FY 22

NSIN *year in* REVIEW

NATIONAL SECURITY INNOVATION NETWORK

WE BUILD NETWORKS OF INNOVATORS
TO GENERATE NEW SOLUTIONS TO
NATIONAL SECURITY PROBLEMS.

CONTENTS

Runsen Wu, NSIN X-Force Fellow from the University of Washington, enjoys "hands-on" time with a C-17 at Joint Base Lewis-McChord, Washington.

NSIN BY THE NUMBERS

FY 2019–2022

NSIN FUNDING

$114 MILLION

NSIN HELPED

983 DoD organizations **SOLVE**

1,511 PROBLEMS by generating

1,786 unique solutions.

ENGAGED

8,555 NEW PEOPLE in the National Security Innovation Base.

SUPPORTED

1,326 NEW COMPANIES to enter the National Security Innovation Base and spun out **48 of DoD-funded technologies.**

Since 2016, companies in NSIN programs **RAISED**

$9.6B IN PRIVATE CAPITAL FUNDING

and

$2.9B IN DoD FUNDING.

LETTER FROM THE MANAGING DIRECTOR

Greetings, fellow innovators! It is an honor to lead the National Security Innovation Network (NSIN) into FY23 and to share the accomplishments of the past year from our team of talented, accomplished and passionate leaders and partners.

The experiment to change the way the Department of Defense (DoD) solves problems with our founding in 2016 has matured into a truly nationwide network of mission partners, startups, academia, large and small businesses, and nonprofits that are collaborating with us to drive innovations that will give our Armed Forces technological advantage against any adversary.

Through the pages of our FY22 Year in Review, I invite you to learn more about our work and the valuable and life-saving innovations that have spawned from our programs and collaborations across the network. NSIN introduces talented undergraduate and graduate students to DoD problem-solving opportunities and national security careers through our academic programs and fellowships. We also match entrepreneurs with DoD lab scientists to leverage existing intellectual property to solve new challenges. In summary, during FY22 NSIN has helped solve problems to make the world better, safer, and stronger.

> The experiment to change the way the Department of Defense (DoD) solves problems with our founding in 2016 has matured into a truly nationwide network of mission partners, startups, academia, large and small businesses, and nonprofits that are collaborating with us.

While we mark the progress and celebrate the achievements of the network from the past year through the stories and infographics in this publication, our work has just begun. NSIN is poised for scaling and accelerating the growth and adoption of innovations from diverse and non-traditional organizations in every part of our nation.

Learn more about our plans for FY23 on page 56 and some of my thoughts for how NSIN will become even more relevant and impactful through the work we do together across government, industry, and academia. Your feedback and partnership in this critical work is welcome, and needed. Nothing could be more important than our military deterrent to adversaries who would diminish or destroy our democracy.

Thank you for joining the mission.

Sincerely,

Cheryl A. Ingstad

CHERYL INGSTAD
Managing Director
National Security Innovation Network

PNW MISSION ACCELERATION CENTER IMPROVES REGIONAL ENGAGEMENT WITH INDUSTRY AND ACADEMIA

The Pacific Northwest Mission Acceleration Center (MAC) serves as the "front door" to the first joint, off-base regional facility for innovation between a growing national network and NSIN, the Office of the Under Secretary of Defense for Research & Engineering (OUSD(R&E)), and the Navy Undersea Warfare Center (NUWC) Division Keyport.

The intent of this effort was to reduce barriers to entry for academics, startups, and other small businesses interested in learning about defense-related challenges and opportunities, while simultaneously eliminating redundant efforts by individual defense innovation organizations to engage these communities. Pioneering a partnership that is novel for the Pacific Northwest, NUWC Division Keyport and NSIN partnered with two local non-profits, Impact Washington and Pacific Northwest Defense Coalition (PNDC), to improve the DoD's regional engagement with industry and academia.

MISSION ACCELERATION CENTER CONCEPT TO EXPAND IN FY23

As they scale, this network of interconnected regional facilities, Mission Acceleration Centers (MACS), will enable enduring, civil-military innovation partnerships across the United States, beginning with Washington, Hawaii, Arizona, Kansas, and Ohio. The MAC network will execute three primary functions to lower the barrier to entry:

1. Offer a physical location that serves as an off-base, easily accessible "front door" for new people, ideas, and technologies from academia and industry to connect to multiple facets of the DoD;
2. Provide DoD entities from multiple services with a means to better coordinate activities and outreach into specific geographic regions; and
3. Provide access to a physical and digital space for DoD intrapreneurs to meet, collaborate, innovate.

"I've had fantastic introductions to organizations such as Pacific Northwest Defense Coalition, NSIN - National Security Innovation Network, and Defense Innovation Unit because of this place, as well as countless invaluable connections to the local defense and manufacturing industries in Washington state. I came to Washington state in 2015 from the East Coast, broke, and alone to pursue my doctorate, and while I'm still kinda broke I'm happy to say I'm no longer alone thanks to the MAC!"

— James Penna, Co-founder and COO at Wave Motion

Pacific Northwest Mission Acceleration Center partners celebrate the first year as the front door to joint innovation in the region.

NSIN Alumni Company Deploys MEDEVAC Solution to Ukrainian Armed Forces

During helicopter hoisting operations, extractions are subject to winds and other external factors that cause the rescue hoist to spin and swing. This swinging complicates the mission, delaying medical care, and has been fatal for both the rescuer and the rescued. This is a problem for civil and military scenarios, and the solution was born from personal experience which is now deployed around the world, including in Ukraine, to save lives.

In 2009, Vita Inclinata Technologies (Vita) founder Caleb Carr was practicing as a search and rescue volunteer in high school. During a routine training mission, his friend and mentor, Don, went into cardiac arrest next to him. A helicopter arrived to transport Don to the hospital, but couldn't insert its rescue litter due to gusty winds, rotor wash, and the mountainous terrain. After multiple attempts, the helicopter was forced to turn back without them, and Don died as a result. Following this tragic situation, Carr learned that this was a fairly common problem and thus, he set out on a professional path to save lives.

During the development process, Vita worked with NSIN and through this collaboration, Carr and his colleagues had the opportunity to interface with the Army, Navy, and Air Force Search and Rescue squadrons, utilizing hands-on expertise and deep understanding of the challenges of helicopter lift systems. Further, Vita successfully won a Small Business Innovation Research (SBIR) award, which, in the words of Derek Sikora, Vita Co-Founder and Chief Technology Officer, "revolutionized" the Vita solution landscape.

As a result, Vita developed a platform-agnostic, autonomous hoist cable control platform capable of controlling the complete oscillatory and rotational motion of a rescue hoist. The impact this technology has on saving lives is significant. The Vita Rescue System (VRS) can airlift wounded soldiers and civilians in two minutes; not the traditional 20 minutes it takes conventional methods.

Vita was approached by the Ukrainian government to deploy their product to help save lives. Carr didn't hesitate to support the mission, and in April 2022 he and a colleague flew to Poland and then

"You can effect change and it's time for everybody in the United States to realize that we all have a responsibility — where we have the ability to affect change, we do it. Do not question it."

– Caleb Carr, CEO Vita Inclinata Technologies

The Vita Rescue System (pictured left and on the cover) is an example of an NSIN dual-use technology company that is saving lives through their innovative approach to persistent problems.

traveled by rental car to Lviv, Ukraine. Carr said, "We went on a leap of faith to hope that this thing was not only going to get deployed, but also that it would execute on Vita's larger mission which was to save lives."

Working with the Ukrainian Ministry of Internal Affairs and the State Emergency Service, Carr was able to secure a Russian Mil Mi-8 twin-turbine helicopter to conduct VRS MEDEVAC training in Uzhgorod for Ukrainian Special Aviation Unit crews. On April 11, 2022, he loaded the VRS system onto a rental car and proceeded from Poland to cross the border for training in a Ukrainian war zone. In under four hours, Caleb introduced cutting-edge rescue technology and trained Ukraine crews to conduct high-risk evacuation missions within a war zone.

The training was unlike any other, Carr recalled in a video. "We are going to have to make this quick," the Ukrainians told him, "because there are Russian jets in the airspace."

"You can affect change and it's time for everybody in the United States to realize that we all have a responsibility—where we have the ability to affect change, we do it. Do not question it," said Caleb Carr, CEO Vita Inclinata Technologies.

On July 28, 2022, Carr's efforts in Ukraine inspired 11 members of the United States Congress to send a signed letter to Assistant Secretary, Bureau of Political-Military Affairs, Jessica Lewis, and Director, Defense Security Cooperation Agency, James Hursch. The letter called their attention to the request by the State Emergency Service of Ukraine for "innovative American technology" rescue basket stabilization systems. The letter refers to the VRS as "a generational leap forward" and a "groundbreaking system."

WARFIGHTERS CONDUCT LIVE ELECTRONIC WARFARE EXPERIMENT

There is no replacement for life experience and that is especially relevant for warfighters. NSIN Adaptive Threat Force (ATF) brought real time problem-solving capabilities to the Mississippi National Guard (MSNG) Thunder Strike exercise at Camp Shelby, June 14-16, 2022.

Adaptive Threat Force trained personnel from the Mississippi National Guard experimented with emerging technology at the Thunder Strike exercise in June 2022.

Over the three-day Thunder Strike event, MSNG personnel immersed themselves in live experiments and engaged in real simulations using electronic warfare technologies to prepare against near-peer adversary threats and environments. Forces tested emerging technologies on Camp Shelby's electronic warfare and cyber ranges.

In each combat rehearsal, platoon and company-level teams tested the capabilities of the cutting-edge technologies against force maneuvers and target-acquisition in multi-domain warfare scenarios.

"Just like America's air superiority we must have electronic and cyber warfare superiority to win the future fight. Already a world class training center, with the right effort and focus Camp Shelby will be able to fully support all domain warfighter training ensuring the EW/CW battlefield advantage," explained MSNG Brig. Gen. John C. Nipp.

Camp Shelby sprawls across 136,000 acres in south Mississippi, offering a Joint National Training Capability (JNTC) garrison with heavy- and light-maneuver areas for training over 120,000 Army, Navy, Air Force, and Marine personnel annually.

The NSIN ATF partners with military units to test and evaluate defense-innovation prototypes in a challenging environment. ATF is the only DoD innovation program of its kind that engages embedded experts to work alongside warfighters to solve complex issues.

ALUMNI SUCCESS STORIES

Since 2019, NSIN has supported 1,326 new companies through our programs and spun out 48 DoD-funded technologies. We are pleased to share a few of the successes our alumni companies had this past year.

KMI Wins Three Space Force Contracts

Kall Morris Inc. (KMI) is making space exploration safe and clean with its technology to clear orbital debris. The team recently received three study contracts for debris-cleanup technologies under the Space Force's Orbital Prime program.

ZeroEyes AI Gun Detection Platform Gains Support to Develop Active Shooter Deterrence Tech

ZeroEyes, an artificial intelligence-based gun detection video analytics platform, received a Direct-to-Phase II Small Business Innovation Research (SBIR) grant from AFWERX to further develop its technology for deterring active shooters. ZeroEyes also expanded its partnerships with schools to detect guns before school shootings. This announcement marks the first time that an integrated weapon and intrusion detection system has been deployed at scale for the DoD using existing and emerging infrastructure.

Lunar Outpost Strengthens Moon Capabilities for U.S.

Lunar Outpost raised $12M in its latest seed round to advance the building of rovers and instruments to explore the moon and mine its resources. Space, and the moon in particular, is becoming a major geopolitical, scientific and national security focus as more nations and companies turn their attention to the lunar surface.

Natrion is Advancing Electric Vehicle Innovation for Dual-Use Markets

Natrion raised $2M in its latest seed round, including funding from Mark Cuban of "Shark Tank." The company is making electric vehicles safer and stronger by developing a proprietary technology that improves charging speeds, driving range, longevity, and safety for electric vehicles, and has the potential to significantly benefit an array of other transportation and defense applications.

Tomahawk Robotics Awarded $6.5M Contract

Tomahawk Robotics provides the warfighter unified control of multiple unmanned systems through its artificial intelligence (AI)-enabled robotic control solution. The technology integrates joint-DoD systems alongside emerging autonomous platforms that will bolster the efficiency and effectiveness of joint operations. The team's $6.5M contract with the Marine Corps will bring six additional systems and multiple ground radios into Tomahawk's joint ecosystem.

If you are an NSIN alumni and have news to share, please send it to us at **info@nsin.mil.**

Tidelift Secures $33.5 Million in Series C Funding to Scale Security Software

The company is ensuring safety in supply chains, security, and healthcare by providing solutions for managing open-source software. This new investment comes as open source software health and security have become a pressing priority for organizations and governments around the world.

PROGRAM HIGHLIGHTS AND SUCCESS STORIES

Defense innovation progress is typically measured over years as new entrants and companies advance through the myriad of stages of working with or for the DoD. NSIN is continually measuring and improving how it quantifies the impact of our programs, and we are pleased to highlight a few examples of FY22 accomplishments.

Creating new opportunities for national security service.

Hirethon Connects DoD Partners with STEM Talent and Adds Ambassadors Program

HIRETHON

Workforce planning and recruitment is a specialized function and the NSIN Hirethon program provides support to DoD organizations by finding the Science, Technology, Engineering, and Mathematics (STEM) talent they need to fulfill critical jobs. Hirethon connects STEM talent to full-time employment, internships, and scholarship opportunities within the DoD. It offers students and professionals with all levels of experience the opportunity to engage with DoD organizations who are seeking talent for some of the Department's most compelling technical problems.

In FY22, the Hirethon program supported 32 DoD mission partners in filling critical roles. From data scientists to micro/molecular biology, structural engineering, and beyond, NSIN reduced recruiting timelines and identified highly qualified candidates for these hard to fill positions.

To augment outreach efforts, Hirethon also established an Ambassadors Program that engaged volunteers with successful careers and networks in STEM-related work to raise awareness of DoD employment opportunities, and expand networks of defense innovators in their communities. The inaugural group of 14 Hirethon Ambassadors have a passion for sharing models of service that account for generational and cultural differences between the military, academic, and venture communities.

"The Hirethon ambassadors impress me because they're working professionals who volunteer to support our mission of providing flexible pathways to service within the DoD," said NSIN Program Manager Farid Nemri. "They'll empower today's diverse STEM talent to build tomorrow's innovations at the DoD."

GRADUATES APPLY STEM PROWESS TO NATIONAL SECURITY POLICY

TNSF

Recent graduates in science, technology, engineering, and mathematics (STEM) fields embeded with key decision-makers at the top level of the U.S. government to provide expertise on technology and national security policy issues as part of the Technology and National Security Fellowship (TNSF).

The purpose of TNSF is to increase the number of graduates with STEM credentials in the Congressional offices of relevant defense and intelligence committees, the Office of the Secretary of Defense, and the offices of other senior military leaders. Over the yearlong, paid fellowship, the TNSF Fellows advised decision-makers on critical national security and technology issues such as microelectronic supply chains, artificial intelligence, and technology acquisition and training.

"The goal for TNSF Fellows is to build on their technical acumen and experience in continued service to our country," said Karen Fray, NSIN National Service Portfolio Director. "By engaging with senior policymakers, TNSF Fellows will be empowered to continue their service in the DoD."

Mission partners assigned fellows to advise some of their broader policy issues that require more time to be addressed by experts with advanced technical degrees. The 2022 TNSF cohort was split between Washington, D.C. and Texas to work in laboratories with equipment already in place for research on technologies that aligned to the mission partners' needs.

MEET THE 2022 TECHNOLOGY AND NATIONAL SECURITY FELLOWSHIP COHORT AND MISSION PARTNERS

JASON KURZ

- PhD in mathematical sciences, Clemson Univ.
- Research focused on control theory, inverse problems, and deep neural networks

Air Force Research Laboratory

TNSF Projects:

- Performed an extensive review of AFRL's literature regarding implementing deep-learning models to solve partial differential equations (PDEs), with special emphasis on heat and diffusion.
- Created and implemented a machine-learning model for AFRL's PDEs.

"TNSF is increasing my research network resulting in exposure to new ideas as well as an awareness of ways in which my knowledge can be utilized to tackle currently relevant applied problems for the benefit of others. This occurs while also growing my ability to collaborate with researchers outside of my discipline."

–JASON KURZ, NSIN TNSF FELLOW 2022

EMMA BATES

- Master's with honors in international economics and American foreign policy, Johns Hopkins University
- Experience in the emerging tech sector and interactions with economic policy and information

Army Applications Laboratory

TNSF Projects:

- Built a map of acquisition funds and identified the acquisition authorities across the DoD.
- Analyzed whether additional acquisition authorities are needed for funds or if AAL should leverage existing sources.

"I am passionate about civil service because one of my main personal motivators is to be part of the broader mission of American foreign policy. I applied to TNSF because I think the technical and personal skills I bring to the table will be useful in addressing some of the challenges and disconnects we see in acquisition and industrial policy."

–EMMA BATES, NSIN TNSF FELLOW 2022

MEET THE 2022 TECHNOLOGY AND NATIONAL SECURITY FELLOWSHIP COHORT AND MISSION PARTNERS

KACI MADDEN

- Doctoral candidate in mechanical engineering, University of Texas at Austin
- Research focused on developing a quantitative metric for monitoring fatigue-induced changes in human performance

The Army Research Laboratory, South

TNSF Projects:

- Analyzed, planned, and created STEM curriculum and events for ARL faculty.
- Managed the execution of ARL courses and analyzed course strengths and weaknesses for opportunities to innovate ARL education.

"My civil service aspirations stem from a desire to have a meaningful impact on the advancement of science and technology beyond the academic research setting. The TNSF presents a unique opportunity to learn more about science policy, the ongoing interests of the U.S. Department of Defense, and how technical innovation can help advance national security efforts."

–KACI MADDEN, NSIN TNSF FELLOW 2022

HAMNA KHAN

- Bachelor's in electrical engineering with an emphasis in power systems, University of California San Diego
- Experience with power design projects for airborne telecommunication systems and space solar array hardware

The Joint Personnel Recovery Agency

TNSF Projects:

- Conducted a DoD and inter-agency stakeholder survey on integrating a new distress-reporting-beacon technology.
- Analyzed and recommended personnel, regulations, and policies that govern distress reporting devices to operate within the Search and Rescue Satellite Aided Tracking (SARSAT) System to integrate the new technology.

"As a technologist, I'm passionate about civil service because it allows me to be a part of something much bigger than myself. The work that I get to do will impact how we save the lives of people in distress."

–HAMNA KHAN, NSIN TNSF FELLOW 2022

MEET THE 2022 TECHNOLOGY AND NATIONAL SECURITY FELLOWSHIP COHORT AND MISSION PARTNERS

GABRIELLE LEDOUX

- Bachelor's in nuclear science and engineering, Massachusetts Institute of Technology
- Experience as an intelligence analyst at the Defense Intelligence Agency and the Depository Trust and Clearing Corporation

Deputy Assistant Secretary of Defense for Nuclear Matters

TNSF Projects:

- Analyzed reports from groups monitoring the defense industrial base and provided bi-weekly summaries of commercial and military microelectronic markets to discover opportunities to make doing business with the DoD easier, safer, and better.
- Created case studies, interviewed key military and military-partner stakeholders in microelectronics, and briefed senior DoD leadership on the findings.

"I applied for TNSF to explore the unique and effective ways that nuclear engineers can support government policy initiatives. I am dedicated to translating my technical knowledge into readily understandable information for all decision policy stakeholders."

–GABRIELLE LEDOUX, NSIN TNSF FELLOW 2022

BIANCA SWIDLER

- Bachelor's in physics, Princeton University
- Research focused on condensed matter, astrophysics, biophysics, and quantum field theory

Air Education and Training Command

TNSF Projects:

- Served as a senior-level leader on AETC decisions to achieve command priorities by researching and integrating information on complex issues.
- Participated in Major Command (MAJCOM), Air Force, and Joint Service formal information exchange sessions.

"The last number of years have shown just how much of a critical time in history we are living. If there is anywhere that people can effectuate positive change with what they know, it's in civil service... Our work leverages a broad span of scientific knowledge to rethink and redesign a 21st-century caliber education that will prepare our AF students for the global stage."

–BIANCA SWIDLER, NSIN TNSF FELLOW 2022

X-Force Fellows Jack Pierson, Amy Lebanoff, and Lukas Baltzer are wearing the U.S. Army's "Warrior Suit" with mission partner Maj. Jake Wad, as part of their project to recommend further development of computerized exoskeleton which will reduce injuries, decrease exertion, and increase performance.

Students Deliver Solutions for National Security

X-FORCE

The NSIN X-Force Fellowship engaged 139 students and recent college graduates from 66 universities through our summer program that provides top tech talent the opportunity to solve real-world national security problems.

Fellows in the 2022 X-Force Fellowship supported DoD mission partners across all branches of service by applying diverse skill sets to 56 challenging, real-time national security projects. Each week, students met with their military partners to identify pain points and better understand how to create feasible solutions for the DoD. Students also attended a weekly speaker series where they heard from professionals with experience in the public and private sector supporting the National Security Innovation Base. At the conclusion of the fellowship, students presented their final solutions to military commands at a demonstration day.

The X-Force Fellowship is one way NSIN is helping the DoD compete with private industry to attract top talent into its workforce.

"Our two [X-Force] students exceeded all expectations to the point that the principal investigators are looking to extend research opportunities, scholarships, and even future jobs within the Missouri Institute for Defense & Energy," said Jesse Beaudin, Director of Research & Institute Programs at Missouri Institute for Defense & Energy.

CIVIC-MINDED TECHNOLOGISTS VOLUNTEER FOR NATIONAL SECURITY

TECH SQUAD

Thirty-eight private-sector tech industry volunteers offered their expertise to solve 20 DoD problems through a flexible service program called Tech Squad which matches professionals with science, technology, engineering, and mathematics (STEM) skills, to remote, part-time volunteer opportunities with DoD mission partners to tackle unclassified, digital- and software-oriented problems.

The Tech Squad showcased its solutions and products for the DoD over three demo days, held June 28-30, 2022. Highlights from the presentations included developing machine learning and artificial intelligence algorithms for 3D-printed parts and modeling biometric data; creating code to evaluate and scale fuel supply chains and aircraft repair operations; and designing applications to identify and detect cybersecurity threats and geospatial activity.

The program is a win-win for everyone. Tech Squad military problem sponsors receive additional support from private-sector talent with relevant STEM experience and fresh perspectives to develop solutions to their problems. Tech Squad volunteers receive exposure to unique, mission-critical opportunities and add to their portfolios by solving real national security problems and serving their country.

RICE ENGINEERING STUDENT JOINS DOD INNOVATION ECOSYSTEM

CAPSTONE AND X-FORCE

Christopher Conway quickly became immersed in NSIN programming while a student at Rice University. Conway graduated in 2022 with a B.S. in Electrical Engineering, and during his time as an Owl, participated in the NSIN Capstone and X-Force Fellowship programs.

"NSIN programs are definitely worth trying, and they provide real-world experiences and connections that would be otherwise impossible to attain for the vast majority of students," Conway explained.

Conway's experience began with the NSIN Capstone program where he was part of a team of six engineering students that helped the U.S. Coast Guard develop solutions to detect unmanned autonomous surface vessels that might be used to transport drugs into the U.S. Conway's Capstone team solved the challenge by reverse engineering "micro-vessels" to test with Coast Guard sensors.

Christopher Conway at the Michigan Air National Guard Northern Agility 22-2 exercises.

Micro-vessels are unique because they are autonomous and can avoid detection. Most recently, these have been used by drug smuggling organizations to carry up to 90 pounds of illegal narcotics, per payload, across maritime borders. Conway and his teammates developed a prototype that replicates these vessels and tested it against a multi-million-dollar surveillance system. The prototype went undetected during the trials. For their efforts, the team won a $3,000 prize as the first place "innovation" winner at the NSIN Capstone Project Showcase.

The NSIN Capstone program is an opportunity for student technologists and entrepreneurs to serve their country and provide solutions to the DoD while solving real-world national security challenges through existing university capstone courses.

"The NSIN Capstone program introduced me to the DoD innovation ecosystem and provided a real-world problem to hone my engineering toolkit. Having completed the Capstone, I can now say that I am capable of generating a working prototype when given a complex defense task," Conway said.

After experiencing success with the Capstone project, Conway applied for the NSIN X-Force Fellowship and was accepted to the summer 2022 cohort.

Conway was matched to a U.S. Air Force project to help develop a mobile runway manufacturing kit to enhance agile combat employment, focused primarily on deployment in austere environments. Conway and his teammates dubbed their piece of the innovation the "Rapid Runway Kit." When asked about the potential impact the project could have, Conway said, "Should it be implemented at scale, our solution could save millions in budget and enable the construction of temporary runways even on small island regions. Even if our solution does not get implemented, our research sheds light on some of the greatest issues faced by warfighters planning to land in hostile or austere environments."

One of the highlights for Conway and his X-Force team was the opportunity to observe a Michigan Air National Guard demonstration that featured "a variety of combat airframes land and conduct mobility maneuvers on a highway for the first time in the U.S."

Conway is currently a PhD candidate at the University of Illinois Urbana-Champaign.

Solving national security problems by collaborating with partners from the academic and venture communities.

Hackathon Teams Win Pitch Competition to Modernize Military Energy Capabilities

HACKS

NSIN Hacks Power Play: Electrifying Operations on the Edge ran over a two-week period in fall 2021 with 90 students, technologists, and entrepreneurs working to develop solutions to efficiently provide, store, or consume energy in expeditionary and austere environments. They formed 13 teams to utilize the advantages of each other's skill sets to develop solution concepts for modernizing electronics and field equipment for military energy availability on operating bases, remote installations, and conflict zones.

Three teams of eight finalists won the final pitch competition on Nov. 10, 2021, receiving $15,000 and an opportunity to continue developing their electric and energy technology solutions for DoD energy consumption and storage solution concepts. Hackathons like this one are a unique opportunity for students, technologists, and entrepreneurs to engage with a DoD mission partner in an intense problem-solving sprint.

"Energy is paramount to the DoD's modernization priorities, and having our winners support those efforts through different angles highlights the potential for this program to bring together key stakeholders."

–Kedar Pavgi, NSIN Hacks Program Manager

NSIN partnered with the Army Research Lab (ARL) to develop this hackathon to accelerate concepts, technologies, and systems in three focus areas: Power consumption, microgrids and batteries, and autonomous power.

Energy and access to reliable power to efficiently provide, store, or consume energy is a top modernization priority of the DoD. Geographic constraints, battlefield adversaries, logistics, and re-supply efforts in austere environments present a significant challenge for military planners.

Dr. David Baker, ARL lead for electrochemical energy, delivered the keynote address and this guidance, "There is this fundamental energy problem that needs to be solved in order for the future to be realized. When we look at the virtual future, we recognize most things will need to be powered…but working with the DoD is a great place to solve some of [the] energy problems."

"There is this fundamental energy problem that needs to be solved in order for the future to be realized. When we look at the virtual future, we recognize most things will need to be powered…but working with the DoD is a great place to solve some of [the] energy problems."

–Dr. David Baker, Team Lead - Electrochemical Energy Conversion, Army Research Laboratory

MEET THE WINNERS

OPTORELAY

The team includes an engineer from Naval Surface Warfare Center (NSWC) Crane, an undergraduate student studying computer science at San Diego State University, and a doctoral student studying applied physics at Texas A&M University. Their solution seeks to increase reliability by using cutting-edge Free Space Optical (FSO) energy harvesting techniques, and would work in tandem with current power-source solutions and function as an emergency backup system.

EVE VEHICLES

A University of Texas-affiliated corporation that previously developed a hydrogen fuel cell drone in collaboration with the university's Center for Electromagnetics. Their solution is a Camera Reconnaissance on Wire/Wind (CROW), an autonomous power harvesting drone with an integrated 360-degree camera to maximize aerial data collection.

ARBOR BATTERIES

A team from the University of Michigan including a mechanical engineering professor, recent graduate, and mentor. Their solution develops a new manufacturing process for Li-ion batteries that enables 10-minute fast charging, without sacrificing energy density, cycle life, or safety.

AFRL PARTNERED WITH NSIN TO DEVELOP CIVILIAN PARTNERSHIPS TO MODERNIZE MILITARY TECHNOLOGY

SOURCE

The Air Force Research Laboratory (AFRL) has collaborated with defense innovators through NSIN Source to solve some of the most pressing national security challenges. In FY22, AFRL supported a series of grand challenges to create products that will make U.S. Air Force technology better, safer, and stronger. AFRL awarded about $3 million to entrepreneurs through the NSIN Source program for their innovative solutions.

"NSIN was an easy choice to choose as a partner for the grand challenges we have managed for AFRL," said Bob Lee, Innovation Project Manager at Wright Brothers Institute, who facilitates the AFRL grand challenge initiatives. "We have also [to date] gotten better results in terms of number and quality of submissions."

"NSIN was an easy choice to choose as a partner for the grand challenges we have managed for AFRL."

– Bob Lee, Innovation Project Manager at Wright Brothers Institute

AFRL Challenge Winners

CHALLENGE: Large-Scale Metal Additive Manufacturing (MAM)

AFRL sought partners to develop large-format MAM processes for relevant metal alloys with mechanical properties, geometric detail resolution, and surface finishes competitive with laser powder-bed fusion methods at low costs.

WINNING TEAM: EWI, Ohio State University, and Carpenter

The team proposed new MAM technologies that solve for cooling rate/deposit management to control properties; dimensional management that compensates for build variations and distortions; quality management through control sensors; machine management that maintains apparatus during long builds; and advanced features for overhangs that rival powder-bed processes, gravity-aligned, and non-gravity aligned deposition robotics.

CHALLENGE: Machine Learning Prediction of Internal Building Structures

AFRL sought solutions to predict the internal configuration of building structures by only using external satellite photographs of the building taken from various angles. By using the shape, size, and external characteristics of the building, entrepreneurs produced models that could predict building foundation materials and properties, structural detailing, and the strength of load bearing or frame structures.

WINNING TEAM: Karagozian & Case, Inc.

The team quantifies system vulnerabilities to a variety of man-made and natural threats, developing novel and cost-effective engineering designs to mitigate them, formulating and employing state-of-the-art analytic methods and software, and conducting applied research and testing. The team's grand challenge solution is proprietary information and cannot be publicly released.

Solving Forward Arming and Refueling Pain Points

MAKER

When an innovator in the NSIN network identifies a solution to a problem, the NSIN Maker program assists mission partners in bringing the idea to life by developing a prototype with the required funding or the technical expertise necessary to construct prototypes. The partnership with the 3/12th Artillery Battalion, III Marine Expeditionary Force (MEF) brought together an especially diverse group of problem solvers to develop a safer and more efficient way to load missile cargo pods on rotary-wing aircraft for forward arming and refueling points (FARPs).

The status quo requires significant time and personnel to load and unload heavy missile cargo pods from aircraft. All these factors lead to substantial increases in risks of damage to the aircraft, the missile pods themselves, and the elevated risk of injuries to Marines and other involved Joint personnel.

Since the pods come in various sizes and the aircraft that carry them also have differing space configurations, the MEF sought a loading and unloading solution that would work for any missile cargo pod on any rotary-wing aircraft.

A team of Arizona State University (ASU) students in an NSIN Capstone course initially developed solutions to the MEF missile cargo pods issue and called it a "Universal Pod Loader" (UPL), capable of loading the Highly Mobile Artillery Rocket Systems (HiMAR), Naval Strike Missile (NSM), and Patriot pods onto the CH-53 Super Stallion, VF-22 Osprey, and CH-47 Chinook aircraft.

MEF validated the designs and a prototype was developed at ASU and then was sent to Camp Pendleton, 5th Battalion, 11th Marines for testing. The next step is for the validated prototypes to go to Okinawa, Japan where the problem sponsor will build it.

"The NSIN Maker program brings rapid and functional problem-solving to the warfighter, allowing DoD Mission Partners to take novel NSIN solutions and see practical demonstrations in real time."

– Jacob Wisenbaker, NSIN Maker Program Manager

STUDENT INNOVATIONS COULD HELP DOD DECREASE INJURY, DEATH

CAPSTONE

University of Hawai'i at Mānoa (UH Manoa) students from the fall 2022 NSIN Capstone course developed innovative and viable solutions to address critical problems facing the DoD, ranging from decreasing injury and death during rescue missions to improving aircraft and personnel operations.

Multidisciplinary student teams from UH Mānoa's College of Engineering, College of Natural Sciences and Shidler College of Business learned and applied entrepreneurial skills through these courses while working with the DoD to identify and develop viable products and early-stage prototypes.

"Our partnership with NSIN helps to strengthen the university's relationship with the DoD and increases the number of opportunities to collaborate with them," said Vassilis L. Syrmos, UH vice president for research and innovation. "NSIN's programs provide invaluable expertise and experiences for our students and faculty to gain real-world innovation and entrepreneurship training, while also providing career and business opportunities to the teams."

Throughout NSIN's H4D and Capstone courses, participants learn and apply the Lean Startup methodology to develop business and mission model canvases; discover and validate customer needs; and apply agile engineering in building and testing iterative prototypes.

"The challenge of having to work in multidisciplinary teams while navigating the DoD's complex process requires discipline, and it also provides incredible workforce development and training opportunities not just for our UH students and faculty, but the soldiers working on the projects as well," said Gloria Choo, NSIN Regional Engagement Principal, Hawai'i.

University of Hawai'i Mānoa Capstone students tour a military helicopter at Schofield Barracks, Waialua, Hawai'i.

UH MĀNOA CAPSTONE PROJECT HIGHLIGHTS:

- **Augmented Intelligence Natural Language Processing:** Prototype app to support improved data accuracy of maintenance records.
- **Phase Maintenance Inspection Software:** Proof-of-concept software that can better forecast, manage and assess mission-critical phase maintenance inspections.
- **Digital Wargame Development:** App that supports deployment logistics and planning, including the delivery and sustainment of supplies, munitions, etc.
- **Airfield Debris from Launching Aircraft:** Blueprint for a humvee trailer attachment and protective casing for a remote-controlled industrial debris blower.
- **Fuel Sampling in Aircraft:** Prototype for a hand pump connected to a Black Hawk helicopter that is more efficient and safer for crew members to sample fuel.
- **Patient Warmer for Marines:** Technology to prevent morbidity reduce mortality rates in trauma patients with hypothermia.

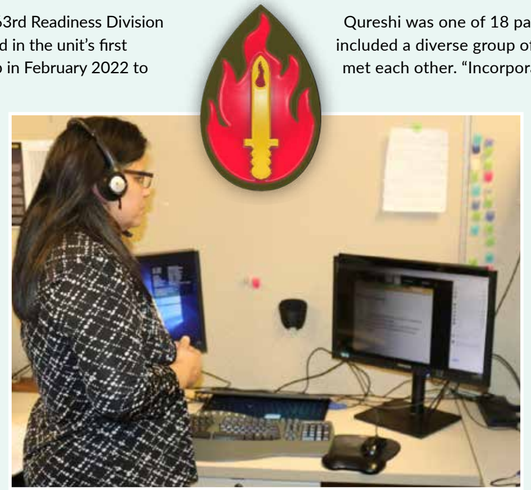
Capitalizing on Existing Talent and Diverse Perspectives

BOOTCAMP

A team from the 63rd Readiness Division (RD) participated in the unit's first NSIN Bootcamp in February 2022 to identify bottlenecks or stalemates for improving Personnel, Readiness, Sustainment and Training services. Resolving these issues will have a positive impact by eliminating delays that prevent soldiers from going on orders to complete the mission.

The NSIN Bootcamp program is an accelerated course designed for service members, facilitated by a university teaching team. Participants are introduced to the same concepts and methods taught at leading U.S. tech and business schools including human-centered design methods for problem framing and solving, hypothesis development and testing. By applying these learnings to the real-world problems facing their organization, commanders can capitalize on the talent and experience in their organizations and receive an initial framework for solutions.

Army Reserve Civilian Wajiha Qureshi, a budget analyst in the 63rd RD's G8 section's resource management office, said she participated in class, "to provide maximum efficiency in the division."



Army Reserve civilian Wajiha Qureshi, a budget analyst in the 63rd Readiness Division's G8 resource management office, participates virtually in the NSIN Bootcamp in Mountain View, Calif.

Qureshi was one of 18 participants in the Bootcamp that included a diverse group of people, some of whom had never met each other. "Incorporating individuals with different perspectives worked to propel the group to success," Army Reserve Civilian Joshua Gholston, G1, staff training specialist, HHD, 63rd RD, said. "I think that this type of training has the potential to greatly impact success for any organization."

The course concluded with a pitch event, followed by a briefing to Army Reserve Col. Carlos Esparra, the G3 deputy chief of staff, 63rd RD and Army Reserve Civilian Mr. Kario Harris, the 63rd RD's civilian chief of staff, for their feedback and next steps.

"I really enjoyed the innovative solutions presented by the teams to resolve their challenge statements," Esparra said. "I wish we had done it with the entire command, and that may be possible in the future."

"The biggest takeaway is that the [NSIN Bootcamp] process can be easily applied to solve organizational problems in the military, to include the civilian sector," explained Army Reserve Master Sgt. Pedro Garcia, HR Operations, G1, 63rd RD.

Students Help U.S. Space Force Improve Launch Vehicle and Site Operations

HACKING FOR DEFENSE

The 5th Space Launch Squadron's Falcon Flight worked with four George Washington University (GW) graduate students enrolled in Hacking for Defense (H4D), an NSIN academic program that provides engineering, business, and policy students with opportunities to work on real-life national security problems.

The H4D team worked with this mission partner to find new innovative ways to accomplish their goal of providing world-class mission assurance of SpaceX Falcon launch vehicles and launch site operations. "Currently our process involves manually reviewing a large amount of data to identify potential issues that may arise or deviations from baseline launch vehicle processing," said Capt. Tory Robinson, 5th SLS Falcon Flight chief of electrical systems. "Our goal is to streamline this data so that we can more efficiently infer areas of interest, potential risk, and provide mission assurance. This is becoming more important as our launch cadence increases year after year."

Robinson said the students provided an unbiased look at Falcon Flight's problem set and offered a fresh set of eyes. The students also came from multidisciplinary backgrounds and have skills that allow them to attack issues from different angles such as science, business analytics, and software development.

"I think it's important to look at new ways of doing things and innovate in everything we do," said Robinson. "I also think it is equally important to prioritize initiatives and be willing to pivot or drop initiatives that are not working or providing added value. We took this project on because we knew we had a lot of data available to us and thought we had the tools and know-how to produce something to better allow us to do our jobs. Now we hope to iterate on it, automate it, and let it do work for us."

Kyle Lyon, one of the GW students who worked with Falcon Flight, said he chose to get involved with H4D because he wanted to tackle a complex challenge that impacts the lives of millions of people and in this case, the world.

"This project is critical because the Space Force is taking a tremendous leap into becoming a data-centric organization, and our team gets to support them as they enter this new paradigm," said Lyon. "The payloads on these rockets have real-world implications for people worldwide; whether these space-based assets facilitate communications, navigation, weather tracking, or even surveillance, the Space Force plays an integral role in ensuring these payloads can support and defend the nation."

Lyon said that meeting with Falcon Flight in person helped the H4D team get a clear view into the space industry and why it is essential commercially and for national security.

Falcon Flight said it will continue to work with the H4D team virtually to develop new solutions and continue to assure access to space.

"This project is critical because the Space Force is taking a tremendous leap into becoming a data-centric organization, and our team gets to support them as they enter this new paradigm."

–Kyle Lyon, GW graduate student and NSIN Hacking for Defense participant

U.S. Space Force Capt. Tory Robinson, 5th Space Launch Squadron Falcon Flight chief of electrical systems, poses for a group photo with graduate students from George Washington University, March 14, 2022, at Cape Canaveral Space Force Station, Fla. Falcon Flight has been working with four students from George Washington University through a National Security Innovation Network program called 'Hacking for Defense' (H4D) to better leverage historical SpaceX launch data to more efficiently and accurately assess mission risk and execute launch vehicle processing.

Accelerating the adoption of novel concepts and solutions.

Companies Showcase Defense Tech Created from University IP

EMERGE

Cutting-edge companies demonstrated intellectual property from top research universities commercialized for dual-use, civilian and military markets at the April 20, 2022 NSIN Emerge Accelerator Showcase Day.

The NSIN Emerge Accelerator connects DoD mission partners with emerging technology teams and startups at our nation's top research universities. During an academic year, these teams receive the support and training necessary to become new dual-use ventures.

Universities nominated more than 200 teams for the NSIN Emerge program, and after an intensive selection process, 42 teams from 17 universities received invitations to join the inaugural cohort.

Over three months, the companies worked on technologies with important government and national security applications, including energy and environmental tech, cybersecurity and analytics, digital optimization, healthtech, and communication, and sensing in difficult environments. The teams had weekly meetings with mentors and coaches with expertise in federal contracting and startup creation, who shared their experiences with the teams on topics such as preparing for prospective DoD partner visits to review the technology.

In addition, the companies had coursework to clarify their marketing and communications materials for federal partners, and the companies had opportunities to network with military and commercial investors to showcase their dual-use technologies for solving problems in military and commercial markets.

PRAISE FOR NSIN EMERGE

"As a scientist, you talk pretty differently, so you have a tendency of making things really hard. What really helped me was understanding from the federal perspective how their needs are and how we should communicate on the other side..." –LumiShield

"I enjoyed the program because it was well organized, and the content was relevant. I've participated in other accelerator programs, but they weren't as focused as this one." –Activas Diagnostics

"The [Emerge] program was important to get deeper insights into how the government works, and I think it opened new ways to think about our product." —Nimbus AI

"...Being able to get some general advice from them [federal experts] on how we will meet with these agencies in the future was super helpful. Them being willing to open their doors to us and just say 'hey we're here as a resource, use us while we're here' has been awesome." —DesiCorp, Inc.

DE&I SHOWCASE FEATURES GEOINT TECH STARTUPS

STARTS

The National Geospatial-Intelligence Agency (NGA) and NSIN held a virtual small business diversity, equity, and inclusion (DE&I) NSIN Starts showcase on Feb. 3, 2022, to spotlight companies able to develop geospatial-intelligence, or GEOINT, focused solutions supporting NGA's technology focus areas.

"Today we are faced with threats and unprecedented challenges that can disrupt and threaten our way of life," said NGA Chief Transformation Officer for Research Nicole Washington, who delivered the keynote. "To meet these challenges, we need unprecedented solutions developed by extraordinary teams that look and think differently. We are building these teams that reflect the people we serve."

This program featured eight promising GEOINT startups, a panel discussion, and a series of keynote presentations that highlight NGA's desire to support small businesses through enhanced DE&I efforts in the geospatial-intelligence ecosystem.

The NSIN Starts event is part of a larger effort for NGA to build stronger partnerships between defense innovators, academia, and local communities. For example, NGA will partner with entrepreneurs in data visualization, 3-D gaming, and data augmented and virtual reality systems technologies, to assess, analyze, and apply the growth of global GEOINT data.

"...We need unprecedented solutions developed by extraordinary teams that look and think differently."

–Nicole Washington, Chief Transformation Officer, National Geospatial-Intelligence Agency

PARTICIPATING GEOINT STARTUPS:

Skyline Nav AI Inc. – Helps military and non-military personnel navigate in challenging conditions where global positioning systems are unavailable.

Claim Academy – Opens doors to careers in software engineering and cybersecurity and offers business development resources to socially and economically disadvantaged small business owners.

Forcyte – Software accurately calculates sending wireless transmissions over long distances safely and efficiently through filters of climatology, atmosphere, and terrain.

SpatialGIS – Provides a range of geospatial, unmanned aerial vehicle, information technology, cyber security, and data management services to understand patterns, relationships, and geographic context of data.

C-Edge Inc. – Provides information-technology solutions to secure data and protect future growth.

ENTREPRENEURS WIN PITCH COMPETITION TO COMMERCIALIZE DEFENSE LAB TECHNOLOGIES

FOUNDRY

Since 2020, 70 pieces of technology sourced from 19 DoD lab mission partners have spawned more than 26 companies through the NSIN Foundry program (and its predecessor), of which 20 are still active over a year into development.

Foundry matches teams of entrepreneurs with cutting-edge federal inventions to assess their commercialization potential and generate solutions to real-world problems for the DoD and the private sector. Over a five-month-period, teams conduct customer-discovery interviews with senior DoD leaders, DoD lab scientists and engineers, and venture mentors and coaches, who have expertise in starting and building successful companies.

When existing, advanced technologies from federal labs are paired with aspiring entrepreneurs, the teams create new companies. One of the benefits is reduced barriers to entrepreneurship, which in turn allows for new voices to shape the future of technology and its impact on the warfighter.

This year's Foundry cohort worked on technologies from federal labs beyond the DoD such as Federally Funded Research and Development Centers (FFRDCs) and University Affiliated Research Centers (UARCs) in verticals including: acoustics, advanced materials, autonomy, biochemistry, clean technologies, communications, energy, microelectronics, sensors, weapons systems, and ultrasonic systems.

"The Foundry program equipped me to pursue a completely new opportunity: entrepreneurship....We officially organized as a company after the showcase and are currently pursuing development funding to bring our product to the market."

–Sara Myers, Entrepreneur Participant, Co-Founder of ELVEE, 2021 Showcase Day Winner

Congressman Jim Langevin (D-R.I.) and Paul Madera, Co-Founder at Meritech Capital Partners, were the featured guest speakers at the Foundry pitch competition on Sept. 14, 2022. Winning teams were selected based on the strongest potential to commercialize DoD technology and produce capabilities that benefit the DoD and the private sector. A total of $50,000 in non-dilutive cash prizes was awarded to help teams pursue company formation, technology licensing, and prototype development.

Congressman Jim Langevin (D-RI)

Paul Madera, Co-Founder at Meritech Capital Partners

THE 2022 WINNING TEAMS WERE:

- **First Place: Blazing Audio** received $20,000 to move forward with their metaverse gaming technology which aims to solve challenges in sports training and physical therapy.
- **Second Place: Microdyne** received $10,000 to move forward with their motor which leverages micro-hydraulic actuator technology to deliver 100x the torque of conventional motors of the same size.
- **Other Finalists:** Tiami Networks, Slip Signal, Ultralight, and Cyber Interceptor received $5,000. The audience choice winner, Bio-Twitch, also received an award.

THE DOD AND FEDERAL LAB PARTNERS WERE:

- Air Force Research Laboratory Information Directorate (RI)
- Air Force Research Laboratory Sensors Directorate (RY)
- Army Research Laboratory
- Naval Research Laboratory
- Naval Information Warfare Center Pacific
- Naval Postgraduate School
- Naval Surface Warfare Center Corona
- Naval Surface Warfare Center Crane
- Department of Energy - Oak Ridge National Laboratory
- Massachusetts Institute of Technology Lincoln Laboratory
- University of Hawaii Applied Research Laboratory

Startups Demonstrate Dual-use Tech for Defense and Space

Sheena Patel with Edge Impulse demonstrates the company's embedded machine learning platform technology at the NSIN Propel showcase event.

PROPEL

NSIN Propel recruited 16 dual-use startups, who already had validated technologies with commercial applications, and supported them as they transformed their technology into actionable capabilities and scalable solutions for success in the federal market.

Throughout the program, member companies engaged directly with the Air Force Research Laboratory (AFRL) and the broader DoD community to understand Department needs and adapt commercial solutions to solve national security challenges. The companies learned practical knowledge from DoD stakeholders about acquisitions and received feedback about their capabilities in the federal market. They also gained a network of defense partners to help them raise capital and win potential contracts from investors for further development of their technology.

These companies worked with 22 government agencies, submitted 42 proposals, and received $4 million funding with an additional $20 million pending. In addition, they showcased their dual-use technologies for potential military and commercial partners during the Propel Demo Day at Newlab, in the historic Brooklyn Navy Yard on Sept. 23, 2022.

"The DoD is a large technology customer, yet early-stage companies struggle to navigate the complex government procurement process. NSIN Propel gives founders the skills and access to enter the defense market and ensure that the U.S. military continues to lead at the cutting-edge of next-generation technology," said Ryan Benitez, Principal at Decisive Point.

"...participation in NSIN Propel should be a badge of distinction that a company is mature in its understanding of the federal market."

–Ryan Benitez, Principal at Decisive Point

ENGAGING UNTAPPED DOD PROBLEM-SOLVING POTENTIAL FROM HUB ZONES

PROPEL EDI

Small businesses in often overlooked locations for defense opportunities are expanding economic development efforts and spurring new technologies for dual-use, commercial and military markets in the NSIN Propel-Economic Development Initiative (EDI) program.

Propel-EDI engages untapped potential for the DoD in companies across the country where most small businesses have not gained knowledge of defense opportunities. In the cohort, five companies located in Historically Underutilized Business (HUB) Zones and Opportunity Zones with commercial solutions for the military, developed skills to do business with the DoD by exploring new ways of solving technical challenges for Air Force Spark Cells.

The cohort interacted with government stakeholders, problem sponsors, and end-users to learn more about the problems and discuss solution concepts. The ventures engaged with experts from NSIN, DoD mission partners, and acquisition specialists who guided their solutions to meet DoD needs, help adjust their strategies to overcome the burdensome DoD acquisition process, and provide resources to the cohort for additional funding and programs to support DoD ventures.

At the conclusion of the program, the ventures demonstrated their technology concepts for potential DoD partners and submitted solutions for a Small Business Innovation Research (SBIR) award.

"The NSIN economic development initiative helped engage businesses traditionally shut out of DoD problem-solving and help deliver the best technology and tools to our warfighters," said Nina Archie, NSIN Propel-EDI Program Manager.

NSIN PROPEL-EDI COMPANIES

HEBI Robotics
Pittsburgh, Penn.

Analytical AI
Birmingham, Ala.

IoTAI, Inc.
Fremont, Calif.

Sagetech Avionics Inc.
Bingen, Wash.

Tomahawk Robotics
Melbourne, Fla.

Portable Blood Test Innovation Solves DoD and Commercial Need

VECTOR

Having real-time capability to diagnose conditions such as traumatic brain injuries (TBI) or heart attacks can make the difference between life and death – whether on the battlefield or in a civilian setting.

A solution called Lopa™ that draws and analyzes blood in real-time won the NSIN 2022 Vector Showcase Day. California-based startup Neupro Inc.'s "lab-on-patch" blood test provides critical health information in real-time to save lives. There's no waiting on test results from a lab to start treatment.

On the battlefield, there is often no medical specialist available during an improvised explosive device (IED) attack or other chaotic situation. In a civilian environment, the portable device helps emergency medical technicians (EMTs) diagnose heart attacks and administer life-saving care based on Neupro's readily available diagnostics.

Neupro Inc. won $25,000 to continue developing its wearable and real-time diagnostic patch for solutions within the DoD and the commercial sector. With the prize money, Neupro plans to prototype a self-applied patch with embedded sensors that can generate a diagnosis in real-time for anyone, regardless of training, to test for multiple issues without the need for a blood draw.

"In over a decade, we hope Neupro is a recognized leader in the development and commercialization of biosensor solutions with multi-analyte capabilities to address many acute and chronic medical conditions," said Matt Coduti, co-founder of Neupro. "We also hope to inspire. When a kid is using our patch for blood diagnostics instead of an arterial blood draw, perhaps their doctor will tell them how awful it used to be when they had to use needles and that he/she too could launch a new technology in collaboration with the DoD, just like Neupro."

Neupro and nine other teams of NSIN alumni joined the NSIN Vector program this year to accelerate their companies in the business fundamentals of creating dual-use ventures, and advance their companies in the likelihood of forming viable dual-use capacities.

In addition to completing the cohort's venture curriculum, Neupro interviewed 42 potential partners from government agencies including the DoD and NASA, and commercial industry prospects. Through this process, emergency doctors and angel investors listened to those on the front lines and applied their feedback to Neupro's business strategy.

"After market research with Navy Research Laboratory, we identified this as an area with an unmet need and a huge defense and commercial application," said Tuan Dinh, co-founder of Neupro. "Our good relationship with the NRL is the foundation of the business."

Vector teams worked closely with DoD and private sector experts to take their technologies from PowerPoint to partnership. At the start of the cohort, each team received exclusive access to alumni and industry networking events, learned to navigate the federal government ecosystem through a dual-use venture course curriculum, and tailored their business plans for military partners through open question and answer access to a program guide.

For the balance of the cohort, teams worked with mentors and potential clients to discuss real-case problems and their proposed solutions. Each team received feedback to refine their technology and go-to-market strategy to present a pitch deck on the last day of the cohort that showed how their company would add the most dual-use value for government and venture industries.

The 2022 NSIN Vector cohort ranged in technologies such as medical, cyber, computer vision, energy, additive manufacturing, and artificial intelligence. All Vector teams are alumni from NSIN's Hacking for Defense (H4D), Maker, Foundry, Hacks, and X-Force programs.

While the other eight teams did not win the prize at the pitch competition, they still received valuable relationship connections and resources from DoD mission partners. Moreover, as part of the NSIN alumni network, they'll continue to receive support from a community of military and commercial leaders who may be interested in working together on future projects.

"The competition was fierce this year," said Andrew Oury, NSIN Vector Program Manager. "I wouldn't be surprised if all of our participating teams become well known throughout the DoD."

> "After market research with Navy Research Laboratory, we identified this as an area with an unmet need and a huge defense and commercial application. Our good relationship with the NRL is the foundation of the business."
>
> **–Tuan Dinh, co-founder of Neupro**

IMPACT BY REGION

FY 2022
NORTHEAST REGION BY THE NUMBERS

GENERATING NEW SOLUTIONS

33 DoD Problems Worked On

5 Ideas Adopted

GROWING A NETWORK OF PROBLEM SOLVERS

10 Universities Engaged

13 Sponsored Programs

24 Number of Program Participants

0 Service Members

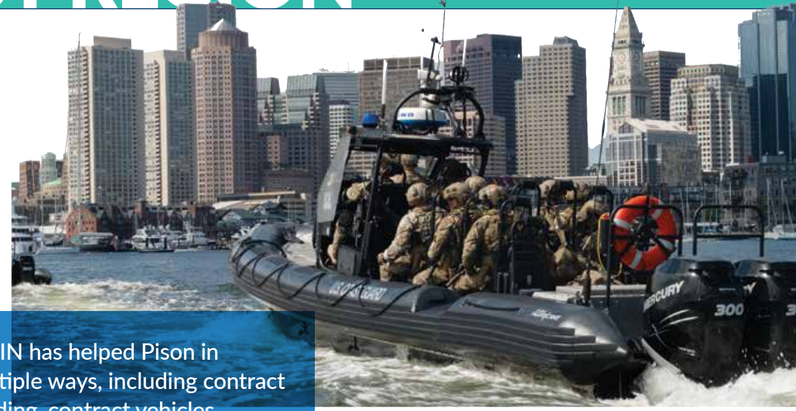
38 Number of Ventures Engaged

7 Number of Teams Engaged

NUMBER OF REGIONAL CONVENING EVENTS 11

HUB CITY:
Boston, Mass.

NORTHEAST REGION



The Northeast Region (NER) has the world's leading university network in terms of both student population and quality of institutions. It is also one of the country's strongest venture ecosystems in the number of venture dollars invested and the number of companies created, and it is home to both large technology companies and emerging local startups. Both Massachusetts and Connecticut ranked in the top ten states for defense spending in 2021. The region has earned over $587M in Small Business Innovation Research (SBIR) contracts alone since 2021. It is a leading source of maritime technologies (bluetech) because of its maritime culture, naval presence, oceanographic science credentials, and grassroots undersea vehicles work. The region has a strong record in biological and medical technologies (biotech/medtech) owing to the state of Massachusetts' supportive policies and concentration of large biotech corporations. Materials sciences and advanced fabrics are also present due to the region's previous role in the national garment industry. Robotics, software, and artificial intelligence/machine learning startups spin out from renowned local universities computer science programs. It is a leader in advanced manufacturing.

> "NSIN has helped Pison in multiple ways, including contract funding, contract vehicles, and collaboration in the DoD innovation ecosystem. They are part of the glue to bring together industry and government stakeholders at physical collaboration events to increase the dialogue on improving national security."
>
> **—Dexter Ang, CEO, Pison Technologies, NSIN Program Participant**

FY 2022

MID-ATLANTIC REGION BY THE NUMBERS

GENERATING NEW SOLUTIONS

14 DoD Problems Worked On

8 Ideas Adopted

GROWING A NETWORK OF PROBLEM SOLVERS

8 Universities Engaged

6 Sponsored Programs

45 Number of Program Participants

0 Service Members

26 Number of Ventures Engaged

18 Number of Teams Engaged

NUMBER OF REGIONAL CONVENING EVENTS 27

HUB CITY:
New York City, NY

MID-ATLANTIC REGION

The Mid-Atlantic Region (MAR) plays a critical role in national security. The region contributes strongly to national security innovation, with strengths in unmanned aerial systems, dense urban environments, artificial intelligence, and cybersecurity, to name a few. Nearly 13% of the U.S. population lives within the MAR's New York, Pennsylvania, and New Jersey boundaries. By far, the MAR is the top region across NSIN for U.S. GDP contribution. In addition, New York City, the largest city in the region, is the world's financial capital and is second only to Silicon Valley, globally, for innovation. The region provides a student base of over 400,000 students across 280 universities and colleges, including 62 Minority Serving Institutions (MSIs) and several of the top research universities in the world. Moreover, New Jersey has the nation's highest concentration of PhDs per capita. Key defense partners in the MAR include the Army Armaments Center in New Jersey, the Air Force Research Laboratory - Information Directorate in New York (AFRL-Rome), and Navy Surface Warfare Center - Philadelphia Detachment in Pennsylvania (NSWC-Philadelphia).

"We know NSIN well and have always had a great experience working with them. They bring a unique group of non-traditional innovators to solve some really tough problems."

–Steve Luckowski, Program Manager, DoD Manufacturing Innovation Institutes and JPEO Armaments and Ammunition Advanced Manufacturing Technology, Office of the Secretary of Defense

FY 2022

NATIONAL CAPITAL REGION BY THE NUMBERS

GENERATING NEW SOLUTIONS

80 DoD problems worked on

60 Ideas Adopted

GROWING A NETWORK OF PROBLEM SOLVERS

7 Universities Engaged

5 Sponsored Programs

226 Number of Program Participants

28 Service Members

26 Number of Ventures Engaged

33 Number of Teams Engaged

NUMBER OF REGIONAL CONVENING EVENTS **0**

HUB CITY:
Washington, DC

NATIONAL CAPITAL REGION

The National Capital Region (NCR) has the densest concentration of mission partners and is home to many of the headquarters elements supporting DoD components around the world. The commands in this region include each of the Office of the Secretary of Defense (OSD) within the Pentagon, the Service components, and many Fourth Estate agencies. The NCR also contains the headquarters elements for the Service Laboratories, and sister innovation agencies such as DARPA. As a result, the regional team is a "force multiplier" for the other NSIN regions, since many of the mission partners in this region support and fund development across each of the major technology verticals. The NCR is a major source of academic talent, with a number of R1 (doctoral universities with very high research activity according to the Carnegie Classification of Institutions of Higher Education) universities providing talent in the policy and technology sectors. The NCR boasts several interest groups, such as think tanks, lobbying firms, and private sector entities, that work adjacent to the broader defense innovation space.

"NSIN has provided unprecedented support to the USD(R&E) critical technology area for Trusted AI/ML and Autonomy. Working with Kedar Pavgi, OUSD(R&E) was able to add a track on trust to the "Off the Beaten Path" hackathon, incorporating Senior OSD leadership. For the Summit on Trusted Autonomy Research and Technology, NSIN played a critical role in teaming with academic and UARC partners, providing crucial marketing support, engaging senior leadership within OUSD(R&E), and bringing the NSIN venture capital network to bear."

–Dr. Jaret Riddick, Principal Director, Autonomy, Office of the Undersecretary of Defense for Research and Engineering

FY 2022

SOUTHEAST REGION BY THE NUMBERS

GENERATING NEW SOLUTIONS

90 DoD Problems Worked On

39 Ideas Adopted

GROWING A NETWORK OF PROBLEM SOLVERS

13 Universities Engaged

10 Sponsored Programs

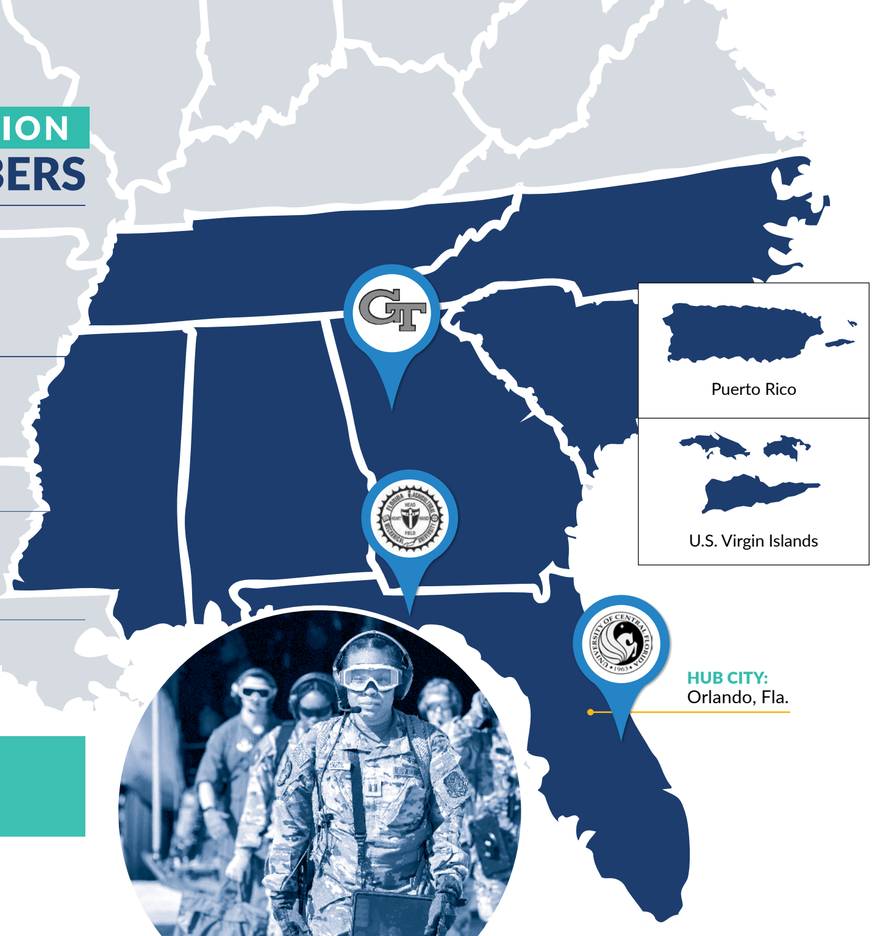
350 Number of Program Participants

144 Service Members

19 Number of Ventures Engaged

60 Number of Teams Engaged

NUMBER OF REGIONAL CONVENING EVENTS 65



SOUTHEAST REGION

The Southeast Region (SER) offers extensive networks, including combatant commands, major commands for multiple branches, primary military training locations, and are the designated response forces for any major global conflict. The SER includes Central Command (CENTCOM), Southern Command (SOUTHCOM), United States Special Operations Command (USSOCOM), and United States Space Command (SPACECOM). The region's network also includes units within Air Mobility Command (AMC), Air Combat Command (ACC), Air Force Global Strike Command (AFGSC), Army Cyber Command (ARCYBER), Space Delta 13, XVIII Airborne Corps, II Marine Expeditionary Force (2MEF), Air Education Training Command, Missile Defense Agency, Redstone Arsenal, Program Executive Office Simulation, Training and Instrumentation (PEOSTRI), Naval Air Warfare Center Training Systems Division (NAWCTSD), and Air Force Agency for Modeling and Simulation (AFAMS). The region is home to 25 of the nation's top R1 research universities (doctoral universities with very high research activity according to the Carnegie Classification of Institutions of Higher Education). Increased migration from the West Coast and Northeast to the Southeast is driving the growth of start-up ecosystems in Atlanta, Raleigh-Durham, Central Florida, and Southern Florida, as measured in over $15 billion invested throughout the region since 2021. Each of these hubs focuses on different technology areas, including modeling and simulation, digital transformation, biotech, pharma, data analysis, cyber, augmented reality/virtual reality, gaming, lasers, and space launch capabilities.

"PEO STRI used NSIN's Capstone program to bring a team of talented students from the University of Central Florida to develop a robot for armaments simulations. The students brought new perspectives, were willing to try new things, and included soldier feedback early in their design process. In the end, they developed a prototype for less than $1,000 that can be used in our training ranges."

—Dr. Jeremy Lanman, CTO of the U.S. Army Program Executive Office for Simulation, Training and Instrumentation

FY 2022

GREAT LAKES REGION BY THE NUMBERS

GENERATING NEW SOLUTIONS

61 DoD Problems Worked On

29 Ideas Adopted

GROWING A NETWORK OF PROBLEM SOLVERS

13 Universities Engaged

10 Sponsored Programs

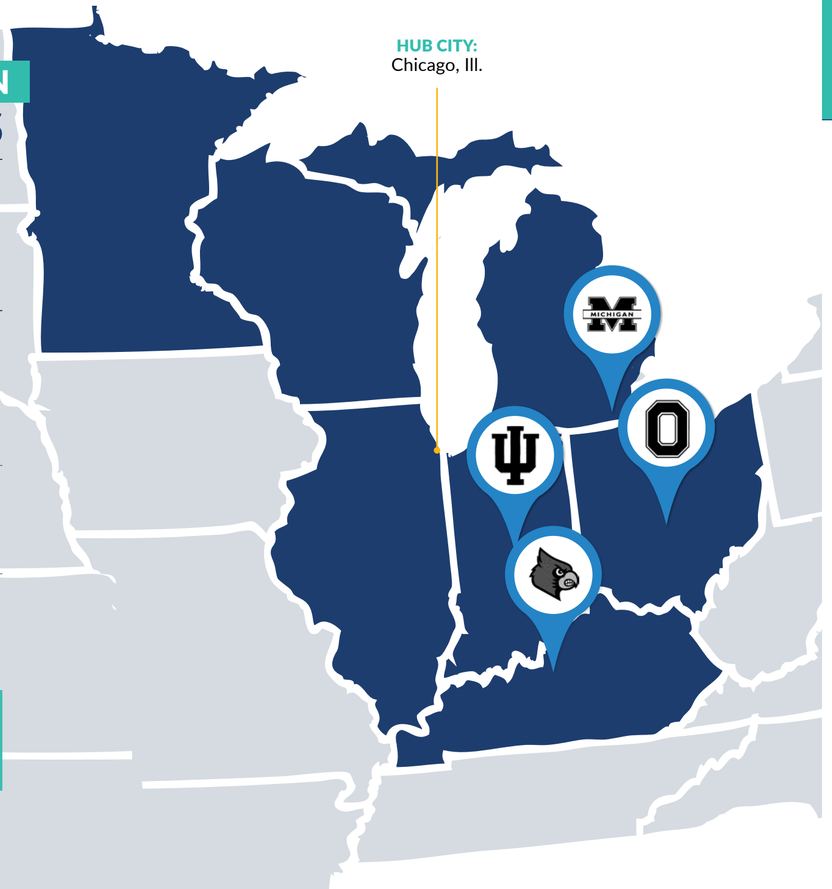
80 Number of Program Participants

0 Service Members

29 Number of Ventures Engaged

32 Number of Teams Engaged

NUMBER OF REGIONAL CONVENING EVENTS 24



GREAT LAKES REGION

The Great Lakes Region (GLR) has a robust DoD presence anchored by four key research centers, three large installations, and multiple innovative National Guard commands. The region is also home to 40 R1 and R2 research institutions (doctoral universities with high to very high research activity according to the Carnegie Classification of Institutions of Higher Education), and six of the fastest-growing tech hubs in the U.S. This region's five prominent technology verticals are advanced manufacturing and materials, microelectronics, autonomy, renewable energy, and space.

FY22 included significant engagement with DoD partners and growth with academic partners throughout the region. Additionally, four new DoD partners and seven new academic institutions were connected to NSIN for the first time, while 10 DoD partners and nine academic institutions continued collaborative efforts.

NSIN's X-Force Fellows program showcased the region's strength with 36 fellows (25% of the cohort) working on 12 challenges presented by GLR mission partners. The summer fellowship resulted in multiple jobs, research agreements, and continued use of NSIN programs for regional mission partners. In addition, the region had 12 fellows from nine different academic institutions support DoD challenges, resulting in two full-time jobs and follow-on participation in NSIN programming.

"NSIN offers the defense ecosystem a means to adapt to the new era of national security innovative change. This change requires an entrepreneurial culture, an increase in research investment at the defense labs, an increase in research academic partnerships, and an increase in technology transition in partnership with commercial startups for product development and market."

–Dr. Corey Bergsrud, Naval Surface Warfare Center Crane, NSIN X-Force, Foundry, and Maker Sponsor

FY 2022

MIDWEST REGION BY THE NUMBERS

GENERATING NEW SOLUTIONS

15 DoD Problems Worked on

0 Ideas Adopted

GROWING A NETWORK OF PROBLEM SOLVERS

7 Universities Engaged

7 Sponsored Programs

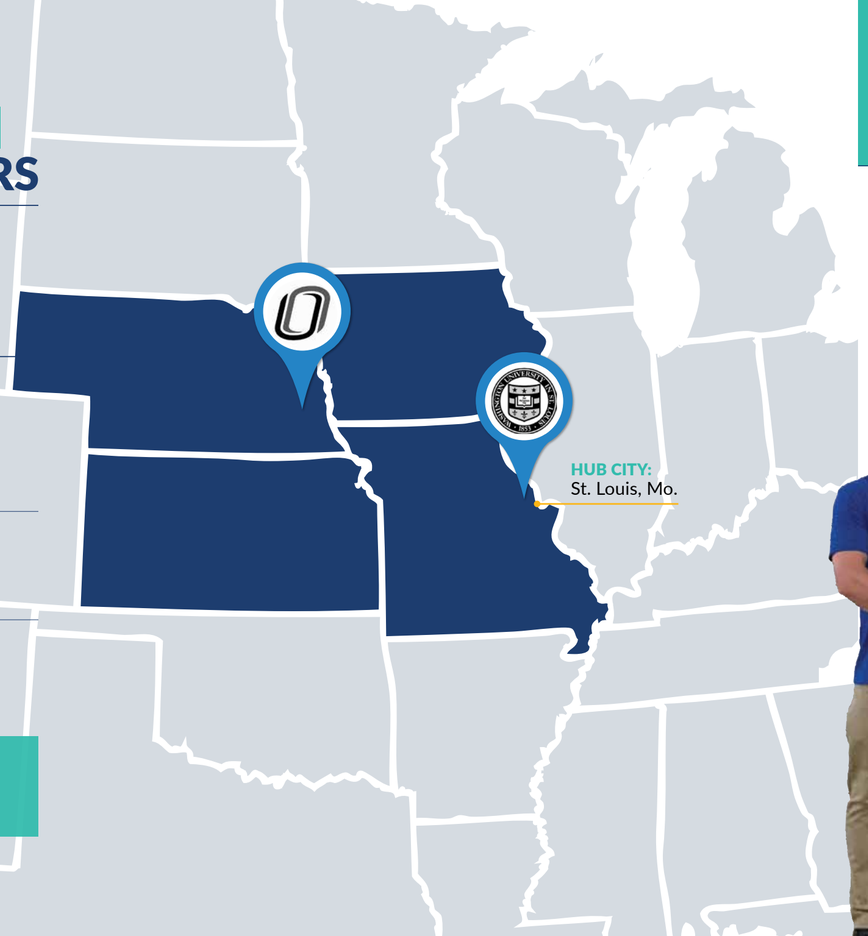
73 Number of Program Participants

0 Service Members

10 Number of Ventures Engaged

31 Number of Teams Engaged

NUMBER OF REGIONAL CONVENING EVENTS 24



MIDWEST REGION

The Midwest Region is home to the National Geospatial-Intelligence Agency (NGA), United States Strategic Command, and the 55th Wing at Offutt Air Force Base (AFB). The Omaha and Saint Louis ecosystems worked together to plan, host, and execute the annual Defense Entrepreneurial Symposium (DES) on Aug. 11, 2022, which featured investors, innovators, students, startups, and mission partners from across the country.

St. Louis and Omaha are excellent examples of the impact that NSIN can have when there are strong partnerships from the highest levels of the DoD to local government officials who believe innovation is the key to unlocking equitable economic development through dual-use technology and ventures.

St. Louis Mayor Tishaura Jones has been a tremendous supporter of NSIN and proclaimed Aug. 7-13 as National Security Innovation Week in St. Louis. In the proclamation awarded to NSIN, Mayor Jones emphasized the economic and social development in the greater St. Louis community because of NSIN's network of students, startups, and service members.

Mike Seper, Regional Engagement Principal, St. Louis, with the Mayor's National Security Innovation Week Proclamation.

The University of Nebraska Omaha (UNO) is one of 16 institutions to be designated as a National Center for Academic Excellence in Cyber Operations (CAE-Cyber Operations) by the National Security Agency (NSA). With that designation, UNO solved 13 cyber-related problems in 2022 for mission partners including the United States Strategic Command and the 55th Wing at Offutt AFB.

"My X-Force experience allowed me to work on relevant, real-world problems that impact U.S. military facilities across the world. Working with the nation's brightest minds to engineer relevant solutions and enhance the knowledge of the entire military community aligned with my passion towards innovation."

–Weston Kelley, NSIN X-Force Fellow 2022

FY 2022

SOUTHWEST REGION BY THE NUMBERS

GENERATING NEW SOLUTIONS

41 DoD Problems Worked On

18 Ideas Adopted

GROWING A NETWORK OF PROBLEM SOLVERS

4 Universities Engaged

5 Sponsored Programs

161 Number of Program Participants

45 Service Members

25 Number of Ventures Engaged

32 Number of Teams Engaged

NUMBER OF REGIONAL CONVENING EVENTS 55

HUB CITY: Austin, Texas

SOUTHWEST REGION

The Southwest Region (SWR) extensive networks include major commands for multiple branches, primary military training locations, defense labs, Federally Funded Research Facilities (FFRDCs), University Affiliated Research Centers (U-ARCs), Program Executive Officers (PEOs), and numerous operational units. The SWR boasts the highest number of mission partners by volume and their focus ranges from strategic to tactical levels of operations. Focusing on a broad spectrum of technologies, the SWR team works on emerging technologies with Air Force Research Labs (AFRL), Army Futures Command (AFC), and on adoption level technologies within AFWERX and Army Applications Lab (AAL). The region is home to 34 of the nation's R1 and R2 research universities (d toral universities with high to very high research activity according o the Carnegie Classification of Institutions of gher Education) and is considered one of the nation's premier research corridors for space and nuclear in New Mexico.

"The University of Texas at Austin has partnered with NSIN to develop dual use technologies for the DOD, first responders, emergency operations personnel, and policymakers. Concentrating on six connected research projects at UT's Global Center for Coordinated Response and Resiliency, UT principal investigators, NSIN, and other strategic partners aim to improve situational awareness during disasters and active shooter events and while securing the border."

–Monique Gregory, National Security Strategist, University of Texas at Austin, Crockrell School of Engineering

FY 2022

ROCKY MOUNTAIN REGION BY THE NUMBERS

GENERATING NEW SOLUTIONS

38 DoD Problems Worked On

7 Ideas Adopted

GROWING A NETWORK OF PROBLEM SOLVERS

8 Universities Engaged

7 Sponsored Programs

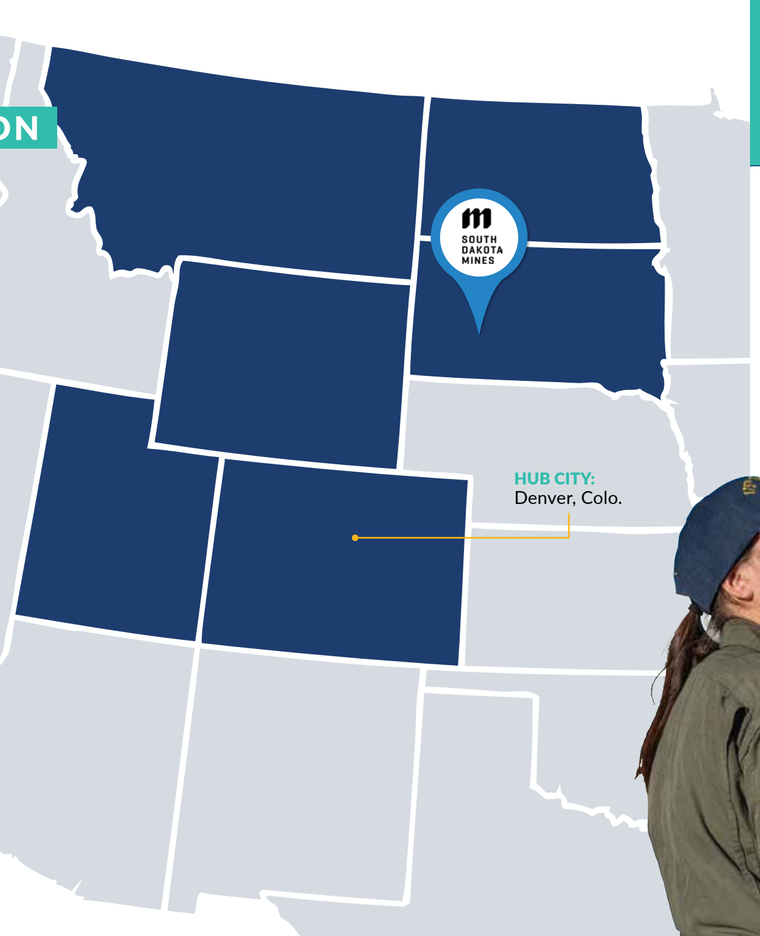
135 Number of Program Participants

12 Service Members

13 Number of Ventures Engaged

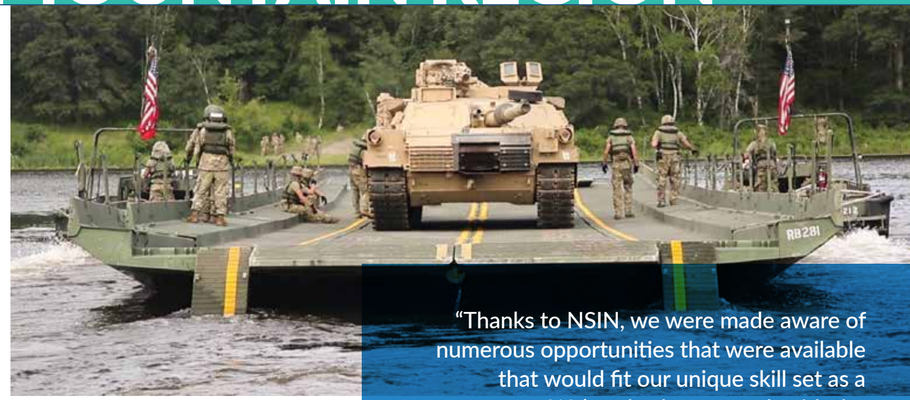
24 Number of Teams Engaged

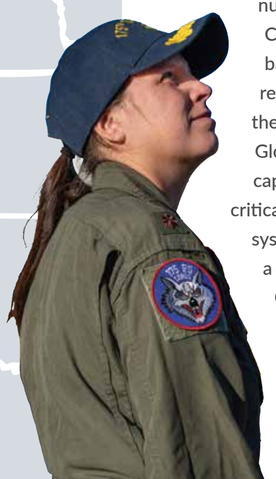
NUMBER OF REGIONAL CONVENING EVENTS **7**



ROCKY MOUNTAIN REGION

The Rocky Mountain Region (RMR) is home to the U.S. Space Force, the North American Aerospace Defense Command (NORAD), the United States Northern Command (NORTHCOM), the Ogden Air Logistics Complex, as well as numerous Global Strike Command operational bases. These components represent the backbone of the U.S. Nuclear, Space, Global Strike, Depot (Fighter and ICBM) and Command and Control capabilities. The universities in the region house leading research in critical minerals, energy, space, artificial intelligence, and unmanned aerial systems. Despite its lower population density, the region features over a dozen high to very high doctoral research activity according to the Carnegie Classification of Institutions of Higher Education (four R1 and 14 R2) institutions with a combined student population of 349,000. The region's venture landscape is led primarily by investments and growth in Colorado and Utah.





"Thanks to NSIN, we were made aware of numerous opportunities that were available that would fit our unique skill set as a company. We've also begun work with the Navy Surface Warfare Center Crane Office of Research and Technology Application on technology transfer. None of this would have been possible without NSIN reaching out and engaging with us. Their team took the time to learn what we are capable of and how our capabilities could directly solve problems that the DoD needed solutions to."

–Tim Houghton, Vice President and Chief Operating Officer, H-S Precision

FY 2022
NORTHWEST REGION
BY THE **NUMBERS**

GENERATING NEW SOLUTIONS

21 DoD Problems Worked On

0 Ideas Adopted

GROWING A NETWORK OF PROBLEM SOLVERS

2 Universities Engaged

0 Sponsored Programs

2 Number of Program Participants

0 Service Members

2 Number of Ventures Engaged

0 Number of Teams Engaged

NUMBER OF REGIONAL CONVENING EVENTS 23

NORTHWEST REGION

The Northwest Region (NWR) boasts a legacy of defense industrial production housing the region's largest Naval shore facility and the Puget Sound Naval Shipyard and Intermediate Maintenance Facility (PSNS and IMF), the only nuclear-capable retrofit facility on the West Coast. The Northwest is also home to critical DoD Laboratories and Ranges, the third largest concentration of Naval forces in the country, and a variety of military units across all four branches of the armed services and the National Guard. There are multiple strong research universities across the region, including four R1 classified universities and five R2 universities (doctoral universities with high to very high research activity according to the Carnegie Classification of Institutions of Higher Education), and two University-Affiliated Research Center (UARC) laboratories. Key research at these institutions includes manufacturing, autonomy, materials, data science, computer science, software development, artificial intelligence (AI)/machine learning (ML), robotics, life sciences, and biotech. Seattle is the primary hub for startups and ventures, and other NWR cities such as Anchorage, Fairbanks, Boise, Portland, Missoula, Bozeman, and Spokane also represent strong and innovative communities. Featured companies headquartered in the region are Microsoft, Amazon, Micron, Google, Hewlett-Packard, and FLIR Systems. Industry trends include significant investment from both the public and private sectors in space-based technology (e.g., satellites), energy (e.g., fusion and hydrogen), and critical minerals industries.

> "We look forward to continuing to work with NSIN to tackle big problems and make a difference at the intersection of national security, health, and prosperity through entrepreneurship."
>
> **–François Baneyx, University of Washington Vice Provost for Innovation and Director of CoMotion**

FY 2022

PACIFIC-NORTH REGION BY THE NUMBERS

GENERATING NEW SOLUTIONS

9 DoD Problems Worked On

7 Ideas Adopted

GROWING A NETWORK OF PROBLEM SOLVERS

4 Universities Engaged

4 Sponsored Programs

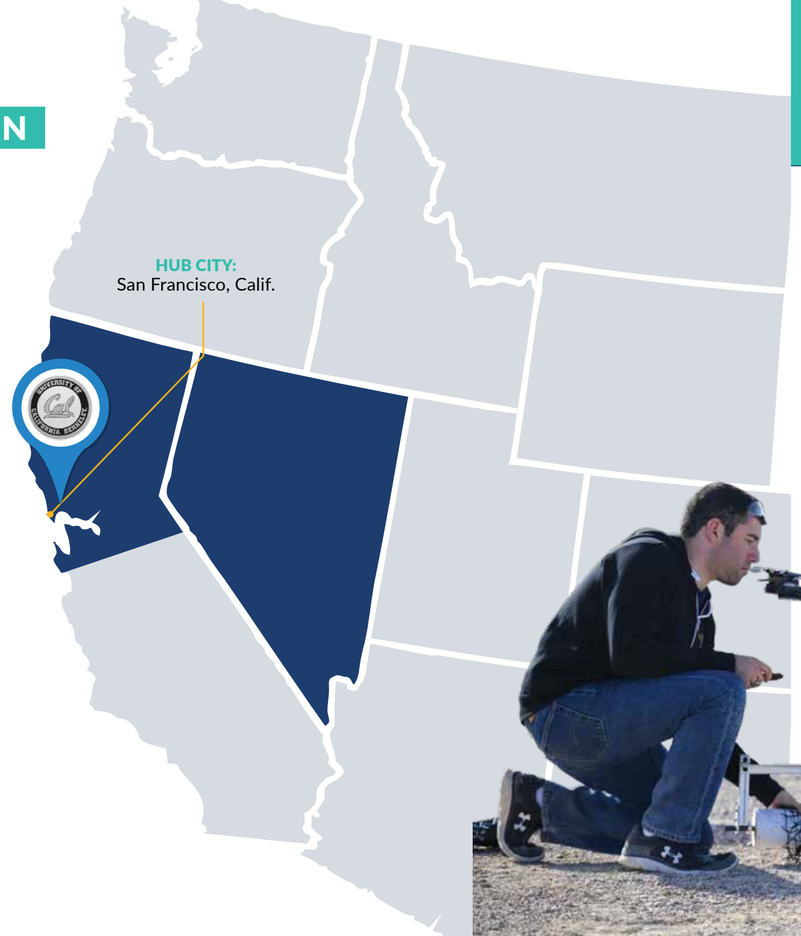
115 Number of Program Participants

10 Service Members

13 Number of Ventures Engaged

24 Number of Teams Engaged

NUMBER OF REGIONAL CONVENING EVENTS 3



PACIFIC-NORTH REGION

Innovation, entrepreneurship, venture capital, and top academic institutions spotlight the strengths of the Pacific-North Region (PNR), which spans Northern California and Nevada. Home to 10 R1 and R2 universities (doctoral universities with high to very high research activity according to the Carnegie Classification of Institutions of Higher Education) including the University of California Berkeley, University of Nevada Las Vegas, and Stanford University, along with the Naval Postgraduate School, produce transformative research that contributes to dual-use technologies shaping the world. Lawrence Livermore National Laboratory, Lawrence Berkeley National Laboratory, and the SLAC National Accelerator Laboratory develop groundbreaking discoveries furthering scientific research. Fueled by the preeminent venture capital region in the world, entrepreneurs receive funding to develop technologies in semiconductors, space, artificial intelligence, cybersecurity, autonomous vehicles, robotics, fintech, biotechnology, and data science. Major military installations include Beale Air Force Base (AFB), Travis AFB, Defense Microelectronics Activity (DMEA), Nellis AFB, Creech AFB, and Naval Air Station Fallon (NAS). Additionally, the region headquarters both the Defense Innovation Unit (DIU) and the Defense Linguistics Institute (DLI), the DoD's premier language school.

"NSIN pushing us to participate in the NSIN-supported SkyDeck Hot Desk Incubator Program was a catalyst for the pivot and minimum viable product that enabled us to raise our pre-seed round, and ultimately led to a successful demonstration of our capabilities at a JIFX event at Camp Roberts - all in less than six months from the founding of our start-up."

–Sukh Singh, NSIN Hacks participant and Founder, Eirene.AI

FY 2022
PACIFIC-SOUTH REGION
BY THE **NUMBERS**

GENERATING NEW SOLUTIONS

71 DoD Problems Worked on

37 Ideas Adopted

GROWING A NETWORK OF PROBLEM SOLVERS

30 Universities Engaged

8 Sponsored Programs

219 Number of Program Participants

18 Service Members

29 Number of Ventures Engaged

61 Number of Teams Engaged

NUMBER OF REGIONAL CONVENING EVENTS 15

PACIFIC-SOUTH REGION

The Pacific-South Region (PSR) has one of the largest and most diverse concentrations of military organizations. With the United States Indo-Pacific Command (INDOPACOM) headquartered in Hawaii, some of our nation's most complicated national security and geopolitical challenges are in the hands of DoD organizations based in the PSR. The PSR region has the largest concentration of Naval and Marine Corps forces and is home to many DoD labs, warfare centers, U.S. Army, U.S. Space Force, and U.S. Air Force installations and training commands. The PSR has over one million university students enrolled in its public and private institutions, not including community colleges, which account for an additional 2.1 million students from California alone. The PSR contains three University Affiliated Research Centers (UARCs), ten R1 universities, nine R2 universities (doctoral universities with high to very high research activity according to the Carnegie Classification of Institutions of Higher Education), four top 20 engineering schools, and eight top 50 computer science programs. Driven by a rich academic ecosystem, start-up communities, and mature technology clusters in tech, biotech, cleantech, communications, space, unmanned systems, microelectronics, 5G, and aerospace are leading centers of excellence for the country.

"My command faces an array of challenges, some big in scope (winning the next war) and others small (improving data analytics). I knew that I might be able to complete one or two of the projects IF doing so was my sole day job. NSIN already has connections at local universities across the country. NSIN gave me access to incredibly talented interns with whom, in the matter of one summer, I was able to complete a few key projects that will have a real positive effect on our logistics mission."

–Lt. Col. Thomas Kline, Aviation Logistics Operations Branch Head, U.S. Marine Corps Forces, Pacific

FY23 PREVIEW

On Nov. 9, 2022 Cheryl Ingstad was sworn in as NSIN Managing Director by Heidi Shyu, Department of Defense Under Secretary for Research and Engineering.

SAME MISSION » with Emphasis on *Talent, Venture, and HBCU/MSI Outreach*

NSIN is dedicated to the work of bringing together defense, academic, and entrepreneurial innovators to solve national security problems in new ways. This is our mission, a mission that remains unchanged as we build on the work of the past and continue to innovate in FY23.

Specifically, we updated our lines of effort and renewed the organization's focus on being a data-driven organization. We made changes to our portfolios and programs based on a quantitative and qualitative analysis of metrics, customer feedback, and demand signal insights. These changes are reflected in our two portfolios: Talent to engage new participants in the National Security Innovation Base (NSIB), and in Venture to increase and accelerate the number of new companies solving problems and doing business with the DoD.

NSIN is also increasing outreach to Historically Black Colleges and Universities (HBCUs) and other Minority Serving Institutions (MSIs) as part of a pilot program in the 2022 National Defense Authorization Act (NDAA). This engagement will better connect HBCUs and MSIs to the commercialization, innovation, and entrepreneurial activities of the DoD.

NSIN is in the problem-solving business and innovation lives at the intersection of that work.

To maintain and improve our ability to serve current and emerging mission partner needs, we have also made select changes to our program line up. Programs offered in the past have been retired or are being redesigned to meet emerging needs.

If you are a mission partner with a problem you need help solving, let us know! Our team is here to match your requirements to the best NSIN effort program that meets your timeline, talent, and tech needs.

MEASURING SUCCESS

NSIN's three enterprise objectives to measure the success of our work in FY23 are:

1. NSIN adapts and fortifies a deliberate and national network of regional innovation ecosystems connecting advanced capabilities to DoD needs to maintain enduring national security advantage.
2. NSIN cultivates the future national security workforce through a network of university and private sector innovators organized to provide the future DoD workforce with the ability to solve key national security challenges.
3. NSIN will drive Office of the Secretary of Defense for Research and Engineering (OSD R&E) priorities through intelligence and data-driven strategies.

In the weeks and months ahead, we welcome your partnership in this work. Contact the NSIN Regional Network Team member (https://www.nsin.mil/regions) in your area, or our general contact form (https://www.nsin.mil/join-us) to get involved.

NSIN is in the **problem-solving business** and innovation lives at the intersection of that work.

INTRODUCING OUR PORTFOLIOS

TALENT

Bringing in new talent to solve hard national security challenges.

The Talent Portfolio provides inspiration and opportunity for individuals outside the traditional federal talent pipeline to serve our country and solve real-world national security, technology, and policy challenges. By bridging the gap between students, academics, and entrepreneurs to engage with the DoD, NSIN is helping build a deep bench of diverse, qualified civilian and military workers to preserve our competitive emerging technology advantage with resilient personnel trained for the unpredictable global operating environment.

People are the most valuable resource to achieving the mission.

TALENT PORTFOLIO	
	BOOTCAMP CAPSTONE FOUNDRY MAKER X-FORCE FELLOWSHIP

VENTURE

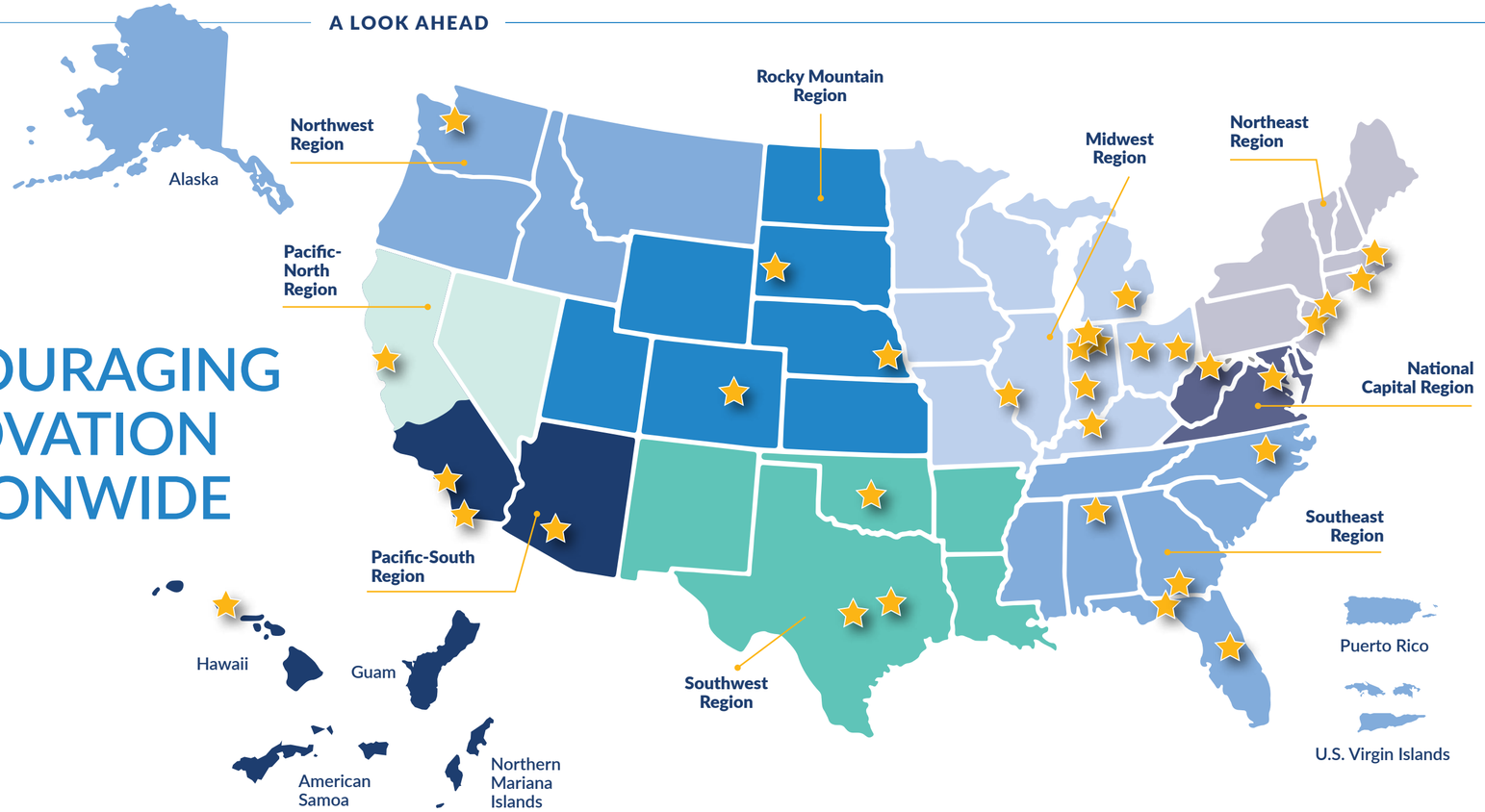
Driving access to early-stage ventures to address national security problems.

The Venture Portfolio develops and executes programs and services intended to facilitate access to emerging technology as it engages the talents of fast-moving innovators and non-traditional problem-solvers. The Venture Portfolio works directly with dual-use early stage ventures emerging from both the academic and venture community who have solutions that address DoD problems.

Creating an advantage for defense innovation through customer discovery and solution adoption.

VENTURE PORTFOLIO	
	ADAPTIVE THREAT FORCE CHALLENGES EMERGE FORGE FULCRUM PROPEL

ENCOURAGING INNOVATION NATIONWIDE



REGIONAL NETWORK TEAM

Matt Merighi
National Operations Director

Richard Miller
Operations Director

NORTHEAST
Grant Fox
Regional Engagement Principal, New York City

John Griffin
Regional Engagement Principal, Boston

George Nickolopoulos
Regional Engagement Principal, Rhode Island

Spencer Reynolds
Regional Engagement Principal, New Jersey

Pat Mahaney
Senior Advisor, Mid-Atlantic Region

NATIONAL CAPITAL
Kedar Pavgi
National Capital Regional Director

John Reisenweber
Regional Engagement Principal, West Virginia

David Schiff
Regional Engagement Principal, Washington, DC

SOUTHEAST
Bev Seay
Southeast Regional Director

Alison Beatty
Regional Engagement Principal, Georgia

Marcy Muldrow-Sanders
Regional Engagement Principal, Florida Panhandle

John Whiteaker
Regional Engagement Principal, North Carolina

MIDWEST
Glenn Berger
Regional Engagement Principal, North Indiana

Charles Colglazier
Regional Engagement Principal, South Indiana

Will Fortune
Regional Engagement Principal, Kentucky

Ian Haynes
Regional Engagement Principal, Ohio

Regan Jones
Military Liaison Officer, University of Notre Dame

Mike Seper
Regional Engagement Principal, St. Louis

Alyssa Robertson
NSWC Crane Liaison

Paula Lemke
AFRL Liaison Officer

SOUTHWEST
Blake Alexander
Regional Engagement Principal, College Station

Drew Hendricks
Regional Engagement Principal Oklahoma City

Jim Rabuck
Regional Engagement Principal, Austin

ROCKY MOUNTAIN
Jason Combs
Regional Engagement Principal, South Dakota

Jeremiah Starr
Regional Engagement Principal, Colorado Springs

Wade Watts
Regional Engagement Principal, Omaha

PACIFIC-NORTH
Pavan Gill
Pacific-North Regional Director

Kaitie Penry
Regional Engagement Principal, San Francisco

PACIFIC-SOUTH
Jesse Gipe
Pacific-South Regional Director

Luis Martinez
Regional Engagement Principal, San Diego

Gloria Choo
Regional Engagement Principal, Hawaii

Samantha Hiller
Regional Engagement Principal, Arizona

NORTHWEST
Tanya Parypa
Northwest Regional Director

Brady Ryan
Regional Engagement Principal, Seattle

RESOURCES

NSIN LEADERSHIP

CHERYL INGSTAD
Managing Director
cingstad@nsin.mil
LinkedIn

JUSTIN DUNNICLIFF
Deputy Director
jdunnicliff@nsin.mil
LinkedIn

KAREN FRAY
Chief of Staff
kfray@nsin.mil
LinkedIn

SCOTT AUGHENBAUGH
Strategic Engagement Director
saughenbaugh@nsin.mil
LinkedIn

MATT MERIGHI
National Operations Director
mmerighi@nsin.mil
LinkedIn

GREGORY M. BERNARD, D.Sc.
Talent Portfolio Director
gbernard@nsin.mil
LinkedIn

ABIGAIL DESJARDINS
Venture Portfolio Director
adesjardins@nsin.mil
LinkedIn

JOHANNES SCHONBERG
Strategic Engagement Deputy Director
jschonberg@nsin.mil

NGOC LUND
Deputy Chief of Staff
nlund@nsin.mil
LinkedIn

DANIEL RICHARD
Business Operations Manager
drichard@nsin.mil
LinkedIn

PATIENCE LOWERY
Task Order Program Manager
plowery.ctr@nsin.mil
LinkedIn

FRANCISCO MOLINERO
Deputy Task Order Program Manager
fmolinero.ctr@nsin.mil
LinkedIn

Our network is driven by the values of service, collaboration, and speed:
CREATING EXPONENTIAL INNOVATION.

NSIN TEAM

BLAKE ALEXANDER
Regional Engagement Principal, College Station
salexander.ctr@nsin.mil

OLIVIA ANDERSON
Social Media and Marketing Specialist
oanderson.ctr@nsin.mil
LinkedIn

MARK ANTHOLT
Program Manager
santholt.ctr@nsin.mil

NINA ARCHIE
Program Manager
narchie.ctr@nsin.mil
LinkedIn

JOSEPH ARICO
Program Manager
jarico.ctr@nsin.mil
LinkedIn

TOBIAS ARMOUR
Advanced Capabilities Integration Analyst
tarmour.ctr@nsin.mil
LinkedIn

ANGELA AUSTIN
Program Manager
aaustin.ctr@nsin.mil

ALISON BEATTY
Regional Engagement Principal, Michigan/ Georgia
abeatty.ctr@nsin.mil
LinkedIn

GLENN BERGER
Regional Engagement Principal, North Indiana
gberger@nsin.mil

CAROLINE CANFIELD
Senior Advisor
ccanfield@nsin.mil

GLORIA CHOO
Regional Engagement Principal, Hawaii
gchoo.ctr@nsin.mil
LinkedIn

BIANCA COFFY
Communications Technical Support Specialist
bcoffy.ctr@nsin.mil
LinkedIn

CHARLES COLGLAZIER
Regional Engagement Principal, South Indiana
ccolglazier@nsin.mil

JASON COMBS
Regional Engagement Principal, South Dakota
jcombs.ctr@nsin.mil
LinkedIn

GABRIEL CUTHBERT
Salesforce Architect
gcuthbert@nsin.mil

KIM CUYLER
Contract Support Specialist
kcuyler.ctr@nsin.mil
LinkedIn

RACHEL DURKOTA
Acquisitions Program Manager
rdurkota@nsin.mil

WILL FORTUNE
Regional Engagement Principal, Kentucky
wfortune.ctr@nsin.mil
LinkedIn

NSIN TEAM

CHRIS FOTIADIS
Transition Cell Manager
cfotiadis.ctr@nsin.mil

GRANT FOX
Regional Engagement Principal, New York City
gfox.ctr@nsin.mil
LinkedIn

PAVAN GILL
Pacific-North Regional Director
pgill@nsin.mil
LinkedIn

JESSE GIPE
Pacific-South Regional Director
jgipe@nsin.mil
LinkedIn

JAVIER GOMEZ
Transition Cell Manager
jgomez.ctr@nsin.mil

ALY GREGG
Director of Internal Communications
agregg.ctr@nsin.mil
LinkedIn

JOHN GRIFFIN
Regional Engagement Principal, Boston
jgriffin.ctr@nsin.mil
LinkedIn

ERIC GURGO
Transition Cell Manager
egurgo.ctr@nsin.mil

JOHN HAWLEY
Senior Advisor
jhawley@nsin.mil
LinkedIn

IAN HAYNES
Regional Engagement Principal, Ohio
jhaynes.ctr@nsin.mil
LinkedIn

DREW HENDRICKS
Regional Engagement Principal, Oklahoma City
dhendricks.ctr@nsin.mil
LinkedIn

CASSIE HEYMAN-SCHRUM
Program Manager
cheymanschrum.ctr@nsin.mil
LinkedIn

SAMANTHA HILLER
Regional Engagement Principal, Arizona
shiller.ctr@nsin.mil
LinkedIn

JOHN HRIVNAK
Private Capital Network Manager
jhrivnak.ctr@nsin.mil
LinkedIn

REGAN JONES
Military Liaison Officer, University of Notre Dame
rjones@nsin.mil
LinkedIn

MITCH KUSMIER
Project Manager
mkusmier.ctr@nsin.mil
LinkedIn

PAULA LEMKE
AFRL Liaison Officer (LNO)
plemke@nsin.mil
LinkedIn

CYNTHIA LUCAS
Business Operations Specialist
clucas.ctr@nsin.mil

PAT MAHANEY
Senior Advisor
pmahaney@nsin.mil
LinkedIn

LUIS MARTINEZ
Regional Engagement Principal, San Diego
lmartinez.ctr@nsin.mil

RAY McDONALD
Transition Cell Manager
rmcdonald.ctr@nsin.mil

KATE McKENZIE
Senior Data Analyst
kmckenzie.ctr@nsin.mil

RICHARD MILLER
Operations Manager
rmiller.ctr@nsin
LinkedIn

GEORGE NICKOLOPOULOS
Regional Engagement Principal, Rhode Island
gnickolopoulos.ctr@nsin.mil
LinkedIn

ANDREW OURY
Program Manager
aoury.ctr@nsin.mil
LinkedIn

DAVID OVERY
Media and External Relations Specialist
dovery.ctr@nsin.mil
LinkedIn

TANYA PARYPA
Northwest Regional Director
tparypa@nsin.mil
LinkedIn

KEDAR PAVGI
National Capital Regional Director
kpavgi@nsin.mil
LinkedIn

KAITIE PENRY
Regional Engagement Principal, San Francisco
kpenry.ctr@nsin.mil
LinkedIn

JIM RABUCK
Regional Engagement Principal, Austin
jrabuck.ctr@nsin.mil
LinkedIn

JOHN REISENWEBER
Regional Engagement Principal, West Virginia
jreisenweber.ctr@nsin.mi
LinkedIn

SPENCER REYNOLDS
Regional Engagement Principal New Jersey
sreynolds.ctr@nsin.mil
LinkedIn

ALYSSA ROBERTSON
NSWC Crane Liasion
arobertson@nsin.mil

BRADY RYAN
Regional Engagement Principal, Seattle
bryan.ctr@nsin.mil
LinkedIn

MARCY SANDERS
Regional Engagement Principal, Florida Panhandle
msanders.ctr@nsin.mil
LinkedIn

DAVID SCHIFF
Regional Engagement Principal, Washington, D.C.
dschiff.ctr@nsin.mil
LinkedIn

NSIN TEAM

KELLY SCHULTE
Program Manager
cschulte.ctr@nsin.mil
LinkedIn

BEVERLY SEAY
Southeast Regional Director
bseay@nsin.mil
LinkedIn

MIKE SEPER
Regional Engagement Principal, St. Louis
mseper.ctr@nsin.mil
LinkedIn

JEREMIAH STARR
Regional Engagement Principal, Colorado Springs
jstarr.ctr@nsin.mil
LinkedIn

CAROLINE STILL
Program Manager
cstill.ctr@nsin.mil
LinkedIn

WENDY WADE
Creative Design Specialist
wwade.ctr@nsin.mil
LinkedIn

MARKEYA WATSON
Database Analyst
mwatson.ctr@nsin.mil
LinkedIn

WADE WATTS
Regional Engagement Principal, Omaha
wwatts.ctr@nsin.mil
LinkedIn

MAX WEINTRAUB
Program Manager
mweintraub.ctr@nsin.mil
LinkedIn

JOHN WHITEAKER
Regional Engagement Principal, North Carolina
jwhiteaker.ctr@nsin.mil

JACOB WISENBAKER
Program Manager
jwisenbaker.ctr@nsin.mil
LinkedIn

BOE YOUNG
Senior Advisor
jyoung@nsin.mil
LinkedIn

DANIEL ZHU
Program Manager
dzhu.ctr@nsin.mil
LinkedIn

SUZANNE ZURN
Head of Strategic Communications
szurn.ctr@nsin.mil
LinkedIn

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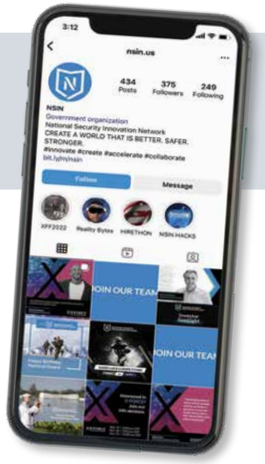

VISIT US
Headquarters Office
2121 Crystal Drive
Suite 500
Arlington, VA 22202

Online
www.nsin.mil

SEND US A MESSAGE
info@nsin.mil

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PUBLICATION TEAM
Suzanne Zurn, Head of Strategic Communications
Wendy Wade, Creative and Graphic Design Specialist

CONTRIBUTORS
Aly Gregg, Director of Internal Communications
David Overy, Media and External Relations Specialist
Olivia Anderson, Social Media and Marketing Specialist
Bianca Coffy, Communications Technical Support Specialist
Dave Stegon, Public Affairs and Marketing Writer

DATA: Kate McKenzie, Markeya Watson, Caroline Still, and Daniel Zhu

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Mike Seper
David Schiff
Amanda Ryrholm
Army Sgt. 1st Class Matthew Chlosta
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William Lewis
Staff Sgt. Jacob Cessna
Maj. Scott Ingalsbe
Staff Sgt. Jorrie Hart
Sgt. Austyn Aagaard
Senior Airman Kaylee Clark
Wesley Farnsworth
Senior Airman Lauren Parsons
Staff Sgt. Jared Bunn
Dana Rene White
Airman 1st Class Nicholas Paczkowski
Sgt. Armando Monroig, 5th Mobile Public Affairs Detachment
Airman Kaitlin Castillo
Pfc. Vanessa Austin
Senior Airman Joshua Hastings
Graham Snodgrass
Borys Wowczuk, Civil-Military Innovation Institute
Lance Cpl. Tyler Andrews

NATIONAL SECURITY
INNOVATION NETWORK

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HEADQUARTERS OFFICE
2121 Crystal Drive, Suite 500 | Arlington, VA 22202