

FY23 YEAR IN REVIEW

SPURRING INNOVATORS
TO ACTION



Contents

NSIN by the Numbers FY23 Overall	3
Developing new Dual-Use Technology	4
Strengthening the National Defense Industrial Base	6
NSIN Alumni Stories	8
Defense Innovation OnRamp Hubs	12
Section 222	13
Regional Infographics	14
Looking Forward	23

COVER IMAGE

During a Maker iteration, Naval Warfare Center employees from the Carderock Division—in partnership with NSIN, Defense Acquisition University, and the USMC 4th Combat Engineer Battalion—try to understand improvisational production of Navy and Marine Corps capabilities under austere environmental conditions. The team demonstrated that a variety of optionally manned boat prototypes could be conceived, manufactured, and demonstrated in the field even with limited time, materials, and tools.

Letter from the Defense Innovation Unit Director

am grateful for the unwavering support to the mission of the National Security Innovation Network (NSIN) team. The following Year in Review focuses on NSIN's impact in defense innovation ecosystems and demonstrates the value the team provides as we further integrate to meet the Defense Innovation Unit (DIU) 3.0 strategy.

As a component of DIU, NSIN continues to build impactful networks of innovators across government, academia, the technology sector and capital sources who generate new solutions to national security and defense problems. The collaboration across our teams is essential in achieving our strategic goals to leverage commercial technologies, build domestic and international partnerships, and deliver critical capabilities to the warfighter.

NSIN's engaged regional network team paired with its adaptable talent and technology development venture programs drive coordination with multiple stakeholders where human capital and talent are able to be leveraged. By harnessing talent wherever it resides, we drive innovation and address national security challenges more effectively.

NSIN's fellowships, academic programs, innovation train-



ing and education, technology transition and rapid prototyping connect DoD problem sets with problem solvers interested in national security. We also sponsor prize challenges and dual-use accelerators to facilitate the entry and maturation of dual-use startups. Furthermore, our Transition Cell provides follow-on support to help aspiring entrepreneurs advance their technologies to address national security needs.

As an extension of NSIN's regional network team, the Defense Innovation OnRamp Hubs provide innovation ecosystems with a physical location at which to collaborate on key problem sets locally, nationally and with allies and partners.

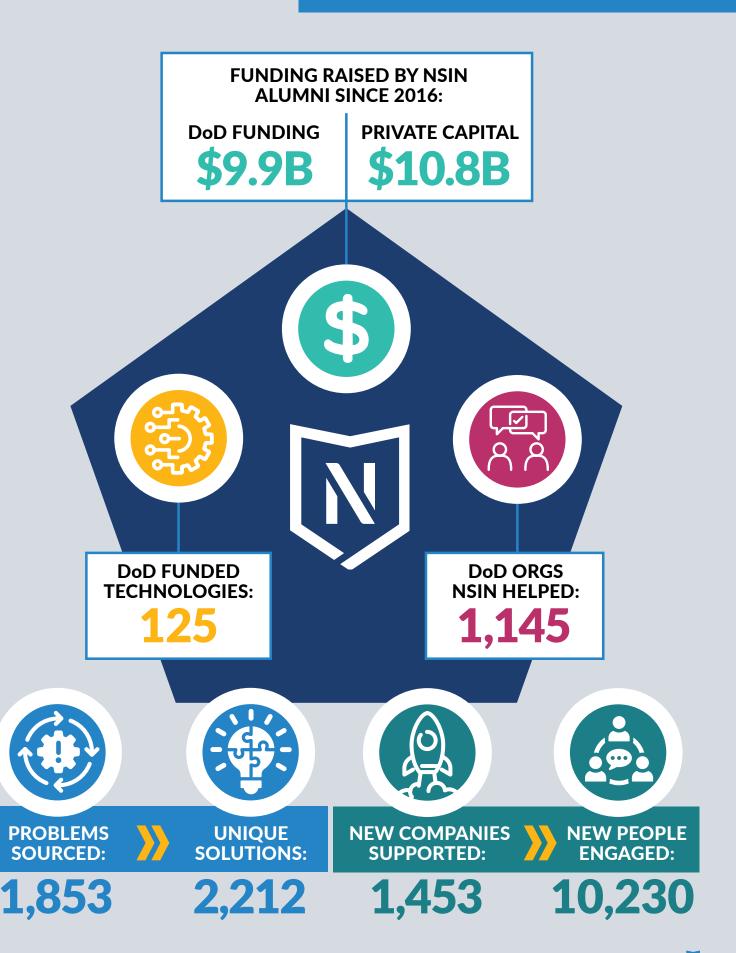
As NSIN and DIU move forward together, our commitment to collaboration and partnership will ensure that the United States remains prepared to deter conflict, or win if forced to fight.

A.S.

Douglas A. BeckDirector, Defense Innovation Unit

FY23

NSIN BY THE NUMBERS



TECHNOLOGY

DevelopingNEW DUAL-USE TECHNOLOGY



NSIN Propel continues to create groundbreaking new opportunities for both our DoD mission partners and critical early-stage ventures, expanding the DoD's access to the critical technology in the venture capital community while helping cutting-edge startups transform their [technologies] to fulfill critical capabilities.

TOMMY HENDRIX,
MANAGING PARTNER AT DECISIVE POINT

DEFEND THE NATION

(% INCREASES FROM FY22)

PRIVATE CAPITAL FUNDING:



272%1

From \$2.9B to \$10.8B

DoD FUNDING:



3%1

From \$9.6B to \$9.9B

SUPPORTED NEW COMPANIES:



10% 1

From 1,326 to 1,453

DoD FUNDED TECHNOLOGIES:



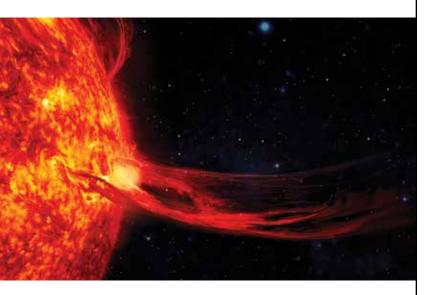
160% 1

From 48 to 125

FY23 HIGHLIGHTS

Solar Flare Prediction Tool to Protect Space-based Military Communications

NSIN, Western Michigan University, and the Michigan Air National Guard collaborated to predict solar flare events more than 36 hours in advance. The effort, named Project Helios, paired an algorithm with a high-performance computer to help improve the resiliency of space operations against solar flares.



DKS Awarded Competitive Grant from the U.S. National Science Foundation

Direct Kinetic Solutions (DKS) improves power generation and energy efficiency for organizations with its ultra-light solution that harnesses radioisotopic power.

The team leveraged its
Phase I Small Business
Innovation Research
(SBIR) award from
the National Science
Foundation (NSF)
to conduct research
and development
for its new product
offering — a quantum
power chip that will
enable devices to run on

a single charge for weeks.

NSIN Alumni Solve Critical Needs for the Army

NSIN alumni companies represented 16 of the 50 small businesses selected as semi-finalists for the Army xTech open-topic prize competition. After receiving a record 775 submissions for xTech, the Army chose the NSIN alumni teams alongside the other semi-finalists for their potential to fill critical needs for the Army. Each semi-finalist received a \$5,000 cash prize and qualified to pitch their technologies to a panel of Army and DoD subject matter experts for additional prize money in the next round of xTech.

Ventures Awarded for Extended Range Sensor Solutions

Mission Partner: 1st Multi-Domain Task Force (1st MDTF).

Problem: Find ventures with sensor technologies that may help 1st MDTF characterize the multi-domain operational environment and enable joint freedom of action.

Dutcome: Awarded a combined \$75,000 to the three winning companies of the Extended Range Sensor Challenge.

"This challenge is a big success for us. We're getting exposure to a lot of different technologies, many of which we didn't know about at all, some of which are better understood and put our problem set out there for a lot of industries as well."

LTC BLAKE SCHWARTZ, 1ST MDTF DATA SCIENCE CHIEF



Strengthening THE NATIONAL DEFENSE INDUSTRIAL BASE



I was truly lucky to have been a part of such a unique fellowship. From the integration with real, combat ready Air Force units, to the guidance and innovation led by my instructors, I know that what I worked on not only helped me, but also benefited the security of our nation.

X-FORCE FELLOW JUSTIN KIM

SUCCEED THROUGH TEAMWORK

(% INCREASES FROM FY22)

DoD ORGS NSIN HELPED:



PROBLEMS SOURCED:



23%T From 1.511 to 1.853

UNIQUE SOLUTIONS:



24%1

From 1,786 to 2,212

NEW PEOPLE ENGAGED:



20%1

From 8,555 to 10,230

FY23 HIGHLIGHTS

Innovation District Booms Around South Dakota Mines

NSIN's work with our university partners drives innovation for the DoD while providing opportunities to individual innovators, startups, researchers, students, and more. President Jim Rankin of South Dakota Mines shared that NSIN's impact has played a critical role in their Innovation District's growth.



Hanscom AFB Improves Readiness During NSIN Bootcamp

A team of civilians and servicemembers at Hanscom Air Force Base devised solutions to ensure the personnel readiness of Airmen and Guardians for new challenges to national security. During the Bootcamp, the team created a system to report and track Airman and Guardian training and medical requirements in real time, providing base leadership critical information on service members and their skill sets.

X-Force Alums Find Roles with DoD Research Teams

Mission Partners: Naval Surface Warfare Center, Crane Division (NSWC Crane) and Air Force Research Laboratory (AFRL).

Problem: Bringing new talent and skills into the DoD.

Dutcome: Three alums of the 2022 X-Force Fellowship have brought their talents back to the DoD, taking up roles with NSWC Crane and AFRL. The former fellows are creating solutions for the warfighter full time

"The [X-Force] student teams are excelling during their summer internship in every definition of the word... We are grateful for everyone involved and I wanted to take a moment to put a positive spotlight on all of the great things we have seen so far this summer."

MAJOR RICH MAUTINO, INNOVATION OFFICER, 244TH EXPEDITIONARY COMBAT AVIATION BRIGADE





Capstone Students Publish Open-source Intelligence Report

Washington University in St. Louis (WashU) students Seth Stevenson and Matt Jones published a report with the National Geospatial-Intelligence Agency (NGA) about the impact of Western sanctions on Russia. The report focused on the sanctions' effect on Russian-Chinese energy projects in the Arctic and received media coverage in Breaking Defense.

FY23 NSIN alumni STORIES





NSIN Transition Cell alumni Epirus Awarded \$66.1M U.S. Army Contract

Epirus produces Leonidas, a directed energy system that leverages high-power microwaves to help defend against swarming unmanned aerial systems (UAS). Through the contract, Epirus will deliver prototype systems and work with the U.S. Army's Rapid Capabilities and Critical Technologies Office to transition the technology into a future program of record.

Atomos Space Raises \$16.2M in Series A

SentiAR Closes \$8.5M in Series B

SentiAR is improving patient outcomes with its 3D-hologram technology that enables physicians to increase their accuracy and speed during interventional procedures with the help of real-time insights into patient data. With the funds, SentiAR will pursue new partnerships and wider clinical adoption of their technology.

Atomos Space develops propulsion transport vehicles that enable the government and private industry to maneuver satellites and space vehicles. With this funding, the company is expanding its team and taking its first mission to space.





FY23 NSIN alumni STORIES

"This initiative [NSIN Propel] allows the Department of the Navy, through the U.S. Pacific Fleet, the opportunity to leverage the skills and talent embedded across our industry partners and gives us the ability to find and actualize solutions to challenges we're facing as we work to improve readiness and remain cutting edge in all our communications domains."

CAPT ANDRE WILSON, DIRECTOR OF INTELLIGENCE INNOVATION, PACFLT N2C.

UH Students Advance Solution to Help Service Members with PTSD

NSIN X-Force Fellows from the University of Hawai'i at Mānoa will continue to test and refine a solution with the U.S. Army 25th Infantry Division to help military personnel with post-traumatic stress disorder (PTSD) and other mental health challenges. After developing a solution to support warfighters with behavioral telehealth appointments while deployed or in field training last semester, the students have been selected for additional funding and development of their innovation with the Army in the 2023 NSIN X-Force Fellowship.

Axiom Space Raises \$350M in Series C

Axiom Space provides the government and private industry with greater access to space through safer, more cost effective human spaceflight services and updated, human-rated, space-based infrastructure. With the funding, the company will continue to fulfill contracts and work toward their buildout of a commercial space station.

FROM THE FIELD



A team from the University of Central Florida (UCF) CREOL, The College of Optics and Photonics won Phase 1 of the NSIN-sponsored Air Force Research Laboratory (AFRL) Quantum-Inspired Efficient Information Extraction for Electro-optic Systems Grand Challenge. The challenge includes the potential of a \$500,000 contract, awarded in four development phases over the next 9 months, to develop high-resolution space imaging solutions.



Startups shared breakthrough defense solutions for improving networks and connectivity, contested logistics, autonomous systems, and disaster response for the U.S. Navy Pacific Fleet (PACFLT) N6 and other U.S. Indo-Pacific Commands (INDOPACOM) during NSIN Propel Hawaii Demo Day.



Xage Security Raises \$20M for Cybersecurity Innovations

Xage Security improves the cyber readiness of operational capabilities for DoD and commercial industry through risk management solutions on Internet of Things (IoT) devices such as surveillance cameras and temperature sensors. The company recently raised \$20 million in a Series B round to continue expanding its zero trust cybersecurity innovations.

Skyline Nav AI Wins NASA Challenge

NSIN alum Skyline Nav AI, the maker of a technology that leverages computer vision algorithms and 3D light detection and ranging (LiDAR) data to provide navigation in GPS-denied environments, took the grand prize of \$85,000 during the 2023 NASA Entrepreneurs Challenge.

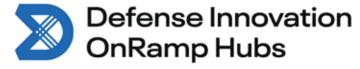
NSIN Capstone students at Georgia Institute of Technology created real solutions for the F-15 program and won big at the GT Capstone Expo for their solutions to improve F-15 technology for the Air Force F-15 Systems Program Office.

NSIN Alumni Recognized as Top Defense Startups

Congratulations to the five NSIN alumni companies on the Silicon Valley Group's 2023 NatSec100 list. Collectively raising over \$42 billion to date, the companies highlighted on the list include the top venture-funded defense and dual-use startups in national security innovation based on the Office of the Under Secretary of Defense for Research and Engineering (OUSD(R&E))'s Critical Technology Areas. The included alumni are Shield AI, Capella Space, Spark Cognition, Epirus, and Slingshot Aerospace.

Pryon Closes \$100M in Series B

NSIN alumni Pryon enables industry and government to save time by providing quick access to critical information from across their organizations with an artificial intelligence (AI)-powered knowledge management system. Pryon will use the funding to grow its team, expand into international markets, and further develop its existing partnerships.



Launch in FY23







Problem: Lowering the barriers to entry to the DoD and opening the aperture for new talent and technology solutions from around the country to partner with the military.

Dutcome: NSIN launched the Defense Innovation OnRamp Hub program, with five locations, serving as an accessible front door to the Department of Defense. The OnRamp Hub program was developed to streamline collaboration between industry, academia, and defense operations to get the needed technologies, information, and products into the hands of those that need it most.



"Defense Innovation OnRamp Hubs establish physical spaces and bring different organizations together at one location to help the DoD have the talent and technology to solve our greatest national security challenges. American ingenuity is critical to building our nation's enduring advantage. These spaces will serve startups, academia, industry, and other local talent and technology in order to leverage the innovation capability across the entire country, connecting them directly to DoD needs and strengthening the defense industrial base."

DIU DIRECTOR DOUG BECK





ARIZONA



HAWAII



KANSAS



OHIO



FY23 NDAA Section 222

Objective: NSIN led a collaborative working group of DoD Mission Partners and Historically Black Colleges and Universities/Minority Serving Institutions (HBCUs/MSIs) to build a skilled and diverse workforce pipeline for the DoD while reducing barriers to entry.

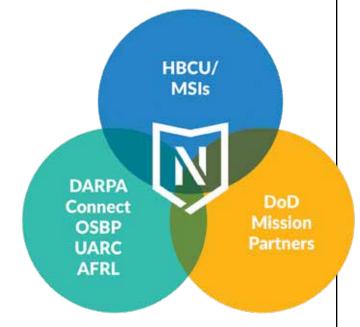
Dutcome: Coordinated activities between NSIN, DoD Mission Partners, and HBCUs/MSIs to achieve outreach and outcomes in research, entrepreneurship, and DoD Mission Partner relationships.

COUTTE Outreach to Historically Black Colleges and Universities and other Minority-Serving Institutions regarding National Security **Innovation Network programs** that promote entrepreneurship and innovation at institutions of higher education.

FY23 NATIONAL DEFENSE AUTHORIZATION ACT (NDAA) SECTION 222 REQUIREMENT



An NSIN Capstone course was held in partnership with Harris Stowe State University and the National Geospatial-Intelligence Agency (NGA) for the HBCU GEOINT program during the summer of 2023. From left: Freddie E. Wills, Jr., PhD - Harris-Stowe State University Vice President for STEM Initiatives and Research Partnerships, Dr. LaTonia Collins Smith, Ed.D - Harris-Stowe State University President, a HBCU GEOINT student and Tonya Wilkerson- NGA Deputy Director.





HBCU GEOINT students with the Air **Mobility Command** Detachment X leaders, Master Sgt. Hugh Stout II and Tech. Sgt. Casey Calvert, sUAS Program Manager, along with Freddie Wills and Rebecca Wilson (NGA Faculty Fellow) M.B.A. Instructor of Entrepreneurship and, Mike Seper, NSIN St. Louis REP.

NORTHWEST REGION



>> FY23 BY THE NUMBERS



University Program Participation

Universities Engaged

Sponsored **Programs**

Program Participants

PROVIDING OPPORTUNITIES TO SERVE

X-Force Students across the Region Engaged in **NSIN Programs**



, 4



GENERATING NEW SOLUTIONS

DoD Problems Worked on

Ideas Adopted

DUAL-USE VENTURES

Dual-use Ventures Engaged

NATIONAL SECURITY INNOVATION BASE PROGRAMS & REGIONAL EVENTS

Number of Program

Participants



FY23 BY THE **NUMBERS**



University Program Participation

Universities Engaged

Sponsored

Programs

Program **Participants**

PROVIDING OPPORTUNITIES TO SERVE

X-Force Students across the Region Engaged in **NSIN Programs**

GENERATING NEW SOLUTIONS

DoD Problems

Worked on

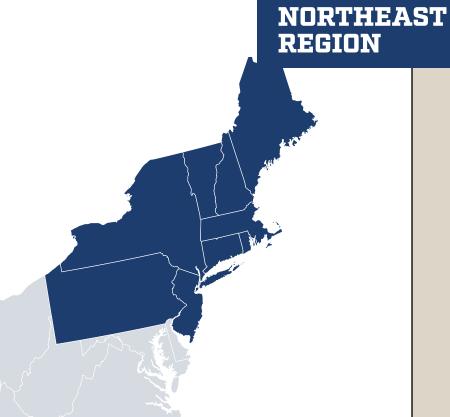
Ideas Adopted

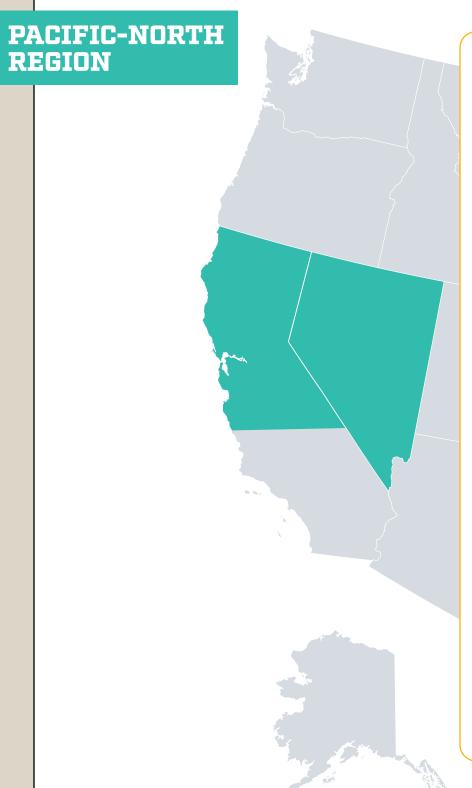
DUAL-USE VENTURES

Dual-use Ventures Engaged 48

NATIONAL SECURITY INNOVATION BASE PROGRAMS & REGIONAL EVENTS

Number of Program **Participants**





FY23 BY THE NUMBERS



University Program Participation

Universities Engaged

Sponsored Programs

70 Program Participants

PROVIDING OPPORTUNITIES TO SERVE

X-Force Students across the Region Engaged in NSIN Programs

GENERATING NEW SOLUTIONS



DoD Problems Worked on 3 Ideas Adopted

DUAL-USE VENTURES

Dual-use Ventures Engaged 14

NATIONAL SECURITY INNOVATION BASE PROGRAMS & REGIONAL EVENTS

Number of Program Participants

FY23 BY THE **NUMBERS**



University Program Participation

Universities Engaged

Sponsored Programs

137

Program **Participants**

PROVIDING OPPORTUNITIES TO SERVE

X-Force Students across the Region Engaged in NSIN Programs

GENERATING NEW SOLUTIONS



Worked on

Ideas Adopted

DUAL-USE VENTURES

Dual-use Ventures Engaged 26

NATIONAL SECURITY INNOVATION BASE PROGRAMS & REGIONAL EVENTS

Number of Program Participants

Number of **Regional Events**

NATIONAL **CAPITAL REGION**



PACIFIC-SOUTH REGION

>> FY23 BY THE NUMBERS



University Program Participation

15 Universities Engaged

12 Sponsored Programs

206
Program
Participants

PROVIDING OPPORTUNITIES TO SERVE

X-Force Students across the Region Engaged in NSIN Programs

11



GENERATING NEW SOLUTIONS

67
DoD Problems
Worked on

9 Ideas Adopted

DUAL-USE VENTURES

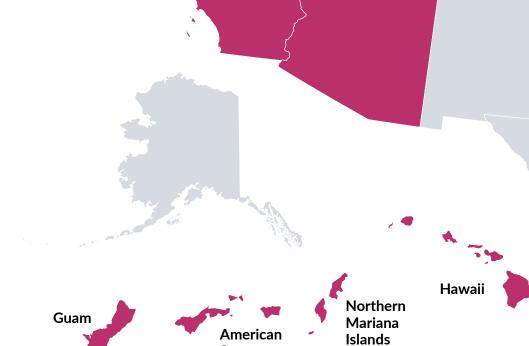
Dual-use Ventures Engaged

41

NATIONAL SECURITY INNOVATION BASE PROGRAMS & REGIONAL EVENTS

275
Number of Program
Participants

Number of Regional Events



Samoa

>> FY23 BY THE NUMBERS



University Program Participation

Universities Engaged

Sponsored **Programs**

Participants

PROVIDING OPPORTUNITIES TO SERVE

X-Force Students across the Region Engaged in **NSIN Programs**

GENERATING NEW SOLUTIONS

DoD Problems Worked on

Ideas Adopted

DUAL-USE VENTURES

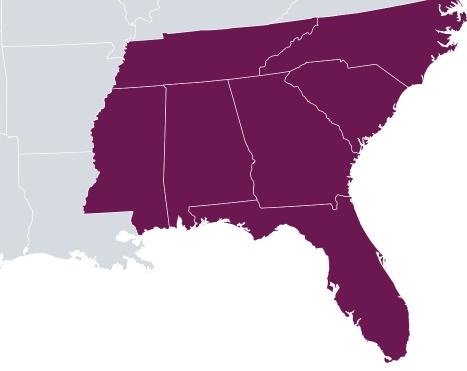
Ventures Engaged

Dual-use 32

NATIONAL SECURITY INNOVATION BASE PROGRAMS & REGIONAL EVENTS

Number of Program Participants

Number of **Regional Events**





Puerto Rico



U.S. Virgin Islands



SOUTHEAST

REGION

ROCKY MOUNTAIN REGION

FY23 BY THE NUMBERS



University Program Participation

9

Universities Engaged 9

Sponsored Programs 190

Program Participants

PROVIDING OPPORTUNITIES TO SERVE

X-Force Students across the Region Engaged in NSIN Programs

2

GENERATING NEW SOLUTIONS



DoD Problems Worked on 1 Ideas Adopted

DUAL-USE VENTURES

Dual-use Ventures Engaged **15**

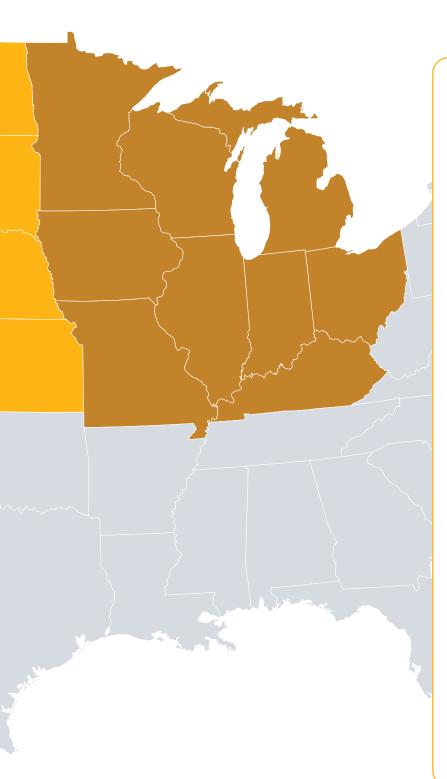
NATIONAL SECURITY INNOVATION BASE PROGRAMS & REGIONAL EVENTS

221

Number of Program Participants 7



MIDWEST REGION



FY23 BY THE NUMBERS



University Program Participation

22

Universities Engaged **15**

Sponsored Programs 211

Program Participants

PROVIDING OPPORTUNITIES TO SERVE

X-Force Students across the Region Engaged in NSIN Programs

75

GENERATING NEW SOLUTIONS



122

DoD Problems Worked on Ideas Adopted

DUAL-USE VENTURES

Dual-use Ventures Engaged 49

NATIONAL SECURITY INNOVATION BASE PROGRAMS & REGIONAL EVENTS

301 Number of Program

Number of Progr Participants 33

SOUTHWEST REGION

>> FY23 BY THE NUMBERS



University Program Participation

Universities Engaged

Sponsored Programs

Participants

PROVIDING OPPORTUNITIES TO SERVE

X-Force Students across the Region Engaged in NSIN Programs



GENERATING NEW SOLUTIONS

DoD Problems Worked on

Ideas

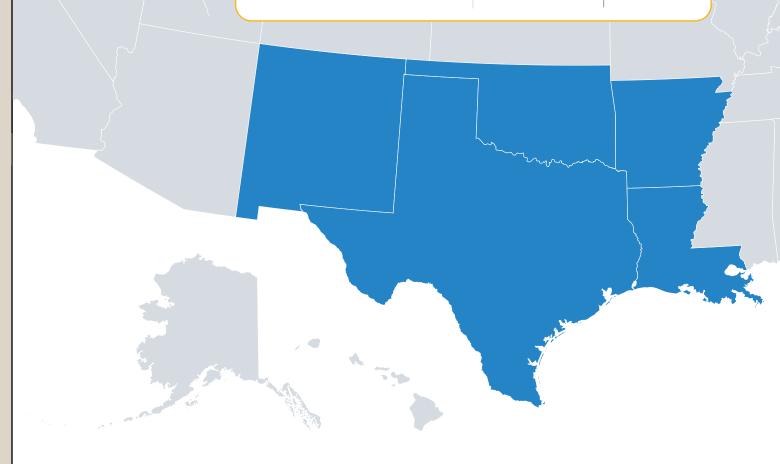
Adopted

DUAL-USE VENTURES

Dual-use Ventures Engaged

NATIONAL SECURITY INNOVATION BASE PROGRAMS & REGIONAL EVENTS

Number of Program Participants



LOOKING forward

s we reflect on the remarkable achievements of the past year and look forward to the future, NSIN remains dedicated to forging critical connections between the DoD and innovative technologists poised to tackle complex security challenges.

Over the past year, NSIN has emerged as a pivotal facilitator, in bridging the gap between the defense establishment and the vibrant ecosystem of technology innovators. Through strategic partnerships and collaborative initiatives, NSIN has successfully harnessed the ingenuity of startups, academia, and industry leaders to address pressing national security concerns with cutting-edge solutions.

This coming year will be a critical one for NSIN as we continue to fully integrate in the DIU 3.0 strategy, a critical shift in focus, action, and resourcing the Defense Innovation Unit will undertake to deliver the rapid strategic effect demanded.

DIU 3.0 relies on years of defense innovation experience up to this point, and on over 300 discussions with stakeholders across the Department, commer-

cial technology sectors, tech-focused investors, defense primes, the interagency, international partners, Congress, think tanks, and other non-governmental organizations.

DIU 3.0's eight mutually reinforcing lines-of-effort are designed in all respects to reflect the Secretary's three priorities to defend the nation, take care of our people, and succeed through teamwork.

Through this restructuring, NSIN is poised to capitalize on new opportunities to connect the DoD with a diverse array of innovators capable of addressing evolving security threats and operational challenges. By expanding outreach efforts and streamlining collaboration mechanisms,

NSIN aims to cultivate a robust

ecosystem of technology partners committed to advancing national security priorities.

In the coming year, NSIN will redouble its efforts to identify and prioritize high-impact initiatives that align with the DoD's strategic objectives and mission priorities. By fostering a culture of experimentation and agility, NSIN will empower innovators to rapidly prototype and deploy solutions that address critical gaps and emerging threats. NSIN will continue to broaden opportunities within the defense innovation ecosystem, ensuring that underrepresented voices and perspectives are given a platform to contribute their unique insights and expertise.

As we embark on the next phase of our journey with DIU 3.0, NSIN reaffirms its commitment to fostering collaboration and innovation between the Department of Defense and the broader technology community. By harnessing the collective talents and resources of various stakeholders, NSIN aims to drive transformative change and ensure the continued security and resilience of our nation in an increasingly complex and dynamic threat environment.



NSIN's leadership team meets to plan NSIN's upcoming efforts in 2024 for providing solutions that improve the lives of warfighters and open doors for talent and ventures to work with the DoD.

Acknowledgments

Thank you to all individuals and organizations who supported NSIN's continued dedication to defense innovation throughout 2023, as NSIN would not be able to support the mission of the DoD without the impact and commitment you provide.

We would like to thank the U.S. Navy, Air Force, Army, Marine Corps, Coast Guard and Space Force mission partners that worked with NSIN during FY23 to help create and scale critical solutions that improve the lives of our nation's warfighters.

Additionally, special thanks to NSIN's Regional Network Team, Transition Cell, and Program Managers for providing the stories and photos in NSIN's Year in Review FY23.

NSIN Publication Team:

Karla Mastracchio, Senior Communications Director David Overy, Deputy Director of Communications Wendy Wade, Creative and Graphic Design Specialist Olivia Anderson, Marketing and Social Media Specialist David Stegon, Public Affairs and Marketing Writer Jillian Katner, Communications Support Specialist

NSIN Data Cell:

Kate McKenzie, Data Cell Lead Kim Barden, Senior Data Analyst Wandy Rendel, Data Analyst Vaibhav Gowda, Data Analyst



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