



NPS IN THE NEWS

Weekly Media Report – Aug. 31-Sept. 6, 2021

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ADDITIVE MANUFACTURING:

[Stratasys Gains \\$20M U.S. Navy Contract in “Largest Government Project to Date”](#)

(Printing Industry 3 Sept 21)

3D printer manufacturer Stratasys has been awarded a \$20 million U.S. Navy contract, the largest of its kind that the company has ever received... Aircraft maintenance aside, the U.S. Navy has also invested heavily in investigating 3D printing’s distributed manufacturing potential, with the aim of accelerating the way it supplies deployed forces. Earlier this year, the U.S. **Naval Postgraduate School** revealed that it was testing the potential of Xerox’s ElemX 3D printer, particularly as a means of achieving greater supply chain flexibility.

EDUCATION:

[NPS Develops Custom Curriculum for Navy’s Cyber Warfare Engineer](#)

(Navy.mil 31 Aug 21) ... Mass Communication Specialist 2nd Class Lenny Weston

(NPS.edu 31 Aug 21) ... Mass Communication Specialist 2nd Class Lenny Weston

The Naval Postgraduate School (NPS) has launched an all-new, customized track within the existing Electronic Systems Engineering curriculum in response to an ever-changing and increasing need within cyberspace and the Navy’s growing Cyber Warfare Engineer (CWE) community.

[Naval Postgraduate School students to take part in national naval summit](#)

(Monterey Herald 2 Sept 21) ... Tess Kenny

In an increasingly complex and competitive security environment, individual members of the military are seeing more and more opportunities to leave their mark on the future of American warfare.

[S'pore institute integrating tech and defence marks 20 years of training officers](#)

(Straits Times 5 Sept 21) ... Lim Min Zhang

More than 20 years ago, Singapore’s defence officials realised the importance of “systems thinking” to tackle complex problems, by encouraging broader thinking beyond the silos of various disciplines... They then embark on a 12-month specialised curriculum at one of three partner institutions - the **Naval Postgraduate School** (NPS) or Air Force Institute of Technology in the United States, or Cranfield University in Britain.

RESEARCH:

[Human Factors Meets New Technology in 2025](#)

(CIMSEC 30 Aug 21) ... John Cordle and Robert Sweetman

This article is an exercise in “visualization,” looking at the art of the possible in combining science and technology— and changing Navy culture—to improve shipboard human performance... It was only through an intense collaboration of Navy research centers, including the Naval Health Research Laboratory, the **Naval Postgraduate School**, the Center for Naval Analysis, and others that science eventually carried the day. The Expanded SURFMEX model was a big help, matching sailor experience to fleet needs and enhancing the detailing process.⁴ Lots of barriers had to come down to make that happen, including making human physiology research a



funded program of record instead of an ad-hoc set of independent programs, but the resulting manpower modeling software, combined with AI protocols that inject real time data from the Fleet, made this process possible.

[ONR Global Leads Iceberg Tagging In Greenland](#)

(Naval News 6 Sept 21)

Thanks to international collaboration, science and technology, ships operating in any of the world's oceans containing icebergs will now have valuable data on iceberg drift and decay... The reach-back support team includes the U.S. Coast Guard International Ice Patrol, U.S. Naval Research Laboratory, U.S. **Naval Postgraduate School**, Center for the Remote Sensing of Ice Sheets, Canadian Ice Service (CIS) and Danish Defense GeoMetoc Center.

FACULTY:

[The F-35 Helmet Might Not Be the Most Expensive Helmet in History](#)

(Clearance Jobs 30 Aug 21) ... Peter Suci

The F-35 Lightning II is the most expensive military program in the history of the United States, and could cost \$1.5 trillion over the course of its lifetime. Its specialized fighter helmet costs upwards of \$400,000 and requires two days of special fittings for pilots... According to a research paper from the **Naval Postgraduate School** by Robert F. Mortlock, entitled "Protecting American Soldiers: The Development, Testing and Fielding of the Enhanced Combat Helmet," the cost of modern military helmets has continued to steadily increase as the ballistic capabilities and other features of the helmets have been enhanced and improved.

[What We Know About Today's Taliban](#)

(Politi Fact 1 Sept 21) ... Jon Greenberg

When the Taliban controlled Afghanistan two decades ago, they were known for banning music and television, conducting public executions and imposing a fierce interpretation of Islamic law that sharply restricted the rights of women..."They might not be able to govern if they can't keep these competing interests in check," said **Naval Postgraduate School** professor Thomas H. Johnson, who has studied Afghanistan and the region for many years. "Each group might aim to hold on to as much power as possible. The worst-case scenario would be a breakdown into civil war."

[ADA University to host Advanced Regional Energy Security Symposium 2021 – Caucasus](#)

(Azertac 3 Sept 21) ... Gary Ell

(News AZ 3 Sept 21)

(Report.AZ 6 Sept 21)

(Azerbaijan24 6 Sept 21)

From 6th to 10th of September 2021, the Advanced Regional Energy Security Symposium 2021 – Caucasus will be held by the Center of Excellence in EU Studies at ADA University in partnership with the NATO Energy Security Center of Excellence, the **Naval Postgraduate School**, bp Azerbaijan, and State Oil Company of the Republic of Azerbaijan (SOCAR).

ALUMNI:

[NSWCPD Logistics Management Specialist Returns Home from Afghanistan after Supporting Operation Resolute Support and Troop Withdrawals](#)

(NavSea 30 Aug 21) ... Gary Ell

After being deployed to Afghanistan, Cathryn Barnett, a logistics management specialist at at Naval Surface Warfare Center, Philadelphia Division (NSWCPD) recently returned from a harrowing deployment in theatre, on behalf of the Department of Defense (DoD) Expeditionary Civilian Workforce Program (DOD-EC)... Barnett has been employed at NSWCPD since 2016, currently serving as the Integrated Logistics Support (ILA) Reference Desk Manager. She earned a bachelor's degree in History from the University of Texas at Arlington and a master's degree in Supply Chain Management with a concentration in Logistics from the University of Maryland, University College. Prior to accepting the deployment, Barnett was enrolled in the master's degree in Cost Estimation program at the **Naval Postgraduate School**.



[Mark Ray, Chair of the State, Local, Tribal, and Territorial Government Coordinating Council](#)

(Homeland Security Today 1 Sept 21)

Mark Ray is passionate about the public works profession and the essential role it plays in designing, constructing, operating, and maintaining critical infrastructure. Public works professionals make normal happen in the community they serve and securing critical infrastructure from all hazards, both human or natural caused, requires a team effort between public works and homeland security stakeholders. Mark is committed to furthering collaboration and understanding between various groups in service to the collective goal of securing critical infrastructure that is vital to our nation.

In his professional role, Mark is currently the Director of Public Works/City Engineer for the City of Crystal, MN. Mark has his undergraduate degree in Civil Engineering from the University of Wisconsin-Madison, a Master's in Public Administration from Hamline University, and has completed the Executive Leaders Program through the Center for Defense and Homeland Security at the **Naval Postgraduate School**.

[Huntington Ingalls Industries Names Stewart Holmes As Executive Vice President, Government and Customer Relations](#)

(Yahoo Finance 3 Sept 21)

Huntington Ingalls Industries (NYSE: HII) announced today that Stewart Holmes has been named executive vice president, government and customer relations, succeeding Mitch Waldman, who will retire on Sept. 30... Holmes served in the U.S. Marine Corps for over two decades and is a graduate of The Citadel and the **Naval Postgraduate School**.

[Robert Lewin, Retired Santa Barbara County OEM Director, CAL FIRE/San Luis Obispo County Fire Chief](#)

(Homeland Security Today 6 Sept 21)

After retiring from government service as the Director of the Santa Barbara County Office of Emergency Management and the Fire Chief for CAL FIRE/San Luis Obispo County Fire, Robert Lewin is now a Principal at Resolute Associates LLC providing a range of emergency management consulting including numerous efforts in support of the COVID-19 emergency... Robert is a Cal Poly graduate in Political Science, an Allan Hancock College graduate in Fire Science and completed the Executive Leadership Program at the **Naval Postgraduate School**. He is a Certified Emergency Manager (CEM).

[Sean Haglund, Associate Director, Office for Bombing Prevention \(OBP\), CISA, DHS](#)

(Homeland Security Today 6 Sept 21)

Sean Haglund serves as Associate Director, Office for Bombing Prevention (OBP), within the Department of Homeland Security (DHS). In this role, Haglund manages OBP's programs aimed at building capability among the general public and across the public and private sectors to prevent, protect against, respond to, and mitigate bombing incidents. Additionally, Haglund coordinates counter-improvised explosive device (IED) efforts across DHS and the Federal interagency... Haglund is a graduate of Air War College, and holds a Master of Arts in National Security Affairs-Homeland Security and Defense from the **Naval Postgraduate School**, a Master of Science in Industrial Operations Management from the University of Arkansas, a Master of Science in Business Administration from Central Michigan University, and is an alumnus of the National Defense University, Center for the Study of Weapons of Mass Destruction (WMD), Program for Emerging Leaders. He is a Certified Emergency Manager (CEM) through the International Association of Emergency Managers (IAEM), a Certified Protection Professional (CPP) through the American Society of Industrial Security, a Project Management Professional (PMP), a Master CBRN Military Advisory Team (CMAT) leader through the DTRA Defense Nuclear Weapons School, and holds Defense Acquisition Workforce (DAWIA) Level III program management and Level II life-cycle logistics certifications.

[Capt. John Delaney, High Threat Response Program Manager, Arlington County Fire Department](#)

(Homeland Security Today 6 Sept 21)

Capt. John Delaney is the program manager for Arlington County Fire Department's High Threat Response Program, which focuses on building operational capabilities necessary for atypical threats including active shooter,



explosive and fire as a weapon events. The program focuses on the development of multiagency, integrated police and fire response. Previously he was the team leader for the National Medical Response Team–National Capital Region (NMRT-NCR). The NMRT-NCR was a federally funded weapon of mass destruction response team which comprised of over 150 fire fighters, paramedics, hazardous material specialists, law enforcement officers, doctors, and nurses from within the Washington metropolitan region.

Captain Delaney has participated in response to multiple large-scale regional and national emergencies; including the 1998 Florida Wildfires, 2004 Hurricane Charley, 2001 Anthrax Attack at the Senate Office Buildings, the September 11, 2001 attack on the Pentagon and the Haiti earthquake of 2010. He is the former Chair of the InterAgency Board (IAB) and currently heads the National High Threat Institute. He is a graduate of James Madison University and in 2008 received his Master's Degree in Homeland Security from the **Naval Postgraduate School**.

UPCOMING NEWS & EVENTS:

September 14: Summer Quarter Awards Ceremony

September 14-16: [Center for Executive Education SPEAR Workshop](#)

September 20: [WIC Workshop 2021: Hybrid Force 2045](#) (Registration Open)

September 24: [Summer Quarter Graduation Ceremony](#)

September 27-30: [Center for Executive Education LCSS Workshop](#)



ADDITIVE MANUFACTURING:

Stratasys Gains \$20M U.S. Navy Contract in “Largest Government Project to Date”

(Printing Industry 3 Sept 21)

3D printer manufacturer Stratasys has been awarded a \$20 million U.S. Navy contract, the largest of its kind that the company has ever received.

Set to be fulfilled over the next five years, the deal will see Stratasys supply up to 25 F900 3D printers to the U.S. Navy, in addition to the materials, support and training needed to run them. According to Mark Menninger, Director of Stratasys’ U.S. Government Business division, the move could serve to shorten U.S. Military supply chains, while providing its Navy with enhanced aircraft repair capabilities.

“The benefits of AM for military organizations like the U.S. Navy include cost-effectively extending the life of strategic and tactical assets like aircraft while ensuring sustainment activities can happen quickly and from virtually anywhere,” said Menninger. “This contract, the largest government project for Stratasys to-date, continues to expand the presence of industrial 3D printing from Stratasys across the U.S. government.”

The DoD’s 3D printing strategy

Stratasys’ newly-announced naval contract follows the launch of the U.S. Department of Defense’s (DoD’s) additive manufacturing strategy earlier this year. Drafted alongside other U.S. military services and defense agencies, the blueprint effectively outlines five goals the department is seeking to achieve through the adoption of 3D printing in defense.

To best achieve these aims, which primarily involve modernizing U.S. national defense systems, improving equipment upkeep and enhancing warfighter readiness, the DoD has already set itself some short-term goals. For instance, the agency has committed to releasing extensive internal policy guidance that allows 3D printing to be adopted within defense to the “widest practical extent.”

The DoD has also made plans to establish a Joint Defense Manufacturing Council, to facilitate the sharing of such information, and reiterated its intention to provide specific training on advanced technologies to its personnel moving forwards.

Since publishing its strategy in January 2021, the DoD has continued to ramp up its adoption of 3D printing, and just a month later, it contracted ExOne to develop a ‘portable 3D printing factory.’ Designed to be housed inside a 40-foot shipping container, the system is being built to provide military personnel with everything they need to 3D print spares on land, in the air or at sea.

On the software front, the DoD has also backed defense-related upgrades to Senvol’s machine learning platform. Although the extent and value of the deal, as well as the specifics of the software’s R&D remain undisclosed, it’s understood to involve developing ‘additional capabilities’ for the technology, when it comes to qualifying 3D printing materials and processes.

Now, with its \$20 million Stratasys order, the DoD has chosen to expand its printer portfolio as well, particularly at its U.S. and Japanese bases, where the first eight systems are set to be shipped by the end of 2021. Once there, the machines will be used for producing end-use parts, tooling and training aids, as well as contributing to the Navy’s aircraft maintenance and distributed manufacturing programs.

Stratasys’ F900 in aerospace

Launched back in April 2018, Stratasys’ F900 Production 3D printer builds on its Fortus 900mc platform, with a larger build volume and heightened accuracy, that enables it to address a wider range of applications. In particular, the machine’s compatibility with flame-retardant materials like ULTEM 9085, has increasingly seen it deployed to produce parts that meet stringent aerospace regulatory criteria.

Last year, for instance, BAE Systems announced the installation of its fourth Stratasys F900 system, as part of its ‘Factory of the Future’ initiative. Now in operation at the firm’s UK-based Samlesbury site, the machine is being used to fabricate prototypes, tooling and end-use parts for its fighter jets, in a way that has reportedly yielded “significant cost and lead time reductions.”



Stratasys also received one of its largest ever aerospace orders in August 2020 from Latvian 3D printing service provider AM Craft. The customer's four-F900 order effectively doubled its print capacity, and has since allowed it to manufacture aerospace-certified interior aircraft parts including seating, panelling and ducting for its aviation-centric client base.

The U.S. Navy's AM ambitions

Aircraft maintenance aside, the U.S. Navy has also invested heavily in investigating 3D printing's distributed manufacturing potential, with the aim of accelerating the way it supplies deployed forces. Earlier this year, the U.S. **Naval Postgraduate School** revealed that it was testing the potential of Xerox's ElemX 3D printer, particularly as a means of achieving greater supply chain flexibility.

In a similar vein, 3D printing software developer 3YOURMIND has recently been contracted by the Naval Information Warfare Center (NIWC) to develop a new seamless 'digital production' workflow. Through this cyber network infrastructure, the NIWC is aiming to establish a digital thread that allows it to remain vigilant and rapidly respond to threats at all times.

Elsewhere, engineers at the U.S. Navy Research Laboratory have 3D printed novel antenna components that could help improve the U.S. Navy's wider radar monitoring capabilities. By adopting additive manufacturing, the team say they've been able to create their lightweight arrays more quickly and cheaply than conventional production methods allow.

[Stratasys gains \\$20M U.S. Navy contract in "largest government project to-date" - 3D Printing Industry](#)

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EDUCATION:

NPS Develops Custom Curriculum for Navy's Cyber Warfare Engineer

(Navy.mil 31 Aug 21) ... Mass Communication Specialist 2nd Class Lenny Weston

(NPS.edu 31 Aug 21) ... Mass Communication Specialist 2nd Class Lenny Weston

The Naval Postgraduate School (NPS) has launched an all-new, customized track within the existing Electronic Systems Engineering curriculum in response to an ever-changing and increasing need within cyberspace and the Navy's growing Cyber Warfare Engineer (CWE) community.

The new curriculum was developed by NPS Center for Cyber Warfare Director and Permanent Military Professor U.S. Navy Cmdr. Chad Bollmann, with the advice of the CWE community and subject matter experts from across the NPS campus. With plans to roll out in fiscal year 2022, the program will focus on cyberwarfare with the intent to educate the CWE community while providing the Navy and DOD with new opportunities to educate the future force in the vast field of cyber.

"The main purpose for creating this track is to provide a highly-technical education in the area of cyber warfare and cyber operations for those naval officers who have the mathematical and technical backgrounds to study a rigorous engineering curriculum that specializes in the area of cyber warfare," said NPS Department of Electrical and Computer Engineering Chair Douglas Fouts.

"By creating this new program, we were able to provide a sampling of all the best programs and specialization areas that support cyber warfare," added Bollmann. "Cyber itself is hard and frankly ill-defined a lot of times, because there are so many different disciplines that are required for effective cyber warfare."

The track will consist of three core areas (reverse engineering, networks, and mobile wireless systems) along with 13 specialization fields allowing students to develop expertise within a specific contributing discipline within cyber.

"The uniqueness has to do with the rigorous computer science, electrical engineering and mathematics foundation, along with the ability to choose from one of many contributing cyber disciplines



to build out their knowledge in the best way that supports a student's desires and the community's needs," noted Bollmann. "Essentially, NPS is going to be the primary source of CWE graduate education."

Bollmann is quick to emphasize that NPS is one of a few universities, if not the only one, that could successfully develop a custom, high-quality program within the field of cyber with so many options for specialization.

"There is no other university with this breadth of subject matter excellence in cyber," said Bollmann. "Partially, it is because we are unique in terms of mission, but also because of several other specialized, unique programs at the university."

NPS core technical strengths in programs like electrical and computer engineering, computer science, mathematics, and information science provide the foundation, Bollmann said. In addition, NPS' ability to perform applied, classified research and teach courses at both classified and unclassified levels is significant in evolving strong programs in cyber operations, software forensics, electronic warfare, and space systems. Finally, NPS is widely recognized across the Navy and DOD for its flagship programs in operations research and electronic warfare, and has been designated by the National Security Agency as a Center of Cyber Academic Excellence in Defense, Operations and Research for several years.

Put it all together, Bollmann says, and "the bottom line is that there is no other place that is strong across the board like this."

The new track was developed with the aid of CWE students who are currently enrolled in NPS' Cyber Systems and Operations program. This opportunity and experience from the students provide NPS and Bollmann the assurance that the track aligns with the exact needs and wants of the CWE community.

"The biggest aspect of being in the trial is providing feedback to help fine-tune the options," said NPS student U.S. Navy Lt. Luke Baden. "For example, highlighting difficult areas that perhaps we need more focus on, like vulnerability research for example, or ensuring the course progression for a track makes sense based on our expected background on arrival."

With the program receiving a provisional approval, Bollmann said, the CWE community is requesting two student billets at the master's level each year and a separate billet for a Ph.D. every year alternating between electrical and computer engineering, and computer science.

"Our community is going through a lot of growth and expansion at present," noted Baden. "I think the curriculum here is going to help continue to professionalize our community as our mission set and footprint within the Navy expands."

With the constantly evolving threat of cyber warfare ever looming, NPS, the Navy, and DOD must search for new ways to traverse this changing battleground.

"To be successful at cyber warfare, one must be able to defend against both old and new cyber threats, and also able to take advantage of both old and new cyber vulnerabilities of our adversaries," noted Fouts. "Cyber Warfare is going to play a huge part in any future conflict, and in fact, it has already played a huge part in recent conflicts. Therefore, if the Navy expects to win battles in the future, it needs to be able to win in cyberspace, as well as on the sea, under the sea, and in the air."

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Naval Postgraduate School students to take part in national naval summit

(Monterey Herald 2 Sept 21) ... Tess Kenny

In an increasingly complex and competitive security environment, individual members of the military are seeing more and more opportunities to leave their mark on the future of American warfare.

Nikolaos Vidalis, a Hellenic Air Force officer and International student at Monterey's Naval Postgraduate School, is one of those members.



Later this month, Vidalis, alongside two other NPS students Antonios Varvasoudis and Georgios Andrianopoulos, will take part in the Agility Summit, an event featuring 10 student teams chosen from across the nation to present their solutions to issues the Navy and Marine Corps are currently facing.

“I’m excited by the idea that I can somehow create something that would help U.S. Navy capabilities,” said Vidalis. “I’m grateful for the opportunity to help create a solution that could actually be achieved.”

The summit is part of a larger campaign put on by an organization known as NavalX. Created two years ago by James Guerts, assistant secretary of the Navy for research, development and acquisition, NavalX connects service members who have innovative ideas to experts who can experiment with proposals and help turn them into something tangible for the Navy.

Earlier this year, NavalX called on all active-duty Marines and sailors to pitch solutions addressing one of four challenges the organization outlined as pertinent to naval operations. These challenges primarily focused on the issues of unmanned systems, a field that has long been a part of Vidalis’ military career.

“I was trying to find a challenge that was related to my background,” he said. “I have experience in the Air Force involved in building (unmanned aerial vehicles), so I decided to join this campaign”

According to the Department of the Navy, unmanned systems are those that do not carry a human operator but instead are controlled remotely. This year’s NavalX campaign and Agility Summit were designed to lay the groundwork for a future where these unmanned systems are not only a prominent part of naval operations but also a trusted resource that service members can rely on.

Laying such groundwork requires ironing out the kinks associated with any sort of technological advancement. That’s where Vidalis, Varvasoudis and Andrianopoulos come in.

The NPS student team’s proposal seeks to answer NavalX’s following question: “How do we ensure that current and future unmanned systems designs enable a common user experience across departmental and joint capability requirements?”

In other words, as unmanned systems continue to develop, how can they remain accessible to human operators across the Navy who possess different skill sets and backgrounds?

Vidalis, Varvasoudis and Andrianopoulo suggest creating standardized operating procedures that sophisticated unmanned systems can learn from, adapt to and interact with accordingly. In essence, machines will take cues from their human operators abiding by a common set of rules so users do not have to undergo increasingly complex training to keep up with constant improvements in technology.

“Consequently, the unmanned systems will be mature enough when, despite their complexity, they will be qualified to adjust to users’ skills/qualifications,” Vidalis said in his proposal to NavalX.

If the NPS team’s solution is chosen at the Agility Summit, which is scheduled to take place in Alexandria, Virginia, from Sept.13-17, he and his team will receive 10 weeks of follow-up support to further develop their ideas. Teams will then present their prototypes or proofs of concept to naval stakeholders.

Vidalis says that being selected for this achievement and even just making it to the summit will help bring notoriety to not just his team and NPS but Monterey as a whole as well.

“If everything goes well at the summit, funding will probably be given to NPS and other private companies around the area that can help us realize our solution,” he said. “Actions like this could bring in funding or motivate students at NPS and other people in Monterey Bay.

“That makes me even more happy and honored to be able to participate in this summit.”

[Naval Postgraduate School students to take part in national naval summit – Monterey Herald](#)

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S'pore institute integrating tech and defence marks 20 years of training officers

(Straits Times 5 Sept 21) ... Lim Min Zhang

More than 20 years ago, Singapore's defence officials realised the importance of "systems thinking" to tackle complex problems, by encouraging broader thinking beyond the silos of various disciplines.

The Temasek Defence Systems Institute (TDSI) was formed in 2001 to meet this need for higher education for defence officers - from military officers in combat roles to engineers and scientists.

The institute marked its 20th anniversary in July. More than 460 graduates from 18 cohorts have completed its flagship 18-month Master of Defence Technology and Systems course, including 72 international students.

TDSI director Yoon Soon Fatt said its goal is to provide an educational platform that integrates three communities - military officers, defence engineers and defence scientists.

It is also to provide a multi-disciplinary education that emphasises the integration of technology with operations, Professor Yoon said in an interview last week.

"You can have the best technology, the best gadgets and the best equipment, but if they are not integrated at the operations level, then it's not serving the purpose of why that technology was invented in the first place," he said.

For the flagship master's programme, students spend six months at the National University of Singapore (NUS) taking courses ranging from cyber security, artificial intelligence and data analytics, to probability and statistics.

They then embark on a 12-month specialised curriculum at one of three partner institutions - the **Naval Postgraduate School** (NPS) or Air Force Institute of Technology in the United States, or Cranfield University in Britain.

Students are nominated and sponsored by their employers in the defence sectors, such as the Ministry of Defence, Defence Science and Technology Agency (DSTA), DSO National Laboratories and ST Engineering.

They get two degrees when they complete the course - a Master of Science in Defence Technology and Systems from NUS, and a Master of Science in a specialised field from the partner institution.

Systems thinking is tested, for instance, in capstone projects. One example, said Prof Yoon, 59, is developing the best way to combine manned and unmanned systems to defend a hypothetical island.

Students have to look at potential threats, and what weapon systems and components would be the most appropriate, while taking into account possible trade-offs.

Another consideration is the time horizon, said Mr Teo Tiat Leng, 54, director for capability development at the Systems Engineering and C3 Centre at DSTA, who was in the pioneer batch of the master's course at TDSI.

"In the case of island defence, you'll probably be thinking about how the threat will change over time, and would that render your defences irrelevant in a matter of years," he said. "(These are what) you start thinking about as a systems engineer, which may not be so apparent if you're strictly looking at this by the requirement to build a system and acquire a capability."

Working with military officers also meant he was more aware of practical difficulties they may face.

Mr Teo cited an example of how, in foreign military officers' experience, the introduction of video conferencing in operations resulted in far more bandwidth being consumed than expected.

"Hence, there was a need to collect realistic usage patterns and plan the capacity with room for growth, and redesign or optimise ops processes to minimise what needed to be transmitted."

Another TDSI alumnus, Mr Mike Lee Kum Leong, 39, is a senior defence researcher in the Emerging Systems Division at DSO.

Mr Mike Lee is senior defence researcher at the Emerging Systems Division at DSO. PHOTO: DSO NATIONAL LABORATORIES

He said that although he was in the applied physics stream during his stint at NPS, his professor would take the class for other talks at the nearby Stanford University.

"So it's not really like what the name says - Naval Postgraduate School - they are very open to a lot of technologies, even in the space (field)," he added.



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RESEARCH:

Human Factors Meets New Technology in 2025

(*CIMSEC 30 Aug 21*) ... John Cordle and Robert Sweetman

This article is an exercise in “visualization,” looking at the art of the possible in combining science and technology— and changing Navy culture—to improve shipboard human performance.

The year is 2025. Onboard USS Halberg (DDG 217), my fictitious grandson, who we will call LTJG “J.T.,” is about to take the watch as Officer of the Deck. In accordance with the Navy’s Force Crew Endurance and Fatigue Management instruction, signed by the CNO in 2023, he is standing a circadian watch rotation (three hours on watch, nine hours off) which is based on decades of research demonstrating the advantages of a repeatable, stable schedule to the body’s internal clock, a policy supported (as we shall see) by modern technology that creates a holistic assessment of his performance over time.

After the deadly DDG collisions in 2017 and the Government Accountability Office (GAO) report on Fatigue Management and Crewing in 2021, the Navy re-examined its response to the 2017 Comprehensive Review and (finally) realized that the human is the most important part of any weapon system. This led to a fundamental shift in priorities as manpower requirements—which had long been underfunded and under-executed by as much as 15%— were made the number one priority, as GAO had recommended that “The Secretary of the Navy should ensure that the Office of Chief of Naval Operations uses crew requirements to project future personnel needs)” and the Department of the Navy (DON) concurred.¹

Even as new technology allowed for fewer people to man the DDG Flight IIIA warships in their multi-mission role, the 2022 National Defense Authorization Act mandated 100% funding to the sea duty manpower account and ordered the Navy to measure against the full Ship’s Manning Document (SMD) requirement, instead of the funded portion. With its ability to coordinate manned and unmanned surface and airborne vehicles, which use artificial intelligence (AI) to learn about the environment and adjust tactics to an ever-changing threat, the ship is an awesome example of the implementation of the newest technology. But the heart of its warfighting capability—what makes this now fully-manned crew so formidable—is a well-honed team that is attuned to its own strengths and weaknesses thanks to human factors science and technology.

The first evidence of this is in the crew makeup. The Agile Manpower Model (AMM)² uses AI to track and continually recalculate requirements. Gone are the days of manual calculations on a 3-year rotation by ship class; this has been replaced by an increasingly agile system that uses artificial intelligence and ever-adapting, comprehensive workload calculations, as well as a four-section Condition III watch rotation instead of the three-section model that had been used (with no real scientific basis) for decades.

AMM does not exist, but given advances in AI and the complexity of the manpower management system, it is probably just a matter of time until it does.

This approach was formally adopted in 2022 as OPNAV policy, via change to OPNAVINST 1000.16, as a necessary foundation for the unique combination of work and watch that a Navy crew needs to maintain the ship, adding a formal requirement for eight hours of protected sleep time; this despite the fact that it resulted in a slight increase in the cost (less than ten percent) of manpower. Human factors research (including a 2008 study that showed a positive correlation between manning levels and lower mishap rates)³ tipped the scales in favor of the idea that it was in fact “worth it” to man ships to the calculated requirement. In addition, improvements in technology and a focused manpower analysis

showed that the idea of underfunding manpower (previously funded at only 95% and manned to 95% of that) was not conducive to optimal performance and, in fact, not cost effective when balanced across the lifecycle maintenance cost of the ship; so in 2024 the Navy decided to leverage savings in other programs to fully fund the manpower account.

It was only through an intense collaboration of Navy research centers, including the Naval Health Research Laboratory, the **Naval Postgraduate School**, the Center for Naval Analysis, and others that science eventually carried the day. The Expanded SURFMEX model was a big help, matching sailor experience to fleet needs and enhancing the detailing process.⁴ Lots of barriers had to come down to make that happen, including making human physiology research a funded program of record instead of an ad-hoc set of independent programs, but the resulting manpower modeling software, combined with AI protocols that inject real time data from the Fleet, made this process possible.

While there have been great strides in planning, executing, and funding an improved manpower and manning process, much has been done to improve the command's awareness of the well-being and performance of the individual crew members and teams as well. Warrior Toughness training, implemented along with the Expanded Operational Stress Control program way back in 2020, uses science to teach skills such as mindfulness, meditation, nutritional science, and exercise that have all combined to make the sailors of 2025 tougher and more resilient upon arrival, and build on that toughness throughout their career. The initiative to add Deployed Resiliency Counselors and a Chaplain to each deployed ship has paid off, as has the Behavioral Health Technician program that gives Independent Duty Corpsmen the ability to assess crew readiness and stress levels and get them assistance—before they become unplanned losses.

Other psychology and physiology-based programs such as the Command Resilience Team, the Human Factors Council, and the availability of remote psychological counseling via unclassified video teleconference have expanded the level of mental health and resilience support to those on the front lines. All of these are examples of what is special about the human factors field, where technology and knowledge combine to provide increased awareness of the human condition – and how to improve it.

There are new shipboard technologies as well. As J.T. heads to watch, he takes off the colored and lighted glasses that he put on when he awoke, designed to complement the body's natural endocrine response that occurs during the transition from sleep to wakefulness in a process called “circadian entrainment”. He has another pair of glasses that he wears before going to bed to minimize the negative effects of blue light.⁵ The rack he slept in was not that of his father and grandfather— it has been replaced by the Advanced Rest and Recovery Integrated System (ARRIS). This was his safe place to retreat and recover from the stresses of the workday.⁶ In 2023, after the GAO report, and a series of research efforts by the Naval Postgraduate School,⁷ ARRIS were mandated to curb the fatigue epidemic in the Navy.

ARRIS does not exist, but it could. This would represent a new “human-factors centered” approach to a complete makeover of the Navy rack, turning it into a temperature and noise controlled environment. It includes a mattress tailored to individual preference, a full spectrum LED light to facilitate sleep and wakefulness using the optimal light wavelengths, and a set of noise reducing headphones that are also tuned to provide the sailor with a choice of white noise, natural sounds, or music as he falls asleep, bring him back to wakefulness with a gradual noise increase, and sound any ship alarm or emergency announcement that may occur during his protected sleep period. It also includes a passive heart and temperature monitor that (much like his computerized watch does at home) records his sleep quality and any disturbances that might impede his performance during his next work/watch period.

Having consumed a cup of coffee (energy drinks are generally frowned upon unless recommended by the Personal Performance Profile, PPP), another notional program that could provide a comprehensive look at each sailor's daily alertness and fatigue levels. He checks in at the Physical Readiness Kiosk and gets a readout on his fatigue and performance level. J.T. completes a short self-assessment, where he rates his alertness level as a 6 out of 7, knowing that he fell short of the required eight hours of sleep due to an equipment casualty in his division that required overtime and supervision.

The Navy has monitored the temperatures and pressures of its fluid systems, and the voltage and current of its electrical ones, for literally centuries; the idea of doing the same for its people was a long



time coming. To assess his alertness, J.T. then looks into the eyepiece of a Psychomotor Vigilance Self-Test (PVT) machine, pressing the mouse with each flash of light, speaking into the voice machine, and after three minutes is cleared, by a series of proven technologies leveraged together, to take the watch.

The PVT is used in various forms throughout industry; for example, on the International Space Station a Reaction Self-Test provides crewmembers with feedback on neurobehavioral changes in vigilant attention, state stability, and impulsivity. It helps crewmembers objectively identify when their performance capability is degraded by various fatigue-related conditions that can occur as a result of ISS operations and time in space (e.g., acute and chronic sleep restriction, slam shifts, extravehicular activity, and residual sedation from sleep medications).

Lessons learned (and applied) from past incidents (e.g., the bombing of the USS Cole, and collisions involving USS Fitzgerald, USS John S. McCain, and other near misses) have shown the need not just for toughness—the ability to recognize, analyze, and mitigate stress through mental and physical readiness—but also for resilience, since when a missile or a mine puts a hole in the ship, the first minutes—and the next 48 to 72 hours—will test the mettle of the entire crew. During these crises the crew (including the Captain) start at whatever level of personal readiness—or fatigue—that they had when the water started coming in.

J.T. remembers reading the GAO Report from 2021 where one of his (then) peers was quoted as seeing “fellow officers taking the watch in a state of senselessness driven by fatigue, unnoticed by shipboard leaders who looked the other way and ignored crew endurance principles.” My, how times (and culture) have changed!

At the end of his three-hour watch, J.T. downloads his actigraph from the motion detecting “wearable” that he wears at all times in the form of either a ring or a watch, so that his information can enter the continuous monitoring data feedback stream under the Crew Readiness, Endurance, and Watch standing (CREW).⁸

CREW is a pilot program to “create a decision support tool so that you can understand how fatigued people are and how much sleep they are or are not getting,” explained Dr. Rachel Markwald, a sleep physiologist from NHRC. “We can then determine how those fatigue levels correspond with the health of the individual so that we can provide a way or course of action to offset some of the risks that come with fatigue and poor health.” The long-term goal of CREW is to aid command leadership in making educated decisions about a sailor’s sleep pattern and/or their level of fatigue, capturing this data and combining it with the rest of the crew to place a real-time picture of the crew’s readiness at the CO’s fingertips. Each sailor’s data is secure, restricted from being used for any punitive measure, and is not tied to him personally, but is available as a means of monitoring his own watch standing and work performance.

A huge part of the culture of readiness is the idea that one’s own psychological and physiological readiness relies heavily on the concept of personal responsibility.

Going over his past 24 hours and noting any deviations or issues, J.T. remembers that, in addition to the next watch cycle, he has to man the boat deck for an underway replenishment, one of the evolutions that is tagged for an Individual Risk Assessment. Looking ahead at a Fatigue Avoidance Scheduling Tool (FAST)⁹ printout of the next 24 hours, J.T. sees that in order to be at peak performance for the evolution that follows his next watch, he needs to take a 45-90 minute nap during the next nine hours. He programs that into his rack display, a monitor that shows his schedule for the next 24 hours so that anyone entering his stateroom will know that he is in a “protected sleep” period (if they did not see the red light outside the door, indicating such). J.T. calls it the “NORP” light, short for “Naval Officer Rest Period”. He learned that from his dad.

In the end, J.T. rests easy, knowing that he has done his part to leverage the science and technology of Human Factors to maximize his own readiness, and by extension, the performance of his team and the safety of the crew that was able to sleep soundly while he had the watch. During his Protected Sleep Period (PSP) J.T. retires to his ARRIS. The Navy had acknowledged fatigue as a major contributor to errors in judgement, mental health and operational lethargy. J.T. enters his ARRIS to begin his breathing exercises and relaxation techniques. He knows from his training that the stressors of managing the ship are carried with him in the form of nor-adrenaline as he transitions to sleep. If he wants to have restful sleep, he needs to trigger a physiological change in his brain first. Much of this knowledge was provided



during pipeline training and periodic updates and under the Crew Endurance and Fatigue Management program, a Navy- wide initiative that was expanded in response to the 2021 GAO report.

In this version of the future, the implementation of human factors technology and fatigue management/crew endurance expertise, along with the combination of science, education, and technology—and finally, culture change—has been a game changer. Since the program’s inception, satisfaction at work has shot up dramatically, along with retention and operational performance scores. Reductions in mishaps and unplanned losses, combined with the savings from maintenance by fully-manned and less fatigued crews, has more than paid for the cost of research and development as well as the extra manpower that it justified. The Navy has (finally) made the decision to put sailors first and the results have been astounding. Granddad would be proud.

[Human Factors Meets New Technology in 2025 | Center for International Maritime Security \(cimsec.org\)](https://cimsec.org/human-factors-meets-new-technology-in-2025)

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ONR Global Leads Iceberg Tagging In Greenland

(Naval News 6 Sept 21)

Thanks to international collaboration, science and technology, ships operating in any of the world’s oceans containing icebergs will now have valuable data on iceberg drift and decay.

A recent activity was executed with participants from Denmark, Canada and the United States using unmanned aerial vehicles (UAVs) to deploy GPS tags onto icebergs near Disko Bay, Greenland. This effort will improve understanding of ocean circulation and meteorological impacts on icebergs—key variables to ensuring maritime situational awareness.

This unprecedented international effort was performed under the International Cooperative Engagement Program for Polar Research (ICE-PPR), a 25-year Memorandum of Understanding (MoU) to promote coordination and collaboration between Polar Nations.

The Danish Navy Vessel Ejnar Mikkelsen (P-571) was tasked by the Danish Joint Arctic Command for 10 days of scientific support in waters of West Greenland. The science team was led by the Office of Naval Research (ONR) Global and its International Engagement Office, while also receiving active support by the Universities of Washington, Colorado, Maryland and Kansas.

The team developed specialized tags and modified off-the-shelf components to report and collect GPS positions of tagged icebergs via satellite communication constellations. The delivery vehicles were remotely operated by hexa- and octo-copters capable of carrying and deploying payloads up to 10 pounds. The shipboard team consisted of five U.S. nationals and one Danish expert from the Danish Meteorological Institute (DMI).

“This was an extremely successful operation executed with great cooperation between the ship’s crew and science team. The Ejnar Mikkelsen proved to be an outstanding platform for this type of UAV work, and her crew operated as true professionals in iceberg-infested waters,” said John Woods, project lead, ONR Global.

The Ejnar Mikkelsen has a crew of 20 and is an extremely capable Arctic Patrol Vessel accustomed to providing an excellent platform for scientists. Each summer, the Danish Navy supports research teams interested in geology, biology, geophysics, oceanography and meteorology. Another team of two from the University of Copenhagen were onboard to collect iceberg samples to determine the sediment composition and origins of the local area.

“The Danish Navy vessels operate in Greenland each year to support a wide variety of research institutions. Some of the research has a direct link to shipborne activity, and is therefore a great way for the Navy to both participate in and benefit from scientific research. The movement and behavior of ice in Greenlandic waters has always been a challenge, and everything we can learn about it, is worth every effort,” said Søren Dreijer, Lieutenant Commander and executive officer of the Danish Navy Vessel Ejnar Mikkelsen.



The reach-back support team includes the U.S. Coast Guard International Ice Patrol, U.S. Naval Research Laboratory, U.S. **Naval Postgraduate School**, Center for the Remote Sensing of Ice Sheets, Canadian Ice Service (CIS) and Danish Defense GeoMetoc Center.

Data provided by the shipboard team will deliver valuable insights for improving the accuracy of iceberg drift and decay models. The data set will increase the maritime situational awareness for all ships operating in any of the world's oceans that contain icebergs, both North and South. Real time data is available at https://iabp.apl.uw.edu/ICE-PPR_DiskoBay_2021.html.

[ONR Global Leads Iceberg Tagging in Greenland - Naval News](#)

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FACULTY:

The F-35 Helmet Might Not Be the Most Expensive Helmet in History

(Clearance Jobs 30 Aug 21) ... Peter Suci

The F-35 Lightning II is the most expensive military program in the history of the United States, and could cost \$1.5 trillion over the course of its lifetime. Its specialized fighter helmet costs upwards of \$400,000 and requires two days of special fittings for pilots.

Made of a bubble of carbon fiber, which is meant to help reduce weight while its checkerboard pattern provides rigidity, the helmet is also reinforced with Kevlar. In addition to the space age materials, it is essentially loaded with displays to provide pilots with the information needed to complete their missions – including airspeed, heading, altitude, targeting information and warnings. All of this is projected on the pilot's visor rather than via a traditional heads-up display, which reduces the pilot's workload whilst increasing responsiveness.

It further helps create a type of convergence of man and machine that allows the pilot to better access the aircraft's Distributed Aperture System (DAS), which streams real-time imagery from six infrared cameras mounted around the aircraft to the helmet.

"The helmet is much more than a helmet, the helmet is a workspace," then Air Force Chief of Staff General Mark A. Welsh III explained at a 2015 press briefing. "It's an interpretation of the battle space. It's situational awareness. Calling this thing a helmet is really...we've got to come up with a new word."

F-35 HELMET REQUIRES SPECIALTY FITTING

Each F-35 helmet is also custom-fitted to the wearer to ensure a perfect fit even under intense G forces. This process is more complicated than being fitted for an expensive suit; and it involves taking a 3D scan of the pilot's head, which enables precise cutting of a foam liner by laser.

Each pilot has his/her eyes measured by a special 'pupilometer' to align the optic package to just 2mm off the center of the pupil, which aids in ensuring that images are in the field of vision to reduce eye strain and fatigue.

Weight gain or a different haircut can affect the fit and thus effectiveness of the flight helmet, so pilots may need to maintain weight and hair style.

COMPARING THE COSTS OF THE F-35 HELMET

The \$400,000 price tag of the helmet has been a matter of discussion – but some context needs to be considered. As noted, the helmet's DAS and other displays are in the helmet. This replaces other displays in the cockpit, so in essence the cost is just shifted.

With a price that exceeds a Ferrari – or two – there is no denying as well that this is the most expensive military helmet likely ever produced. It can certainly do things a Ferrari can't do. More importantly, few military helmets could be seen as "cheap" when compared to their civilian counterparts.



As an example, the helmets used in the Air Force's F-15 and F-16 fighters were designed for use in a high-G combat environment, and were essentially just fiberglass shells that could be fitted with earphones, communications cord and oxygen mask receivers. Even today these don't come cheap

"The HGU-55, the standard type military fixed wing used, costs \$1,200 to \$1,300 depending on basic visor options. That's for the shell only with no higher tech visor system," said Bill Holland, a collector and researcher of modern U.S. combat helmets.

"For the O2 mask alone that added between \$1,600 to \$1,700," Holland told ClearanceJobs.

As the flight helmets have seen more integration with the aircraft's systems including heads-up displays – such as the Raytheon-developed Helmet Mounted Integrated Targeting – the prices of the helmets has increased significantly.

"A new higher tech helmet is being made for the F-16 V Model with a new high tech visor kind of like the F-35 type," said Holland, who was unable to put an exact price on the helmet.

ALL MILITARY HELMETS COST MORE

However, it isn't just pilots that are wearing more expensive helmets these days. All of America's warfighters' "brain buckets" have increased considerably.

"Since the turn of the 20th century, the cost of equipping a single soldier has increased at a rocket's pace," explained John Adams-Graf, editor of Military Vehicles magazine.

"In 1917, it cost roughly \$156 to equip a U.S. soldier to fight in France. Of that, only about 2% went pay for the steel helmet, roughly \$3.00," Adams-Graf told ClearanceJobs. "By 1941, the cost of equipping a soldier hadn't climbed significantly — only about \$170 with each helmet costing about \$11 each. During the Vietnam War, though, the cost to equip an American soldier had gone up to \$1,750. The helmet was still a relative bargain at around \$20 per soldier."

Those steel helmets, which had a removable liner system, were still more expensive than the heavy plastic "hardhats" used in construction, but really not all that much more than what a football helmet of the era might have cost at the time. Those helmets were replaced in the 1980s with a modern Kelvar helmet that provided vastly superior ballistic protection, but the costs increased nearly six fold – and the price has only continued to go up.

According to a research paper from the **Naval Postgraduate School** by Robert F. Mortlock, entitled "Protecting American Soldiers: The Development, Testing and Fielding of the Enhanced Combat Helmet," the cost of modern military helmets has continued to steadily increase as the ballistic capabilities and other features of the helmets have been enhanced and improved.

"From 1999 to 2016, the cost of head protection for soldiers jumped from about \$150 for the Personal Armor System for Ground Troops helmet (PASGT) in 1999 to \$280 for the Advanced Combat Helmet (ACH) in 2008," said Adams-Graf. "By mid-2012, though, the U.S. was paying as high as \$1,400 for the ACH. The Enhanced Combat Helmet (ECH) also adopted in 2008 cost roughly \$840. By 2017, though, helmet cost was projected to plateau over \$1,600 each."

SPECIALTY HELMETS COST MORE

The helmets used by today's Special Forces warfighters, including the U.S. Army's Delta Force and Navy SEALs, can be even more expensive than what the average foot soldier has on his or her head.

"The Ops-Core site has the standard FAST XP – worn by SOCOM (United States Special Operations Command) since 2010 – is currently listed publicly at \$1,506.75," said Holland.

"The Ops-Core FAST SF Super High Cut, the new version just entering service, is currently listed publicly at \$1,860.60," Holland told ClearanceJobs. "Keep in mind, the helmet is no longer a simple protection for the head, though. It has become a platform for an array of night vision and/or distance fighting gear with the costs reaching into thousands of dollars for each soldier."

[The F-35 Helmet Might Not Be the Most Expensive Helmet in History - ClearanceJobs](#)

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What We Know About Today's Taliban

(Politi Fact 1 Sept 21) ... Jon Greenberg

When the Taliban controlled Afghanistan two decades ago, they were known for banning music and television, conducting public executions and imposing a fierce interpretation of Islamic law that sharply restricted the rights of women.

Today, they intend to run the nation again — in very different times — and it's not clear what that might mean. In official statements, Taliban leaders put forth an image that is less draconian than the late 1990s, before U.S.-led forces drove them from power.

But it's still too soon to tell whether they'll live and rule by those words.

Here are answers to some key questions about today's Taliban, based on what we know now.

Who are the Taliban leaders?

The Taliban's leadership roster is dominated by ethnic Pashtuns who have overseen the fight against the U.S.-backed Afghan government, the U.S. and its allies.

The supreme leader is Mawlawi Hibatullah Akhundzada, who comes from a religious background. During the Taliban regime from 1996 to 2001, he oversaw the administration of civil and religious law. He comes from the powerful Pashtun Nurzai clan.

Under Akhundzada are three deputies who will play key roles in the newly formed government:

Abdul Ghani Baradar is expected to oversee the daily running of a new government. He has been the head of political affairs and has been the point man in discussions with the remnants of the U.S.-backed Afghan government for the transfer of power to the Taliban. Baradar had been a prisoner in Pakistan, but at the request of former President Donald Trump, he was released in 2018 to lead peace negotiations in Doha, Qatar.

Sirajuddin Haqqani has been a key deputy leader. Haqqani leads the Haqqani network, a powerful militant organization based in Pakistan that holds sway in eastern Afghanistan. In September 2011, the Haqqani network was responsible for a daylight assault on multiple targets in Kabul, including the U.S. Embassy and the Afghan presidential palace.

Muhammad Yaqoob has been mentioned in several reports as a potential defense minister. He has overseen much of the Taliban's military activity, a post he's held since 2020. His father, Mullah Muhammad Omar, was the Taliban's founding leader.

Under this core leadership are many Pashtuns, but also members of other ethnic groups. Qari Din Mohammad Hanif is a 66-year-old ethnic Tajik from the northern part of Afghanistan. He was the minister for planning and higher education during the Taliban regime. Mawlawi Abdul Salam Hanafi, an ethnic Uzbek, served as a provincial governor as well as deputy minister during the Taliban rule.

How stable is the Taliban as a governing group?

There are many ways the Taliban could split into competing factions in trying to govern a multiethnic nation scarred by decades of war. The Pashtun ethnic group makes up about 40% of Afghanistan's population. Within the Pashtun, there are a handful of leading clans. Beyond the Pashtun, there are many other ethnolinguistic groups, including Tajiks, Uzbeks and Turkmens.

"They might not be able to govern if they can't keep these competing interests in check," said **Naval Postgraduate School** professor Thomas H. Johnson, who has studied Afghanistan and the region for many years. "Each group might aim to hold on to as much power as possible. The worst-case scenario would be a breakdown into civil war."

Exacerbating these group tensions are differences between older, more pragmatic leaders, and younger, more radical ideological ones. "It might be months or a year before we know how this turns out," Johnson said.



How has the Taliban evolved since 1996?

The Taliban controlled most of Afghanistan from 1996 to 2001, running a strict Islamic fundamentalist state and providing a base for Osama bin Laden and al-Qaida, which attacked the U.S. on Sept. 11, 2001. When the U.S. and its allies retaliated, forcing the Taliban from power in Kabul, the group scattered, with many members finding refuge in neighboring Pakistan.

By 2003, when the U.S. launched its invasion and occupation of Iraq, the Taliban began to regroup. Around 2006, the Taliban established elements of shadow governments in provinces where they held some influence. The formal provincial officials remained in place, but the Taliban had both military and civilian leaders advancing their agenda. According to one estimate, by 2010, there were about 500 Taliban judges settling legal disputes among Afghans.

According to a research paper from the Overseas Development Institute, a London-based think tank, 2010 marked a pivot in Taliban strategy. They shifted from primarily military control to a blended strategy that included ordinary public administration.

By 2011, the Taliban had signed agreements with 26 international humanitarian nongovernmental organizations. Buy-in was uneven among local Taliban leaders, who might cut off access or attack aid workers suspected of spying, but central leadership attempted to impose policies that accommodated the NGOs.

By 2017, their governing apparatus was extensive, shaping health care, education and tax collections.

"They regulate utilities and communications, collecting on the bills of the state electricity company in at least eight of Afghanistan's 34 provinces and controlling around a quarter of the country's mobile phone coverage," the report said.

As rulers again in Kabul, the Taliban face the daunting challenge of finding capable managers.

Johnson at the Naval Postgraduate School said he was in touch recently with a deputy minister with the Afghan national government that collapsed. The minister said he went to his old office to get some materials. The Taliban occupiers denied him entry, but then, according to Johnson's account, they next asked the official if he would want to run the ministry under them.

How has the Taliban's messaging changed?

The Taliban operate a robust social media operation. They are active on Twitter and Facebook and in 2015 launched Telegram and WhatsApp channels. An estimated 90% of Afghans have access to a mobile device, and the Taliban are able to quickly produce and share infographics and short videos.

They have shown nuance in their communications with the international community. When an anti-Muslim terrorist gunned down 51 Muslims at mosques in Christchurch, New Zealand, the Taliban called not for retribution, but for an investigation.

In the winter of 2020, the Taliban deputy leader Haqqani published an op-ed in the New York Times.

"I am confident that, liberated from foreign domination and interference, we together will find a way to build an Islamic system in which all Afghans have equal rights," Haqqani wrote Feb. 20, 2020. "Where the rights of women that are granted by Islam — from the right to education to the right to work — are protected, and where merit is the basis for equal opportunity."

The Taliban have consistently sought international recognition. Equally consistently, they speak of strict observance to their interpretation of Islamic law. It remains to be seen how they will balance the two goals, and how their need for international financial support might shape their policies.

What is the Taliban's relationship with al-Qaida and the Islamic State?

The Taliban maintains a relationship with al-Qaida, the international terror group blamed for 9/11 and scores of other terrorist attacks, bombings and assassinations around the world since the early 1990s.

"The primary component of the Taliban in dealing with al-Qaida is the Haqqani Network," a June U.N. Security Council report said. "Ties between the two groups remain close, based on ideological alignment, relationships forged through common struggle and intermarriage."

Al-Qaida members are in Afghanistan — contrary to claims by President Joe Biden — although the Taliban have attempted to exert some control by registering them as foreign fighters.

The Taliban generally oppose the Islamic State, a violent insurgent and terrorist group that ruled parts of Iraq and Syria in the mid 2010s and had affiliates in other countries. (It is also known as ISIS or ISIL.)



According to the final report of the congressionally mandated Afghanistan Study Group, "The Taliban have taken active measures, sometimes with tacit U.S. support, against the Islamic State, driving it out of northwest Afghanistan and significantly circumscribing its mobility in the east."

The Islamic State's Afghan offshoot, ISIL-K, blamed for the Aug. 26 terror attack in Kabul that killed 13 U.S. service members, competes with the Taliban for members. It has positioned itself as a hardline group and aims "to recruit disaffected Taliban and other militants to swell its ranks," according to the U.N. Security Council.

How do other nations get along with the Taliban?

Pakistan, with its 1,600-mile border with Afghanistan, is deeply involved in the country's affairs. It has provided safe territory for the Taliban and supported them during their 20-year battle with the U.S. and its allies. Pakistan treats the Taliban as a reliable ally against India, its archenemy, and has good working relationships with the Taliban leadership.

At the same time, some analysts believe that Pakistan is concerned that Afghanistan under Pashtun rule could trigger unrest among the 32 million ethnic Pashtuns in Pakistan.

Iran, Afghanistan's neighbor on the west, has several key interests. High on its list is protecting the Shia minority in Afghanistan. As an opponent of the U.S. presence in the region, Iran has aided the Taliban. Trade between the two nations stands at about \$2.8 billion a year, and Iran's port in Chabahar offers landlocked Afghanistan access to international markets.

Officially, Russia has labeled the Taliban as a terrorist entity, but Russia has also called on the international community to lift the current freeze on Afghanistan's financial reserves. Russia's presidential envoy for Afghanistan, Zamir Kabulov, called Aug. 30 for an international conference aimed at supporting the country's recovery under Taliban leadership.

China and India have economic and political interests that broadly favor a stable Afghanistan, although India remains wary of any coziness between Afghanistan and Pakistan.

What agreements have the Taliban negotiated with the U.S.?

Talks between the U.S. and the Taliban date back to at least 2013 during the Obama administration. The U.S. hoped to bring the Afghan government into the negotiations in Doha. Talks limped along, and the only signed deal that ever emerged came in February 2020, and the Afghan government did not participate.

Under the Feb. 29, 2020, agreement between the Trump administration and the Taliban, the U.S. and its allies agreed to withdraw their military forces within 14 months of the agreement's announcement. In exchange, the Taliban agreed that it would not allow groups in Afghanistan, including al-Qaida, to threaten the security of the United States and its allies.

The agreement also called for negotiations between the Taliban and the Afghan government, starting March 10, 2020. Those discussions started late and never went far.

The agreement also led to the release of 5,000 Taliban and ISIS-K prisoners held by the Afghans. The Afghan government resisted, but under American pressure, eventually complied.

At least some of the released prisoners returned to fighting the Afghan forces.

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ADA University to host Advanced Regional Energy Security Symposium 2021 – Caucasus

(Azertac 3 Sept 21) ... Gary Ell

(News AZ 3 Sept 21)

(Report.AZ 6 Sept 21)

(Azerbaijan24 6 Sept 21)

From 6th to 10th of September 2021, the Advanced Regional Energy Security Symposium 2021 – Caucasus will be held by the Center of Excellence in EU Studies at ADA University in partnership with the NATO Energy Security Center of Excellence, the **Naval Postgraduate School**, bp Azerbaijan, and State Oil Company of the Republic of Azerbaijan (SOCAR).

The Symposium will bring together high-caliber professionals and decision-makers from ministries, ambassadors, and experts of academic institutions, international organizations, and public-private sectors. The keynote speakers representing Azerbaijan, the U.S., Turkey, and Ukraine will draw attention to a wide spectrum of specific topics, including strengthening regional energy security, coping with hybrid warfare and terrorist attacks, etc.

The aim of the event is to serve as the principal platform for regional communities of interest, and to accelerate joint actions toward strengthening regional, inter-institutional and inter-sectoral dialogue and cooperation by emphasizing the importance of maintaining reciprocal interactions and exchanging information on best practices.

Dr Fariz Ismailzade, Executive Vice-Rector of ADA University and Mr Alan Howard, Deputy Director, Energy Academic Group at Naval Postgraduate School will deliver opening speeches to spotlight pressing challenges on energy affairs.

Furthermore, Lt Col Christophe Nave, Deputy Director, NATO Energy Security Centre of Excellence and Dr Bakhtiyar Aslanbayli, bp's vice president communications and advocacy, Caspian region will give welcoming remarks on the first day of the Symposium.

The keynote speakers of the event will include Dr Elnur Soltanov, Deputy Minister of Energy of the Republic of Azerbaijan and Dr Vitaliy Baylarbayov, Deputy Vice-President of SOCAR for Investments and Marketing.

The Symposium will be followed by presentations, discussions, group works, case studies, and exercises led by Dr Brenda Shaffer from **Naval Postgraduate School** and other distinguished experts.

Launched in 2018, the Advanced Regional Energy Security Symposium is the annual program conducted by the Center of Excellence in EU Studies at ADA University.

[ADA University to host Advanced Regional Energy Security Symposium 2021 – Caucasus - AZERTAC - Azerbaijan State News Agency \(azertag.az\)](#)

[ADA University to host Advanced Regional Energy Security Symposium 2021 – Caucasus \(news.az\)](#)

[Advanced Regional Energy Security Symposium opens at ADA University | Report.az](#)

[Advanced Regional Energy Security Symposium opens at ADA University \(azerbaycan24.com\)](#)

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ALUMNI:

NSWCPD Logistics Management Specialist Returns Home from Afghanistan after Supporting Operation Resolute Support and Troop Withdrawals

(NavSea 30 Aug 21) ... Gary Ell

After being deployed to Afghanistan, Cathryn Barnett, a logistics management specialist at at Naval Surface Warfare Center, Philadelphia Division (NSWCPD) recently returned from a harrowing deployment in theatre, on behalf of the Department of Defense (DoD) Expeditionary Civilian Workforce Program (DOD-EC).

Barnett's deployment commenced at Bagram Air Field (formerly the largest military base in Afghanistan) as a Non-Tactical Vehicle (NTV) manager, overseeing a fleet of vehicles for the Area



Group Support (ASG). The ASG provided standardized services, facilities and infrastructure to the Joint Expeditionary Force throughout Afghanistan. After serving for only a month, she was re-assigned to a new challenge: Supporting Operation Resolute Support (RSM) during troop withdrawals. This NATO-led mission was to provide further training, advice and assistance for the Afghan security forces and institutions. However, by April 2021, as the Allies had started the withdrawal of RSM forces effective on May 1, 2021, Barnett was challenged with the opportunity to serve as Billeting (Housing) Director in Kabul at Camp RS (Resolute Support) working with NATO.

Barnett has been employed at NSWCPD since 2016, currently serving as the Integrated Logistics Support (ILA) Reference Desk Manager. She earned a bachelor's degree in History from the University of Texas at Arlington and a master's degree in Supply Chain Management with a concentration in Logistics from the University of Maryland, University College. Prior to accepting the deployment, Barnett was enrolled in the master's degree in Cost Estimation program at the **Naval Postgraduate School**.

When asked about her preparedness for the challenge supporting the mission abroad, Barnett replied, "This was a great opportunity to work with an array of soldiers and civilians from over 16 countries while gaining experience in a managerial position. I believe my experience in logistics worked perfectly for this role."

"Although challenging, I used my experience with organization and detailed coordination to solve complex issues involving housing soldiers with conflicting ethnicities and nationalities, auditing and completing inventory on equipment, and even used my capabilities to present to high-ranking officials on a weekly basis," she continued "I was able to expand my working knowledge of logistics and served as an In-Theatre Contracting Officer's Representative (COR), ensuring the fair treatment of contractors and performing monthly interviews to deter and/or investigate human-trafficking situations."

The DOD-EC Program allows civilians to apply capability, experience and knowledge as a crucial part of helping DOD accomplish its mission abroad. When asked about how she prepared for the challenge, and what advice she would give to others interested in the program, Barnett replied, "with as much preparation as you do before you arrive in-theatre, I don't think anything can prepare you for the challenge. The training, medical visits and requirements, and administrative tasks can be exhausting."

"The journey into this environment is extremely long and tiring, and when you finally arrive, it can be very terrifying, to be honest. Wearing body armor, carrying a weapon 24/7, sleeping in tents, on cots, extreme weather, no food or restrooms available," Barnett said.

She continued: "I advise that you give yourself a grace period. You will see people going about everyday life and be terrified when you hear alarms, incoming signals, et cetera. Depending on your location, it's a lot for the average (non-military) civilian to adjust to and take in. Give yourself a chance to adjust. Get a routine and stick to it. That's the best advice someone had given me."

"I made it a goal to walk 18,000 to 20,000 steps a day and to read at least two to three books per month. The days are long, but the weeks fly by!" she added.

When asked about what it is like to step outside your comfort zone while serving alongside the warfighter, supporting the greater mission of "peace," she replied: "It was exhilarating. I learned so many things about myself there, the most important being that I am a lot tougher than I thought!"

Barnett continued: "We see it daily, in real-time! We are serving alongside the warfighter and how our contributions are making a difference. We can sometimes lose sight of that in the office, especially because we don't have a strong military presence in Philly, but assisting our soldiers, speaking with them, working alongside them, and seeing their appreciation for what we help them accomplish, there are really no words."

"Working with NATO was even cooler because it seemed like we (the world) were coming together, despite our differences in culture, to help and aid one-another. I met so many caring, humble, and compassionate people. Loved it!" Barnett said. "The camaraderie is amazing. I've never felt so much pride for being 'American,' if that makes sense."

When asked about how the contingency operation changed her perspective on both work and life, she stated: "Working for the contingency operation has given me the fortitude to work harder in my career. I



never thought I would be interested in management, especially working for a very tech heavy command, but I really did a great job as Director of Billeting.”

“I loved the challenges presented to me, working through them, and working with a staff that was willing to let me lead with a different management style. It’s also given me the courage to apply to other positions OCONUS (outside the continental U.S.). I loved learning about other cultures, while still working for a mission I strongly believe in,” Barnett replied.

When asked about how she experienced the culture while immersed overseas, Barnett said: “I fully immersed myself within the culture while I was there. I was lucky enough to have four, local national workers under my leadership. We would teach each-other different words in our respective languages, they would often bring me different ethnic foods to try, and I too would cook and show them American cuisine. I also worked closely with Italian, German, Turkish, and Polish soldiers. I learned so much about these countries that I never would have known. People were so eager to learn about my American experiences at home too. It was awesome!”

When asked about how troop withdrawals affected her mission and how she personally felt about total withdrawal from Afghanistan, Barnett stated, “The mission at Resolute Support was to train, advise, and assist the Afghan security forces, but this was highly affected as the troops withdrew. My mission was cut short by six months because of the decision to withdraw.”

Last week alone, I received so many calls and emails from local nationals begging for their lives and if there was anything I could do to help assist in getting them into the airport. That is heart-wrenching. To have American allies and friends still stuck in Kabul as the Taliban inches closer is just too suspenseful and sad. I can’t even watch the news anymore. I guess it hits home now,” Barnett concluded.

[NSWCPD Logistics Management Specialist Returns Home from Afghanistan after Supporting Operation Resolute Support and Troop Withdrawals > Naval Sea Systems Command > Saved News Module \(navy.mil\)](#)

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Mark Ray, Chair of the State, Local, Tribal, and Territorial Government Coordinating Council

(Homeland Security Today 1 Sept 21)

Mark Ray is passionate about the public works profession and the essential role it plays in designing, constructing, operating, and maintaining critical infrastructure. Public works professionals make normal happen in the community they serve and securing critical infrastructure from all hazards, both human or natural caused, requires a team effort between public works and homeland security stakeholders. Mark is committed to furthering collaboration and understanding between various groups in service to the collective goal of securing critical infrastructure that is vital to our nation.

In his professional role, Mark is currently the Director of Public Works/City Engineer for the City of Crystal, MN. Mark has his undergraduate degree in Civil Engineering from the University of Wisconsin-Madison, a Master’s in Public Administration from Hamline University, and has completed the Executive Leaders Program through the Center for Defense and Homeland Security at the **Naval Postgraduate School**.

Mark currently is the chair of the State, Local, Tribal, and Territorial Government Coordinating Council (SLTTGCC) which represents the American Public Works Association on the National Homeland Security Consortium (NHSC), and serves on the Hennepin County Emergency Management’s Strategy Council. Mark is the founder of the Hennepin County Public Works Emergency Management Group and has spearheaded the development and adoption of the Minnesota Statewide Public Works Mutual Aid Pact. Mark is also the former chair of the American Public Works Association’s Emergency Management Committee and has written over 20 published articles on a wide range of topics; including themes around public works, homeland security, and resiliency. Mark has received a numerous national



awards and recognitions from groups including American Public Works Association, National Weather Service, American Infrastructure Magazine, and Homeland Security Today.

One of Mark's mottos is "Actions speak louder than words" and it is with that approach that Mark is committed to actually doing things and supporting efforts to secure critical infrastructure from all hazards.

[Mark Ray, Chair of the State, Local, Tribal, and Territorial Government Coordinating Council \(SLTTGCC\) | Hstoday](#)

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Huntington Ingalls Industries Names Stewart Holmes As Executive Vice President, Government and Customer Relations

(Yahoo Finance 3 Sept 21)

Huntington Ingalls Industries (NYSE: HII) announced today that Stewart Holmes has been named executive vice president, government and customer relations, succeeding Mitch Waldman, who will retire on Sept. 30.

Holmes will be located in HII's Washington, D.C. office and will report to Mike Petters, HII's president and CEO.

"Mitch has been an integral part of HII since day one and has been key to our success," Petters said. "His contributions to national security for over four decades both in government service and as a Huntington Ingalls Industries executive have always affirmed an unwavering commitment to our men and women in uniform, and demonstrated the highest level of integrity and thoughtfulness. I thank Mitch for his leadership and dedication which always reflected our company values, and I wish him the very best."

Holmes will be responsible for leading the corporation's engagements with the legislative branch, the executive branch including all federal agencies, business and trade associations, and think tanks.

"Stewart has extensive knowledge and experience in government relations and defense issues," Petters said. "His understanding of our business and portfolio, as well as the DOD customer and Capitol Hill, will be critical in continuing our company's proven track record of providing solutions to our customers' biggest challenges."

A photo accompanying this release is available at: <http://newsroom.huntingtoningalls.com/file/stewart-holmes>.

Holmes comes to HII from Textron Inc. which he joined in 2015 as the vice president of Washington Operations, being appointed senior vice president of Washington Operations in March 2017. Prior to joining Textron, he served as the staff director/minority clerk for the Senate Appropriations Subcommittee on Defense, overseeing recommendations for the annual appropriations for the Department of Defense and the intelligence community. He had previously worked as a staff member for the Senate Appropriations Committee and as an aide to Senator Thad Cochran of Mississippi.

Holmes served in the U.S. Marine Corps for over two decades and is a graduate of The Citadel and the **Naval Postgraduate School**.

[Photo Release - Huntington Ingalls Industries Names Stewart Holmes As Executive Vice President, Government and Customer Relations \(yahoo.com\)](#)

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Robert Lewin, Retired Santa Barbara County OEM Director, CAL FIRE/San Luis Obispo County Fire Chief

(Homeland Security Today 6 Sept 21)

After retiring from government service as the Director of the Santa Barbara County Office of Emergency Management and the Fire Chief for CAL FIRE/San Luis Obispo County Fire, Robert Lewin



is now a Principal at Resolute Associates LLC providing a range of emergency management consulting including numerous efforts in support of the COVID-19 emergency.

Lewin is a Type 1 Incident Commander and served many years on Incident Management Teams. He has held command positions both in the field and in Emergency Operations Centers (EOC) on some of California's most complex incidents including fires, floods, earthquakes, human and animal diseases, and on special assignments. Most recently he led the actions of the EOC during the Thomas Fire and resulting Montecito Debris Flow.

Robert is a Cal Poly graduate in Political Science, an Allan Hancock College graduate in Fire Science and completed the Executive Leadership Program at the **Naval Postgraduate School**. He is a Certified Emergency Manager (CEM).

[Robert Lewin, Retired Santa Barbara County OEM Director, CAL FIRE/San Luis Obispo County Fire Chief | Hstoday](#)

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Sean Haglund, Associate Director, Office for Bombing Prevention (OBP), CISA, DHS

(Homeland Security Today 6 Sept 21)

Sean Haglund serves as Associate Director, Office for Bombing Prevention (OBP), within the Department of Homeland Security (DHS). In this role, Haglund manages OBP's programs aimed at building capability among the general public and across the public and private sectors to prevent, protect against, respond to, and mitigate bombing incidents. Additionally, Haglund coordinates counter-improvised explosive device (IED) efforts across DHS and the Federal interagency.

Prior to joining DHS, Haglund served as the Deputy Chief, Chemical, Biological, Radiological and Nuclear (CBRN) Requirements Support, Joint Requirements Office for CBRN Defense within the Joint Staff, J-8. Haglund was responsible for developing and integrating CBRND Policy, Doctrine and other non-material solutions through the Joint Capabilities Integration and Development System (JCIDS) and served as a primary advisor to the Chairman of the Joint Chiefs of Staff on matters relating to Countering Weapons of Mass Destruction. From 1990 to 2014, Haglund served in the U.S. Air Force as an officer in Civil Engineering, Explosive Ordnance Disposal (EOD), and Acquisition Program Management leadership roles. Haglund commanded a Civil Engineer Squadron at a Data Masked location supporting a research and development organization through the hazardous testing of numerous programs and the execution of presidentially directed missions. Additionally, he served on the Headquarters, US Central Command (CENTCOM) and the Defense Threat Reduction Agency (DTRA) staffs, commanded several large EOD organizations, served two combat deployments in Iraq and was an adjunct faculty member at the George C. Marshall European Center for Security Studies leading courses within the Seminar on Trans-Atlantic Civil Security and the Seminar on Combating Weapons of Mass Destruction Terrorism. As a program manager, Haglund was assigned to Headquarters, Air Force Special Operations Command, managing the \$4.5 billion CV-22 Osprey aircraft acquisition. In addition, he led the associated Special Operations Command Light Strike Vehicle acquisition program.

Haglund is a graduate of Air War College, and holds a Master of Arts in National Security Affairs-Homeland Security and Defense from the **Naval Postgraduate School**, a Master of Science in Industrial Operations Management from the University of Arkansas, a Master of Science in Business Administration from Central Michigan University, and is an alumnus of the National Defense University, Center for the Study of Weapons of Mass Destruction (WMD), Program for Emerging Leaders. He is a Certified Emergency Manager (CEM) through the International Association of Emergency Managers (IAEM), a Certified Protection Professional (CPP) through the American Society of Industrial Security, a Project Management Professional (PMP), a Master CBRN Military Advisory Team (CMAT) leader through the DTRA Defense Nuclear Weapons School, and holds Defense Acquisition Workforce (DAWIA) Level III program management and Level II life-cycle logistics certifications.

[Sean Haglund, Associate Director, Office for Bombing Prevention \(OBP\), CISA, DHS | Hstoday](#)



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Capt. John Delaney, High Threat Response Program Manager, Arlington County Fire Department

(Homeland Security Today 6 Sept 21)

Capt. John Delaney is the program manager for Arlington County Fire Department's High Threat Response Program, which focuses on building operational capabilities necessary for atypical threats including active shooter, explosive and fire as a weapon events. The program focuses on the development of multiagency, integrated police and fire response. Previously he was the team leader for the National Medical Response Team–National Capital Region (NMRT-NCR). The NMRT-NCR was a federally funded weapon of mass destruction response team which comprised of over 150 fire fighters, paramedics, hazardous material specialists, law enforcement officers, doctors, and nurses from within the Washington metropolitan region.

Captain Delaney has participated in response to multiple large-scale regional and national emergencies; including the 1998 Florida Wildfires, 2004 Hurricane Charley, 2001 Anthrax Attack at the Senate Office Buildings, the September 11, 2001 attack on the Pentagon and the Haiti earthquake of 2010. He is the former Chair of the InterAgency Board (IAB) and currently heads the National High Threat Institute. He is a graduate of James Madison University and in 2008 received his Master's Degree in Homeland Security from the **Naval Postgraduate School**.

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