

Fleet Maintenance & Modernization Symposium
San Diego, CA
7-8 September 2023

Summary:

The Fleet Maintenance & Modernization Symposium (FMMS) is an annual event that brings together the entire naval ship maintenance and modernization community for an open forum of communications and exchange of technical information on ship maintenance and modernization between the Maritime Services, Fleet Forces Command, NAVSEA, U.S. Coast Guard, U.S. Navy, industry, academia, and deck plate users. The event had notable speakers and panels in the main conference room and a full exhibition hall with 100 exhibitors and an Innovation Theater featuring speakers accompanied with presentations.

NAVSEA Representatives:

Paul Basola

Day 1 Details:

Speaker 1: RAdm Jason Lloyd, NAVSE Chief Engineer. RAdm Lloyd mentioned that the Navy's Additive Manufacturing (AM) Strategy will be released in a few months for industry's consumption. He shared slides on the Navy's fielding of cold spray technology and noted that a second pop-up cell for cold spray as a service was opening this month in San Diego—it is the second cell following the opening of one in Chesapeake VA in June 2021. He cited the recent successes of mobile cold spray that avoided the drydocking of SSN 795 in November 2022 and the USS Essex in April 2023.

NAVSEA 21 Materiel Management. Mssrs. Simon Gray and Howard Tres Felts discussed SEA 21 at the Innovation Theater. One problem the organization is overcoming is the lack of connection between Maintenance and Materiel Data. Improved communication and cleaning of data have significantly improved deliverability metrics for SEA 21. Challenges they face:

1. Finishing availabilities on time
2. Aligning the Defense Industrial Base (DIB) with workload
3. Excessive complexity in contracting and maintenance (e.g. volume and duration of Requests for Contract Change (RCC) are contributing to delays in availability completion)
4. Availability of repair parts GFM, especially for legacy systems
5. Lack of commonality between systems
6. Decision-making that is being pushed up the echelon, rather than down to the waterfront

Panel 1 Future Readiness. The panel moderator, RA Brian Antonio (ret), commented on the need for improved ship maintenance plans, stable funding, and better integration of modernization programs. Mark Edelson, (PEO for Industrial Infrastructure), identified the following as Shipyard Program needs:

1. New Fleet needs to fit in the shipyards but the existing drydocks are too small. Complicating this is that only four construction firms are big enough to handle the size of what is required.
2. Efficiency. Shipyards grew organically and need to be reorganized to reduce distances and walking times. The Shipyard Infrastructure Optimization Plan is tackling this challenge.

3. Quality of service. Poor infrastructure within the shipyards leads to poor quality of service and makes it more challenging to recruit the future workforce.
4. Better use of data to support decision-making

Mr. Edelson stated that AM would be key to getting parts to shops faster. Mr. Steven Mucklow (Executive Director, Commander Surface Naval Forces Pacific Fleet) emphasized that every platform needs a sustainment plan that is properly funded. The panel noted that the COLUMBIA's design has not sufficiently focused on maintenance. Digital transformation will require the right infrastructure as well as data quality. The panel responded to an audience question regarding critical metrics and stated that Days of Maintenance Delay is their primary metric.

Speaker 2: RA William Greene, NAVSEA 21/CNRM. The CNO's call "Get Real, Get Better" is an attempt to change cultural mindsets and encourage problem-solving. In this context, maintenance needs to be treated as a Mission. Maintenance periods are successful with the Commanding Officer and the crew are actively engaged. CNO Availabilities require access to Wi-Fi in order to execute but this is often a problem in the shipyard. Also overlooked is the importance of the Fleet Messing and Berthing Program (aka. Barges) during the availability. Barge sustainment will be fully funded for the first time in FY24.

Technical Track 12: Mr. Daniel Stanley, SEA 05T1. Presented Naval Expeditionary Sustainment and Repair (NESAR) and cited the success of the first Repair Technology Engagement Exercise (REPTX) while explaining how it is different from other technology events. NESAR encompasses four foci: Visualization, Command and Control (C2) Aids, Forward Manufacturing, and Expeditionary Maintenance.

- Visualization effort is being done in conjunction with SERCO. Following technology demonstrations at NSWC Carderock in September, pier side scans will be done in Norfolk in October and at-sea scans will be performed in November.
- Companies developing C2 kits for NAVSEA are TurnAround Factor, Klatt Works, and Persistent Systems. Kits will be fielded in Jan 2024 and be placed onboard for six months.
- SPEE3D Cold Spray is a Submarine Industrial Base (SIB) Moonshot collaborative effort between NAVSEA, PSU ARL, SPEE3D, and SIB. Jeff Campbell is the Cold Spray PM. NAVSEA is building out its pop-up production cells and opened its second site in National City, near San Diego, in August. It was opened 90 days after receiving funding.
- Mr. Stanley provided details of the submarine cold spray repair that RAdm Lloyd mentioned in his opening keynote.
- Mr. Stanley also noted that the REPTX Dive Locker evaluated technologies from companies Sarcos Robotics, Fastorq, Maglogix, and Persistent Systems for use in diver operations.

Panel 2: Technology and Innovation. Panelists noted with frustration that the Agile Software Development Cycle is significantly faster than the contracting cycle. CAPT Scott Tait (ret), as moderator, observed that the war in Ukraine has caused the pendulum to swing back to the defense in the prosecution of future wars.

Keynote Speaker 3: ADM John Richardson (ret). ADM Richardson observed that the Navy is at a strategic inflection point due to technological advances. However, it is falling behind because its processes do not allow for creativity. Contracting is stuck on platform-centric acquisition. The Navy's processes are over-centralized, over-analyzed, and under delegated. Its consensus-based system has brought processes to a crawl. Ships must be software platforms that go to sea.

Day 2 Details:

Keynote Speaker 4. RAdm Yvette Davis, NAVSURF US PAC Fleet. RAdm Davis discussed the Navy's goal for Mission Capable 75 (MC75) and commented that the Navy was 75% of the way to meeting its stipulation of 75 maintenance-ready ships at any time. Resource requirements is an important aspect of MC75's emphasis on Innovation. SURFMEPPS is modeling personnel experience and proficiency in sailor ship assignments.

DDG Update. Mr. Fred Tsao, DDG Ship Design Manager, discussed the recent rapid NDT inspection done on a DDG 51 class ship's flight deck using Gecko UT's magnet-wheeled crawler, which was completed in one day. Gecko's robot was also on display in the exhibit hall.

NavalX & SoCal Tech Bridge Partnership. Mr. Jay Cavalieri, SoCal Naval Tech Bridge Director, shared with the Innovation Theater crowd his efforts to build a "mega" Tech Bridge with numerous commands: Naval Health Research Center, NIWC Pacific, SWRMC, FRCSW, NUWC Keyport, and MCI-West. He highlighted NIWC Pacific leveraging the Tech Bridge to further scale NAVWAR's R&D cloud and DEVSECOPS environment.

Panel 4: Leveraging OTA Consortia. Out of the DoD, the Navy is least at using OTA consortia to acquire technology based on FY19-22 data. The Army leads by a significant margin. The panel plugged MSTIC, which has a membership of 425 companies, 80% of which are non-traditional.

- Each consortium has a list of the technical areas it serves
- Consortium structure allows for increased collaboration between government and companies, as well as between companies. This often results in fine-tuned requirements and improved RFPs.
- The ability to use O&M dollars for OTA is an attractive feature for commands.
- Accelerated Training in Defense Manufacturing (ATDM) Program was established in 2021 in Danville, VA using OTA
- Additive Manufacturing Center of Excellence is using MSTIC OTA for AM projects
- The contracts are with the Consortium managing firm, not with the companies selected for award; consequently, there is no SB credit

Exhibition Hall Highlights:

- MI Technical Solutions—a WOSB that proudly touts its SBIR award for developing AI-driven SCORE application that was successfully demonstrated in Trident Warrior 21 and 22. This led to its TempLAN, Wireless Connectivity Bridge, and Mobile Maintenance Communication Service offerings.
- Frontier Technology Inc. (FTI)—Demonstrated its Fleet Energy Conservation Dashboard for the Navy's Global Energy Information System (GENISYS), which it developed under a SBIR award
- TQI Solutions—a SDVOSB displaying its data modeling, analysis, and governance capabilities
- Blastone—displayed its Vertidrive M7 Robot blasting and cleaning capability
- Gecko Robotics—demonstrated its vertical climbing robot operation that combines with sensors and AI-powered data platform
- EECO—SB supplying shipboard LED lighting, innovative electrical products, and light-weight low-zinc sacrificial anodes
- VRC Metal Systems—SBIR Phase III winner operating cold-spray "pop-up cells" for NAVSEA in Chesapeake VA and National City CA as a new best practice for rapid technology transitions

Photos:



Photo Above: FMMS Exhibit Hall

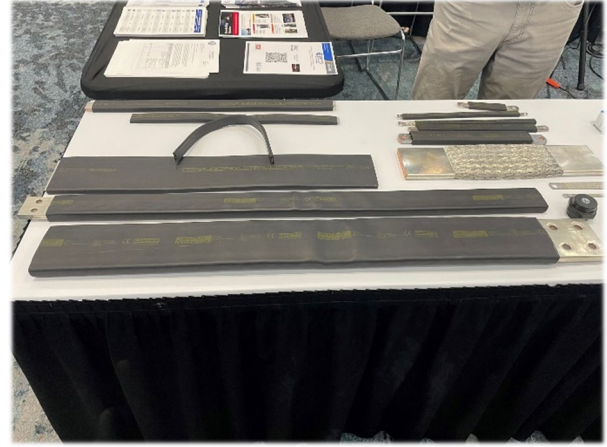


Photo Above: EECO flexible electrical cabling

Photo Below: Gecko Robotics vertical crawler

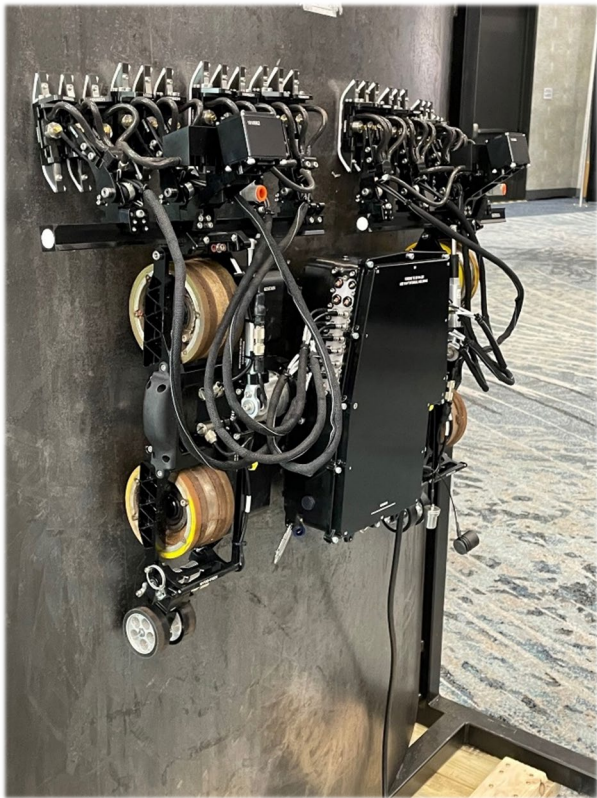


Photo Below: BAC Impalloy Low-Zinc anodes

