



NPS IN THE NEWS

Weekly Media Report – Sept. 21 – Oct. 4, 2021

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GRADUATION:

[Navy “SWO Boss” Honors Accomplishments of NPS Summer Graduates](#)

(Navy.mil 24 Sept 21) ... Mass Communication Specialist 2nd Class James Norket

(NPS.edu 24 Sept 21) ... Mass Communication Specialist 2nd Class James Norket

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AT&T CRADA FOR 5G RESEARCH:

[AT&T and NPS set sail on tactical edge and 5G at sea](#)

(Capacity Media 20 Sept 21) ... Melanie Mingas

AT&T has teamed up with the Naval Postgraduate School (NPS) to explore and develop 5G and edge computing-based maritime solutions primarily for national defence and homeland security... Verizon's news followed AT&T's announcement last week that it will work with the **Naval Postgraduate School** to explore and develop 5G and edge computing-based maritime solutions primarily for national defence and homeland security.

[Naval Postgraduate School tests 5G maritime solutions](#)

(GCN 28 Sept 21) ... Stephanie Kanowitz

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EDUCATION:

[Partnership between NAVSEA Warfare Centers, Naval Postgraduate School aims to accelerate adoption of innovation](#)

(NAVSEA 23 Sept 21)

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RESEARCH:

[NPS Hosts JIFX 21-4 at Camp Roberts and SLAMR in Monterey](#)

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The Naval Postgraduate School (NPS) held the latest iteration of its Joint Interagency Field Experimentation (JIFX) 21-4 event, August 23-27, with experimentation taking place at the NPS Field Lab at Camp Roberts and the recently added Sea Land Air Military Research Initiative (SLAMR) Laboratory across the street from the NPS campus. The quarterly event focuses on collaboration between military, commercial industry, and academia to experiment with and evaluate emerging technologies for defense-related applications.

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[Navy Upgrades F-5 Adversary Fighter, Improving Safety, Readiness](#)

(Sea Power Magazine 21 Sept 21)

(DC Military 23 Sept 21)

(The Southern Maryland Chronicle 22 Sept 21)

(Aerotech News 23 Sept 21)

The Navy's Specialized and Proven Aircraft program office (PMA-226) recently delivered the first F-5N aircraft to Naval Air Station Patuxent River, Maryland, to begin ground and flight test of the F-5 block upgrade prototype project, the Naval Air Systems Command said in a Sept. 20 release... PMA-226 is responsible for life cycle cradle-to-grave management of several legacy and out-of-inventory aircraft and engines, assigned by Naval Air Systems Command and contracted air services. Assigned platforms and services include: Adversary Aircraft (F-5, F-16); Contracted Aircraft Services; U.S. Naval Test Pilot School/**Naval Postgraduate School** T-38, H-72, X-26, U-6, NU-1B, O-2 and OH-58C; and Out of Active Navy Inventory aircraft T-2, H-2, H-3 and A-4, in support of the Naval Aviation Enterprise and international partners.

[Naval Postgraduate School Examines Hybrid Force 2045](#)

(Sea Power Magazine 22 Sept 21) ... Edward Lundquist

The U.S. Naval Postgraduate School (NPS) is conducting its annual Warfare Innovation Continuum (WIC) scenario this week on a critical naval priority: the future hybrid force.

[Global Underwater Autonomous Vehicle \(AUV\) Industry to Mark USD 183.4 Mn by 2026](#)

(Daily Fact & Trends 27 Sept 21) ... Peter Barzilai

The global Underwater Autonomous Vehicle (AUV) market was valued at US\$ 50 million in 2019 and it is expected to reach US\$ 183.4 million by the end of 2026, growing at a CAGR of 20.4% during 2021-2026... Intelligent Underwater vehicle research center of **Naval Postgraduate School** (us).

[Acoustics Experimentation Helps NPS Researchers Better Understand Sensor Capabilities, Monterey Bay](#)

(Navy.mil 28 Sept 21) ... Rebecca Hoag

(NPS.edu 28 Sept 21) ... Rebecca Hoag

It was a surprisingly sunny day when the small group of researchers equipped the R/V Fulmar for their first of five days data collection trip off the coast of Santa Cruz in the Monterey Bay. Their goal was to use vector sensors, passive acoustic technology that detects particle motion and pressure changes, to collect data for several projects. The trip was run by Dr. Kevin Smith, a Professor of Physics at the Naval Postgraduate School (NPS) and the Chair of the NPS Undersea Warfare Academic Group, and Dr. Paul Leary, a Research Assistant Professor of Physics at NPS. Together they run the NPS Undersea Sensing Systems Lab.



[NPS Hosts High-Energy Laser Working Group to Address DOD Domain Needs](#)

(Navy.mil 28 Sept 21) ... Mass Communication Specialist 1st Class Nathan K. Serpico

(NPS.edu 28 Sept 21) ... Mass Communication Specialist 1st Class Nathan K. Serpico

The Naval Postgraduate School (NPS) hosted the latest annual Laser Lethality Technical Area Working Group (TAWG) sponsored by the Joint Directed Energy Transition Office (DE-JTO), Aug. 24-26. The event brings together the joint services to collaborate and present sponsor-funded research results, as well as for laser lethality subject matter experts to review DOD laser lethality programs and technical efforts and results.

[Naval Postgraduate School Conducts Education and Research In Cyber Warfare \[Audio Interview\]](#)

(KAZU 30 Sept 21) ... Doug McKnight

Ten years ago, the then Secretary of Defense, Leon Panetta, warned of a cyber Pearl Harbor. Even though nothing of that magnitude has happened, the threat of a cyber attack is changing how the military is preparing for battle.

An important element in the nation's cyber defense is located at the Naval Postgraduate School in Monterey. The Center for Cyber Warfare conducts research and educates information warfare officers and military electrical and computer engineers to combat cyber attacks.

[Why Branding and Reputation Are Essential for Fearless Leaders](#)

(Entrepreneur 29 Sept 21) ... Brendan P Keegan

Leaders need to create authentic values and stick to them to reach consumers who prioritize branding and reputation more than ever... Another study from the Calhoun Institutional Archive of **the Naval Postgraduate School** revealed that when people trust their leaders, they perceive the organizational culture as being open. When that happens, engagement goes up. In practice, that means people end up communicating with you much more openly. They tell you what they want or need and what they think you should do in certain situations. They participate in projects and events. They're happy. Alexander Kjerulf, Chief Happiness Officer for Woohoo Inc., argues that happy people do better at working with others, fix problems more efficiently, and make better decisions.

FACULTY:

[Remembering FLIP, an Engineering Marvel for Oceanic Research](#)

(EOS 23 Sept 21) ... David G. Ortiz, Naval Postgraduate School Research Assistant Professor

Since the 1960s, the Floating Instrument Platform has bobbed at the sea surface, supporting numerous discoveries. One scientist recalls his time aboard FLIP during what was likely its final mission.

[Federal Law Enforcement Veteran Named President of NEC National Security Systems](#)

(Find Biometrics 29 Sept 21)

NEC has officially announced its new President of NEC National Security Systems (NEC NSS), and she is a respected veteran of the federal law enforcement space.

After a decades-long career with the Bureau of Alcohol, Tobacco, Firearms and Explosives, Dr. Kathleen Kiernan went on to found Kiernan Group Holdings, a risk management firm focused on homeland security and emergency management, in 2009. She is also an adjunct faculty member at the **Naval Postgraduate School's** Center for Homeland Defense and Security, and the Chair Emeritus of InfraGard National Members Alliance.

[What you should know about 'Bitskrieg: The New Challenge of Cyberwarfare'](#)

(Airforce Times 29 Aug 21) ... Todd South

Cyberwarfare has evolved as not only a buzzword in defense circles but one that underpins much of what modern warfighting, with or without bombs, bullets and bandages, has become.

Dr. John Arquilla and his colleagues at the Rand Corporation and the **U.S. Naval Postgraduate School** were peering into the interconnected planet, and especially its future battlespace in the early 1990s. Despite creating new uniformed and civilian jobs in defense, as well as establishing U.S. Cyber Command, Arquilla sees cyber thinking among political and military leaders as potentially fractured or sometimes missing the point.



[The Mavi Vatan Doctrine and Blue Homeland Anthem: A Look at Turkey's Maritime](#)

(*CIMSEC 27 Aug 21*) ... Jeff Jager and Andrew Norris

According to its main proponent, retired Admiral Cem Gürdeniz, Turkey's concept of mavi vatan represents an idea, a symbol, and a doctrine. As an idea, mavi vatan encompasses Turkey's maritime interests; as a symbol, Turkey's eponymous military exercise in 2019 demonstrated its maritime jurisdiction claims and the potential of the Turkish Navy and Turkey's maritime capabilities; and, as a doctrine, mavi vatan guides the defense of Turkish sovereignty at sea, including the control of Turkey's continental shelf and exclusive economic zone (EEZ). Mavi vatan has increasingly gained prominence both domestically and as a component of Turkey's foreign policy, which in the last half-decade has become increasingly aggressive and securitized, with an anti-Western, anti-U.S. outlook as a central organizing principle... Mavi vatan's second goal, strengthening Turkey's regional maritime boundary claims, envisions Turkey declaring, delimiting, and defending maritime boundaries in the Aegean Sea, Black Sea, and Eastern Mediterranean. This goal represents perhaps the most common interpretation of mavi vatan, which analysts such as Ryan Gingeras at the **Naval Postgraduate School** now use as a "shorthand expression for Ankara's maritime claims." Through this second goal, Turkey aims for access to energy resources, increased influence, and domestic economic growth. As with the overall militarization of Turkish policy, this goal has the added domestic appeal of a strong and assertive Turkey "taking back" its rightful maritime birthright, with the bonus that this is being done at the expense of traditional foe (and NATO ally) Greece.

ALUMNI:

[Finance of America's Christine Herman: Leading with empathy, determination](#)

(*SC Magazine 20 Aug 21*) ... Jessica Davis

Christine Herman's background is a prime example that in cybersecurity, any degree or experience can turn into a successful cybersecurity career with the right passion, skillset, and mentors... Determined, and with encouragement to take on a new skill set in cyber, she graduated from the **Naval Postgraduate School** in 2014, then DoD Advanced Cyber Operations in 2015, top of class. After five years with the DoD, she spent over three years with Morgan Stanley as global leads of incident response and then operational assurance before joining Finance of America as chief information security officer.

[Veltex Corporation Appoints Thomas S. Bailey Chief Operating Officer](#)

(*Yahoo! Finance 20 Sept 21*)

Veltex Corporation ("the Company") announced today the appointment of Thomas S. Bailey as Chief Operating Officer of the Company effective immediately. Mr. Bailey will also join the Board of Directors of Veltex Medical, Inc., a wholly owned Delaware subsidiary of the Company... Mr. Bailey is a business management and government relations consultant based in Charleston, WV. Mr. Bailey worked in government relations for Spilman, Thomas and Battle, PLLC and is an active state and federal lobbyist. He previously served as Executive Vice President for KVC Health Systems, Inc. Mr. Bailey is a veteran of the armed forces with 25 years of service and is a Lieutenant Colonel in the Army Reserves. He also serves on the Board of Directors of various non-profit organizations, including the West Virginia Symphony Orchestra, the Three Oranges Foundation, Project Healthy Kids, and Aspire Family Wellness. Mr. Bailey was appointed by West Virginia Governor Justice to serve on the State's History & Archives Commission where he serves as Vice Chairman. He has advanced degrees from Marshall University and the **Naval Postgraduate School**.

[Artificial intelligence startup in Raleigh has the smarts to be a billion dollar company](#)

(*Wral Tech Wire 22 Sept 21*) ... Chantal Allam

Three years after ex-Epic Games CEO Michael Capps first launched Diveplane, a company aimed at "keeping the humanity" in artificial intelligence (AI), it's notched a series of big wins... Capps, meanwhile, is a fixture on the local Triangle startup scene. Born in Raleigh, he began his career with post-graduate degrees at UNC-Chapel Hill, MIT and the **Naval Postgraduate School**. Later, he spent nearly a decade as president of Epic Games, creators of mega-hit Fortnite, and one of the region's early breakout unicorns, a company valued at more than \$1 billion. (Today, Epic Games is estimated to be worth just shy of \$30 billion.)



UPCOMING NEWS & EVENTS:

October 11: Columbus Day (Federal Holiday)

October 12: [SGL with Adm. James G. Stavridis, USN \(Ret.\): Weapons of Mass Disruption](#)

October 25-29: [Center for Executive Education NSLS Seminar](#)



GRADUATION:

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Commencement speaker and NPS alumnus, Commander, Naval Surface Forces/Commander, Naval Surface Force, U.S. Pacific Fleet Vice Adm. Roy Kitchener, known around the Navy as the Surface Warfare Officer Boss, or “SWO Boss,” congratulated the 294 graduates, including 23 international students from five countries, conveying how the nation’s warfighting ability is directly correlated to their NPS education.

“This institution and our military’s technological advancement are completely linked,” said Kitchener. “For more than a century, the Naval Postgraduate School provided students with top-of-the-line, defense-focused education, and this year marks 70 years of providing that service from Monterey.

“The Naval Postgraduate School has long recognized the connection between technology and warfighters – people drive technology, and then technology improves our human ability, and neither can accomplish the mission purely on its own,” he continued. “In today’s rapidly evolving battlespace, it is crucial that as leaders, you grasp and fervently apply the full potential of our systems – and you learn that here at NPS.”

U.S. Navy Surface Warfare Officer Lt. Jonathan Shepherd is the embodiment of Kitchener’s remarks about warfighters driving technology. Shepherd came to NPS with operational experience in mine countermeasures and the AEGIS weapons system. He conducted his thesis research at the classified level pioneering the latest technology used by the fleet to protect ships from incoming missiles. For his work, Shepherd is the recipient of both the Military Operations Research Society (MORS) Tisdale Award and the Surface Navy Association Award for Excellence.

“I did my thesis research on the SPY-6 radar, the newest and most sophisticated Integrated Air and Missile Defense sensor in the fleet,” said Shepherd. “Since the 1980s, Navy radar evolution has been constrained by the technology of their time. My research helps accurately and precisely quantify what factors affect new radar performance with the objective of enabling commanders and commanding officers the ability to accurately employ this new fleet capability against sophisticated threats to the Navy.”

As an NPS Meyer Scholar, a program devoted to solving the real-world challenges of air and missile defense, Shepherd says there is nothing like NPS when it comes to conducting the research he pioneered.

At NPS, we have something that very few universities have, classified research capabilities, said Shepherd.

“All the experts that I got to work with and learn from all while in a secret space has been an experience like no other,” he said. “This is a place that is unique and there’s no other place that I could’ve conducted this research.”

NPS President retired Vice Adm. Ann E. Rondeau encouraged the students to be ready to face whatever challenges lay ahead.

“Armed with what you now know and the leaders you all are; you are ready,” said Rondeau. “Uncertainty is certain, so trust in what you have truly learned and in who you are as leaders. While your degree and research accomplishments are real and tangible, knowable and measurable, they are but stepping stones to address the unknown and complex challenges ahead.

“The most common refrain I hear from an NPS graduate is, ‘NPS taught me how to think,’” she continued. “I say, NPS has taught you how to think, better,” she stressed.



“In other words, your NPS experience has equipped you with advanced critical, analytical, methodical and scientific-based thinking capabilities to not only excel in your warfighting disciplines, but to present your senior leaders with reasoned options when they have to make hard choices. Trust in this as you navigate an uncertain future as competent and confident, determined leaders,” she said.

As Kitchener continued his remarks, he invoked a 1959 NPS commencement address delivered by former Chief of Naval Operations Adm. Arleigh Burke, who said, “Rapid technological advance... did not come by accident, nor did it come overnight. It has been the result of educating carefully selected officers in each succeeding generation.”

“You represent those carefully selected officers,” Kitchener noted to the graduates.

In closing, he asked three things of the graduates as they transition to their new assignments in the Fleet and Force.

“First, be bold. Let your questioning spirit stoke the flames of rapid change. And be convicted in bringing the right ideas to fruition. Second, have a can-do attitude, tempered by your understanding of risk. Approach innovation with realism and tangible outcomes – address faults head on and continue to find long-lasting solutions for them.

“And finally, be demanding of leadership and stay focused on winning – that is our imperative.”

[Navy “SWO Boss” Honors Accomplishments of NPS Summer Graduates > United States Navy > News-Stories](#)

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AT&T CRADA FOR 5G RESEARCH:

AT&T and NPS set sail on tactical edge and 5G at sea

(Capacity Media 20 Sept 21) ... Melanie Mingas

AT&T has teamed up with the Naval Postgraduate School (NPS) to explore and develop 5G and edge computing-based maritime solutions primarily for national defence and homeland security.

Described by the two as "experiments", their work is expected to pave the way for unmanned and autonomous vehicles "that can improve critical elements of national defence", for example multi-domain situational awareness, command and control, training, logistics, predictive maintenance and data analytics.

Mike Galbraith, Department of the Navy (DON) chief digital and innovation officer said: “5G and multi-access edge computing capabilities are increasingly important in our personal lives and even more important to our warfighters.

"The collaboration between the Naval Postgraduate School and AT&T will help us explore better, faster means of collecting, disseminating, and analysing data at the tactical edge, which is vital to maintaining and exploiting battlespace awareness. Experiments conducted under the NPS-AT&T CRADA are expected to complement other DON efforts to apply 5G and Artificial Intelligence (AI) to enterprise and tactical uses.”

The "CRADA" – AKA collaborative research and development agreement – lasts three years and will see AT&T 5G networking and edge computing capabilities support an array of 5G-focused experiments on NPS facilities incorporating AI, robotics, IoT, ML, data analytics and smart base solutions.

One initiative is NPS' Sea Land Air Military Research (SLAMR) initiative, which will explore the development of 5G and edge computing-powered sea applications that connect crewed and non-crewed vessels and sensors.

Experiments will be conducted within the SLAMR’s multi-domain laboratory. The programme is also focused on providing all-domain maritime solutions for a broad array of defence, industry and commercial applications.



Eventually the plan is to have a command and aquatics operations facility with which to perform localised, unmanned aerial, surface, and underwater robotic vehicle activity. It is expected the facility and some of the experimental vehicles will be connected and powered by AT&T networking capabilities, including 5G and edge computing services.

Retired Vice Admiral Ann E. Rondeau, president, Naval Postgraduate School said: “Innovation occurs at the seams and intersections of practice and expertise and NPS provides an innovation hub where this applied 5G research can occur. AT&T’s experience with the existing 5G infrastructure on the Monterey Peninsula will facilitate our collaboration on the next generation of mobile networks. By working alongside experts from our faculty and industry partners, we can apply the operational experience of our graduate students to accelerate and enhance research into 5G-related naval maritime capabilities.”

[AT&T and NPS set sail on tactical edge and 5G at sea \(capacitymedia.com\)](https://www.capacitymedia.com)

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Naval Postgraduate School tests 5G maritime solutions

(GCN 28 Sept 21) ... Stephanie Kanowitz

The Naval Postgraduate School (NPS) and AT&T will develop and test 5G and edge computing-based maritime solutions for potential use in national defense and homeland security.

Under a three-year collaborative research and development agreement, high-speed, low-latency AT&T 5G networking and edge computing capabilities will support 5G-focused experiments incorporating artificial intelligence, data analytics, the internet of things, machine learning, robotics and smart base solutions. Experiments will be conducted as part of NPS’ Sea Land Air Military Research (SLAMR) program, which facilitates maritime experiments with emerging technologies in different physical environments, at its main campus and a beach lab in Monterey Bay, Calif.

The work started in July 2020 and ends in July 2023, with 5G expected to go live in the middle of 2022.

“We provide expertise related to the operational environment and problem set,” said Ray Buettner, associate professor of information science at NPS. “AT&T brings in their networking expertise, and then together with other companies and industry and governmental entities and universities, we’ll go after some of the hard problems and hopefully accelerate new capabilities for the warfighter.”

An example of those hard problems is navigating a large environment in a conflict with, say, China, Buettner said. The Pacific Ocean is vast and more than 2,000 islands are scattered around the region.

“We have to learn to learn to create bubbles, if you will, of consistent, reliable communications and connect to computing assets, especially if they want to take advantage of things like artificial intelligence that are closer to the warfighter, to the battlefield,” he said. “To go after those kind of problems, we need to really understand the potential of technology like 5G and network companies like AT&T.”

Although 5G is relatively short-range, reaching about 1,500 feet from a tower, Buettner said he believes it can be useful for integrating those “bubbles” to support activities such as virtual reality and AI on vessels at sea. For instance, a 5G node could be put on a buoy, and the natural motion of the waves could generate the electricity to power the node.

Another area of study is control of drones and other autonomous aerial, surface and underwater systems.

In 2017, NPS was leading the world in developing drones, he said. “We actually demonstrated the capability to fly swarms of up to 50 vehicles, each one completely independent and operating on its own – no human operators,” Buettner said. “But the networking technology to support large-scale deployment of that really wasn’t sufficient in the 4G world.”

“What’s really important is the autonomy – unmanned and uncrewed vehicles – that are able to now connect at higher speeds with lower latency on these 5G networks,” added Lance Spencer, client



executive vice president-defense at AT&T. “That helps as they want to improve the command and control of vehicles over the water.”

For SLAMR, signals are not going to be sent underwater because the physics of that are totally different, he said. This exercise about the ability of aerial and submergible vehicles to connect when on the surface or in the air.

SLAMR’s goal is to create a command and aquatics operations facility for localized, unmanned aerial, surface and underwater robotic vehicle activity. That facility and its experimental vehicles would be connected and powered by AT&T networking capabilities.

This is not the Defense Department’s first foray into 5G. In October 2020, it announced a \$600 million contract for 5G experimentation and testing at five installations, including smart warehousing at Naval Base San Diego. On Sept. 21, DOD tapped Verizon Public Sector to deliver its 5G Ultra Wideband mobility service to seven Air Force Reserve Commands.

“I think the value of a lot of this prototyping and experimentation and collaboration that we’re seeing in DOD -- and that NPS is clearly taking a leadership position on -- will prove the viability of providing [5G] capability,” Spencer said. This research project will create “a wider aperture to perhaps deploy at more of a scale,” applying the lessons to any industry that relies on safe passage across water such as commercial, transportation, shipping, oil and gas, he said.

[Naval Postgraduate School tests 5G maritime solutions -- GCN](#)

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EDUCATION:

Partnership between NAVSEA Warfare Centers, Naval Postgraduate School aims to accelerate adoption of innovation

(NAVSEA 23 Sept 21)

The Naval Postgraduate School (NPS) and the Naval Sea Systems Command (NAVSEA) Warfare Centers are collaborating on an Innovation Leadership program to help solve the Navy’s “innovation adoption problem” by showing Warfare Centers scientists and engineers how to deploy, use and integrate innovation to achieve strategic priorities.

A cohort of 10 participants, one from each of the Warfare Center Divisions, took the 10-week winter session of the course, which has been offered at NPS for several years. Each had a concept for an innovation project that they developed, refined and brought back with them to their command.

The collaboration grew out of the Diffusion and Adoption of Innovation Studio Summit (DAISS) held at the Naval War College, in partnership with the NAVSEA Warfare Centers and NPS, in 2018 and 2019. In 2020, plans for a third DAISS were scuttled by the COVID-19 pandemic, but Dr. Peter Denning and retired Marine Corps Col. Todd Lyons, who lead the Innovation Leadership program at NPS, invited several people from the Warfare Centers to audit their course, which was being offered virtually for the first time.

“As we were taking the course, we were drawn in,” said Dr. Thomas Choinski, Deputy Director for Undersea Warfare at Naval Undersea Warfare Center (NUWC) Headquarters, who was among the Warfare Center personnel who audited the course. “We started doing the homework, and started a working group that still has weekly phone calls.”

Several Warfare Center participants stayed involved in the program as advisors and facilitators, and they came up with the idea of inviting a cohort of 10 participants from across the Divisions.

“S&T (science and technology) people often struggle to move their projects or ideas forward,” said Choinski, who also was involved in planning and executing the DAISS events. “We thought this could help.”

After an introductory meeting last October with Denning and Lyons, Warfare Centers Executive Director Dr. Brett Seidle approved sending 10 Division participants through the program, which supports



the strategic goals of “Workforce and Leadership Development” and “Technical Innovation and Excellence” outlined in the Warfare Centers Strategic Plan. In August, Seidle was briefed by the participants in the winter session as well as Warfare Center advisors and facilitators.

With adversaries like China and Russia continuously accelerating adoption of technological advances, there is renewed urgency for the United States to move faster as well, Choinski said, from the scientists and engineers who are developing solutions for the warfighter to the acquisition process.

That, he said, requires an interdisciplinary approach to bring the various communities together for “conversations for action.”

The Innovation Leadership program supports that concept by teaching participants about the eight key practices for innovation – sensing, envisioning, offering, adopting, sustaining, executing, leading and embodying, as outlined in the book, “The Innovator’s Way: Essential Practices for Successful Innovation,” by Denning and Robert Durham – and practicing how to have the right conversations with the right people to move innovation toward adoption.

“The Warfare Centers have a very important mission to get technologies adopted in their domains,” Denning said. “Through the course, we aimed to show engineers, scientists and managers how to build momentum for their innovations and break through resistance to attain adoption. In other words, we aim to help the Warfare Centers improve their effectiveness at achieving their mission.”

Business surveys have shown only about 4 percent of innovation projects meet their financial objectives to be considered successful, Denning said. Underpinning that low success rate is a general lack of understanding of the difference between “invention” and “innovation.”

“Invention is only 10 percent of innovation,” Denning said. “Ninety percent of the real work of innovation is in the adoption phase.”

Embracing the notion that innovation is not simply a clever new idea, but the adoption of a new idea, or a new practice, within a community broadens the focus from processes to people, said Lyons, who led a condensed version of the Innovation Leadership program as part of the DAISS events.

For example, Lyons said, rather than looking at the acquisition process as simply a channel for moving money, innovators look at it as a space in which to have conversations.

“How can we connect people who have something meaningful to contribute with the operators who could benefit and the people who have funding?” he asked. “Who are the right people to drive this?”

Answering those questions is key to creating an ecosystem in which everyone develops the skills and is empowered to move faster to meet the needs of the organization in definable and measurable ways, he said, avoiding the so-called “valley of death” between prototyping new technology and putting it into practice, and perhaps even improving processes along the way.

In addition to an overarching goal of helping the U.S. be more competitive, by coaching students as they apply these principles to their innovation projects and move them from conception to adoption, the course aims to develop leaders who find satisfaction from building and growing a community that cares about each other and the mission – and is willing to explore new ways to better serve both.

To that end, course participants from Naval Surface Warfare Center (NSWC) Carderock Division are developing the first external version of the Innovation Leadership class at their command, in partnership with NPS.

Dr. David Drazen, NSWC Carderock Division’s Chief Technology Officer, and Director of Innovation Garth Jensen have received funding and solicited participants and are planning for Carderock’s Innovation Leadership course – which will extend over 10 months, rather than 10 weeks, to allow a deeper dive into the concepts – to begin in October.

“The idea is that we will see how it goes and have it be a model for other Warfare Center Divisions to leverage if they are interested,” Drazen said.

[Partnership between NAVSEA Warfare Centers, Naval Postgraduate School aims to accelerate adoption of innovation > Naval Sea Systems Command > Saved News Module \(navy.mil\)](#)

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RESEARCH:

NPS Hosts JIFX 21-4 at Camp Roberts and SLAMR in Monterey

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During the week-long event, a total of 247 registered participants, including 84 experimenters representing 19 unique organizations, 40 DOD stakeholders, and 51 NPS students representing multiple service branches along with international students from Brazil, Greece, Indonesia and Sweden, took part in observing and evaluating the technologies.

"The program brings together a really diverse group of people to conduct research," said JIFX Director Michael Richardson, a retired Army Special Forces officer. "We can support field experimentation across the physical, electromagnetic, and cyber domains, but at this point in time, the JIFX team has expertise in enabling experimentation on autonomous systems and communications networking between those systems."

Whether a JIFX veteran or a first-time attendee, JIFX strives to create connections that foster the collaborative spirit amongst those with a curious mind and provide an opportunity to gain first-hand knowledge of what various entities can offer to create effective solutions.

For someone like first-time JIFX participant Chief Executive Officer of Craitor Eric Shnell, JIFX offers a unique opportunity to test his 3D printing capability in a rugged environment. Already in collaboration with the U.S. Marine Corps, Craitor is trying to revolutionize the DoD supply chain by making a truly expeditionary high-temperature 3D printer that can manufacture high-grade parts anywhere.

"JIFX provides a community of very like-minded, technology-driven experimenters," said Shnell. "We all understand what we're working towards to be able to build the solution. Not only do we understand more from stakeholders as we talk to the government side, but also the industry side and being able to develop even more solutions out of just a few days, once a quarter."

JIFX also provides NPS students and faculty a distinct opportunity to see relevant research and technology that directly relates to their work at the university in a field environment while giving them a chance to integrate field-experimentation into their own research efforts.

"What JIFX gives me is the ability to see the experiments in action and the new technology being produced for the DOD," said NPS student U.S. Navy Lt. Mario Medina. "It directly aligns with my thesis work, which is maritime, to bring awareness of dark target threats off the California coastline. This gives me a better idea of the technology that could be used in my thesis program and toward my overall degree program, which in return will benefit the Navy, Coast Guard and Marine Corps to better understand maritime domain awareness."

"What we're trying to do is offer this uniquely militarily relevant educational experience that connects the next generation, emerging technology to the officers that will be using those in support of military missions in the future," added SLAMR Director Dr. Raymond Buettner.

Within the past year, experimentation conducted at JIFX 21-2 enabled two NPS students to complete field experiments in their thesis work exploring radio frequency manipulation, which laid the foundation for the Marine Corps Warfighting Lab to conduct more extensive research to mitigate current and projected threats in the electro-magnetic spectrum.

"JIFX can really enable career military leaders to advance and optimize their time while they're at the school and to provide outcomes of great value to the force," said Richardson. "NPS really doubles the



investment that the service makes with the leaders that they send to study with us. The services give the leaders this opportunity to grow as individual leaders and to return to the force as functional experts in the field of their studies. They're more intellectually primed when they return to their roles and they are leaders in addressing the opportunities and challenges posed by the emerging operational environment."

Richardson noted that JIFX utilizes computer science and engineering experts from NPS to enable experimentation from campus, which, in conjunction with subject matter experts that participate, observe and provide direct feedback, make JIFX truly unique.

"You've just got to be able to explain to us what you're attempting to do with your experiment," added Richardson. "And we help bring the authorities, resources, and parameters to bear that frame the environment so that you can conduct your experiment safely, securely, and legally."

[NPS Hosts JIFX 21-4 at Camp Roberts and SLAMR in Monterey > United States Navy > News-Stories](#)

[NPS Hosts JIFX 21-4 at Camp Roberts and SLAMR in Monterey - Naval Postgraduate School](#)

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Navy Upgrades F-5 Adversary Fighter, Improving Safety, Readiness

(Sea Power Magazine 21 Sept 21)

(DC Military 23 Sept 21)

(The Southern Maryland Chronicle 22 Sept 21)

(Aerotech News 23 Sept 21)

The Navy's Specialized and Proven Aircraft program office (PMA-226) recently delivered the first F-5N aircraft to Naval Air Station Patuxent River, Maryland, to begin ground and flight test of the F-5 block upgrade prototype project, the Naval Air Systems Command said in a Sept. 20 release.

Aligned with the Navy's strategic imperative of increasing capability and enhancing lethality, the newly redesigned tactical fighters will include features found on modern aircraft that improve both safety and readiness.

The F-5 aircraft, performing for many years as a high-altitude, high-speed tactical fighter used by the Navy and Marine Corps as an adversary aggressor, lacks modern safety systems, avionics and common tactical capabilities found in modern aircraft. This F-5N aircraft is one of three F-5Ns that will be used as prototypes of the modernized cockpit, avionics and supporting aircraft architecture. These upgrades improve safety, capability and reliability, while resolving increasing obsolescence issues.

Upon successful completion of test, the program office will use these upgrades as a major element in the conversion of the 16 F-5E and six F-5F aircraft the Navy recently acquired from the Swiss air force. The program office will convert these 22 aircraft under the Avionics Reconfiguration and Tactical Enhancement/Modernization for Inventory Standardization (ARTEMIS) program. PMA-226 successfully completed the independent logistics assessment for the ARTEMIS Program in June and anticipates reaching a Milestone C decision in early fiscal 2022.

"Constructive collaboration with our partners, the fleet and the PMA-226 team drove mission success despite the technical, schedule and management challenges of integrating 21st-century technology into a 1970s airframe during the pandemic," said Boyd Forsythe, PMA-226 adversary team lead.

The F-5 aircraft receiving the block upgrade prototype modifications will be designated F-5N+/F+. The potential risk of loss of a pilot and/or aircraft will be reduced by adding necessary instrumentation that provides air-to-ground warning, severe weather protection and fuel level warnings. This upgrade will also add tactical capabilities designed to improve "friendly" force air-to-air training.

Given the significant use of commercial-off-the-shelf components with well-defined maintenance and support equipment requirements for the block upgrade prototype configured aircraft, the product support strategy will be organizational level (O-level) to original equipment manufacturer. The block upgrade O-level preventive maintenance will consist of inspections, cleaning and scheduled maintenance tasks. Additionally, the O-level maintainers will load system software using currently fielded commercial off-the-shelf portable electronic maintenance aids.



“This program will provide modernized aircraft with exceptional avionics and tactical capabilities which are needed to allow pilots to practice the tactics and techniques employed against a near-peer threat. Delivery of these improvements will ensure realistic and relevant tactical training the pilots need to win in combat,” said Capt. Ramiro Flores, PMA-226 program manager.

PMA-226 is responsible for life cycle cradle-to-grave management of several legacy and out-of-inventory aircraft and engines, assigned by Naval Air Systems Command and contracted air services. Assigned platforms and services include: Adversary Aircraft (F-5, F-16); Contracted Aircraft Services; U.S. Naval Test Pilot School/**Naval Postgraduate School** T-38, H-72, X-26, U-6, NU-1B, O-2 and OH-58C; and Out of Active Navy Inventory aircraft T-2, H-2, H-3 and A-4, in support of the Naval Aviation Enterprise and international partners.

[Navy Upgrades F-5 Adversary Fighter, Improving Safety, Readiness - Seapower \(seapowermagazine.org\)](#)

[Navy upgrades adversary tactical fighter improving safety, readiness | Tenant Profile | dcilitary.com](#)
[Navy upgrades adversary tactical fighter improving safety, readiness - The Southern Maryland Chronicle](#)

[Navy upgrades adversary tactical fighter improving safety, readiness | Aerotech News & Review](#)

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Naval Postgraduate School Examines Hybrid Force 2045

(Sea Power Magazine 22 Sept 21) ... Edward Lundquist

The U.S. Naval Postgraduate School (NPS) is conducting its annual Warfare Innovation Continuum (WIC) scenario this week on a critical naval priority: the future hybrid force.

Led by the NPS Naval Warfare Studies Institute (NWSI), WIC 2021 is addressing a “design challenge” of “How might emerging technologies, new operational concepts and alternative fleet designs contribute to a more effective naval force across the spectrum from competition to conflict, and how do the alternative fleet designs enhance the effectiveness and resilience of joint, combined and coalition forces across all domains?”

NWSI serves as a hub to facilitate teamwork and collaboration with the NPS innovation ecosystem to optimize NPS’ interdisciplinary educational and research response to naval warfighting needs.

The hybrid event is led by retired Capt. Jeff Kline, the NWSI WIC director, and research associate Lyla Englehorn, the NWSI concepts branch lead, and is taking place both in person on the NPS campus in Monterey and on the “Virtual Campus” via Microsoft Teams this week.

According to NPS spokesman Dave Nystrom, the organizers expect more than 140 participants, including facilitators, panelists, moderators, observers and students, with international participation from Australia, Indonesia, Ecuador, Greece, Romania and the United Kingdom. “Participation teams” will look at the design challenge from different perspectives, with two working at the classified level.

“WIC leverages classroom projects, theses and research in advancing naval concepts, assessing new technologies and developing tactics while enhancing our students’ educational experience and sharpening their combat skills,” Nystrom said. “It’s a perfect example of how NPS combines student operational experience, defense-focused education and applied research to deliver real solutions and leaders educated to employ them.”

Retired Vice Adm. Ann Rondeau, president of NPS, told the participants that Hybrid Force 2045 theme will examine “how the naval services will operate in an era of robots, drones, crewed and uncrewed systems as part of the CNO’s vision outlined in the NAVPLAN and [Marine Corps] commandant’s vision outlined in Force Design 2030. As you consider this challenge, joint concepts and capabilities must also be accounted for as it is the Joint Force that will allow us to fight and win but will also give our nation’s leaders options in the competition phase or in preparation to employ our kinetic capabilities in conflict.



“This is the tenth year NPS has hosted the warfare innovation workshop, which is fully integrated into our year-long Warfare Innovation Continuum,” said Rondeau. “Following the workshop, the Continuum will carry on your ideas, proposed concepts and assessments of emerging technologies as capstone projects, these work, prototyping, experimentation, modeling and simulation, and other research threads. You are the first step in, and now completely part of, that Continuum.”

NWSI Director, retired Vice Adm. Dave Lewis added, “Using participant insights, NWSI will begin to inspire formation of various interdisciplinary research groups to address major topics of concern for our naval service. We anticipate the Hybrid Force 2045 Warfare Innovation Continuum to morph into a NWSI Research Task Force named “Hybrid Force 2045” in early fiscal year ’22. Other NPS Research Task Forces, which the WIC will inform, are the already established Task Force Overmatch and another Task Force planned for FY22 “Maritime Gray Zone.” Research groups will leverage the WIC and follow-on workshops as initiating events and as a construct to begin their own work,” Lewis said. “As some of the very best and brightest from industry, academia, system commands and defense labs, our WIC participants are invited to participate in these efforts.”

In its 70th year, NPS provides defense-focused graduate education, including classified studies and interdisciplinary research, to advance the operational effectiveness, technological leadership and warfighting advantage of the naval service.

[Naval Postgraduate School Examines Hybrid Force 2045 - Seapower \(seapowermagazine.org\)](https://seapowermagazine.org)

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Global Underwater Autonomous Vehicle (AUV) Industry to Mark USD 183.4 Mn by 2026

(Daily Fact & Trends 27 Sept 21) ... Peter Barzilai

The global Underwater Autonomous Vehicle (AUV) market was valued at US\$ 50 million in 2019 and it is expected to reach US\$ 183.4 million by the end of 2026, growing at a CAGR of 20.4% during 2021-2026.

Underwater autonomous underwater vehicle is a kind of underwater unmanned vehicle. As the function of underwater autonomous underwater vehicle is further strengthened, its corresponding application is also popularized from the original military field to the civilian field. According to the survey, the global market size of autonomous underwater vehicle (uuv) increased by 11% year-on-year in 2018. Production reached 149 units, up 4% year on year. The research on intelligent underwater robots, which is expected to reach the compound growth rate of China in the next five years, started late but developed rapidly. In recent years, some companies have launched small models and put them into use. For example Deepinfar and so on. More than 250 autonomous underwater vehicles are expected to enter service over the next five years. In autonomous underwater robot technology research, the United States, Canada, the United Kingdom, France, Germany, Italy, Russia, Japan and other countries in the leading position. Among them, the most famous research institutes are Sea Grant’s AUV Laboratory of Massachusetts institute of technology (MIT), intelligent Underwater vehicle research center of **Naval Postgraduate School** (us), and Underwater Robotics Application Laboratory (URA) of university of Tokyo (Japan). In Harbin Engineering university, Shenyang Institute of Automation, Chinese Academy of Sciences and the study of intelligent underwater robot technology related research institutions since the mid – 1980 – s, design during the “number one” ocean underwater robot remote control type test model, and then developed the “discovery”, realized the automation in the field of 1000 m under the sea exploration, it is of great significance. In terms of intelligent decision-making and control, the “intelligent water” series of underwater robots designed by Harbin engineering university have overcome many technical difficulties, and the corresponding technical indexes are gradually approaching to the engineering application. For example, the “smart water 4” underwater robot can independently plan safe routes, draw target maps and identify underwater targets in the Marine environment. With the accelerating pace of human development of ocean. Underwater robot industry also gradually heat up, the form of a variety of purposes of underwater robot is active in the forefront of the Marine development, in addition



to the traditional military in the field of application of intelligent underwater robot can also be used for underwater areas, such as: Marine surveying and mapping, and underwater construction, material transportation and daily training, etc. The intelligent underwater robot can be used for range test, torpedo identification, etc. The robot can be disguised as a torpedo as a target for daily training and torpedo performance test, and the intelligent underwater robot can be used as an acoustic target for submarine training.

Global Underwater Autonomous Vehicle (AUV) Market: Drivers and Restraints

The research report has incorporated the analysis of different factors that augment the market's growth. It constitutes trends, restraints, and drivers that transform the market in either a positive or negative manner. This section also provides the scope of different segments and applications that can potentially influence the market in the future. The detailed information is based on current trends and historic milestones. This section also provides an analysis of the volume of production about the global market and about each type from 2016 to 2027. This section mentions the volume of production by region from 2016 to 2027. Pricing analysis is included in the report according to each type from the year 2016 to 2027, manufacturer from 2016 to 2021, region from 2016 to 2021, and global price from 2016 to 2027.

A thorough evaluation of the restraints included in the report portrays the contrast to drivers and gives room for strategic planning. Factors that overshadow the market growth are pivotal as they can be understood to devise different bends for getting hold of the lucrative opportunities that are present in the ever-growing market. Additionally, insights into market expert's opinions have been taken to understand the market better.

[Global Underwater Autonomous Vehicle \(AUV\) Industry to Mark USD 183.4 Mn by 2026 – Daily Facts & Trends \(dailyfactsntrends.com\)](https://www.dailyfactsntrends.com/global-underwater-autonomous-vehicle-auv-industry-to-mark-183.4-mn-by-2026)

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Acoustics Experimentation Helps NPS Researchers Better Understand Sensor Capabilities, Monterey Bay

(Navy.mil 28 Sept 21) ... Rebecca Hoag

(NPS.edu 28 Sept 21) ... Rebecca Hoag

It was a surprisingly sunny day when the small group of researchers equipped the R/V Fulmar for their first of five days data collection trip off the coast of Santa Cruz in the Monterey Bay. Their goal was to use vector sensors, passive acoustic technology that detects particle motion and pressure changes, to collect data for several projects. The trip was run by Dr. Kevin Smith, a Professor of Physics at the Naval Postgraduate School (NPS) and the Chair of the NPS Undersea Warfare Academic Group, and Dr. Paul Leary, a Research Assistant Professor of Physics at NPS. Together they run the NPS Undersea Sensing Systems Lab.

Understanding marine acoustics is important for both national defense and environmental purposes. Vector sensors can help detect acoustic signals, and provide estimates of direction to adversarial marine vessels, merchant ships, or marine mammals. Researchers can use the data collected to learn more about sound characteristics in different parts of the ocean, and make determinations about the local underwater propagation environment. This understanding can help unmanned underwater vehicles (UUVs) better navigate and communicate with each other, provides data to improve predictions of operational performance, and aids in marine mammal studies by keeping track of different individual animals via their sounds. Better understanding these big picture items is the focus of Smith's efforts.

"The technologies, the sensors we use, and the processes we employ for tracking marine mammals or merchant vessels is the same kind of processing we use to track other targets of interest to the Navy," Smith says. "So we are building up our skills to see how far we can track something, how accurate we can track something, how quietly a target can be that we can still track."

In other words: "Anything you can use to track a submarine, you can use to track a whale," says Anu Kumar, director of the Office of Naval Research (ONR)'s Living Marine Resources (LMR) program.



ONR is one of the sponsors of this research, along with the NPS Naval Research Program (NRP), and the Los Alamos National Laboratory.

Kumar joined the team on their first day out to observe and assist the researchers in deploying vector sensors and retrieving them for data collection. The team included an NPS summer intern, Navy MIDN 1/C Anne (Bonnie) Tom from the U.S. Naval Academy, PhD student Nick Durofchalk from Georgia Tech, and international PhD student and Brazilian officer Alexandre Guarino from NPS.

Guarino is studying Engineering Acoustics at NPS. His thesis relies on this field research as it looks to determine acoustic properties of the sea floor using various signals collected throughout the test. This process is known as geoacoustic inversion.

“I feel very happy working with these very advanced systems,” Guarino says. This will be his second research project focusing on marine acoustics, but it is his first time working with vector sensors, where previously he worked with pressure sensors. This means he has more data to work with, and new features in the acoustic field to explore.

The trip involved deploying two vector sensor systems at multiple locations along the Santa Cruz shelf to collect data for his work, one of which was provided by the Naval Undersea Warfare Center (NUWC) in Newport, R.I. The team also collected data from a drifting buoy equipped with vector sensors supplied by and with help from an engineer at the NUWC in Keyport, Wash.

“When we do tests like these we are often trying to collaborate with and help out as many people as we possibly can,” Leary says. “We like to construct experiments that touch on several concepts that have important questions around them as far as we can manage with the time frame we have on the boat.”

The team conducted experiments to try to answer questions from Smith, Leary, Guarino, Durofchalk, and several other researchers in and out of NPS. These questions range from purely theoretical to mechanical.

For example, Smith and Leary wanted to see what the data can tell them about the sensors’ abilities. Part of the trip involved deploying two sensors 10 km apart along the Santa Cruz shelf to see if the sensors could localize signals of interest, such as ships and whales, by both picking up the same signal at once. The team generated signals made by imploding light bulbs in a device designed by Leary, who’s the primary engineer of the team, to test how well the sensors could localize the same sound. This signal is also being used to understand the environment between the source and sensor.

Leary’s job was to make sure the data collected was as clear and useful as possible. He works to make the data processing part more efficient by creating pipelines to feed the data into, which reflect data processing as performed on autonomous systems. For example, he would like to get a computer to recognize certain sounds as ships or whales, or make it possible for a researcher to efficiently request processed data products for a period of time from a common database.

Now that it’s the end of the two weeks of data collection, the team is ready to sink their teeth into the data, hoping to advance the Navy’s utilization of vector sensors as a means to better understand the environment submarines operate in, and to protect the fleet from possible adversarial underwater advances.

[Acoustics Experimentation Helps NPS Researchers Better Understand Sensor Capabilities, Monterey Bay Soundscape > United States Navy > News-Stories](#)

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NPS Hosts High-Energy Laser Working Group to Address DOD Domain Needs

(Navy.mil 28 Sept 21) ... Mass Communication Specialist 1st Class Nathan K. Serpico

(NPS.edu 28 Sept 21) ... Mass Communication Specialist 1st Class Nathan K. Serpico

The Naval Postgraduate School (NPS) hosted the latest annual Laser Lethality Technical Area Working Group (TAWG) sponsored by the Joint Directed Energy Transition Office (DE-JTO), Aug. 24-



26. The event brings together the joint services to collaborate and present sponsor-funded research results, as well as for laser lethality subject matter experts to review DOD laser lethality programs and technical efforts and results.

The lethality community also provides technical review of service products that address current and future directed energy lethality gaps.

“Laser weapon systems (LWS) provide a complementary, layered defense option to existing weapon systems and offer great potential to fill warfighter gaps from the air, land and sea,” said Dr. Chris Lloyd, Distinguished Scientist for Navy Laser Weapon Systems Lethality at Naval Surface Warfare Center Dahlgren. “Novel technologies such as directed energy will allow the U.S. to increase overall defensive and offensive capabilities, thus enhancing weapon lethality and effectiveness.”

According to NPS Physics Dept. Research Associate Professor Dr. Joe Blau, NPS’ Directed Energy Group has been conducting research in this field for more than 30 years.

“We have ongoing collaboration with the Meteorology and Systems Engineering departments, as well as working with the MOVES Institute to develop simulations of the use of LWS in battlefield scenarios,” noted Blau.

“LWS offer the warfighter scalable effects options that can address a variety of missions,” continued Lloyd. “LWS will offer a deep ‘electrical’ magazine and reduce logistic resupply burdens, increasing weapon system engagement options and efficiency.”

NPS is uniquely positioned to host these kinds of events, fostering the advancement of directed energy technologies in an environment that is unilaterally focused on advancing capabilities that directly affect the warfighter.

“Given the variety and depth of the presentations and corresponding discussions, this meeting allowed the DOD laser lethality community to stay abreast of related activities and strengthen coordination amongst Service laser lethality teams,” stated Lloyd, who added that the meeting was a definite success.

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Naval Postgraduate School Conducts Education and Research In Cyber Warfare [Audio Interview]

(KAZU 30 Sept 21) ... Doug McKnight

Ten years ago, the then Secretary of Defense, Leon Panetta, warned of a cyber Pearl Harbor. Even though nothing of that magnitude has happened, the threat of a cyber attack is changing how the military is preparing for battle.

An important element in the nation’s cyber defense is located at the Naval Postgraduate School in Monterey. The Center for Cyber Warfare conducts research and educates information warfare officers and military electrical and computer engineers to combat cyber attacks.

I met with the director of the center, Commander Chad Bollmann, who told me the Center focuses on two main areas. First, they focus on computer networks and the devices the networks control.

Chad Bollmann (CB): We also then have a second area of research into wireless communications, such as 3G, 4G, 5G communications. And the goal of this is, again, Navy focused to support this idea of distributed maritime operations or the ability to conduct maneuver warfare at sea. And, you know, at the end of the day, a global navy, a global force requires global communications.

Doug McKnight (DM): 3G, 4G, 5G, that sounds like something I can buy at my local electronics store. Is there an overlap of military and commercial equipment?



(CB): The military a long time ago, starting in the 1980s, made a choice to go with commercial off the shelf technology. So we couldn't do our job if we weren't in touch and very keenly aware of the latest advances in the civilian world. At the same time, the faculty here at NPS has a very strong focus to take that knowledge and to figure out how to apply it to solve Navy problems and capabilities. So we have our feet in both worlds, but our eyes are more focused on the Navy horizon, and figuring out how to use that knowledge and that technology to improve the effectiveness and the efficiency of our ships and systems and people.

(DM): Is Cyber replacing those ships, aircraft and missiles as the new face of warfare?

(CB): War has always had many different faces, but this is a pervasive face. Whether you operate a tank or a ship or an aircraft, or even something as simple as a radio, you have to incorporate cybersecurity and cyber considerations into every thing that you plan to do before you even press the start button. Because if you don't, then you will likely be surprised.

I feel like almost after the Colonial Pipeline attack, that the news cycle has moved on from the fact that there's still hundreds or thousands of organizations in the US on a daily basis that are being hit with ransomware attacks. And if you can get hit with a ransomware attack, you can get hit with a much more destructive attack.

And so our concern here at NPS and in the Center for Cyber Warfare is that many of these same effects that could happen to civilian computer systems, can happen to industrial control systems, military platforms.

(DM): In your opinion, among all the threats facing the United State's, where does cyber fit?

(CB): Again, this is my personal opinion. Cyber is the threat that worries me the most because there's not an established protocol or methodology. There's a lot of potential for misunderstanding. Add to that the fact that tanks and aircraft are really expensive. So because the playing field hasn't been clearly defined and the rules haven't been agreed to by all sides. There's a lot of potential for misunderstanding.

This ability to cause widespread issues using only a few computers which aren't that expensive to maintain, aren't that expensive to acquire, you've lowered the bar to entry.

And so it's not just the fact that there's not a defined playing field. It's the fact that the bar has been lowered to produce significant effects, which has me most concerned about cyber warfare.

That was Naval Commander Chad Bollmann, Director of the Center for Cyber Warfare at the Naval PostGraduate School.

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Why Branding and Reputation Are Essential for Fearless Leaders

(Entrepreneur 29 Sept 21) ... Brendan P Keegan

Leaders need to create authentic values and stick to them to reach consumers who prioritize branding and reputation more than ever.

Marketers put a lot of emphasis on the fact that people aren't just prioritizing specific goods or services: They're prioritizing real values, visions and philosophies. Reputation has become king, and branding is more important than ever if you want to be heard over all the noise in your market. But, why are branding and reputation also so important for you in your business leadership?

Branding and reputation are a two-way affair

What's the basic purpose of a positive brand or reputation? What does it get people to do?

The answer is simple — it proves to people that they can depend on you. A good reputation lays a foundation that shows you're trustworthy and people don't have to be afraid when you're at the helm. Subsequently, people want to keep interacting with you, and they're willing to tell others about you. For instance, research from Edelman shows that people are five times more likely to advocate for a high-trust brand and three times as likely to share their personal information with that brand.



Another study from the Calhoun Institutional Archive of **the Naval Postgraduate School** revealed that when people trust their leaders, they perceive the organizational culture as being open. When that happens, engagement goes up. In practice, that means people end up communicating with you much more openly. They tell you what they want or need and what they think you should do in certain situations. They participate in projects and events. They're happy. Alexander Kjerulf, Chief Happiness Officer for Woohoo Inc., argues that happy people do better at working with others, fix problems more efficiently, and make better decisions.

This goes both ways, too. A study from two doctors at Harvard Medical School and the University of California found that people who associate themselves with happy people have a happier demeanor and a better sense of wellbeing. So, if you have a happy team and are around them regularly, you have a better shot at joy yourself.

There is also a clear link between emotional stability and leadership effectiveness — people who completed an emotional intelligence program showed an 11% increase in core leadership competencies. When you work toward a solid brand and reputation, you become a calming influence that makes everyone feel more comfortable just because you're there with them. And, through the calming influence of those who follow and are comforted by you, you stay calm, too. It's a beautiful cycle.

How to build a brand and reputation you can be proud of

Building a great brand and reputation with the goal of being a truly fearless leader takes three key ingredients — authenticity, passion, and tangibility.

Authenticity means you embrace your true self. All your personality quirks, strengths and weaknesses, and what you're striving to be are all laid out on the table for everyone to see. You're not trying to make yourself into someone you're not. Sometimes, this means you have to become more self-aware and figure out who you really are first. This personal, inner work gives you the ability to represent yourself to others in a way that's truthful.

Passion ties to authenticity. Your passions represent who you are and what you like. Most of the time, people naturally gravitate toward their passions. They put great effort into tasks and projects that involve what they're passionate about, and they keep going even through bumps in the road because they find those passions to be so exciting and energizing. So, by incorporating your passions into your brand, you'll be able to stay motivated, give it your best, and grow your brand faster.

There can't be a disconnect between what you say you're passionate about and what you actually do. When people think of you, they're going to think of tangible things they know about you — the things they can see you do. If you say you love animals, for example, then the fact that you volunteer at a pet shelter gives others real evidence that you're showing them the most authentic version of yourself. Ask yourself, "What am I doing to prove I told the truth about who I am?" Remember that life is one big place to showcase your talent in these kinds of tangible ways and constantly reassure others that you're being authentic with consistent, positive, and productive behaviors.

Building a solid brand and reputation is a choice you can make today

Growing your brand and reputation is a long journey, but rest easy. You are in control over how people see you. Make the choice to work authentically, passionately and tangibly, and you'll gain the fearless attitude that helps every great leader achieve great branding and reputation.

[Why Branding and Reputation Are Essential for Fearless Leaders \(entrepreneur.com\)](https://www.entrepreneur.com/article/325444)

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FACULTY:

Remembering FLIP, an Engineering Marvel for Oceanic Research

(EOS 23 Sept 21) ... David G. Ortiz, Naval Postgraduate School Research Assistant Professor

Since the 1960s, the Floating Instrument Platform has bobbed at the sea surface, supporting numerous discoveries. One scientist recalls his time aboard FLIP during what was likely its final mission.

The U.S. ocean research platform FLIP, which ended its operational life in 2020, was a unique platform for projects requiring a stable vantage over the ocean. This photo was taken during the 2017 Coupled Air-Sea Processes and Electromagnetic ducting Research (CASPER) field study. Credit: Jeremiah Brower, Research Technician, UC San Diego/Scripps Institution of Oceanography

From our perch, surrounded by the undulating sea, we watch a single wave approach. The wind does not roar so much as it pushes. I am recalled to childhood memories of standing on a train platform with my mom as an express line confidently coasts through the station, ruffling our coats as it speeds by and creating just such a push. Today the wind at sea hovers only at about a Beaufort 6—a strong breeze—but it makes me feel small, nonetheless.

The approaching wave is not especially big—I've swum with bigger waves, coming face-to-face with rolling masses of water that traveled hundreds, if not thousands, of kilometers to meet me. But it's not small either, and in this moment, I am overcome by the same sensation of being immersed in the sea and watching an oncoming wave. This time, though, as I track the propagating undulation, I am perfectly dry, dressed not in a swimsuit, but in grimy jeans, worn boots, and a spectacularly tacky, deli mustard–yellow Hawaiian shirt festooned with grape bunches.

If seeing a wave that traveled across the ocean to meet you is a miracle of nature, then watching that wave roll by without so much as adjusting your balance is a miracle of engineering. Now the wave is here, an azure mass of water rolling toward us. As it surges and contorts around the incongruous steel structure supporting us above the water, the wave becomes unstable and breaks, throwing its celebratory whitecap directly under our feet and wetting our soles. The visible sign of breaking comes with its compulsory auditory signature, a resounding crash, eliciting uncontrollable, inarticulate, and giddy whoops of delight from my colleagues and me.

Our lapse in professionalism draws a rebuke directly from the captain, standing on the navigation bridge 6 meters above our heads, and we snap back to reality: It's fall 2017, and we are in the middle of the Southern California Bight, participating in a major scientific field study aboard a historic, one-of-a-kind oceanographic platform.

We scurry up a series of steel ladders and return to our duties. Later, as I lie in my bunk—a few meters below the water line—I forgive myself. If seeing a wave that traveled across the ocean to meet you is a miracle of nature, then watching that wave roll by without so much as adjusting your balance is a miracle of engineering. And for that, we can afford some giddiness.

Out at Sea but High and Dry

The Floating Instrument Platform (FLIP) is a unique asset in the U.S. ocean research vessel fleet. Technically, FLIP is not a ship or a vessel; it is a platform. Well, to be precise, FLIP is a very, very large spar buoy, a type of cylindrical float that sits upright at the ocean surface and is specifically designed to respond minimally to surface wave motions.

This 109-meter buoy comprises what looks like the front of a ship that's had its aft section replaced by a 90-meter-long, 4-meter-wide steel pipe resembling the working end of a baseball bat. In its resting state, FLIP floats lengthwise at the ocean surface. For expeditions, it is towed out to sea and, living up to its name, "flips" 90° to "stand" vertically at the surface.

Flipping is achieved by quite literally scuttling (a nautical term for purposefully sinking) the ballasted tubular end of the platform. This controlled, partial sinking—often with the full complement of personnel and equipment aboard—is executed precisely and expertly by the crew, who must be eternally commended for their perfect record in 390 attempts. Although the whole process takes 20–30 minutes, most of the motion occurs in about 90 seconds, taking the platform from an angle of less than 20° to fully



vertical. During this time, crew and passengers execute a slow-motion, Fred Astaire–like dancing-on-the-ceiling routine, sans tuxedos.

After the flip is complete, the “boat” section perches above the water surface. This section contains most of the usable space and sleeping quarters, which meet the comfort standards that satisfied a 1960s era Navy sailor—the word spartan comes to mind. All the interior scientific laboratory space, a galley, and other workspaces are connected by a network of exterior steel ladders and grates. Together with three foldable booms, they give the platform the appearance of a giant mechanical cephalopod or perhaps the treehouse of Peter Pan’s Lost Boys reimagined for the movie *Waterworld*.

Conceived, designed, and built between 1960 and 1962, FLIP was originally intended to allow collection of precise acoustic measurements at sea. Frederick Fisher and Fred Spiess almost casually presented their ingeniously engineered platform in a journal publication that ran barely 11 pages. By 1969, FLIP had been modified with booms—the arms of the aforementioned cephalopod—to facilitate additional science, and it was being used for major field campaigns.

FLIP was so well engineered to remain motionless amid the waves that during a deployment in the northern Pacific in late 1969, the entire crew had to abandon the platform after 3 days of confinement inside without any power. Tom Golfinos, FLIP’s long-serving captain, and esteemed oceanographer Robert Pinkel, both of Scripps Institution of Oceanography, recounted to me that large Pacific swells overtopped the platform, reaching 15 meters above the still water line and knocking out power. As it had been designed to do, FLIP simply stood impassive as these massive waves broke around it, vindicating its designers but terrifying its occupants.

Among its travels through the remainder of the 20th century and the early 21st century, FLIP was towed from San Diego to Barbados, drifted near the Hawaiian Islands, and was lashed by stormy seas off the Oregon coast. All the while, it provided exactly what Fisher and Spiess envisioned: a stable platform from which to make precise measurements at sea.

A Critical and Charismatic Buoy

The greatest challenge to measuring ocean properties has always been, well, being on the ocean. The beauty and genius of FLIP is that it isolates us from the ocean. The greatest challenge to measuring ocean properties has always been, well, being on the ocean. It is remote, dangerous, alternately cold and hot, wet, salty, and always moving. In an almost metaphysical way, this colossal steel tube allows humans to exist immersed within the ocean while protected from its tantrums.

The physical concept and engineering practice of deploying spar buoys for scientific expeditions were not novel in the early 1960s. But designing a spar buoy to hold scientific expeditions was a boundary-pushing step. The ambition and spirit that Fisher and Spiess captured in their design, which expanded over the platform’s decades of use, helped propel science, exploration, and discovery across the ocean sciences for more than half a century.

In my field of air-sea interactions alone, FLIP contributed to many discoveries. For example, it helped reveal how swells generated by distant storms travel across vast ocean basins, and it enabled scientists to make very accurate measurements of atmosphere-ocean transfers of energy and material (gas), information that remains widely used in numerical weather and climate prediction systems. More recently, scientists aboard FLIP directly measured fine-scale currents and wind patterns within centimeters to millimeters of the sea surface using techniques previously confined to controlled laboratory experiments.

In addition to being a supremely useful platform for scientific study, it was a charismatic buoy—and quite frankly, there are not many charismatic buoys. Simply put, it was interesting to think about, talk about, or just look at, and it left an impression on almost everyone who saw it, let alone on the “Flippers” who have been aboard during a flip.

Once, shortly after my time aboard FLIP, I launched into a lengthy explanation of my research when a man I was chatting with asked about my work. Seeing the glazed look come over his eyes (which speaks more to the quality of my explanation), I changed tack and just showed him a picture of FLIP to illustrate what I “do.” Immediately, his interest returned as he recognized FLIP and recounted how he had learned



about it in his fifth grade science class. Indeed, FLIP was a tangible icon with which many in the science-interested public identified.

A Month Aboard a Most Unusual Platform

In October 2017, with a freshly minted Ph.D. in applied marine physics, I spent about 35 days aboard FLIP, and it definitely made a lasting impression on me as well. I was aboard as part of the science team for the U.S. Navy–funded Coupled Air-Sea Processes and Electromagnetic ducting Research (CASPER) program, which involved an interdisciplinary and international cohort of scientists from several academic universities and federal research laboratories. The scientific goal of CASPER was to better understand how the atmosphere and the ocean interact, as well as how this atmosphere-ocean coupling affects electromagnetic energy traveling in the marine environment. The CASPER science team had conducted a field campaign offshore North Carolina in 2015 and then commissioned FLIP for its West Coast campaign during fall 2017.

FLIP bobs; it does not translate. This difference in motion mitigates sea sickness yet leaves passengers with the uncomfortable sense that they've been marooned at sea. In some ways, being aboard FLIP was like scientific cruises aboard more horizontal research vessels. Ship life revolved around your watch, the designated period when you do the three primary shipboard activities: work, wait, and eat (sleep, the sanctified fourth activity, is done off watch). Also similar is how you are continually steeped in the aromas of fresh paint, burnt diesel, and brine.

However, in many other ways, time aboard FLIP is not like any other research cruise. FLIP bobs; it does not translate (i.e., move under its own propulsion). This difference in motion mitigates sea sickness yet leaves passengers with the uncomfortable sense that they've been marooned at sea. Also, all the livable space is vertically stacked, with hallways being replaced by ladders, which made simply going to bed a challenging multistep process.

After removing class IV laser safety goggles—because of the fascinating nighttime experiments your colleagues are running outside—and noise-blocking earmuffs, you climb down three exterior ladders, make your way through the generator room (hence the earmuffs), and maneuver onto a ladder extending down into the darkness of the spar, or tube, section of FLIP. Through a bulkhead hatch at the bottom of this ladder is yet another ladder to scale down—but don't forget to first secure the hatch, quietly, without waking up sleeping scientists. Then, finally, you can climb into your own bunk and try to fall asleep to the sound of waves, hoping that you don't have to use the head (bathroom) some 12 meters above you in the middle of the night.

Its peculiarities and inconveniences aside, FLIP was essential for achieving the objectives of CASPER because we needed a stable vantage from which to make measurements, which FLIP offered, especially compared with typical oceangoing ships. The data we collected from FLIP in 2017 have already given us new, fundamental insights into these physical processes.

For example, we are developing new tools to understand how electromagnetic signals propagate differently in various marine atmospheric conditions, techniques that are important for improved maritime communication and shipboard detection of low-flying objects for national security interests. We are also discovering how ocean internal waves leave distinct imprints on the atmosphere through complex and previously unknown mechanisms, and are getting a firmer grasp of the influence of ocean surface waves on atmospheric processes and atmosphere-ocean exchanges that regulate weather and climate. The CASPER team is also using our measurements to inform and validate sophisticated numerical models to help understand these processes and to generalize and translate our findings to other ocean conditions.

The Sun Sets on FLIP

My time aboard FLIP was short, but being part of the platform's legacy has been a truly humbling experience. My time aboard FLIP was short, but being part of the platform's legacy has been a truly humbling experience. Barring a major intervention, the fall 2017 cruise was FLIP's last. In September 2020, the U.S. Navy ended its support of the platform, and its era of operational use came to an end. Although the pandemic was not the cause of this eventuality, it meant FLIP's transition to emeritus status came without an opportunity for a public good-bye or any well-deserved fanfare.



Similar to the now defunct Arecibo Observatory in Puerto Rico, FLIP was a creation from a bygone era. Its drift into the sunset comes as research priorities and interests in the Earth sciences are shifting. FLIP was all steel and analog components, but the future will be built with lightweight alloys, carbon fiber, and autonomous systems. There is, of course, the understandable reality that exploring new horizons requires new technologies and that resources to support these explorations are finite.

In short, everything has an expiration date—not even a Hollywood credit helped Arecibo in the end. However, like its Boricua cousin of the planetary sciences, FLIP’s legacy goes beyond the innumerable discoveries it enabled, embodying human ingenuity, curiosity about the natural world, and the drive to witness its unperturbed beauty.

FLIP’s history and significance in oceanography are being actively discussed in the scientific community. My reflection here is only one perspective on a career that spanned decades and involved countless individuals. Given that my experience with FLIP came from its last chapter, I feel it is important to recognize the giant upon whose shoulders I and other researchers have stood. That giant comprised not so much the platform itself, but the engineers and shipwrights who designed, built, and maintained it; the venerable and irreplaceable Capt. Tom Golfinos, whose knowledge, memories, and stories weave an oral history of the past half century of developments in oceanographic science; and numerous full-time crew over the years, including David Brenha and John Rodrigues, who made the 2017 cruise possible. In spirit, if not by name, I would recognize the pioneering scientists who pushed the boundaries of oceanic exploration, inspiring the generations of scientists who followed them. These people and others made my time aboard FLIP possible—my time to bob above the ocean, watch the waves, and whoop as they passed—all without so much as a jostle or a wobble in my feet.

[Remembering FLIP, an Engineering Marvel for Oceanic Research - Eos](#)

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Federal Law Enforcement Veteran Named President of NEC National Security Systems

(Find Biometrics 29 Sept 21)

NEC has officially announced its new President of NEC National Security Systems (NEC NSS), and she is a respected veteran of the federal law enforcement space.

After a decades-long career with the Bureau of Alcohol, Tobacco, Firearms and Explosives, Dr. Kathleen Kiernan went on to found Kiernan Group Holdings, a risk management firm focused on homeland security and emergency management, in 2009. She is also an adjunct faculty member at the **Naval Postgraduate School’s** Center for Homeland Defense and Security, and the Chair Emeritus of InfraGard National Members Alliance.

In addition to those roles, Kiernan has served in an advisory position for organizations including Knowledge Computing Corp., i2, the Police Foundation, and the Center for Advanced Red Teaming, where she currently sits as a Member of the Advisory Board.

Kiernan took on the role of NEC NSS interim CEO earlier this year. In a statement announcing her official appointment as President of the FOCI-mitigated subsidiary, she expressed her excitement about the work that NEC NSS is doing in serving the US government.

“These past two months at NEC NSS have been simply outstanding,” she said. “Our focus on cutting-edge technology delivered at the speed of need in the global environment, while also providing shared value to our communities, is an unbeatable combination.”

Kiernan is also inspiring some excitement at NEC, with SVP and Chief Experience Officer Raffie Beroukhim calling her “absolutely the right fit” for the company. “In her almost three decades of experience in federal law enforcement, she’s seen it all and it’s that public-sector security expertise we want guiding us well into the future.”

The solidification of NEC NSS’s leadership may reflect NEC’s intensifying focus on the public security sector. NEC Corporation of America named Mike Lesko as its Senior Director of Government Technology & Services earlier this year, with Beroukhim noting at the time that Lesko’s mandate will be



to improve NECAM's public safety and law enforcement strategy and to represent NEC's interests on strategically selected policy boards.

NEC already has a high profile in the government security sector, thanks in part to its biometric technology, which has performed well in Department of Homeland Security testing.

[Federal Law Enforcement Veteran Named President of NEC National Security Systems - FindBiometrics](#)

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What you should know about 'Bitskrieg: The New Challenge of Cyberwarfare'

(Airforce Times 29 Aug 21) ... Todd South

Cyberwarfare has evolved as not only a buzzword in defense circles but one that underpins much of what modern warfighting, with or without bombs, bullets and bandages, has become.

Dr. John Arquilla and his colleagues at the Rand Corporation and the **U.S. Naval Postgraduate School** were peering into the interconnected planet, and especially its future battlespace in the early 1990s. Despite creating new uniformed and civilian jobs in defense, as well as establishing U.S. Cyber Command, Arquilla sees cyber thinking among political and military leaders as potentially fractured or sometimes missing the point.

Arquilla served as an advisor to former Secretary of Defense Donald Rumsfeld, assisted with information strategy for former Deputy Secretary of Defense John Hamre during the Kosovo War and consulted for Gen. Norman Schwarzkopf during Operation Desert Storm.

The NPS professor emeritus wrote the recently published book, "Bitskrieg: The New Challenge of Cyberwarfare," which provides breadth and depth in a slim volume of roughly 200 pages.

Military Times spoke with Arquilla about the book and some of what he's trying to share with everyone from the grunt to the general officer and civilian leaders on how the United States needs to shift its thinking and operations.

The following Q&A interview has been edited for length and clarity.

Q: What are your thoughts on Cyber Command, how it was formed, how it's being staffed, used, etc.?

A: In the past, putting cyber behind the green door slowed the process of getting these ideas out across the services. It ramped up so quickly. I have a concern at the high number of private contractors. I think that's a problem. The military should put more into getting uniformed personnel into those billets.

I understand that is breaking down now. And in the beginning, there was too sharp a division between offensive and defensive operations. Everything you can learn about good defense can get from doing offense, vice versa.

Q: What should every entry-level service member to service chief understand about cyberwarfare at their level?

A: Every E-1 should know that they are sensors, not just shooters. Every sensitive site exploitation can create an opportunity for information. Also, everyone is an emitter. Your smartphone's probably got 20 [different] apps on it to say where you are. Information Mission Control is absolutely necessary. Realize that everybody is in the information age. Military organizations are sensor organizations, not just shooting organizations. The business of sensing is complemented by realizing that every individual on some level is an emitter of information.

Mid-career military members don't need to be computer geeks but need to understand themselves as information managers. Make sense of all this information. What's relevant to the situation that I am facing?

At higher levels, G1+ must make sure to connect those sensor and information links with issues of advanced organization and doctrine. And create the next [AirLand Battle](#).

Q: There are a lot of references to Distributed Maritime Operations, Multi-Domain Operations, and other new warfare concepts. How does "Bitskrieg" fit in with or contradict these approaches?



A: On MDO, it's important as a step towards Bitskrieg. But if you're truly operating like China in warfare or [Russian Gerasimov doctrine](#), then you need to tease out the implications for military doctrine and organizations for themselves. The "how you fight" optimal doctrine is not going to be mass on mass, not even maneuvers like Blitzkrieg. It's the distribution of forces and fires capabilities. We called that "swarming." My belief, to this day, the gathering swarm the coming swarm is really where we need to be moving. I do see distributed lethality, DMO, all building blocks to the battle.

To optimize the emerging new doctrine, you have to have the right organizational form. A century ago, planners brought the tank, plane, radio communications and other technologies together. And they realized it was important to concentrate tanks in their own organizational unit such as the Germans did with the Panzer division. Germans got it right first, others followed. What's the right organizational form? The biggest challenge and most important is organizational. Instead of a military of a few large things like aircraft carriers, bomber fleets or Marine Expeditionary Units, we should build a military of many small things. That allows us to operate in a distributed way, be more elusive, more accurate as shooters. Feed the whole notion of the military as a sensory organization.

Among all the services I think the Marines are the farthest ahead in catching a glimpse. They're the closest to Bitskrieg if you ask me. Decoupling range and accuracy from weapons. Working across great distances and extremely high levels of accuracy. The many and the small operating highly effectively. Especially in littoral operations. Hopefully what the Marines are doing will be a laboratory for the other services.

That night, over 100 troop-laden Taliban trucks were destroyed. This was Bitskrieg in action: the skillful blending of fast-moving information and firepower in swift, lethal fashion. The Taliban truck convoy was destined to be on that road for hours, vulnerable for more than enough time for an aware enemy to strike at it.

— -Dr. John Arquilla, "Bitskrieg: The New Challenge of Cyberwarfare"

Q: Is the United States doomed to sluggishly trudge along with our cyberwarfare concepts as China and Russia's militaries move ahead until there's a reckoning?

A: We are way out of balance here. Our defenses are exceptionally weak, [but] to some extent moving ahead. I'm proud to say the NPS is one of the principal early advocates for data mobility and cloud storage. Keep your data moving and encrypted and it's better. Strong encryption and data mobility has to happen and it has to happen right away. Every time you hear a story, whether it's the colonial pipeline, title companies, office of personnel management got hacked, [the] emphasis [needs to be] on defense. I know everyone loves offense, but we've got to balance. Russia, China, North Korea and Iran have balanced.

And as far as kinetic warfare, now bombs and bullets will be directed by bits and bytes, just as the French and British took tanks and planes and parceled them out across the forces. Today we're grafting the new technologies. Whether it's carrier ops or land battle or any other area of military activity. We're a little bit behind the Russians and a lot behind the Chinese. It's less about an arms race and more about an organizational race. We have to redesign and redefine ourselves.

Q: You reference early successful operations in Afghanistan. Turning to similar areas, how could we properly use cyberwarfare in our non-peer operations in Libya, Somalia, Mali, etc.

A: I think we need to rekindle the spirit of those 11 Green Beret A-Teams that went to Afghanistan in the fall of 2001. Things like the tactical webpage and other tactical systems. They won a campaign in a very short amount of time. The campaign against ISIS under President Donald Trump was very much organized in small teams. Kurds were a tremendously reliable indigenous force to achieve in a very quick time. Again, it's an example of how the many and the small, less permissive in some places, probably not sending teams in Libya or Yemen but we do have them operating in and around Somalia. Even in an era of great power competition, there are little brushfires going on. Just like in the Cold War and we're going to see that again. But it's going to be "little green men," not the tanks into the Fulda Gap.

Therefore, militaries are reluctant to discard older ways, with generally successful track records, for uncertain new methods. It is worth keeping the past in mind as we ponder the cyber future.

— -Dr. John Arquilla, "Bitskrieg: The New Challenge of Cyberwarfare"

Q: Any closing thoughts to share with readers on cyberwarfare and its future?



A: I am very optimistic and here's why: I think the early experiences of an officer are formative. The three-four stars today had their formative experiences in Desert Storm. The officers starting to put on stars now, will all have had their formative experience in the post-9/11 period campaigns. All will have these experiences and understanding and willingness to use new tools in new ways. I saw it until I retired recently in my classrooms. Officers usually attend NPS at about 10-12 years into their careers. I saw it coming in 2008-09.

And artificial intelligence will transform much of what we're doing. I think GI Joe and "AI Jane" are going to get together in the coming years and AI will have as profound an effect in military affairs in the 21st Century as the aircraft did in the 20th Century. That is something that has tremendous potential for military and human affairs. China and Russia moving full speed ahead. An AI arms race, I think, is underway and will have transformational effects. I want to make sure that the U.S. military is in the forefront of development and what they will mean organizationally.

[What you should know about 'Bitskrieg: The New Challenge of Cyberwarfare' \(airforcetimes.com\)](https://airforcetimes.com)

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The Mavi Vatan Doctrine and Blue Homeland Anthem: A Look at Turkey's Maritime

(CIMSEC 27 Aug 21) ... Jeff Jager and Andrew Norris

According to its main proponent, retired Admiral Cem Gürdeniz, Turkey's concept of mavi vatan represents an idea, a symbol, and a doctrine. As an idea, mavi vatan encompasses Turkey's maritime interests; as a symbol, Turkey's eponymous military exercise in 2019 demonstrated its maritime jurisdiction claims and the potential of the Turkish Navy and Turkey's maritime capabilities; and, as a doctrine, mavi vatan guides the defense of Turkish sovereignty at sea, including the control of Turkey's continental shelf and exclusive economic zone (EEZ). Mavi vatan has increasingly gained prominence both domestically and as a component of Turkey's foreign policy, which in the last half-decade has become increasingly aggressive and securitized, with an anti-Western, anti-U.S. outlook as a central organizing principle.

Mavi vatan most visibly manifested itself through Turkey's dispatch in August 2020 of the seismic research vessel *Oruç Reis*, under the escort of five warships, to conduct surveys of possible hydrocarbon resources in maritime zones claimed by Greece. This led to, among other things, a collision between one of the warships and a Greek warship shadowing the Turkish flotilla; France dispatching military assets to the Eastern Mediterranean in a show of support for Greece; and Greece vowing to procure more military hardware with which to confront Turkey. All of this has dramatically raised regional tensions, which were already fraught as a result of other manifestations of mavi vatan, such as the aforementioned 2019 military exercise and Turkey's exploratory activities in waters claimed by Cyprus in 2019.

The Turkish Presidency's Directorate of Communication's September 2020 YouTube release of the Mavi Vatan Anthem (*Mavi Vatan Marşı*) exemplifies the increasing prominence of mavi vatan in Turkish security affairs. The Anthem, which resembles in many ways the Turkish national anthem, is accompanied by a propaganda video highlighting the centuries-long history of the Turkish Navy protecting the mavi vatan. Gaudy and replete with symbolism, the Mavi Vatan Anthem reflects not only the significance and prominence of mavi vatan in contemporary Turkey, but also provides insights into Turkey's mindset and worldview. The Anthem provides an example of how Turkish President Recep Tayyip Erdoğan's pro-religious stance is now more formally shaping Turkey's securitized foreign policy perspectives. This article, after providing some background and context, translates and analyzes the Mavi Vatan Anthem and the associated propaganda video to allow for a fuller understanding and discussion of it and its import.

Mavi Vatan Fundamentals

Mavi vatan establishes the defense of Turkish sovereignty in the maritime domain as its supreme objective. To achieve this objective, mavi vatan employs the principle of forward defense to pursue three goals: making Turkey a regional maritime power; buttressing Turkey's maritime claims; and countering



Western attempts to constrain Turkey. The underlying forward defense principle focuses on securitizing or militarizing Turkey's foreign policy and defending Turkish sovereignty and territorial integrity as far forward from its land borders as possible, both of which rely on developing self-sufficiency in Turkey's defense industry, which is already producing indigenous high-quality naval vessels.

By making Turkey a regional maritime power, the first goal of mavi vatan, Turkey aims to ensure it possesses the military capacity and capability to project power and protect Turkish interests in its surrounding seas (the Black Sea, the Aegean Sea, and the Eastern Mediterranean) and further abroad if necessary. This serves to enhance Turkey's regional standing generally, and also allows it to shape more aggressively the outcome of regional disputes in a manner favorable to Turkey's national interests. On a larger global stage, this enhanced power may serve as a deterrent to Western actors involving themselves in matters of interest to Turkey, and may also elevate the appeal of Turkey as a partner to other major powers, including Russia and China.

Mavi vatan's second goal, strengthening Turkey's regional maritime boundary claims, envisions Turkey declaring, delimiting, and defending maritime boundaries in the Aegean Sea, Black Sea, and Eastern Mediterranean. This goal represents perhaps the most common interpretation of mavi vatan, which analysts such as Ryan Gingeras at the **Naval Postgraduate School** now use as a "shorthand expression for Ankara's maritime claims." Through this second goal, Turkey aims for access to energy resources, increased influence, and domestic economic growth. As with the overall militarization of Turkish policy, this goal has the added domestic appeal of a strong and assertive Turkey "taking back" its rightful maritime birthright, with the bonus that this is being done at the expense of traditional foe (and NATO ally) Greece.

The desire to counter Greece links to mavi vatan's third goal of preventing perceived Western attempts to constrain Turkey, colloquially referred to as a "second Treaty of Sevres" by Turks. Just as Western powers aimed to dismantle the remnants of the Ottoman Empire at the end of World War I in the Treaty of Sevres, so too in the minds of mavi vatan adherents the West (mainly Greece and the United States, but also the EU and other competitors in the Eastern Mediterranean) aims to dismantle the link between Turkey's territory, its maritime jurisdictions, and the self-proclaimed Turkish Republic of Northern Cyprus.

The Increased Prominence and Acceptance of Mavi Vatan

Mavi vatan has been increasingly accepted as a component of Turkish foreign policy. Though the concept of mavi vatan was first introduced in 2006, the first indications of high-level political endorsement emerged in 2019, when President Erdoğan twice appeared in photographs in front of maps showing mavi vatan boundaries. These photographs became front-page news in Turkey after Greek politicians and media strongly reacted to what appeared to be an endorsement in a military setting of a claim by Turkey to waters (and associated resources) claimed by Greece. President Erdoğan's endorsement of the concept is both indicated by, and perhaps served as encouragement for, a recent proclamation by a Turkish Navy Commander in Erdoğan's presence, without contradiction or rebuke, that "[w]e are proud to wave our glorious Turkish banner in all our seas. . . I submit that we are ready to protect every swath of our 462 thousand square kilometer blue homeland with great determination and undertake every possible duty that may come."

Perhaps on cue from President Erdoğan, reference to and endorsement of mavi vatan has exploded in recent times amongst senior defense and military officials. In August 2019, Hulusi Akar, a retired Turkish Army general and former Chief of the Turkish General Staff now serving as the Turkish Minister of Defense, provided what appears to be the first public support from a senior defense official for mavi vatan during his speech commemorating Turkish Victory Day, which marks Turkey's final victory over Greece in the Turkish War of Independence. Other such examples include the Turkish Naval War College using Mavi Vatan as the title of its respected journal and the Turkish Ministry of National Defense releasing a statement that Turkey will "defend all of our rights, interests, and advantages in our blue homeland, as we have until today and as we will until the end." And as if to cement the centrality of this concept in Turkish strategic thinking, the February 2019 naval exercise, the largest in the history of the



Turkish Navy, involving 103 Turkish Navy vessels and more than 20,000 troops and air units in the Black Sea, Aegean Sea, and Eastern Mediterranean, was named Mavi Vatan.

It is against this backdrop of Turkey's enthusiastic and burgeoning embrace of the mavi vatan concept that the Directorate of Communications released the Mavi Vatan Anthem. The Anthem offers a fascinating glimpse into Turkey's current military, diplomatic, and domestic mindset, as analyzed in the following sections.

The Mavi Vatan Anthem

Resplendent with garish imagery and jingoistic narration, with nationalist, Islamist, and neo-Ottoman themes, the Turkish Presidency's Mavi Vatan Anthem provides a stark illustration of the extent to which the Erdoğan government has embraced mavi vatan and demonstrates the neo-Ottoman ethno-religious nationalism espoused by President Erdoğan. This section translates, explains, and analyzes the Anthem in manageable segments, accompanied by the corresponding video segment to allow for concurrent viewing and correlation by the reader.

Scene 1: The Martyred Father

Scene Description: With a background of slow, melancholic, traditional Turkish music, the Turkish Presidency's presentation of the Mavi Vatan Anthem opens with two Turkish Navy officers, serving as casualty assistance officers, notifying the conservative wife and children of (apparently fictional) Navy Commander (General Staff) Süleyman Mehmetoğlu that their husband/father has died in service (şehit in Turkish, literally "martyred"). The scene itself begins with Mehmetoğlu's son reading to his younger sister (who is wearing a Turkish-flag bandana) from a book inscribed with a memorable quote by Barbaros Hayrettin Pasha, the famous 16th century Ottoman pirate turned Admiral in Chief of the Ottoman Navy, which reads: "He who commands the seas, commands the world" — a fitting introduction to the production that follows.

A ringing doorbell alerts the children and their mother to the arrival of two casualty assistance officers, one holding a folded Turkish flag and the other a model of an Ottoman-era sailing ship with the name Barbaros written on it. As the door opens, a voice-over reciting a poem begins, and the camera pans to show the children standing in front of their mother, who is wearing a long skirt and a headscarf, but whose head the video cuts from the scene. The casualty assistance officers present the flag and the model ship to the son, and, with the voice-over continuing, the son proudly hangs the flag from the balcony of the family home.

The video then cuts to a new setting, with a Turkish sailor raising the Turkish flag at the front of a Navy vessel, and then to a Turkish Navy officer saluting sailors as he comes aboard the vessel. We next see a framed photograph of martyred Commander Mehmetoğlu inside the bridge of the vessel, next to the model of the Barbaros and a framed photo of his young son (as earlier depicted in this scene). From this closing part of the scene, we learn that young Mehmetoğlu followed in his father's footsteps as a commissioned officer in the Turkish Navy, and is both the captain of the vessel shown in the video and the officer we previously saw saluting sailors as he came aboard.

Translation of the first stanza of the recited, voiced-over poem:

Eyyy you are the blue sky's white and red ornaments

My sister's wedding dress

The last cloth of my martyr

My bright wavy flag

I read your legend

I will write your legend

I will dig the grave

of those who don't look at you as I do

I will break the nest of the flying bird

that doesn't salute you

Discussion and Analysis: Turks and well-versed Turkey-watchers would be able to identify the owner of the voice reciting the poetry, after hearing just the first "Eyyy," as none other than President Erdoğan,



who has dominated Turkey's airwaves and politics since the early 2000s. In this first scene presenting the Mavi Vatan Anthem, President Erdoğan is reciting the first stanza of the famous poem titled "Bayrak" ("Flag") by Arif Nihat Asya, an influential nationalist active in the early decades of Turkey's Republican era. "Bayrak" was first read in January 1940 at the ceremony marking the end of the Allied occupation of Adana, and is a tribute to Turkey's national banner, red with the white crescent star of the Ottoman Empire and Islam. In Turkey, "Bayrak" is to the Turkish flag what the Pledge of Allegiance is to the U.S. flag in America.

This first scene of the Mavi Vatan Anthem video presents two important themes of the mavi vatan perspective that the remainder of the video further highlights. The first theme might be labeled as an "historical lineage," through the plot line of the son of the martyred Mehmetoğlu growing up to captain a Turkish Navy vessel and the historical connection between the Ottoman fleet commanded by Barbaros Hayrettin Pasha and the modern Turkish Navy. This plot line, neo-Ottoman at its core, helps establish the ancestry of the Turkish Navy and historical justification for modern Turkish claims on sovereignty and/or influence in waters once commanded by Barbaros Hayrettin Pasha for the Ottoman Empire. This opening scene's use of "Bayrak," the famous Turkish nationalist poem marking the Turkish victory over the Allies in the Turkish War of Independence, establishes the second theme: the anti-Western perspective of mavi vatan.

Scene 2: Preparing for Battle

Scene Description: As traditional Ottoman music begins, Scene 2 begins with the martyred Mehmetoğlu's son on the ship he captains, scanning the horizon through a pair of binoculars. The scene then transitions to imagery of a number of Crusader vessels in the water, then back to Mehmetoğlu's son, and then to a turbaned Barbaros Hayrettin Pasha. Next, the video shows Barbaros Hayrettin Pasha's staff planning an operation, interspersed with Mehmetoğlu's son's staff conducting planning operations. This back-and-forth between modern and Ottoman times serves to strengthen the linkage between the Turkish Navy and the Ottoman fleet. The video then cuts to Crusader sailors, cheering and with swords drawn, preparing for battle, and then to Barbaros Hayrettin Pasha and his sailors doing the same. The scene closes with Barbaros Hayrettin Pasha drawing his sword, ready for battle. The lyrics of the Mavi Vatan Anthem start at 1:18 in the video.

Translation of the first stanza of the Mavi Vatan Anthem:

The infidel Alliance formed a single nation

The Army of Islam took refuge in the Creator

The Lion of the Seas unsheathed his sword Zülfikar

In the Mediterranean, the target was the infidel Alliance

Discussion and Analysis: With its continued focus on Barbaros Hayrettin Pasha, Scene 2 of the Mavi Vatan Anthem tells the story of the Ottoman victory in the 1538 Battle of Preveza, in which the Ottomans' defeat of the "infidel Alliance" (in English known as the Holy League between the Holy Roman Empire, Venice, the Spanish Empire, Genoa, and Malta) initiated centuries of Ottoman competition for dominance of the Mediterranean. In this first stanza, we see the "Lion of the Seas," Barbaros Hayrettin Pasha, drawing his sword, named Zülfikar. Zülfikar was originally given as a gift by the Prophet Muhammed to his cousin Ali, who ruled as the fourth Caliph. The first phase of the Mavi Vatan Anthem, in its original Turkish, is küfür tek millet. In this context, we translate küfür tek millet as "infidel Alliance," and the use of the phrase in the Mavi Vatan Anthem cleverly describes both the "infidel Alliance" against which the Ottomans were fighting, and the primary place of Islam and Muslims in Ottoman society. Historically, in Ottoman Islamist circles, the phrase küfür tek millet represented, derogatorily, all non-Muslims in the Empire.

Scene 2 establishes the critical importance of Islam in the history of the Ottoman Empire and for the Republic of Turkey as it exists in 2021 under President Erdoğan, given the Islamist foundation of President Erdoğan's politics. This scene also reinforces the overall anti-Western worldview of the Mavi Vatan Anthem and the mavi vatan perspective, depicting as it does "the infidel Alliance" as the target of Turkish/Ottoman aggression.



Scene 3: Ottoman Victory

Scene Description: This scene, which covers the second, third, and fourth stanzas of the Mavi Vatan Anthem, begins with Ottoman sailors disposing of pages of the Koran in the sea, a proper disposal method for Islam's holy book. They do so in preparation for impending combat with the Crusaders, with arrows drawn and cannons firing. Barbaros Hayrettin Pasha appears and gives the "forward!" hand and arm signal, and the Ottoman fleet engages the Crusader fleet. Battle scenes follow, quickly transitioning to Barbaros Hayrettin Pasha writing his victory message (fetihname) and giving thanks to Allah for the victory. The scene closes with an aerial image of the defeated Crusader fleet, on fire and sinking in the Mediterranean.

Translation of the second, third, and fourth stanzas of the Mavi Vatan Anthem:

They disposed of the written surahs in the sea

There is no other victor than Allah; the storm turned them around. Barbaros Hayrettin Pasha struck the Crusader Alliance with wave after wave of the fleet of Islam.

The Captain of the Sea with the victory at Preveza
Gave glory to Allah and wrote the victory for Allah
With prayer and praise to the Prophet
That day was the beginning of the history of the seas

With repute and fame, long live the Captain of the Sea!
The fleet should be inspired by the bravery of the sailors!
The Prophet's Army comes wave after wave
Ottoman sailors and soldiers in the waters of the Mediterranean

Discussion and Analysis: The phrase *Lâ gâlibe illâllah* (translated here as "There is no other victor than Allah") recalls the renowned words of Beşiktaşlı Nuri Efendi, the famous Turkish religious scholar, composer, poet, and author, who is routinely and was recently highlighted at various social and diplomatic events by President Erdoğan. In the Mavi Vatan Anthem, this phrase precedes mention of a storm that forced the Ottoman fleet to abandon the sea and return to its homeport. This appears to reference a major storm in 1541 that did force the Ottoman fleet to seek refuge, even if this conflicts with the overall timeline of the 1538 Battle of Preveza on which the rest of the lyrics and accompanying video appear to be based.

In the Mavi Vatan Anthem's original Turkish, "Captain of the Sea" is rendered as *Kaptan-ı Derya*. *Kaptan-ı Derya* was the title given to the senior admiral serving as the chief of naval operations in the Ottoman Navy. Here, this title refers to Barbaros Hayrettin Pasha, who is shown writing his report of victory to the Ottoman Sultan-Caliph and the world and praising the Prophet. His praise to the Prophet in the original Turkish is rendered as *Salat selam ile Resulallah*, a verse of the Koran.

This scene is the first to explicitly mention the Battle of Preveza of September 1538. Combined with mop-up operations in 1539 and the Venice-Ottoman Treaty of 1540, the Ottoman victory at Preveza gave the Ottoman Empire dominance in the Aegean and Mediterranean Seas. Ottoman regional naval dominance was not seriously challenged again until the 1560 Battle of Djerba (against another Christian alliance), which the Ottomans also won, extending their naval dominance through to the Ottoman defeat at the Battle of Lepanto in 1571 (at the hands of yet another Christian alliance).

Scene 3 closes with imagery of modern Turkish Navy vessels, one with sailors in white dress uniforms saluting from its deck, accompanying the closing lyrics of stanza four, "The Prophet's Army comes wave after wave/Ottoman sailors and soldiers in the waters of the Mediterranean."

As discussed previously, *mavi vatan's* first goal is to make modern Turkey a regional maritime power. The lyrics and imagery employed in Scene 3 hearken back to a time of unrivaled Turkish dominance of the regional maritime domain, linking modern Turkey's future plans to its storied Ottoman past. At the same time, Scene 3's depictions of and references to Ottoman battles against Christian alliances also strengthen the portrayal of *mavi vatan's* anti-West worldview, aligned as it is with President Erdoğan's pro-Islamist, anti-Western ideology. Finally, current tension and military posturing in the



Mediterranean pits Turkey against France, Greece, and Cyprus (among others), replicating the historic competition between the Ottoman Empire and the Christian alliances against which it fought.

Scene 4: Turkey, the Ottoman Heir

Scene Description: Scene 4 begins with one of the more striking images of the Mavi Vatan Anthem, with modern-day Turkish sailors in white dress uniform (including matching COVID-19 era facemasks) on the landing deck of a Turkish Navy ship, standing in formation spelling out “MAVI VATAN” and saluting in unison. The video then transitions to Barbaros Hayrettin Pasha addressing his sailors, who employ the same hand/arm saluting movement as used just previously by the Turkish sailors. The video then cuts to a panoramic view of 11 Turkish Navy ships sailing in formation, and then to enlisted Turkish sailors at work while embarked.

Next, Scene 4 turns to imagery of hand-to-hand combat between Ottoman and Alliance sailors, flipping the viewpoint between the two opposing forces. The video transitions to an astern view of the TCG Tekirdağ (P1207), a Turkish Navy Tuzla-class patrol boat, sailing at speed, with the Turkish flag flying, and then switches to Ottoman vessels flying the similar star-and-crescent, red-and-white flag of the Ottoman Empire.

Scene 4 then transitions to the TCG Heybeliada (F511), an Ada-class corvette, sailing through the straits at Çanakkale (also known as the Dardanelles, Hellespont, or Gallipoli) with a Turkish flag in the foreground and the massive hillside memorial of a soldier next to the words “Dur yolcu! Bilmeden gelip bastığın Bu toprak, bir devrin battığı yerdir” (discussed below) on the hills in the background. Next, Scene 4 transitions to the Mavi Vatan Anthem’s first depiction of a new character, Sultan Mehmet the Conqueror (alternatively Sultan Mehmet II, or, in Turkish Fatih Sultan Mehmet), before returning to a view of a Turkish Navy officer (Mehmetoğlu’s son from earlier in the video) saluting. The scene concludes with Sultan Mehmet the Conqueror on a white horse on the eastern shore of the Bosphorus in Istanbul, looking westward across the water.

Translation of the fifth, sixth, and seventh stanzas of the Mavi Vatan Anthem:

We drew up the anchor from port and headed out on the Blue Homeland route
The Oceans are on Barbaros the Conqueror’s route

The frigates of the Turkish fleet on the horizon

In the Mediterranean waters they stand ready for the motherland

It is a passion that started with my existence

From our faith, patriotism is our slogan

It is sacred and can’t be contained by the high seas

Truly the cause opens the sails to victories

For the Blue Homeland the crimson blood runs true

If we are martyred the reward is to sacrifice our lives to the cause

To the commander who advances the ships from the land

The Conqueror of the hearts should greet the ancestors

Discussion and Analysis: The memorial on the hillside at Çanakkale reproduces a small part of Turkish poet Necmettin Halil Onan’s longer poem, which commemorates the sacrifice of Ottoman soldiers in the defeat of Allied forces here during World War I. The words of the memorial translate to “Traveler halt! The soil you tread once witnessed the end of an era.”

In addition to imagery of the Battle of Preveza, Scene 4 powerfully uses references to two of the other most significant military victories in the long history of the Turkish military, both to celebrate Turkish military prowess and to demonstrate the continuity of sacrifice that links the mavi vatan perspective to millennia of Turkish fighting spirit and patriotism.

The first battle the scene references is the Battle of Çanakkale, in which the Ottoman Empire defeated Allied attempts to take the strategic chokepoint from 1915-1916. The Ottoman Navy played a critical role in defeating the Allied attempts to force the strait by sea on March 18, 1915, laying mines under the cover of darkness that sank three Allied battleships and forced the Allies to precipitously retreat. Today, much



of the Gallipoli peninsula is a Turkish National Historic Park commemorating the more than 66,000 Ottoman soldiers and more than 50,000 Allied troops killed in action, in addition to another 150,000-plus wounded. The Battle of Çanakkale also played an enormously important role in the history of modern Turkey by providing the platform from which the talented and influential Mustafa Kemal, then a lieutenant colonel, gained national prominence and a national following. These were both critical factors enabling the launch of the Turkish resistance, the declaration of the Republic of Turkey, and, as Atatürk, his role as the new country's first leader.

The second battle Scene 4 references is the Battle of Constantinople in the spring of 1453, in which the Ottoman Empire, led by Sultan Mehmet II, captured the city, permanently ending the Byzantine Empire, and establishing Turkish control of the Bosphorus that has endured for 568 years (and counting). Scene 4 references this decisive Ottoman victory both in its lyrics, with two mentions of Fatih (in English, "the Conqueror"), and in visual images of Sultan Mehmet the Conqueror on a white horse looking west across the Bosphorus to the European continent.

Scene 5: The Son of a Martyr

Scene Description: Scene 5 begins with an image of Barbaros Hayrettin Pasha, followed quickly by a mosque at sunset and Mehmetoğlu's son kissing the Koran, both in time with the eighth stanza's lyrics professing the central role of Islam in Ottoman and Turkish military history. Scene 5 then briefly shows an aerial view of the Martyrs of July 15 hillside memorial in Istanbul, which honors the hundreds killed in the failed coup attempt of July 2016, and then the gravesite of Hamza, Prophet Muhammed's uncle, at Uhud Martyrs' Cemetery (in present day Saudi Arabia). This was the site of the Battle of Uhud in which Hamza and many other prominent early Muslims were martyred in the year 625. The scene then cuts to Sultan Mehmet the Conqueror on a white horse pointing to the European side of the Bosphorus from the Asian side, before transitioning to images of a Turkish Navy band playing the music accompanying the video. Next, Scene 5 shows two Turkish Navy vessels sailing side-by-side and flying the Turkish flag, before reverting to Ottoman sailors in hand-to-hand combat. The scene closes with imagery of an Ottoman ship, and then transitions to various modern Turkish vessels before returning to an Ottoman ship firing a cannon at night in battle.

Translation of the eighth, ninth, and tenth stanzas of the Mavi Vatan Anthem:

Allah is our God, my Prophet is the Messenger of Allah

The Koran is my holy guide

The Saint of the Martyrs Hamza, Islam's first military leader, is my leader

The son of the martyrs is my Ancestor Sultan Mehmed the Conqueror

Give me your ear, o world: I am the son of a martyr

Don't forget that I am the scion of the crescent and star homeland

The blood that flows in my veins is the blood of my ancestors

We will give and take lives for the Blue Homeland

The scales of justice were unyielding in the midst of oppression

You are the hope of the desperate and wrathful against the enemy

To the help of the faithful who are crying for help

You are going to be the light in the darkness

Amen!

Discussion and Analysis: Hamza was the Prophet's foster brother, companion, and paternal uncle. The Prophet gave him the honorific Sayyid ash-Shuhada after he was martyred protecting the Prophet at the Battle of Uhud.

Scene 5 employs highly evocative imagery of the "Martyrs of July 15" hillside and the Uhud Martyrs' Cemetery that the vast majority of Turks would quickly identify, even if non-Turks would not immediately recognize these two sites of national cultural importance. Given the lyrics of the eighth stanza, the last full phrase of the Mavi Vatan Anthem ("You are going to be the light in the darkness") appears to carry a double meaning, referring in religious terms to Allah as the "light in the darkness" and



in military terms, to the Turkish Navy as the defender of the Turkish homeland. Scene 5 lyrics, accompanied by religious imagery in the video, reinforce the explicitly religious foundations of the Mavi Vatan Anthem.

Scene 6: Erdoğan and Atatürk

Scene Description: The final scene opens with Mehmetoğlu's son on the bridge of his ship, standing in front of a framed photo of Atatürk, with President Erdoğan in a voice-over reciting the second stanza of "Bayrak" as images of a Turkish Navy vessel, a rigid-hull inflatable boat (RHIB), a Navy officer saluting the Turkish flag, another RHIB, and an officer peering through binoculars are displayed. The scene next shows Sultan Mehmet the Conqueror and the Turkish flag, followed by shots of another RHIB and Turkish helicopters. This is followed by President Erdoğan at a rally, walking through a multitude of Turkish flags, then another Turkish Navy vessel, and finally an image of Barbaros Hayrettin Pasha. The video closes with a still shot of President Erdoğan, with arms raised and hands with four fingers extended, in front of a Turkish flag.

Translation of "Bayrak"'s penultimate and last stanzas:

You slowly wave in the winds
The dove of peace, the eagle of war
My flower that blooms in high places
I was born under you
I will die under you
My history, my honor, my poem, my everything
Choose a place, love a place
Wherever you want to be raised
Tell me, I'll raise you up there

Discussion and Analysis: The framed photo of Atatürk behind Mehmetoğlu's son at the beginning of Scene 6 has the following quote: "Ordular İlk Hedefiniz Akdeniz'dir," which translates to "Armies! Your first objective is the Eastern Mediterranean!" This is the command Atatürk gave to his military at a critical point in the post-World War One Turkish War of Independence, just nine days before Turkish forces completed their rout of the Allies, forcing the Allied withdrawal from Anatolia and other Turkish territory, and securing the borders of the modern Turkish state (apart from the addition of Hatay province in 1939). Turkey now celebrates this victory annually on August 30, Victory Day and Turkish Armed Forces Day.

The Mavi Vatan Anthem video's closing image of President Erdoğan is also noteworthy. Firstly, it features a quote from President Erdoğan, translated as "We're strong in the Blue Homeland, We're Secure in the Homeland." Secondly, President Erdoğan's gesture – both arms raised and both hands with four fingers extended and thumbs collapsed – is the sign of the *rabia*. *Rabia* literally translates as "four" in Arabic, but has become a well-known symbol of the Muslim Brotherhood, perhaps popularized globally by President Erdoğan in 2013. This four-finger hand sign is also claimed by President Erdoğan's party, the Justice and Development Party (Adalet ve Kalkınma Partisi) as a party symbol, standing for "One Nation, One Flag, One Homeland, One State."

In this final scene of the Mavi Vatan Anthem video, President Erdoğan's recitation of the last two stanzas of "Bayrak" symbolically wraps the Mavi Vatan Anthem with the flag of the Republic of Turkey. In line with the nationalistic and religious themes of the Mavi Vatan Anthem and video, Scene 6 links *mavi vatan* to Atatürk's most famous command during the Turkish War of Independence, and links modern Turkey and President Erdoğan to Atatürk, Islam, and the Muslim Brotherhood.

Conclusion

The Mavi Vatan Anthem is representative of the neo-Ottoman ethno-religious nationalism espoused by President Erdoğan. It garishly and jingoistically employs neo-Ottoman, Islamic, and nationalist themes, imagery, and lyrics to demonstrate the Erdoğan government's embrace of the *mavi vatan* perspective, which has increasingly shaped Turkey's domestic and foreign policies. These policies over the last several years have acquired a more antagonistic and militarized outlook centered on anti-



Western, anti-U.S. principles. As such, the Mavi Vatan Anthem offers insight into the significance and prominence of mavi vatan in Erdoğan's Turkey, and also provides a means through which Turkey's own worldview can be understood.

Furthermore, the Mavi Vatan Anthem does not stand alone. It is part of a series of such videos released by the Presidency in the late summer/early fall of 2020 that link the history of the Ottoman Empire to the modern Republic of Turkey with music, imagery, and historical references. Taken together as part of a sophisticated, high-production-value public diplomacy effort, this series of videos provides an opportunity for analysts and Turkey watchers to apply the translation, description, and analysis framework employed in this current article to conduct individual and collective analysis. Such analysis, if undertaken, would substantially contribute to understanding Turkey's foreign policy outlook, particularly in the Eastern Mediterranean region.

[The Mavi Vatan Doctrine and Blue Homeland Anthem: A Look At Turkey's Maritime Worldview | Center for International Maritime Security \(cimsec.org\)](#)

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ALUMNI:

Finance of America's Christine Herman: Leading with empathy, determination

(SC Magazine 20 Aug 21) ... Jessica Davis

Christine Herman's background is a prime example that in cybersecurity, any degree or experience can turn into a successful cybersecurity career with the right passion, skillset, and mentors.

She graduated from the University of Buffalo's languages and literature program and the Johns Hopkins University, speaking fluent Russian and Japanese. But wanting to make a difference with her "skills to have a tangible impact for the better in the world," Herman became a threat analyst for the Department of Defense in 2012.

Upon arrival, she was encouraged to train in cyber and develop her skills to make a true impact. But the journey was often challenging, with naysayers along the way telling Herman that "you can't be in cybersecurity unless you have a master's from MIT, unless you're the best Python developer out there."

But that just wasn't the case. She took on the task, trying "not to be discouraged by the fact there weren't many people who look like me, or were like me."

"I consider myself to be rather relentless, doggedly pursuing different opportunities and skill sets," Herman said. "I try to practice a general mantra of never giving up, having an indomitable spirit. That's often hard in the face of different challenges and things that are inherently depressing or challenging."

"Trying to continue to pursue something you're passionate about and being relentless about it is a core part of what I bring to the table and hope to empower my leaders to do the same," she continued.

Determined, and with encouragement to take on a new skill set in cyber, she graduated from the **Naval Postgraduate School** in 2014, then DoD Advanced Cyber Operations in 2015, top of class. After five years with the DoD, she spent over three years with Morgan Stanley as global leads of incident response and then operational assurance before joining Finance of America as chief information security officer.

Herman notes that it was the supportive positions and work environments that allowed her to grow into the leader she is today. The vocal advocates told her that "not only can you do the job, but you're going to thrive."

"I wouldn't have even thought to myself that I'm smart enough, capable enough, or experienced enough to be a CISO had I not had some really incredible mentors," she said. "If I'm going to reduce my experiences to a single message, I would like to offer: surround yourself with people who vote yes on your potential, who signal their recognition and appreciation."

"And that's not to say they don't challenge you, they absolutely do," she added. "It's important to be around people who believe in your success. And for my own part, I'm absolutely willing and actively do provide that to others."



For Herman, a core tenet of her leadership style begins with empathy. It's important to acknowledge employees and team members are humans with needs, hopes, and aspirations. To be an effective leader, you have to assess and embody the characteristics of those you'd want to work for, striving to make a difference and being a vocal advocate to increase diversity.

It's also important to create opportunities for employees, allowing for new and different voices to come to the table in whatever form those differences take. It's something Herman requires of herself and of her team.

The final leadership piece is radical transparency and not being afraid to be criticized.

"I don't want to be a human being who can't be told they can do any number of things better, and I expect the same from those I hire," said Herman. "Let's talk about where we can all improve together. You build high-performing teams when you have those characteristics and likely an inscrutable combination of many others."

[SC Media | Finance of America's Christine Herman: Leading with empathy, determination \(scmagazine.com\)](#)

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Veltex Corporation Appoints Thomas S. Bailey Chief Operating Officer

(Yahoo! Finance 20 Sept 21)

Veltex Corporation ("the Company") announced today the appointment of Thomas S. Bailey as Chief Operating Officer of the Company effective immediately. Mr. Bailey will also join the Board of Directors of Veltex Medical, Inc., a wholly owned Delaware subsidiary of the Company.

R. Preston Roberts, Chairman of the Board, stated, "We are thrilled to add an executive of Tommy's caliber and accomplishments to the Veltex leadership team. In his new role, he will lead and provide strategic oversight of our key operational areas to ensure excellence and disciplined growth as Veltex Corporation and its operating subsidiaries continue to transform the diagnosis and management of our chemical dependency operations, especially in West Virginia."

Mr. Bailey commented, "I am excited to join an innovative, high-growth company with a compelling vision to change the paradigm for managing and treating those suffering from addiction. I look forward to working with the leadership team at Veltex to democratize access to help in this area while seeking new business and partnership opportunities."

Mr. Bailey is a business management and government relations consultant based in Charleston, WV. Mr. Bailey worked in government relations for Spilman, Thomas and Battle, PLLC and is an active state and federal lobbyist. He previously served as Executive Vice President for KVC Health Systems, Inc. Mr. Bailey is a veteran of the armed forces with 25 years of service and is a Lieutenant Colonel in the Army Reserves. He also serves on the Board of Directors of various non-profit organizations, including the West Virginia Symphony Orchestra, the Three Oranges Foundation, Project Healthy Kids, and Aspire Family Wellness. Mr. Bailey was appointed by West Virginia Governor Justice to serve on the State's History & Archives Commission where he serves as Vice Chairman. He has advanced degrees from Marshall University and the **Naval Postgraduate School**.

Veltex Corporation's wholly owned subsidiary Veltex Medical, Inc. operates a large commercial property complex and campus in Fayette County, West Virginia. The property, located in Mount Hope, sits on approximately five-acres of land and is owned by Veltex Properties, Inc., a wholly owned Delaware corporation of the Company. Moreover, the property has a one-story commercial building of approximately 30,000 square feet, which is currently completed as a chemical dependency rehabilitation center. This complex is one of the largest chemical dependency rehabilitation centers in West Virginia.

Veltex Medical, Inc. also operates a joint venture drug rehabilitation campus in Williamson, West Virginia. In addition, the Company reported that it is currently exploring and progressing on other properties in West Virginia, Ohio, Michigan and Kentucky. Moreover, the Company is involved in active



investigations in Chicago, Illinois and the surrounding suburbs with the intention of identifying and acquiring other potential rehabilitation properties.

Furthermore, the Company is closely following the multi-billion-dollar National Prescription Opiate Litigation. MDL 2804, in the United States District Court for the Northern District of Ohio. In that mass tort litigation, the Plaintiffs allege that the manufacturers of prescription opioids grossly misrepresented the risks of long-term use of those drugs for persons with chronic pain, and distributors failed to properly monitor suspicious orders of those prescription drugs--all of which contributed to the current opioid epidemic. Moreover, with the costs of the crisis estimated at tens of billions of dollars and with more than 200,000 overdose deaths since the late 1990s, the stakes are immense — even for people who have never heard of this case. What happens with this litigation will largely determine how much money cities and counties nationwide will have to fight the devastating effects of opioid abuse and when they'll get it. Each day, more than 115 Americans tragically lose their lives to opioid overdoses and thousands more struggle with opioid dependency. The growing epidemic crosses virtually all demographics, and with more than half a million related deaths recorded in the U.S. between 2000 and 2015, the crisis has officially been declared a public health emergency.

The Company also has more than \$190,000,000 in legal judgements and accumulated interest on its books in favor of Veltex Corporation and against numerous corporations and individuals. Moreover, the Company currently has property liens in effect in California and continues to pursue additional assets under these judgments in favor of Veltex Corporation. Veltex files tax returns in the states of Delaware, West Virginia, California, Illinois, and Utah, in part, to protect these valuable potential tax assets.

As material developments warrant, Veltex Corporation will update shareholders on the immediate future of the company including operational developments, property acquisitions, legal and tax matters. The Company looks forward to creating strategic partnerships and alliances and acquiring real property that will highlight our comparative and competitive advantages in the chemical dependency, rehabilitation, and holding company industry in general.

Veltex Corporation, incorporated in Utah September 17, 1987, is a registered public holding corporation, which maintains its corporate headquarters in Chicago, Illinois. The company's common shares trade OTC Markets under the symbol VLXC.

[Veltex Corporation Appoints Thomas S. Bailey Chief Operating Officer \(yahoo.com\)](#)

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Artificial intelligence startup in Raleigh has the smarts to be a billion dollar company

(Wral Tech Wire 22 Sept 21) ... Chantal Allam

Three years after ex-Epic Games CEO Michael Capps first launched Diveplane, a company aimed at “keeping the humanity” in artificial intelligence (AI), it’s notched a series of big wins.

In just the last year, the Raleigh-based startup landed partnerships with healthcare giants like Duke Health, and the UK’s NHS Foundation Trust and BREATHE, a health data research hub.

It also closed on \$3 million in new funding, bringing its total raised to around \$10 million to date. It’s even attracted star-studded investors, including US women’s soccer stars Megan Rapinoe and Mia Hamm.

Meanwhile, Capps hinted other big deals could be in the works.

“I can’t speak to it yet, but we’re partnered with some cool organizations,” he told WRAL TechWire in a Zoom call. “We’re lucky to sort of punch above our weight class in the industry, so I’ll just leave it at that.”

“We had a long path of building software,” he added, “but now that we’ve started commercializing, we’re seeing much better uptake. We’re at that wonderful phase where companies are now calling us.”

While he wouldn’t disclose annual revenue figures, he said: “We expect to grow 3X in the next couple of months.”



Could his firm be on track to becoming a \$1-billion enterprise, otherwise known as a “unicorn” in venture capital circles?

He didn’t rule it out: “We have significant growth potential.”

Synthetic Data

Its fastest-growing product, GEMINAI, creates a synthetic “twin” data set that enables sharing and analysis of highly sensitive data while protecting an individual’s privacy. The “new” data is accurate and “statistically equivalent,” but omits any personal identifiers, like name or date of birth.

The uptick comes as data breaches are on the rise.

Healthcare breaches, alone, have nearly doubled since 2018 and continued to climb through the first half of 2021, according to a report by Critical Insight, a Seattle-based healthcare-focused cybersecurity firm.

Meanwhile, more than 93% of healthcare organizations experienced a data breach in the past three years (Herjavec Group).

And it’s costs big money.

The healthcare industry lost an estimated \$25 billion to ransomware attacks in 2019 (SafeAtLast).

“Data privacy affects us all, and we’re really seeing a shift in the market,” Capps said. “It’s no longer enough to simply mask or anonymize. Organizations must go further to protect the most intimate of data sets, and that’s what we’re amazing at.”

How it Got Started

Diveplane’s AI technology spun out of Hazardous Software, a company founded in 2007 by Chris Hazard, Diveplane’s co-founder and chief technology officer.

Hazard holds a PhD in computer science from NC State, and worked as a software architect at Motorola and Kiva Systems.

Capps, meanwhile, is a fixture on the local Triangle startup scene. Born in Raleigh, he began his career with post-graduate degrees at UNC-Chapel Hill, MIT and the **Naval Postgraduate School**. Later, he spent nearly a decade as president of Epic Games, creators of mega-hit Fornite, and one of the region’s early breakout unicorns, a company valued at more than \$1 billion. (Today, Epic Games is estimated to be worth just shy of \$30 billion.)

As his LinkedIn profile notes, his tenure included a “hundred game-of-the-year awards, dozens of conference keynotes, a lifetime achievement award, and a successful free-speech defense of video games in the U.S. Supreme Court.”

By 2013, Capps decided his time was up. But it didn’t take long for him to sniff out his next venture.

He met Hazard “through a mutual acquaintance” on Raleigh’s startup scene, and shared the “same thoughts on the future of AI and the ethical use of data.”

By 2018, Diveplane was born. Among its missions: making “black box” AI, any artificial intelligence system whose inputs and operations are not visible to the user, easier to interpret and understand.

“Big picture, we want to keep human decision-making in automated systems,” Capps said. “When [Hazard] finally told me about [his declassified work], I was like, ‘You have explainable machine learning. We’ve got to put this in front of everyone.’”

Diveplane has built what it calls the world’s first “human-understandable” machine-learning platform. As it boasts on its website, its tools are “trainable, interpretable, and auditable.”

Apart from GEMINAI, it has other products like SONAR, an anomaly detection tool to identify fraud, and ALLUVIAN, an analysis tool for the real estate market.

The name Diveplane is derived from the parts on a submarine that make it dive and surface. (Capps once taught at a Naval post-graduate school, and Hazard also worked for the Department of Defense.)

It’s also metaphorically significant. “AI is about searching up and down, high and low,” Capps told TechWire’s late Alan Maurer back in 2018.



Looking Ahead

Diveplane is now at an inflection point. At last count, it has 14 patents approved and another 40 patents pending. It's scaling across multiple verticals, including finance, healthcare, and defense. Another big raise is also likely on the cards, "probably in the next few months."

Still, he described enterprise sales as "slow and painful."

"Government, intelligence officials, healthcare and finance leaders, they're not fast to trust. [We're] like a locksmith. [They've got to] trust us with the jewels."

But he remains confident. "If the National Security Agency is using it, and Duke is using it, it's a lot easier to convince MasterCard to use it. Once we convince them, or whoever, it all falls."

Before the pandemic, Diveplane had offices in North Raleigh. But now they're all working remotely. The team now stands at 22, and is looking to add a senior engineer and developer to its rolls.

Above all, Capps said making big profits comes secondary to his main objective: social impact.

Capps said he'd eventually like to open source Diveplane's technology.

"Some of our tools, if they were free and we can afford unlimited compute, I would love to give them all away. I can't afford to do either of them; but as soon as I can, I will. That's the goal."

NOTE: A LinkedIn Live chat with the founders is scheduled for today at 12pm. Check WRAL TechWire's LinkedIn page for the live stream.

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