‘All of Our Programs Are a Mess,’ SECNAV Said of Shipbuilding

By Richard R. Burgess, Senior Editor

ARLINGTON, Va. — The Secretary of the Navy (SECNAV) told Congress that many major shipbuilding and other programs are behind schedule and above planned cost, and he is looking for possible long-term solutions to correct the situation and rebuild readiness for the challenges of the future.

“All of our programs are a mess, to be honest,” said Navy Secretary John C. Phelan, who was testifying June 11 on Capitol Hill before the House Armed Services Committee along with Chief of Naval Operations James W. Philby and General Eric M. Smith, commandant of the Marine Corps.

“We are behind schedule, over budget,” Phelan said. “Our best-

performing one [program] is six months late and 57% over budget. … So, we are working very hard to get these fixed. The Navy has begun to make some rapid changes at the public shipyards, and we've been talking with Electric Boat and Huntington Ingalls [HII]."

Of particular concern to the SECNAV are the Columbia-class ballistic-missile submarines and Virginia-class submarines, both classes of which are behind schedule.

Schedule and cost issues also plague the Constellation-class frigate program, and some Arleigh Burke-class guided-missile destroyers are behind schedule. Many amphibious warfare ships are in poor condition, Navy officials said.

"The United States Navy and Marine Corps are prepared and ready to fight and win, anytime and anywhere," Phelan said. "However, our naval superiority is under threat. For too long we have allowed our shipbuilding industry to erode, hollowing out the very capacity we need to maintain credible naval deterrence. That must change."

Phelan said he has had conversations with shipbuilders in South Korea, noting that a modern guided-missile destroyer built in South Korea – "10 5 bigger than ours" – cost one third that of its U.S. counterpart.

He said that rebuilding the maritime industrial base is a "national security imperative."

Marines for Los Angeles

Trained in Crowd Control, Commandant Said

By Richard R. Burgess, Senior Editor

ARLINGTON, Va. – The Marines in the regiment being surged to protect federal buildings and personnel in Los Angeles are trained in crowd control, the commandant of the Marine Corps told Congress.

"All Marines are trained in crowd control, embassy

reinforcement, etc., so this is part of their training, sir," said General Eric M. Smith, commandant of the Marine Corps, testifying June 10 on Capitol Hill before the Senate Armed Services Committee. "The standard Marine expeditionary unit — before they deploy — is trained, and this battalion is ready for that."

Smith was responding to questions from Sen. Richard Blumenthal, D-Connecticut, about the imminent deployment of Marines to Los Angeles in response to recent rioting from people protesting the enforcement actions of Immigration and Customs Enforcement (ICE) personnel in the city.

The 700 Marines assigned to Los Angeles are from the 2nd Battalion, 7th Marine Regiment, 1st Marine Division, based at the Marine Air-Ground Combat Training Center at Twentynine Palms, California.

The Marines were activated on June 9 by U.S. Northern Command.

"The activation of the Marines is intended to provide Task Force 51 with adequate numbers of forces to provide continuous coverage of the area in support of the lead federal agency," NORTHCOM said in a June 9 release. "Task Force 51 is U.S. Army North's Contingency Command Post, which provides a rapidly deployable capability to partner with civil authorities and DoD entities in response to a Homeland Defense and Homeland Security Operations. It is commanded by Maj. Gen. Scott M. Sherman."

Task Force 51, which includes up to 2,100 personnel from the California National Guard, is has been trained "in de-escalation, crowd control, and standing rules for the use of force," the NORTHCOM release said.

"They are there at the SECEDEF's [Secretary of Defense's] direction to NORTHCOM [U.S. Northern Command]," Smith of the Marines in response to a question from Sen. Mike Rounds, R-

South Dakota. “It’s one of our most ready battalions. They’re prepared to respond to lawful orders from the chain of command. They’re there to protect federal property and federal officers.

Blumenthal asked about the equipment the Marines would have in Los Angeles and if the Marines would have arrest authority.

“Sir, they have shields and batons,” Smith said. “They need not have arrest authority. They are there to protect federal property and federal personnel.”

When Blumenthal expressed concern for the reputation of the Marines thrust into a civil disturbance, Smith replied, “I am not concerned. I have great faith in my Marines and their junior leaders and their more senior leaders to execute the lawful tasks that they are given.”

Navy Selects Mobile, Ala., Company to Scrap World’s First Nuclear-Powered Aircraft Carrier

The nuclear-powered aircraft carrier ex-USS Enterprise is shown being moved to Newport News Shipbuilding in 2013 following its decommissioning in 2012. (NHHC)

By Richard R. Burgess, Senior Editor

ARLINGTON, Va. – The U.S. Navy has selected NorthStar Maritime Dismantlement Services LLC, a company with facilities in Mobile, Alabama, to scrap the former USS Enterprise (CVN 65), the Navy's – and the world's – first nuclear-powered aircraft carrier.

The Defense Department said in a May 30 contract announcement that NorthStar, headquartered in Vernon, Vermont, was being awarded a $536.7 million firm-fixed-price contract from the Naval Sea Systems Command for "the dismantling, recycling, and disposal of Ex-Enterprise (CVN 65).

"Under this contract CVN 65 will be dismantled in its entirety, and all resulting materials will be properly recycled or disposed of. Specifically, hazardous materials, including low-level radioactive waste, will be packaged and safely transported for disposal at authorized licensed sites,"

the announcement said. “Work will be performed in Mobile, Alabama, and is expected to be completed by November 2029.”

The Ex-Enterprise, commissioned in 1961, served the nation in numerous crises and conflicts, including the Cuban Missile Crisis, Vietnam War, and Operations Frequent Wind, Earnest Will, Desert Fox, Southern Watch, Enduring Freedom, and Iraqi Freedom.

The carrier was deactivated in December 2012 and, when its nuclear reactors were defueled, it was decommissioned in February 2017. The hull remained at Newport News Shipbuilding at Newport News, Virginia, awaiting the Navy’s plans for disposal.

“NorthStar is partnered with Modern American Recycling and Radiological Services, LLC (MARRS) in Mobile, Alabama, where the dismantlement work will take place,” the Naval Sea Systems Command said in a June 2 release posted on linkedin.com. “Waste Control Specialists LLC, of Andrews, Texas, will serve as the licensed facility for disposal of low-level radiological and mixed hazardous waste. Non-hazardous materials will be recycled or disposed of in accordance with all applicable federal, state, and local regulations.”

The Navy’s selection of a commercial company to dismantle nuclear-powered ship is a change from its normal practice of scrapping nuclear-powered ships, which heretofore included nuclear-powered submarines and cruisers. In recent years, the Navy’s Puget Sound Naval Shipyard in Bremerton, Washington, has been the facility that has handled the tasks.

“By leveraging private-sector expertise in commercial nuclear power plant decommissioning, the Navy is achieving an estimated $1 billion in cost savings compared to conducting the effort in public shipyards, the Navy release said. “This approach enables the Navy to prioritize public yard resources toward fleet readiness and modernization – while upholding its

longstanding commitment to environmental stewardship and nuclear safety.”

Navy Reserve Chief Looks Forward to KC-130J Aircraft

MISAWA, Japan (July 12, 2021) A C-130T Hercules, assigned to the Condors of Fleet Logistics Support Squadron (VR) 64, recovers at Naval Air Facility (NAF) Misawa. (U.S. Navy photo by Mass Communication Specialist 3rd Class Benjamin Ringers)
By Richard R. Burgess, Senior Editor

ARLINGTON, Va. — The admiral in charge of the U.S. Navy Reserve Force expressed appreciation for congressional support in procuring KC-130J Super Hercules tanker/transport aircraft to modernize the force’s organic airlift fleet.

“We are grateful for the strong bi-partisan alignment on this priority,” said Rear Admiral Nancy S. Lacore, chief of Navy Reserve, testifying May 20 before the House Appropriations Committee’s defense subcommittee. “We are grateful for the adds we got in 2024 [and] 2025 for the C-130. The C-130 is our number one equipment priority, and we are behind in that re-capitalization effort.”

The Navy Reserve operates 27 C-130T/KC-130T Hercules aircraft with an average age of 34 years and a mission-capable rate of 40%. Lacore anticipates a mission-capable rate of 75% with a fleet of KC-130Js.

We’re also anticipating a 75% mission-capable rate, which will go a long way,” Lacore said. “The plan was to be at 32 aircraft by 2030. We got one in 2024, two in 2025 and we’re super-grateful for them. Right now, in the out years, we need to be looking at six per year in order to get us to where we need to go.”

Lacore said the C-130T Hercules “operates exclusively by the Reserve is the Navy’s only long-range, inter-theater airlift for oversize cargo. Its capability is in high demand from fleet commanders, particularly in the Indo-Pacific, playing a critical role in the contested logistics necessary to sustain a maritime fight.

“For the past few months, Reserve C-130 crews have transported thousands of pounds of ordnance into the Red Sea fight, keeping our ships on station intercepting Houthi missiles, conduction precision strikes, and safeguarding global commerce,” she said. “When the fleet needs logistics, whether to deliver firepower or staying power, Navy Reserve answers the call.”

She pointed out that the C-130T fleet “lacks the survivability necessary to operating in a contested environment. Recapitalizing with the KC-130J is critical to ensuring that

we effectively and safely carry out the critical inter-theater logistics mission for the fleet in 2027 and well beyond that."

Lacore also noted the need for improved aerial refueling capability in the Pacific theater.

"The PACFLT [U.S. Pacific Fleet] commander has already asked us to work on organic aerial refueling and we are doing that with the Tangos [KC-130Ts]," she said. "It's a long haul; they're not all plumbed for that, whereas the Juliets [KC-130Js] will come with that plumbing already established. We anticipate that at least two times the aerial refueling rate. And if we include ground refueling as well, we're looking at probably eight times our refueling capability in theater, which is a huge win for us in the Pacific.

Coast Guard to Reduce Flag Officer Positions by 25%

By Richard R. Burgess, Senior Editor

ARLINGTON, Va. — The U.S. Coast Guard has been ordered to reduce the number of admirals by at least 25% before next year, the service announced.

In a May 25 directive from Acting Commandant Adm. Kevin Lunday, the service announced that the reductions were part of its Force Design 2028 initiative.

"As part of Force Design 2028, the Secretary of the Department of Homeland Security has determined that there is redundant executive oversight in our force structure which hinders

efficient decision making and Service effectiveness," The opening statement of the announcement said.

"As a result, and consistent with similar efforts within the Department of Defense, the Secretary has ordered a reduction of no less than 25% of flag officer positions by 1 January 2026," the announcement said. "The positions to be eliminated and the plan to reorganize the flag corps will be announced in separate correspondence."

The Coast Guard currently has approximately 45 flag officers.

The service also has negated the results of its fiscal 2025 promotion board for the rank of rear admiral (lower Half) while folding opportunity in next year's selection board.

"The Secretary also disapproved the Promotion Year (PY) 2025 rear admiral (lower half) (RDML) selection board report after determining that the guidance to that board did not align with this Administration's policies," the announcement said. "The Secretary's action also supports planning to reorganize the leadership structure. Officers who were considered by the PY25 RDML selection board and who are otherwise eligible, including those previously selected, will be considered by the PY26 RDML selection board that will convene under new guidance."

Virtual Tools Help Real-World

Suicide Prevention Efforts

A Sailor assigned to Mid-Atlantic Regional Maintenance Center tests the Oculus headset utilized for sexual assault prevention and suicide prevention virtual reality training onboard Naval Station Norfolk, November 14, 2024. *Photo credit: U.S. Navy | Harrison Cox*

Veterans, service members and military family members have significantly higher rates of suicide than the general population. The demands of military life can cause anxiety, depression, interpersonal conflicts and emotional distress. Exposure to combat and traumatic experiences can lead to post-traumatic stress disorder and other mental health issues; chronic pain and disability from service-related injuries can worsen these challenges. Access to and familiarity with weapons increases the risk.

Reducing the risk of suicide among service members and their families is the chief mission of the Defense Suicide

Prevention Office, a division of the U.S. Department of Defense. It works with military branches, veterans' organizations and mental health professionals to enhance suicide prevention resources. As part of its mission, it is constantly exploring new technology to support or expand existing programs.

Emerging technologies show great promise in the mission to reduce suicides among active-duty forces and veterans. Artificial intelligence, machine learning and advanced algorithms can help identify high-risk individuals and connect them with early intervention resources. Virtual reality technology is enhancing suicide prevention training, while VR-based therapy and online gaming provide veterans with tools to cope with PTSD and foster community engagement.

Early intervention aims to identify service members and veterans who are experiencing an elevated risk of suicide and proactively connect them with prevention resources. AI-powered algorithms can help improve early intervention efforts. These programs can analyze an individual's speech patterns, social media activity and biometric data to detect warning signs of suicidal thoughts.

One example is the Recovery Engagement and Coordination for Health – Veterans Enhanced Treatment, or REACH VET, program used by the Department of Veterans Affairs. It uses predictive analytics to identify at-risk veterans and offer early intervention before a crisis occurs.

REACH VET uses sophisticated AI and machine learning techniques to review and assess a veteran's medical history, psychiatric records and prescriptions. It also considers nontraditional indicators such as chronic pain diagnoses, sleep disorders and major life stressors. The system then runs complex statistical models, evaluating each individual's data and flagging those whose health patterns resemble others who have attempted or died by suicide.

If the system identifies an individual as high-risk, a VA healthcare provider contacts them for a wellness check and assessment. To mitigate risk, the provider offers personalized care plans, therapy sessions, medication adjustments and peer support programs. Studies show veterans enrolled in REACH VET experience lower hospitalization rates and improved mental health engagement, a point in favor of proactive, data-driven intervention.

Programs like REACH VET may see additional improvement by integrating data from wearable devices like smartwatches and fitness trackers. These devices monitor sleep patterns, heart rate variability and stress levels. Incorporating this data could offer another layer of early detection and support, alerting caregivers or medical professionals if a veteran's vitals indicate distress or elevated risk.

Real actors portray Sailors in realistic environments to allow trainees to have significant conversations. *Image credit: Moth + Flame*

VR Tech and Suicide Prevention Training

Traditional suicide prevention training is derisively and ironically referred to as "death by PowerPoint." These boring

presentations convey information about available resources but do little to help service members learn what to actually do to help a friend, comrade or family member in crisis.

New York City-based Moth+Flame, a leading developer of immersive VR training solutions, partners with the U.S. Navy and other military branches to provide state-of-the-art training programs. Although it offers many types of interactive simulations, one area of focus is suicide prevention. It provides customized training modules for each branch of service, addressing their specific environmental stressors.

Its VR training encompasses many suicide prevention strategies, including leadership development, crisis response and mental resilience. Officers can improve their ability to foster a better atmosphere for everyone's mental well-being as well as learn how to support individuals in crisis.

Unlike traditional classroom-based training, VR immerses service members in lifelike conversations where they must recognize distress signals, respond to struggling comrades and practice de-escalation techniques. Participants engage with AI-driven, emotionally responsive avatars in realistic, high-pressure scenarios. The avatars are based on real actors, which the Navy helps select to make sure they look, sound and interact as authentically and realistically as possible.

These scenarios simulate interactions with colleagues, subordinates and family members. Using VR technology, participants can rehearse difficult conversations, building their empathy and confidence in handling real-life crisis situations. As the participant responds, the program provides real-time feedback and suggestions. It also provides post-session feedback and analysis.

"So, in this goggle is a character that is a peer in crisis that the shipmate has to talk to using his or her own voice. …

They will have a practical application that they guide hopefully to a successful outcome," said Matt Frost, an account executive for Moth+Flame, speaking at the Surface Navy Association meeting in January. "We're not making a video game. This is a real actor in a real environment."

The biggest users of the technology in the Navy are OPNAV N-17, the Navy Culture and Force Resilience Office; Naval Surface Force, U.S. Pacific Fleet; Naval Surface Force Atlantic; and Naval Special Warfare Command, Frost said.

Studies show that VR-based training improves knowledge retention and engagement compared to PowerPoint-based instruction. Trainees must actively interact with avatars, ensuring a hands-on learning experience. Early reports suggest that VR enhances readiness and significantly boosts confidence in suicide prevention efforts among active-duty service members.

Improving Mental, Physical Wellness

Virtual reality therapy is also transforming mental health care for service members and veterans. It is especially beneficial because it offers a customizable, controlled environment to help process PTSD, anxiety and depression.

A leading program is Bravemind, which was developed in collaboration with the VA Innovation Center and the SoldierStrong charitable organization. It uses VR to facilitate prolonged exposure therapy, a treatment that helps individuals confront and reprocess traumatic memories in a safe setting.

Bravemind creates virtual environments based on real-world combat settings, allowing therapists to guide individuals through difficult memories while helping them develop coping mechanisms. Though exposure therapy is challenging, it has been proven effective in reducing PTSD symptoms and improving emotional resilience.

In addition to structured therapeutic uses, VR can help service members manage stress during long deployments or offshore missions. VR relaxation programs can transport users to peaceful, calming environments, such as beaches, forests or familiar cities to help manage anxiety and promote well-being. Providing these tools to active-duty service members can help improve their overall health and wellness, another building block in fostering readiness and reducing psychological distress.

Legalman1st Class Alejandra Lozada, assigned to Commander, Naval Surface Force Atlantic, dons virtual reality equipment to complete training at SURFLANT, Aug. 6, 2024. *U.S. Navy | Mass Communication Specialist 1st Class Sophie A. Pinkham*

Gaming the (Mental Health) System

First-person shooter video games can be unexpectedly helpful for individuals coping with PTSD. Hyperrealistic games like

Call of Duty, Battlefield and Escape from Tarkov allow combat veterans to experience combat-like scenarios in a safe, controlled manner, which can help them process trauma and manage stress.

These games can help players regain a sense of control and desensitization to triggers. They can also induce an adrenaline rush similar to real-life combat, allowing players to practice self-regulation in high-stress situations without real-world consequences.

However, there is another surprising benefit to FPS games, one that has nothing to do with their technological wizardry but is likely far more powerful. Service members and veterans often struggle with isolation and loneliness, feelings that sharply increase suicide risk. They may be reluctant to seek therapy or discuss their issues with their command, family members or real-world friends. Online gaming communities can provide crucial support in ways traditional resources can’t, reaching individuals who slip through the cracks of conventional support systems.

Multiplayer gaming fosters teamwork, communication and camaraderie, mirroring the bond of military units. Organizations like MilitaryGamers.com, Stack Up and Warfighter Engaged provide gaming communities centered around service members and veterans. Twitch streamer GrndPa Gamer, a veteran himself, has built a supportive online community where service members and fellow veterans can share experiences, find camaraderie and use gaming as a mental health tool.

As technology advances, VR therapy, AI-powered analytics and other developments will continue to change the landscape of suicide prevention efforts. The integration of biometric tracking, real-time clinical feedback and AI-driven therapy solutions has the potential to make suicide prevention efforts even more effective. By combining cutting-edge technology with compassionate care and community involvement, the military and

veteran support organizations can provide life-saving resources and a path toward better mental health.

Jamie L. Pfeiffer was a lawyer in Illinois, Oregon and Washington states before retiring. She is currently based in Chicago. This story first appeared in the May issue of Seapower *magazine.*

DIU Is Vehicle for Boosting Navy Technology

A team of Department of Defense drone operators and experts test the technical capabilities of various uncrewed aerial systems during a Defense Innovation Unit led prize challenge to identify platforms, components, and capabilities for Blue

UAS, which clears and validates flying platforms are safe to fly, cyber-secure, and meet DOD requirements, at Marine Corps Air Ground Combat Center, Twentynine Palms, California, on Nov. 2-6, 2024. *Photo credit: DIU | Devon Bistarkey*

As the U.S. Navy and Department of Defense race to develop more innovative offensive and defensive capabilities to deter China and other adversaries, most agree that greater engagement with the private technology sector is needed.

That's in part the impetus behind the Replicator initiative, a DoD effort started in 2023 to speed adoption of commercial military and national security technology, particularly lower-cost uncrewed capabilities. This is also key to realizing the goals of the new 2024 Navigation Plan, released in September by Admiral Lisa M. Franchetti, then the 33rd chief of naval operations. The plan focuses on faster integration of robotics and autonomous resources.

Enter the Defense Innovation Unit, a once "experimental" DoD office that in 10 years has become a central player in the Pentagon's push to adopt and scale commercial technology for military applications.

Since its start in 2015, the office has pioneered deep relationships with Silicon Valley and the tech sector nationwide and a process for quickly prototyping military applications of commercial technologies. This has led to 450 prototype contracts and $68 billion in private investment, according to DIU's fiscal 2023 annual report. These investments translated into 62 contracts for commercial solution transitions to the warfighter, the DIU report says.

Although DIU is a small office, with a fiscal 2024 budget of $983 million (compared to the nearly $875 billion in annual authorized defense spending), its influence is growing and getting attention. In 2023, the Pentagon elevated DIU in the organization chart to report directly to the office of the defense secretary. Now, DIU Director Douglas A. Beck serves on

or provides leadership and staff support to various entities driving Pentagon innovation, including the Deputy's Innovation Steering Group and Defense Innovation Working Group, both of which have oversight roles in implementing Replicator.

This puts "DIU at the forefront to deliver future capabilities at speed and scale," Beck said in Feb. 15, 2024, testimony before the House Armed Services Committee.

DIU-Navy Collaboration

To learn more about how DIU works with the Navy to bring about innovation, Seapower spoke late last year with Alex Campbell, a highly decorated Navy captain who is director of the Maritime portfolio at DIU. Campbell, who has a master's degree in business administration from Georgetown University, is a designated officer in explosive ordnance disposal, diving and salvage, and surface warfare and a naval parachutist. He supported the conflicts in Iraq, Afghanistan and others around the globe and, throughout his career, earned multiple service and campaign awards.

Campbell is also experienced in defense procurement. He ran the counter weapons of mass destruction portfolio for Special Operations Command and programs to build uncrewed, underwater systems and software. At DIU, Campbell connects Navy and combatant commanders with commercial firms to address complex military maritime needs.

The condensed and edited discussion follows.

How does DIU leverage relationships with the tech sector to develop solutions for the military?

DIU has this really unique, within the DoD, understanding of the commercial technology space. A really important part of DIU is our commercial operations team, and they essentially live, eat and breath where investment is happening in the commercial tech space and the defense tech space and also

live, eat and breathe where these early and midstage startup companies are and [where] even more mature companies [are]. They have what I would call a real-time market survey, so that when we work through these problems of a service or combatant command, we're able to then pair them with certain parts of the commercial tech sector or the defense tech sector [to develop needed capabilities].

What's one example of a Navy-DIU partnership?

Project Overmatch is an important partner with DIU and has been for the last two or three years. And they have a remit to build basically a modernized tactical communications grid across ships and aircraft and in the joint world … to bring forth the best in [artificial intelligence] and autonomy capabilities for these tactical use cases, which makes them a great partner for DIU. [This is essentially to] do digital transformation for ships, submarines and aircraft, [which is] really, really, really difficult.

Why is this transformation so challenging?

Because you have all of these weapons systems [on a destroyer] — whether it's radars or missile systems or torpedoes or electronic warfare systems — and they all generate just terabytes and terabytes of data in any given day. And there's a lot of room to improve essentially saving that data and finding a way to get that data into a cloud repository so that both government engineers and commercial companies can access that data so that they can build software capabilities that improve a warfighter's ability to do their job. You really can't create AI capability if you can't find a meaningful way to bring in all of the data that these Navy platforms generate on the day to day.

What is the fundamental importance of data in building naval autonomy, whether on a drone boat or on a destroyer?

If I have a drone boat and it's driving through the ocean and

it encounters some big tanker on the ocean, it needs to be able to ingest data from a camera or from a radar system. It needs to know where that tanker is out in front of it, and it needs to know, “Hey, I have to turn left or I’m going to crash into the tanker.”

It may sound like a very simple example, but you have to collect data over hundreds and hundreds of hours of running these drone boats out in the ocean in order to essentially have examples to train algorithms so that they know … whatever it is they need to do. This must all be in accordance with Coast Guard regulations for how a boat would behave if a human were driving it. And so, on the autonomous-system side, you have to collect all of that data to help inform how that drone boat will behave on the ocean. In that regard, data is fundamental.

And how is data functioning to render a destroyer more autonomous?

On a destroyer, you have these radar systems that do a whole range of things. But if you want to, for example, train a machine-learning capability to automatically sense specific targets, you need to collect a whole lot of data from those radar systems. And then you have to have a human being basically watch the playback from those radar systems and say, “OK, this particular signal in my radar data, that’s a commercial airliner. This particular signal on my radar data is a seagull. This particular piece of data is a military aircraft.”

And then you train an algorithm to automatically detect those things based on all the different data signatures …. and so, in that regard, data is just as fundamental to the drone boat as it is to the destroyer.

But humans still make the critical decision in the field?

You’re not removing the human being from a lethal decision-

making process; you’re creating tools so that they can make better decisions faster.

What are the even steeper challenges in operationalizing autonomous capabilities for maritime military missions?

On the [more] difficult end of that spectrum [from navigation of a single drone boat], you have to figure out how to get hundreds or thousands of those craft to not only turn left, turn right, speed up and slow down – to avoid a tanker or an island or whatever – now you have to have all of those platforms doing it in concert with one another. And communicating in concert with one another, and creating effectively what I’ll call a model of the world around them.

So, if I have hundreds of these platforms on the surface of the ocean, or in the air, or under the sea, I need all of those platforms to understand where all of their partners are in the world. And then I need them to sense the world around them such that they can accomplish very specific missions. And that mission autonomy is very complex.

I think those are the areas we’re looking to push into. That’s sort of the next frontier of employing autonomous systems at scale. And that’s something the commercial world hasn’t even really figured out.

Then-Deputy Secretary of Defense Kathleen H. Hicks and staff members participate in interactive demonstrations during a DIU capabilities brief at the DIU, Mountain View, California, Dec. 12, 2023. *Photo credit: Department of Defense | U.S. Navy Petty Officer 1st Class Alexander Kubitza*

How does DIU work with the Navy and the larger military community to address these complicated issues?

DIU spends time understanding a problem set from both the military's and the commercial technology sector's perspective. By understanding both sides of the coin, we are able to say, "OK, we've identified this problem, we've spent time with you to understand the left and right limit of these problems." Regardless of where the problem starts from – whether it's a program office or from a fleet – we like to get that entire team of stakeholders together. Because what we've found is that if we don't do that, we can probably go run a really fun prototype, but the likelihood that that prototype is going to turn into a production contract and actually get fielded to a Sailor in a way that is integrated with other capabilities around it is very low.

How does the “commercial solutions opening” process work to develop those capabilities?

The central value proposition of DIU is this thing called a commercial solutions opening, which is a business and an acquisition process. We take a really thorough understanding of the problem, and we take a really thorough understanding of the tech and commercial space, and we forge that into a plan to go execute a project [in collaboration with government technology, warfighting and program management offices in the Navy or other services]. And in this commercial solutions opening, we put a solicitation or a request for proposal on our website. And then companies can bid on that proposal or bid on that request and provide a proposal for how they would go about solving for this problem.

How is DIU’s process different from the traditional acquisition process?

In the traditional defense acquisition process, when you put a request for proposal or a solicitation out, it’s usually this 10-, 20-, 30-page, very detailed document that really specifies solutions in many cases. When we put a solution or an RFP out it’s usually one-and-a-half to three pages [that’s] just a problem statement. It very rarely specifies a specific solution. And what we find is we really open the door to compelling solutions that you might not otherwise get when you specify a solution in your RFP.

And this process is faster. We do this pretty quickly. We post these solicitations for 10 days at a time, sometimes up to 15 days at a time, and then we move really quickly. Let’s say we get 100 proposals, we move really quickly to … pick the best paper proposals, and then bring those teams in to do a live pitch and live Q and A, and sometimes we actually do live demonstrations depending on what the problem is and what the intended capability is.

How does the other transaction authority funding mechanism speed things up?

The other transaction authority is a contracting authority and nothing more. There's no financial authority tied to it. It is a mechanism to do contracting that is outside of the federal acquisition regulation, which is what most contracts in the DoD are done through.

But in the context of the Navy, almost every contracting shop in the Navy could choose to write and conduct more OTA-based contracts. So, it's not an authority issue, it's an adoption issue. We usually award one to five OTAs within 120 days of that solicitation going out. Which is three to five times faster than a traditional prototype contract … using the FAR as their guidebook and as their authority. And so that speed really makes a big difference in terms of getting companies to start solving warfighter problems faster and also keeping pace with technology … and then getting those prototypes out there as quickly as possible.

What happens in the prototype process?

Our protypes usually last 12 to 24 months. At the end of that 12- to 24-month period, we're going to try and field some viable product of that capability and ideally transition it to that traditional program office. [And Congress has in recent years given DoD more authority to quickly produce successful prototypes developed via competitively awarded OTAs.] So, I can take a successful prototype capability awarded through a competitively sourced OTA, and I can use that to do a sole-source production award immediately thereafter.

Is DIU willing to work with the prime defense contractors (e.g., Boeing, Lockheed Martin and Raytheon)?

We're not anti-prime in any way, shape or form. But, at the same time, DIU exists with a specific remit to expand the industrial base for commercial dual-use tech companies, for

new defense performers and for nontraditional defense performers. Part of the reason that DIU was stood up originally, around 10 years ago, was to essentially rebuild a bridge that had atrophied with commercial tech and Silicon Valley to create opportunities [and] to create space for that tech to be applied and leveraged by the DoD in ways that [weren't] happening.

Why wasn't that happening?

Part of the reason [is that a] 50-person startup can't afford to hire five people just to do military business development and to navigate the somewhat complex maze and pathway of a FAR-based contract. Or [know] how to leverage Congress to put an earmark in for the defense budget. All of these things that the defense primes have hundreds and hundreds of people doing every day.

DIU exists to really simplify the process so that a 50-person startup … can essentially provide the same
sort of proposal for any customer. OTA contracts are much simpler and much more like a commercial contract than what you're going to see through the FAR.

Do you expect the Navy to conduct more projects with DIU in the future?

We have been seeing an absolute increase in demand signal from the Navy, both for software and for hardware applications. So, I feel like that's a growth area. And I think the Navy is increasingly aware of DIU's ability to move quickly and to bring in commercial companies and commercial performers that may not have otherwise bid in the traditional FAR-based contracting process on SAM.gov.

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military families. This story originally appeared in the April edition of Seapower *magazine.*

Sea-Air-Space: Textron Offers the Tsunami USV Family for Multi-Purpose Navy Use

Tsunami, a small USV, is a joint effort by Textron Systems and Brunswick Corp. *Photo credit: Textron Systems*

Textron Systems (Booth 1827, D1), originator of the Common Unmanned Surface Vehicle (CUSV) in U.S. Navy service, has developed a less expensive USV that could be used for a variety of missions and could even be considered attritable.

Textron is teamed with Brunswick Corp., a small craft

manufacturer, to offer Tsunami, family of deployable, small, scalable, gasoline-powered outboard-engine craft, with hull lengths ranging from 14 to 42 feet long. Certain of the models have a payload capacity of 1,000 pounds, ranges between 600 and 1,000 nautical miles, and operable in Sea State 4.

“We are the originator of the common uncrewed surface vehicle, the CUSV, for the Navy which was successfully adapted to become the Navy’s first unmanned surface vehicle program of record and which is being fielded to the littoral combat ship fleet now [for mine countermeasures],” said David A. Phillips, senior vice president, Air, Land & Sea Systems, Textron Systems, in a briefing to reporters. “Surface warfare that doesn’t necessarily require the power and the weight necessary in a mine countermeasure system.”

Phillips noted several mission sets that an inexpensive unmanned craft could take on, including port security, port surveillance, escort and training.

“We have been in constant collaboration with Navy and commercial customers as to what a system like this might bring them in terms of operational flexibility [and] emerging mission sets,” he said. We continue discussion with the Navy — all elements of the Navy to include fleet as well as our particular programs in which we work. And we’ve been hearing an increased expression of interest in a small, rapidly deployable, unmanned surface vehicle that can support a variety of missions beyond mine countermeasures.”

Brunswick, builder of recreational watercraft of such product lines as Boston Whaler, Bayliner and Mercury Marine, has craft adaptable to Textron’s vision and has established supply lines.

“Brunswick’s portfolio of reliable high-performance vessels — their watercraft, propulsion systems, control systems — and manufacturing capacity and their global footprint along with

our mature autonomy technology and systems integration capability was really the perfect combination to allow us to develop an accessible, rapidly deployable, and what I call a modular open systems architecture oriented family of vehicles or systems," Phillips said.

"Brunswick's technologies are already in mass commercial production and globally available. That allows us to reduce costs, risk, and production time when integrating and ultimately delivering these vessels. Their global footprint and mature resilience supply chain provides our customers with an unmatched support and aftermarket service."

Brunswick "has invested in and developed a built-in drive-by-wire system for us to ramp our higher levels of operationally relevant autonomy that we've developed and delivered to the U.S. Navy and that we've proven through mine countermeasure unmanned surface vehicles and that we fielded operationally with the Navy and demonstrated through exercises like RIMPAC and FLEX," he said.

Phillips said the Tsunami could be fielded rapidly.

"We recognize the need for a ready-now solution that harnesses the capability and capacity of the U.S. industrial base," he said. "That's important at being able to scale and being able to rapidly deploy systems when our customer wants them. … Speed. Speed to market. Speed to contract. Speed to delivery. Leveraging this mature production capability enables rapid production without the costs and risks of developing boutique manufacturing capability and scaling mass production. These watercraft are already in production."

The Tsunami craft is adaptable to swarming tactics, according to Textron.

"We've also done some testing in that realm," Phillips said. "Although I'm not going to go into certain mission scenarios, the swarm is important and controlling multiple systems is

important. We've done that for many years with our aircraft systems. We understand swarming of systems. We also understand the complexity associated with that. We have designed this system and we have demonstrated this system to operate multiple watercraft. I won't get into how many."

The low cost of the Tsunami is key to the craft being attritable, Phillips said.

Asked by *Seapower* if the USVs used by Ukraine against the Russian navy were part of the inspiration for the Tsunami, Phillips replied that "it certainly informed us of that emergent need. … I am not presupposing what one of our customers might use our system for."

Aircraft Carrier Suppliers Warn of Production Going Cold

The world’s largest aircraft carrier, USS Gerald R. Ford (CVN 78), sails in formation with Japan Maritime Self Defense Force (JMSDF) Hatakaze-class guided missile destroyer JS Shimakaze (TV-3521) while conducting routine operations in the Atlantic Ocean, Sept. 23, 2024. (U.S. Navy photo by MC2 Jacob Mattingly)

By Richard R. Burgess, Senior Editor

ARLINGTON, Va. — The coalition of industrial base suppliers for aircraft carrier production is warning that some suppliers’ production lines are going “cold” or soon will do so in there is further delay in starting procurement for the next Gerald R. Ford-class aircraft carrier, (CVN 82).

The Aircraft Carrier Industrial Base Coalition (ACIBC) is looking for a $600 million commitment from the Congress in advance procurement toward the construction of CVN 82. Last week ACIBC leaders and members met with members of Congress to discuss carrier funding.

“We’re asking for $600 million of advance procurement funding so that we can start long-lead material and get that ball

rolling [for CVN 82],” said Lisa Papini, chair of the ACIBC. “We’re looking for a commitment to start CVN 82 no later than Fiscal Year 2029.”

Papini said the situation is worse for suppliers this year than last.

“Last year when we were here, we were warning that companies in our coalition without a new ship award would start to go cold, specifically, people that are doing continuous production lines would start to have those production lines go cold in the near future,” she said. “This year we have companies that are saying they have gone cold, or they will be cold – and by cold, I mean that that production line has ceased continuous operation.”

According to an ACIBC fact sheet with the results of a survey of 219 suppliers, 73% of member critical or single-source material supply lines are cold or will go cold in 2026 without the advance funding. Those percentages would increase in 2027 and 2028 to 83% and 96%, respectively, without the advance funding. A majority of the suppliers also provide products and materials for submarine construction as well.

To deal with the business delays, suppliers are reassigning workforce to other business or exploring other business outside of shipbuilding, the fact sheet said.

Papini said that the worsening situation does not match with the nation’s demand for aircraft carriers around the world, noting that in recent years carrier deployments have been extended numerous times and that longer deployments result in more need for supplier support and maintenance.

“The companies who support and who provide products to the new construction [carriers], so CVN 82, are the companies who provide the service and parts to sustain carriers and overhaul carriers as well, so as production lines start to go cold, the ability to support carriers in service and support overhauls

decreases," Papini said. "We're at this inflexion point."

She stressed that the industrial base "has such a significant role in supporting the ships when they are in service, helping them achieve their actual service life, keeping them running. It's the companies across the country who have supplied the equipment, the parts, the services when something needs repair."

The ACIBC would like to see Congress authorizing a two-carrier procurement, CVN 82 along with CVN 83. CVN 80 and CVN 81 were procured in such a manner.

"We know that that's the best way to procure ships, to specifically procure aircraft carriers – so a two-carrier buy with three years of advanced procurement funding for long-lead material and four-year centers," Papini said.

The Navy has stated that the optimum procurement profile for CVNs is two-ship procurement with at least three years of advance procurement and construction at four-year intervals.

A MUSt DO: REPMUS is Primary Means for NATO to Develop Maritime Uncrewed Capability

At Robotic Experimentation and Prototyping using Maritime Uncrewed Systems 2024, the Portuguese Navy tested a prototype of an offshore artificial island, designed to provide a base for forward deploying and sustaining autonomous capabilities. *Photo credit: Lee Willett*

NATO navies are steadily increasing their use of maritime uncrewed systems, or MUS, aided by an extensive exercise process that covers the development of vehicles, payloads, capabilities and supporting architecture through various phases.

These phases include research and development, test and evaluation, operational experimentation and integration into frontline assets and task groups.

One exercise that has evolved to cover at least the first three phases in this process is the Portuguese navy-led Robotic Experimentation and Prototyping using Maritime Uncrewed Systems, which takes place annually off the Tróia

peninsula in southern Portugal. Established in 2010, it is hosted by the navy's Tróia-based Navy Operational Experimentation Center, or CEOM.

REPMUS originally focused on the research and development and test and evaluation phases. However, in recent years, especially due to the accelerating requirement to integrate MUS capabilities into frontline operations, the operational experimentation phase has become an equally crucial part of the REPMUS process.

The exercise's operational importance is underlined by the fact that NATO's Allied Maritime Command has developed and attached Dynamic Messenger – the alliance's first and primary MUS operational experimentation exercise – to REPMUS.

The two exercises were run in tandem in 2022 and 2023, co-hosted by CEOM and MARCOM; Dynamic Messenger will return to Tróia for REPMUS 2025.

The significance of REPMUS is underlined by the fact that several other major international MUS development activities now seek to support, draw on or understand the REPMUS process:

• Representatives from the Australia-U.K.-U.S. strategic partnership are focused on advanced maritime technology capability.

• NATO's Defence Innovation Accelerator for the North Atlantic construct assesses, tests and develops startup technology to demonstrate potential defense capability and deliver it more quickly to frontline operators.

• The European Defence Agency is developing concepts and capabilities tested in and around REPMUS.

• NATO's Norfolk, Virginia-based Allied Command Transformation branch and La Spezia, Italy-based Centre for Maritime Research and Experimentation's in-house laboratory have been testing

concepts, technologies and capabilities at REPMUS for several years.

The increasing importance of REPMUS was demonstrated in the 2024 exercise as more than 100 MUS vehicles were involved, more than 700 experimentation serials were conducted, and 30 countries participated, NATO allies and partners alike.

One partner of note was the Ukrainian Navy. Ukraine's experience of operating and countering uncrewed systems in both offensive and defensive operations in its ongoing war with Russia underscores the role uncrewed systems play today in conflict.

Thus, REPMUS has become a more important tool for NATO and its navies, providing capability development from research and development and test and evaluation to operational experimentation and accelerating the generation of MUS capabilities for operations.

"The NATO defense planning process is the primary means for identifying NATO's minimum capabilities requirements, the apportionment of those capabilities among allies and progress assessment," Captain António Mourinha, the Portuguese Navy's CEOM director and REPMUS chief of staff, told Seapower in an interview in December.

"Through this process, NATO allies are working together to develop and procure innovative maritime solutions and applications to increase operational effectiveness, limit risk to human life and reduce operational costs. In this context, and in the evolving landscape of maritime operations, MUS are seen as revolutionary and a dynamic force multiplier in the composition of our future fleets.

"These systems may increase, at fast pace, the mass, reach and flexibility of our maritime capabilities, improving operational effectiveness, efficiency and safety and thereby maximizing the potential of these fleets in a new manned-

unmanned teaming construct," Mourinha said.

The role REPMUS plays here is in capability development, evolving and improving the MUS systems to meet operational requirements, including for interoperability between the MUS vehicles themselves, building creweduncrewed teaming and supporting multidomain operations.

"REPMUS provides a cooperative environment where academia, industry, national armed forces and NATO can work together to foster advances in MUS capabilities, with a focus on interoperability … [it] allows for an exchange of innovative ideas and knowledge, thereby accelerating the development of new capabilities and the testing of such systems in a realistic operational setting," Mourinha said.

Uncrewed air vehicles work with crewed surface vessels at Robotic Experimentation and Prototyping using Maritime Uncrewed Systems 2022. REPMUS is an exercise in which NATO navies build capacity to deliver crewed-uncrewed teaming in multidomain operations. *Photo credit: NATO | Fran S. Dzioba*

Rolling Process

REPMUS is a rolling process, with capability developments and lessons learned taken forward into the following year's exercise.

REPMUS 2024 addressed national and NATO MUS capability development through focusing on technology, doctrine, training, interoperability and crewed-uncrewed teaming.

The REPMUS process also focuses on MUS use in all major warfare domains, including anti-air, anti-surface and anti-submarine operations, plus more specific taskings like mine countermeasures, force protection, harbor security, maritime security and critical undersea infrastructure protection.

At REPMUS 24, MUS use was tested in various conceptual and technological contexts, and Mourinha highlighted several examples.

The exercise tested and developed the requirements for NATO Standardization Agreement 4817, a mainstay STANAG for underwater communications in particular, building multidomain command and control for underwater operations involving, for example, uncrewed underwater vehicles.

"STANAG 4817 is a key feature for allied interoperability in using MUS," Mourinha said. Alongside being used for sharing the common operational picture, 4817 was used at REPMUS 24 to conduct MUS command and control for the first time, he said.

Several of the serials focused on underwater tasks. Reflecting what was an emerging operational requirement for NATO, but now is an enduring one, critical underwater infrastructure protection serials were conducted using maritime uncrewed systems.

Here, "blue force" surface ships, uncrewed surface and underwater vessels and acoustic sensors were used to detect

and prevent “red force” disruption activities.

For mine warfare, the exercise tested the use and coordination of MUS alongside the development of a visualization and command and control tool that enables holographic presentation of the mine threat area.

With Russian submarine activity continuing to increase across the Euro-Atlantic theater, MUS — especially uncrewed surface vehicles and uncrewed underwater vehicles — are central to NATO’s development of its anti-submarine warfare barrier concept, for which multistatic acoustic detection was tested in REPMUS 24.

“The barrier is a defensive ASW concept, using MUS extensively to detect, track and, if necessary, neutralize adversary submarines attempting to penetrate strategic areas, like naval bases, choke points or shipping lanes,” Mourinha said.

The impact of Russia’s invasion of Ukraine on NATO operational requirements is reflected in the REPMUS work on countering uncrewed systems. At REPMUS 24, counterdrone work encompassed testing capabilities and tactics in all maritime domains.

“This is an important area of development, since many actors can cause disruptive effects, even with the simplest of uncrewed systems,” Mourinha said.

REPMUS also tests NATO navies’ ability to integrate other concepts and technologies to enhance MUS capabilities, such as through exploiting artificial intelligence. In this context, a concept called “silicon sailor” was tested, involving experimenting with how AI can assist with accessing naval operational manuals and protocols, providing fast access to critical information, supporting decision-making processes and enhancing personnel training. Scenarios included maritime navigation and rescue tasks.

A notable REPMUS 24 development was the establishment of an

artificial island – located in the Sado Estuary Natural Reserve, offshore from the main exercise base and CEOM headquarters at Tróia – designed as a prototype for a future, larger island construct designed to support MUS operations and wider surveillance and ocean monitoring.

“The structure was created … to test the requirements for MUS operation, ocean sensing, energy production and management, and efficient data processing and storage, with the testing of an underwater computer and server,” Mourinha said. Drawing on data gathered and lessons learned from the prototype, the navy intends to develop the larger artificial island to deploy it close to the deep waters of the Setubal Canyon on the peninsula’s seaward side.

Experimentation around these themes will continue at REPMUS 2025, with additional focus areas of persistent surveillance and data exploitation – reflecting Dynamic Messenger.

At REPMUS 2022, a REMUS UUV is deployed from a Royal Canadian Navy Kingston-class maritime coastal defense vessel. REPMUS is a core exercise process for developing NATO maritime uncrewed systems capabilities. *Photo credit: Estonian navy | NATO*

Testing Zone

The testing conducted at REPMUS is enabled and supported by

the fact that CEOM and the wider Tróia exercise area sit in the middle of a Portuguese government “technological free zone,” which the navy and Portugal’s naval industry can exploit.

The zone covers more than 1,000 square miles and permits testing and operational experimentation of new technology in a secure, at-sea space free from other users, enabling technology readiness levels to be developed to the point where the technologies can be presented to regulatory authorities for certification.

“The idea is to increase the use and efficiency of CEOM in a more cooperative way, by bringing more countries, international industry and research centers to experiment at CEOM in a concept closer to the one used in REPMUS, Mourinha said. The zone provides capacity for multiple stakeholders to be present at the same time to conduct testing, with this combined presence enabling synergies to be achieved and information to be exchanged, he said.

In 2025, CEOM will increase engagement with both Portuguese industry and NATO allies to increase their experimentation presence around the peninsula.

Allied presence at REPMUS 25 may also increase, possibly including one of the U.S. Navy’s latest MUS capability and operational development organizations, the U.S. 6th Fleet’s Task Force 66.

Dr. Lee Willett is an independent writer and analyst specializing in naval and maritime matters. With a 25-year professional background,he has spent time at sea on submarines,aircraft carriers and other craft. This article was first published in the February-March issue of Seapower.