voting and asked to choose the one recommendation that offered the greatest near-term impact on productivity. After making a selection, each table then developed a set of specific steps on how to best implement that issue over the following 12 months.

The specific issue, accompanying action plan for implementation, and objective outcome for each of the eight tables is listed below. Each team also identified one individual to take responsibility for the issue and shepherd the action plan for successful implementation.

**TABLE 1: DEVELOP REQUIREMENTS COLLABORATIVELY**
This group developed five specific steps as part of its 12-18 month action to push this recommendation forward. As a test case, the group identified the TAO (X) Fleet Replenishment Oiler program as a candidate for using this alternative approach to requirements development. The goal was to establish a process, after the conclusion of the Analysis of Alternatives, in which the Navy and shipyards can collaboratively work to define requirements for the ship. Early funding to industry to stimulate innovation and develop cost reduction ideas was considered important. Once the best of these innovations and ideas has been incorporated, the Navy could competitively award a design and build contract to industry. The table selected RDML Lewis, PEO, Ships, to serve as the mentor for this issue.

**TABLE 2: ALIGN REQUIREMENTS WITH BUDGETS**
This team advocated the formation of a stakeholders group that could influence the requirements development process (to include industry, acquisition officials, requirements officers, and budget officials) to establish the charter and goals of this issue. The team would develop a model in which the tradeoffs among requirements, funding, acquisition systems, and technologies could be seen. This smaller model could then be tested before being scaled up for a larger program. The group selected CAPT Norbert Doerry of NAVSEA to serve as mentor for this issue.

**TABLE 3: COMPLETE CONTRACT DESIGN PRIOR TO START OF CONSTRUCTION**
Table 3 advocated for the development of an Integrated Master Schedule that would serve as the engine of the issue. Success here would include instilling discipline to adhere to the Integrated Master Schedule, fixed price contracting, and a stable procurement plan. The group is well aware of outside variables, such as uncertain funding and pressures to “cut steel” and push for a
premature design completion, which can impact success. This group recommended using the Coast Guard’s Offshore Patrol Cutter (OPC) program as a test case. Coast Guard RDML Baffer was chosen to lead this effort.

**TABLE 4: LOWEST COST TO PRODUCE, SUSTAIN, AND MODERNIZE**

This team focused on maximizing ship volume and other internal arrangements to boost modularity and facilitate future upgrades. Detailed commonality standards should be developed before the ship is designed. Candidate programs for testing this idea could be the TAO (X) oiler, the LHA-8 amphibious assault ship, or the LX (R) dock landing ship. The goal over the next year is how to design for cost, producibility, and sustainability using increased volume and modularity. Robert Keane was chosen as the mentor for this issue.

**TABLE 5: INCENTIVIZE SHIPYARDS TO INVEST IN PRODUCTIVITY**

The first step for this group was to conduct a poll of both shipyards and repair yards to determine the areas that shipyards are most interested in improving, and then determine the right mix of incentives for this goal to be achieved. A firm understanding of what constitutes a good return on investment for both the government and the shipyard should also be mutually determined. Developing a menu or “shopping list” of incentives over the following year was the focus. No mentor for this issue was established, but candidates include PEO Ships, SEA04, SEA07, SEA21 or a shipbuilding industrial association.

**TABLE 6: OPTIMIZE MATERIAL FLOW IN SHIPYARDS**

More efficiently managing the flow and use of materials in shipyards is an area that could yield cost savings. This group recommended exploring ways to tie or electronically link shipyard and supplier data systems together. Assessing the use of radio frequency identification (RFID) tagging of materials and parts in shipyards should be explored as part of a pilot project. Assessing the ROI from this pilot project was the goal over the following year. Robert Schiffran of the Center for Naval Shipbuilding Technology was chosen to mentor this issue.

**TABLE 7: INCENTIVIZE SHIPYARDS TO REDUCE COSTS**

Forming a government/industry team to explore issues, identify barriers, and develop a strategy was the goal of this group. Once a strategy is developed a candidate program for experimentation can be identified, followed by the use of a specific list of incentives that can be developed. Clark Orzalli of Dassault Systems was chosen as the mentor for this issue.

**TABLE 8: REDUCE COST OF OVERSIGHT**

Assessing use of commercial practices in shipbuilding, and then comparing oversight metrics between naval and commercial shipbuilders, could yield cost savings. An assessment could discern areas in naval shipbuilding in which oversight could be changed or ended to provide cost savings. A test program would then be initiated to compare the cost of commercial oversight standards versus naval standards on one portion of a construction program. William Pfister, Austal USA, was chosen to lead this effort.

**Next Steps**

Now that the summit has concluded and all of the material generated at the meeting has been assessed, four specific teams have been established to comprehensively pursue implementation of the top recommendations. These are:

1. Collaborative Ship Requirements Development
2. Minimizing Uniqueness—Common Ship Systems
3. Optimizing Material Flow
4. Reducing Oversight in Shipyards

Each of the four teams plans to meet on a monthly basis to review progress and assess whether any changes to their approach are required or necessary. In addition, the four teams will meet on a quarterly basis with their respective issue mentor. A midpoint, face-to-face meeting will take place among the four teams on 9 September, just prior to the ASNE-sponsored Fleet Maintenance and Modernization Conference in Virginia Beach, VA. Results of GSES V will also be shared with leaders attending the Indian Shipbuilding Executive Summit (ISES) in New Delhi on 21 May 2014. The teams will continue to diligently develop and revise their specific issues for the remainder of the year before reporting on their accomplishments and recommendations to GSES VI in February 2015.