Additive Manufacturing, Small Business Collaboration Highlight First Day of Sea-Air-Space 2024

By NAVAIR

Naval Air Systems Command (NAVAIR) kicked off the 2024 Sea-Air-Space Expo on Monday with panel discussions on manned/unmanned and weapon systems advancements, additive manufacturing success stories and collaborative opportunities for small businesses to join with NAVAIR to aid the warfighter.

The first panel was led by Rear Admiral Stephen Tedford, executive officer of the Program Executive Office for Unmanned Aviation and Strike Weapons (see Tuesday's Show Daily for a story on his presentation).

Theodore Gronda, program manager for the NAVAIR Additive Manufacturing (AM) Team, began his panel discussion by highlighting that the AM team was established in order to create parts in small quantities, when needed, to get a grounded aircraft back in service in a faster time than relying on industry partners for supply chain gaps. Additive Manufacturing is the ability to "print" an object based on information fed into a device, much like a 3D printer.

Gronda said NAVAIR began supporting AM developments by separating them into three tiers. Tier 1 AM printers focus on "Commodity Polymers," and is responsible for creating non-critical, smaller items such as knobs, clips and caps. Tier 2 AM printers focus on "Industrial Polymers," including non-critical and critical parts such as tools, covers, brackets and mounts. Tier 3 AM printers are "Industrial Metal" and

create non-critical and critical metal parts including valve bodies, gearboxes, fuel and engine components and manifolds.

One of the newer capabilities Gronda announced was the addition of a “Solid State” cold spray technology, which uses a metal powder to spray and build up or repair a designated item.

Currently, there are 96 AM devices deployed to 33 sites, including deployed aircraft carriers.

A recent victory for the AM team’s capabilities was when they received word that a ship’s optical landing system had failed. There were aircraft aboard the ship that depended upon that critical landing system and were unable to fly. The ship contacted the AM team and they got to work, learning that the damaged part was simply a coupler, no bigger than four quarters. Within 12 hours, the team was able to redesign the coupler, test it, receive approval, and send the coupler data electronically to the ship where it was then printed. As they were about to install the part, the ship received orders to deploy and the repair was put on hold for a few hours to enable the ship to transit to its destination. Once it arrived, the coupler was installed, and aircraft from that ship were deployed to intercept UASs that were targeting allies.

Another victory for the team, several E-6B Mercury customers found themselves in need of fuel cell interconnecting fittings replacements, as the previous vendor for the part went under during the Covid-19 pandemic. The AM team received a call in October, requesting 12 replacements for the fuel cell interconnectors. Within four months, the team was able to produce the parts and get them to the customers.

Gronda stressed that this was just one example of how the pandemic affected the Naval Supply Systems Command (NAVSUP) ability to maintain sustainment capabilities and how the AM

team is rising to meet those areas impacted by supply chain gaps created by the pandemic.

Recognizing the increasing need of AM implementations, Gronda said the Naval Aviation Schoolhouse for Additive Manufacturing was established in February in Danville, Virginia, and will aim to create a pipeline of AM artisans to meet growing AM needs. The Schoolhouse is a collaborative effort with Naval Sea Systems Command (NAVSEA).

Another success story related to the team was the ability to repair tire rim assemblies on F/A-18 Hornets. Gronda said pilots often land hard on carrier decks, causing the landing gear wheel hub to oblong and the tire to shake. If the tire shakes, it is taken off and discarded.

“That tire is wildly expensive,” Gronda said. “There wasn’t an effective way to repair it. We go through 166 of these tires a year and they cost six figures apiece. Eighty percent of those tires are repairable with cold spray technology. It takes me two hours and costs $300. It’s a big deal for us. And what that’s done is taught us to think different. Stuff that we previously thought was not repairable is repairable now with cool spray and our additive manufacturing repair machines.”

Small Business Opportunities

The final panel of the day began with an overview of the NAVAIR Office of Small Business Programs (OSBP) and how collaborations with modestly sized operations can be mutually beneficial.

The panel gave step-by-step guidance in how the team guides prospective partners through meeting with OSBP, specifically directing them to the OSBP website, https://www.navair.navy.mil/osbp/.

Irma Alexander, deputy director for the OSBP, summed up whole purpose attendees were at Sea-Air-Space this week – market

research.

“The government is here to learn about you. You’re here to learn about us, about your competitors, about potential future collaborations,” Alexander said. “But how do you make those decisions? You make them through market research. That’s our common purpose. So, when you go home and you’re tired, think about the motivation you felt this morning, because that’s the motivation you need to go do your homework so you can come see us. Market research is the foundation from where you build your business decisions, where you decide how you’re going to capture that business, and how you’re going to mark it. The good news is we offer a lot of awesome market research resources.”

Navies Face Future Fight in Undersea Defense

Innovation is key to advancing the U.S. Navy’s long-term dominance of the undersea domain. “We need to think about how do we do battlefield innovation … We are focusing on expanding the reach, the depth, and the lethality of our conventionally manned fleet through disruptive and emerging technologies, that includes unmanned systems,” Chief of Naval Operations Admiral Lisa Franchetti said at a recent defense forum.

Through technological innovation including advanced undersea sensing and detection, the U.S. Navy has enjoyed unchallenged dominance of the undersea domain from the Cold War to the present day. This dominance has ensured that maritime highways are open to the vital transportation of goods among nations. Maintaining freedom of navigation in the face of potential

adversaries who are fielding increasingly capable undersea threats is also a defining technical challenge for the Navy and its allies.

Advanced Acoustic Concepts, LLC (AAC) a wholly owned subsidiary of Thales Defense & Security, Inc. (TDSI) headquartered in Hauppauge, New York, is providing the Navy with proven combat systems that address the current undersea warfare challenges of anti-submarine warfare and mine countermeasures (MCM) solutions.

AAC capability is enabling the Navy's surface force to be more effective at hunting enemy submarines with the Combined Active/Passive Towed Array Sonar (CAPTAS)-4. The Navy selected the CAPTAS-4 Variable Depth Sonar system for installation onboard the new Constellation Class Frigates in May 2022. The CAPTAS-4 transmitter provides an unmatched sound source for detecting submarines and larger UUVs at significant distances. In October 2023, TDSI's AAC delivered the first CAPTAS-4 to the FFG-62 program ahead of schedule. The complete manufacturing and assembly of all follow-on CAPTAS-4 systems will take place at a state-of-the-art production facility in Lemont Furnace, Pennsylvania.

CAPTAS-4 manufacturing production is underway.

While identifying undersea threats is crucial in naval operations, it is only one piece in a larger group of needs. Combined data, computing power and artificial intelligence for command and control of an entire operation are all vital for success.

For this reason, AAC offers system integration and sensor signal processing through command-and-control suites such as the Littoral Combat Ship (LCS) Mission Module common compute environment for mine detection and targeting. This portable control station solution offers a real-time data-fused common operational picture of undersea objects of interest,

transmitted from data captured by the Thales Synthetic Aperture Mine Detection Imaging Sonar (SAMDIS).

The SAMDIS underwater solution, being introduced to market by AAC, uses three acoustic beams to accurately identify an object instead of one. Harnessing three acoustic beams allows users to detect undersea objects accurately while determining which are mines faster than current synthetic aperture sonar systems. The mission module combat system processes the ultra-high resolution SAMDIS imagery and uses AI-enhanced Automatic Target Recognition (ATR) software applications to quickly analyze the object and provide leaders with a detailed situational awareness picture for more informed decision-making. To complete this real-time detect-to-engage mission, AAC also offers a mine neutralization capability in the form of a small unmanned underwater vehicle (UUV).

Additionally and to date, TDSI has delivered over 300 Airborne Low Frequency Sonars (AN/AQS-22) to the U.S. Navy for employment onboard the MH-60R helicopters. These dipping sonars provide the MH-60R platform with long-range detection and a wide coverage rate to clear an area of interest or as a complementary anti-submarine warfare asset to sonars onboard surface vessels for target localization and engagement.

ALFS Airborne dipping sonar onboard MH-60R helicopter © Lockheed Martin.

The comprehensive innovative approach Thales has taken in the undersea domain will enable the Navy to detect, understand and eliminate underwater threats in tactically relevant timeframes. By providing a family of sensing and situational awareness capabilities, Thales is enabling the Navy and international security partners together to stay ahead of the worldwide near-term threat.

AI-Powered Drones: A Revolutionary Solution to Navy Corrosion Challenges

Unmanned aerial vehicles have played an important role in combat since the late 1960s, particularly in reconnaissance missions. Today, with the help of AI, small, autonomous drones such as Skydio's sUAS platforms can leverage this reconnaissance capability to combat one of the most stubborn challenges to fleet readiness: corrosion. These smart drones can simplify the detection of this $7 billion dollar annual problem for the U.S. Navy, and also reduce the cost of controlling it.

A Smarter Approach to Predictive Maintenance

Corrosion can be mitigated to some extent, but it can never be eliminated. Furthermore, the rate of corrosion on any given ship on any given mission cannot be accurately predicted. This means that scheduled preventive maintenance often takes place either too early, which wastes money, or too late, which can put the structural integrity of a ship's hull at risk, while giving ships an appearance not reflective of the United States as a world naval power.

In contrast, condition-based maintenance aligned to the most current condition of a hull ensures optimal timing for maintenance. This is where autonomous drones come into play. Visual data gives commanders and naval engineering teams a

corrosion assessment in near-real time, so they can accurately determine the timing and the level of maintenance required for optimized maintenance operations.

The Value of Visual Data

Today, hull inspections are still often conducted by sailors on painter boards. This antiquated approach has three problems. First, it takes crew members away from their primary tasks at a time when many ships are already undermanned. Second, the results of personal observations are conveyed verbally or in written form, and words are limited. The level of detail and the potential urgency could be subject to misinterpretation, depending on the individuals providing and receiving the reports. Third, personal observation is a slow and tedious process.

The visual data drones provide is more precise than words, and is available in near-real time. This speed, convenient for inspections, is crucial during or after kinetic or dynamic events. The AI-powered platform can obtain immediate damage assessments. Detailed visual data can be forwarded to shipyards prior to the ship's arrival, allowing for optimal planning, so resources are properly allocated, aligned and timed; reducing maintenance backlogs and getting ships back to sea faster.

AI-Powered Obstacle Avoidance

Manually flown small drones have a well-earned reputation for being difficult to fly. Skydio's sUAS platforms use AI to deliver new consistency to flight operations, enabling safe, secure, repeatable and reproducible results in anyone's hands. Software-defined obstacle avoidance simplifies and automates pilot operations while reducing training time for the operators to be proficient to fly their missions. More personnel can be trained faster, complex flying missions can be executed and critical infrastructure can be inspected

safely and routinely. Other AI-powered features include automated workflows that produce textured models on the drone in just minutes, with no additional computers or systems needed – and no special training burdens. Machines should aid human team-mates, rather than adding unaccounted for burdens, and the right autonomous drones can do exactly that for ship commanders, sailors, and maintainers, ultimately changing the landscape of naval maintenance.

About Skydio

Founded in 2014, Skydio is the leading US manufacturer of autonomous drones utilizing breakthrough AI. Skydio designs, assembles, and supports its products in the US from its San Mateo, CA headquarters, offering the highest standards of supply chain and manufacturing security.

London Tech Bridge Breaks Down Barriers with New Collaboration Space

WESTMINSTER, London – The United Kingdom-based Tech Bridge hosted a ribbon-cutting ceremony June 13 to celebrate the grand opening of its innovation hub, said Liz Mildenstein of NavalX.

The London Tech Bridge will leverage partnerships with the U.S. Office of Naval Research Global and the Royal Navy Office of the Chief Technology Officer to foster connectivity, agility and innovation. The location will sponsor dialogue, joint investment and cooperative development between the two

navies.

“The opening of the London Tech Bridge’s innovation hub represents a new way for great minds to come together in a unique atmosphere, share ideas and technologies, and foster more effective research collaboration,” said Chief of Naval Research Rear Adm. Lorin Selby. “This joint U.S.-U.K. partnership is critical to advance new ideas and keep our naval forces dominant.

“We’re looking for partners with strong curiosity, a passion for action and a commitment to scientific and technological excellence.”

Initially launched at the end of 2020 during a virtual ceremony, the London Tech Bridge has already made strides in moving the innovation needle.

For example, it played a critical role in the recent APEX underwater Challenge. The London Tech Bridge coordinated and arranged sponsorship for three research grants to teams from the University of Rhode Island in the United States, Robert Gordon University in Scotland and TNO (Netherlands Organisation for Applied Scientific Research) to execute the challenge. These teams helped unmanned underwater vessels sense objects with sonar or optical cameras and communicate what they “saw” to operators.

“The London Tech Bridge does exactly what it says on the tin,” said Rear Adm. James Parkin CBE, cutting the ribbon on behalf of the Royal Navy. “Being in London, right next to the strategic headquarters of our armed forces, and at the heart of this great global city, allows exposure not only to the latest thinking in defense innovation, but provides physical access to those varied organizations and individuals conducting some of the most exciting technological research and development anywhere in the world.

“As such, it’s all about tech – sharing our understanding of

exciting developments in autonomy, materials, platforms, sensors, processing and concepts, and unlocking the Royal Navy's connections to those world leading academic, industrial and public sector organizations in the U.K., towards achieving our common goals.

"And perhaps most importantly, it's a figurative Bridge, one that permits the Royal Navy to reach across the Atlantic into the U.S. Navy, and vice versa, enabling our great nations to join forces in collaborating ever closer, in order to identify the opportunities, and solve the problems, that either or both of us have identified."

The London Tech Bridge's new location will also conduct its initial "Tea and Tech" in June, kicking off a monthly session with industry in specified technology areas. Tea and Tech will allow companies to pitch their ideas and technology to the U.S. and U.K. navies.

The Tech Bridge Network

The Tech Bridge network, powered by NavalX, spans 18 national and international locations. The network is designed to bridge the gap between the Navy and emerging entities like startups, small businesses, academia, nonprofits and private capital that aren't traditionally part of the Navy's development and acquisition process.

Although there is some commonality among them, the Tech Bridges offer unique services and focus areas within their ecosystems, based on the needs of the customers in their respective areas of responsibility. The London Tech Bridge uniquely builds upon the historic relationship between the U.S. and U.K., and seeks innovation and technology in several key focus areas, including artificial intelligence, autonomous systems, directed energy, green energy, advanced manufacturing and maintenance and sustainment.

While the Tech Bridge has defined these focus areas to guide

its work, it remains open to innovative ideas and game-changing technologies; it remains agile and anticipates its focus areas evolving over time. Its U.K. co-director, Royal Navy Commander Laurence Mallinson, emphasized the need for flexibility in the Tech Bridge.

“Having started virtually a year ago, it is great to finally have a place to hold those vital face-to-face meetings and collaboration events. We are right in the heart of one of the world’s most advanced tech centers and so able to bring cutting-edge tech solutions to our navies’ problems,” he said. “We will focus on challenging industry with solving some of the most pressing problems that our navies are trying to resolve, and bring to the attention of our sailors and marines some of the greatest new technologies in the U.K.”

The addition of a physical innovation hub to the London Tech Bridge framework removes the typical meeting barriers of attending events on a military base and allows for the free flow of thoughts and innovation with limited bureaucracy.

Bollinger Delivers 49th Fast Response Cutter to U.S. Coast Guard

U.S. Coast Guard Cutter Douglas Denman. *BOLLINGER SHIPYARDS*

LOCKPORT, La. – Bollinger Shipyards LLC has delivered the USCGC Douglas Denman to the U.S. Coast Guard in Key West, Florida. This is the 175th vessel Bollinger has delivered to the U.S. Coast Guard over a 35-year period and the 49th Fast

Response Cutter delivered under the current program.

“I could not be more proud of the over 650 men and women of the Bollinger team that built the USCGC Douglas Denman,” said Bollinger President & CEO Ben Bordelon. “Pound for pound, the quality and capabilities of the FRC platform is unmatched and can be looked upon as a model government acquisition program. We look forward to continuing to support the U.S. Coast Guard for decades to come.”

The USCGC Denman will travel to Alaska where it will be commissioned on September 28 in its new homeport of Ketchikan, in the 17th District of the Coast Guard. Once there, it will serve and safeguard the public, protect the environment and its resources, and defend the nation’s interests in the Alaskan maritime region. The 17th District encompasses over 3,853,500 square miles and over 47,300 miles of shoreline throughout Alaska and the Arctic.

Each FRC is named for an enlisted Coast Guard hero who distinguished themselves in the line of duty.

Douglas Denman joined the Coast Guard at the age of 18. Showing promise as a boat driver, he was sent to New Orleans to train at Higgins Industries, builder of the U.S. military’s first operational landing craft. Denman was assigned to the Number 4 landing craft aboard the USS Colhoun as coxswain. After landing Marine Raiders at Tulagi Island in August 1942, the Colhoun patrolled, delivered provisions and war material to the Marine 1st Division on Guadalcanal Island. During patrols Japanese bombers attacked the Colhoun, with the bombers destroying Denman’s Higgins Boat.

Denman received severe facial wounds as he was thrown up against a bulkhead. Denman remained onboard as he and a shipmate carried wounded comrades to the ship’s bow and floated them clear of the sinking ship. He and his shipmate gathered dozens of life jackets and threw them to victims

struggling to stay afloat in the oily water. Denman managed to jump off the vessel before the ship slid below the surface. Denman saved many lives while risking his own. Denman survived along with 100 of Colhoun's original crew of 150 officers and men.

For his wounds and heroism in the face of great danger, Denman received the Silver Star and Purple Heart medals.

Navy Awards General Dynamics Electric Boat $313.9 Million for Columbia-Class Submarine Work

An artist's rendering of the future Columbia-class ballistic missile submarines. *U.S. NAVY*

GROTON, Conn. – General Dynamics Electric Boat, a business unit of General Dynamics, has been awarded a modification to the previously awarded Columbia Integrated Product and Process Contract by the Naval Sea Systems Command, the company said May 19. The modification has a total value of $313.9 million.

The contract modification will support submarine industrial base development and expansion for the construction of the Columbia-class fleet ballistic missile submarines as well as additional support for the manufacturing, procurement and delivery efforts for United Kingdom Strategic Weapon Support System kits.

“Ballistic-missile submarines are the critical, survivable leg of our nation’s nuclear arsenal and Columbia is the Navy’s top acquisition priority,” said Kevin Graney, president of General Dynamics Electric Boat. “We are grateful for the steadfast trust and support the Navy and Congress have in Electric Boat as we continue the work we began 15 years ago to deliver Columbia and the next 60 years of deterrence for our nation.”

Electric Boat will continue to work with its vendors and subcontractors to optimize efforts to ramp up production capability and support the increased demand associated with the Columbia program.

At 560 feet long with a displacement of nearly 21,000 tons, the submarines of the Columbia class will be the largest ever built by the United States. The Columbia will have a fuel core that will power the submarine for its entire service life, eliminating the need for a mid-service refueling and increasing the time the ship can spend on deployment. Electric Boat will deliver the lead ship to the Navy in 2027.

Revolutionizing Navy’s Sustainment with a Single Digital Thread

Mike Lyden, Rear Admiral (Ret), Supply Corps, United States Navy

Within a Naval career spanning 33 years, Mike Lyden served as Commander, Naval Supply Systems Command and 45th Chief of the US Navy Supply Corps from 2008 to July 2011 where he retired

as a Rear Admiral. Mike later served as the first General Manager of the NATO Support and Procurement Agency.

Organizations with long standing “stove-piped” information technology solutions with decentralized governance are at a disadvantage in creating a single, interconnected, strategic scale and sustainable end-to-end digital sustainment solution necessary to achieve critical business requirements and true cost-wise data analytics. Navy is at a threshold where true integration of supply, maintenance and finance is possible and vitally necessary to achieve desired readiness gains through optimized investment and fully visible execution.

BACKGROUND

Navy is the only Service that separates supply and maintenance authorities and functions among different Systems Commands (SYSCOMs) and the Fleet. Achieving true end to end integration and data integrity is near impossible in this environment. While trying to do the right thing, everyone is pursuing their own end state. According to the DON’s 2020-2023 Business Operations Plan, “Leaders at every level across Navy are urgently partnering with key stakeholders, gleaning best practices from private and public sectors, and monitoring impact and performance to share lessons learned to integrate combat and support operations. However, *without overall coherence and coordination, great ideas often become siloed while others languish.”*

Multiple systems and databases, without overarching executive governance and end-to-end decision making, have diluted data integrity and slowed the comprehensive data analytics necessary to make definitive gains in readiness and reductions in overall cost. To a large extent the various communities and organizations in supply and maintenance continue to replicate previous “As-Is” processes in their COTS or newly developed software acquisitions.

This was particularly true in the implementation of Navy Enterprise Resource Planning (NERP) over the last decade. This led to underutilization of standard functionality, extensive customization, suboptimization, and a consistent inability to leverage and institutionalize best business practices.

However, with NERP, Navy has established a strong enterprise business backbone with single financial and wholesale supply systems. Together they can serve as a foundation to fully integrate supply and maintenance to finally maximize readiness dollars and outcomes.

True interconnectivity of sustainment, including integration and data integrity across supply and maintenance, cannot be effectively achieved by knitting together disparate systems for supply and maintenance. The out-year costs remain too high to perpetuate existing systems into the future. Fortuitously, *the vice chief of naval operations' (VCNO) current Naval Sustainment System (NSS) architecture addresses long-standing supply and maintenance stovepipes to create a true end-to-end environment that delivers the common goal of readiness.* The Navy will have to be bold and directive to achieve true maintenance and supply integration.

THERE IS A BETTER WAY

Navy's financial leadership embraced a single financial architecture on NERP as the foundation of its effort to achieve significant progress toward audit readiness and meet Financial Improvement and Audit Readiness (FIAR) requirements. The same strategy could be extended for supply and maintenance integration.

Leveraging the NSS architecture along with the existing NERP business backbone, now supercharged on SAP HANA and the Cloud, can bring true end-to-end process control to the supply and maintenance environment with very strong linkages to finance. To achieve this Navy leadership must become more directive in

terms of adherence to common processes and systems to breakdown long standing stovepipes.

Further, there must be recognition that Navy's supply and maintenance process are not so unique compared to the commercial world and therefore should not require an extensive portfolio of disparate systems, databases and analytics, or force extensive and expensive customization of NERP.

Exploiting the existing capability in NERP, augmented with a technical upgrade into the SAP S/4HANA environment, can deliver the systems capability to support a fully interconnected supply and maintenance end state vision and establish the systems backbone to support the objectives of NSS.

The integration of supply and maintenance in NERP allows the realization of the digital thread necessary for the ubiquitous capture, access and use of data across supply and maintenance. An integrated solution allows: better demand forecasting, obligation of funds using a readiness-based paradigm that takes advantage of Navy-wide inventory visibility, and automated prioritization of fleet purchase requests.

It is this single digital thread that can revolutionize Navy's sustainment and achieve desired readiness.

IT CAN BE DONE

The Navy currently runs finance and wholesale supply operations in Navy ERP on HANA within the National Security Services (NS2) Cloud. Planning, procurement, and other core functions are run as separate applications. Maintenance, from the field to depot level, is outside NERP altogether. To execute the complete sustainment processes, data is moved across multiple applications within a complex landscape with multiple views.

SAP has embedded several applications within S/4HANA, the next

upgrade of its product. This unifies applications such as Advanced Planning and Optimization (APO), Advanced Available to Promise (AATP), Extended Warehouse Management (EWM), and Transportation Management (TM) into a single system, supported by a single database. Organizations that migrate to S/4HANA minimize siloed operations, get a powerful engine for analytics, and realize significantly increased functionality within the core solution.

Two industry examples bring perspective to the opportunities provided by this path:

Work at Newport News Shipbuilding (NNS), a subsidiary of Huntington Ingalls Industries, includes design and construction of aircraft carriers and submarines. In an enterprise like this, world-class software isn’t a consideration; it’s imperative. NNS previously ran SAP’s ERP Central Component (SAP ECC) system similar to the current Navy ERP program. NNS successfully migrated 22 years of data effectively and error-free to SAP’s S/4HANA system. Upon implementation, they realized improvements across multiple operational domains.

Airbus Defence and Space SE, a division of Airbus, faces changing market expectations, competition, and program and supply chain risks. Due to mergers and restructuring, they had accumulated three major ERP systems running siloed processes with limited data transparency across the business.

With their Finance Vision 2.0 they created one central finance community across the business, underpinned by lean processes and efficient systems. The company implemented the SAP S/4HANA solution for central finance. Critical data such as sales forecasts and project cash flows are now available instantly, and planning processes are now quicker and more agile. With a single authoritative source for all data feeds, they operate from real-time insights.

With a clear vision and focused executive direction, it can be done: a single, interconnected, strategic scale and sustainable end-to-end digital sustainment solution fully integrated with finance.

SAP has enjoyed an extensive relationship supporting multiple Defense Departments and Ministries across the globe as they modernize and improve their asset management and mission readiness capabilities.

See SAP technology in action by visiting the Synchronized Planning for Defense video series, found here.