Navy STP Showcase Technology Guide

NAVY SBIR TRANSITION PROGRAM

NAVSEA
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NAVAL AIR SYSTEMS COMMAND

NAVY STP

Technical Information Exchange

2026

Navy STP SYSCOM Showcase
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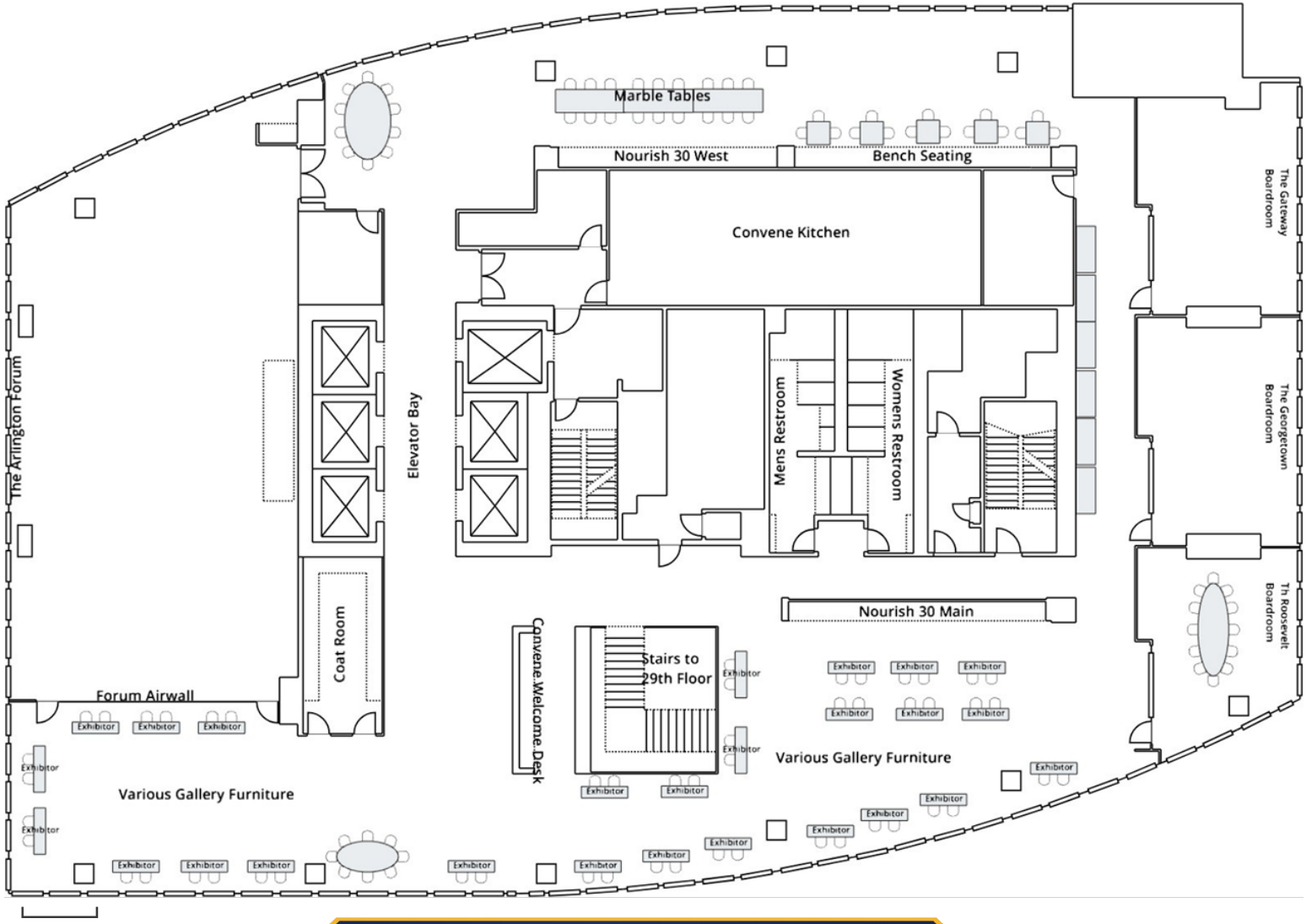

Navy STP SYSCOM Showcase Convene on Wilson Blvd

NAVY SBIR TRANSITION PROGRAM

At the STP SYSCOM Showcase 2026, the Navy STP will showcase 48 projects over two days, March 10 and March 11.

Featured SBIR/STTR Technologies at the Navy STP Showcase:

- Advanced Electronics (2 Projects)
- Air Platforms (6 Projects)
- Autonomy (2 Projects)
- Battlespace Environments (1 Project)
- Biomedical (ASBREM) (1 Project)
- C4I (5 Projects)
- Directed Energy (1 Project)
- Electromagnetic Warfare (4 Projects)
- Energy & Power Tech (4 Projects)
- Ground & Sea Platforms (2 Projects)
- Human Systems (3 Projects)
- Materials & Manufacturing (5 Projects)
- Materials and Thermal Processes (1 Project)
- Modeling & Simulation (1 Project)
- Sensors (6 Projects)
- Sustainment (1 Project)
- Weapons Technology (3 Project)

NAVY SBIR TRANSITION PROGRAM

Quad Chart Index

Company	Topic	Project Title	Tech Category
Advis	N22A-T026	Low-Cost, Low-Power Vibration Monitoring and Novelty Detector	Sensors
Agile RF Systems LLC	N231-063	Additive Manufactured Low-Loss Small-Size Low-Profile Conformal GRIN Lens in the K-Band	Sensors
Arcascope	PA20-265	Continuous, best-in-class open source sleep classification with extreme runtimes	Biomedical (ASBREM)
Archarithms, Inc.	N231-037	Gun Weapons Systems Synthetic Unmanned Aerial Systems Imagery Data Set	Autonomy
ARiA	N221-025	Advanced Technologies for Automated Replay and Reconstruction of Theater Undersea Warfare Mission Data	Battlespace Environments
Atom Inc	N171-004	Portable, flexible, external display and lighting screen	Advanced Electronics
Barron Associates, Inc.	N23A-T014	Human Automation Teaming for Efficient Knowledge Extraction and Test Generation	Human Systems
Boston Engineering Corporation	N221-040	Shipboard Laser DED Metal Additive Manufacturing System	Materials & Manufacturing Processes
Candent Technologies Incorporated	N22A-T002	Multifunctional Heat Exchanger for Aerodynamic Aircraft Inlets	Air Platforms
Cornerstone Research Group, Inc.	N23B-T032	Active Part Filtering for Additive Manufacturing Candidate Identification	Materials & Manufacturing Processes
Creare LLC	N131-005	Ultrasound Communications Systems for the Flight Deck	Air Platforms
Creare LLC	N23A-T016	Lightweight Turbogenerator for VTOL UAV	Air Platforms
Dare Venture Group	N222-114	Project Fins	Air Platforms
Forward Edge-AI, Inc.	N234-P02	A Quantum-Resistant Low Probability of Detection/Low Probability of Interception/Anti-Jamming Device for UxS Platforms	Advanced Electronics

NAVY SBIR TRANSITION PROGRAM

Quad Chart Index

Company	Topic	Project Title	Tech Category
Indiana Microelectronics LLC	N171-074	Notch Filters for Interference Mitigation in SATCOM Systems	Electromagnetic Warfare (EW)
Integrated Solutions for Systems	N221-075	Enhanced Lethality Warhead: Phase II	Materials & Manufacturing Processes
IXI Technology Electronic Warfare, LLC DBA IXI EW	N22A-T021	Affordable Stabilized Directional Antennas for Small Platforms	Sensors
Luna Labs USA, LLC	N232-089	Sentinel: Automatic LPU for Ejection Seat Aircraft	Human Systems
Lynntech, Inc.	N222-088	Retrofittable High-Power Kit	Energy and Power Technologies
Lynntech, Inc.	N232-086	"Structural Composite Battery for Small UAVs"	Energy and Power Technologies
Maher & Associates LLC	N221-067	Pi2Enhanced Reliability and Confidence Effort- 2 (PiERCE 2)	Air Platforms
Metamagnetics, Inc.	N101-075	Switchable L-Band Auto-tune Filter Module	Electromagnetic Warfare (EW)
METSS Corporation	N221-055	Improved Towed Array Acoustic Hose	Materials & Manufacturing Processes
Micro Nano Technologies	N231-064	Reversible Replenishment Air-Conditioning System	Ground and Sea Platforms
Monterey Technologies, Inc.	N161-015	Collaborative Undersea Warfare Decision Application (CUDA)	C4I
nou Systems, Inc.	N221-057	Development of a Low-Cost, Single-Use, and Extremely Compact Air-Independent Power System	Energy and Power Technologies
NP Photonics, Inc.	N221-041	Compact High Power Mid-Wave Infrared Laser System	Weapons Technologies

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Quad Chart Index

Company	Topic	Project Title	Tech Category
Onebrief, Inc.	AF221-DCSO1	Rapid Operational Planning	C4I
Penta Research Inc.	N231-030	An Innovative Approach to Leverage System Safety MBSE Model Information Using AI/ML	Weapons Technologies
Physical Sciences Inc.	N212-102	Modular Collapsible Hydro-Electric Generator (MCHEG)	Energy and Power Technologies
Product Innovation and Engineering L.L.C.	N221-021	Modeling and Process Planning Tool for Hybrid Metal Additive/Subtractive Manufacturing to Control Residual Stress and Reduce Distortion	Materials & Manufacturing Processes
QuNav LLC	N224-130	Prototyping and Demonstration of GPS Interference DOA Initiative for User Purposes (GIDI-UP)	C4I
Secure Planet, Inc.	SOCOM163-003	Advanced Tactical Facial Recognition at a Distance Technology	Sensors
Sensing Strategies, Inc.	N07-100	Sensors for Laser and Broadband Source Detection	Directed Energy
Shipcom Federal Solutions, LLC	N201-X02	Semantic Modelling for Lifecyle Mission Capability	Sustainment
Silver Bullet Solutions, Inc.	N221-050	Shipboard Defensive Cyberspace Operations (S-DCO)	C4I
SimVentions, Inc.	N181-025	Electronic Warfare Data Analysis and Reduction Tool (E-DART)	Electromagnetic Warfare (EW)
SK Infrared LLC	N22A-T020	3D Multimodal Imaging with LiDAR-like Engineered Sensor (3D-Miles)	Sensors
Sonalysts, Inc.	N231-044	Expeditionary Command/Control and Training (ECaT)	Human Systems
Spectral Sciences, Inc.	N221-081	Automated Full Trajectory Aero-Thermo-Mechanical Simulation Coupling for Hypersonic Flight	Modeling and Simulation Technology
TDA Research, Inc.	N211-026	Reactive Boron Fuel for Energetic Applications	Weapons Technologies
TGV Rockets Inc.	N231-069	Low Cost Flatpack Aircraft with Ultrasonic Additive Manufacturing	Air Platforms

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Quad Chart Index

Company	Topic	Project Title	Tech Category
Torrey Pines Logic, Inc.	N231-041	Enhanced AN/PAQ-6 Phone Distance Line Replacement (PDL-R) for UNREP distance measurement and bridge-to-bridge communications	C4I
Triton Systems, Inc.	N231-046	Revolutionized Undersea Training Target Motors	Ground and Sea Platforms
Triton Systems, Inc.	N231-076	Electrically Conductive Self-Assembled Monolayer (SAM) Anti-Stiction Coating for Micro-Electromechanical Systems (MEMS)	Materials & Manufacturing Processes
Triton Systems, Inc.	N23A-T021	Autonomous, Long-Duration, Directional Ambient Sound Sensor	Sensors
Vadum	N171-044	Cognitive Software Algorithms Techniques for Electronic Warfare	Electromagnetic Warfare (EW)
Vivum Computing Inc	N244-D04	Dynamic Neural UMVs - Enhanced Autonomy for the U.S. Navy	Autonomy

Advanced Electronics

Company	Topic	Project Title	SYSCOM
Atom Inc	N171-004	Portable, flexible, external display and lighting screen	MCSC
Forward Edge-AI, Inc.	N234-P02	A Quantum-Resistant Low Probability of Detection/Low Probability of Interception/Anti-Jamming Device for UxS Platforms	NAVAIR

Atom, Inc.

Topic #: N192-124

Portable, flexible, external display and lighting screen

Department of the Navy SBIR/STTR Transition Program

Topic # N234-P02
A Quantum-Resistant Low Probability of Detection/Low Probability of Interception/Anti-Jamming Device for UxS Platforms
Forward Edge-AI, Inc.

WHO

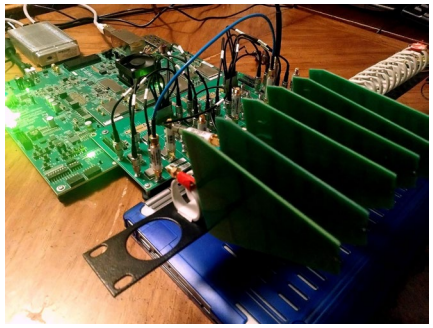
SYSCOM: NAVAIR

Sponsoring Program: NAVAIR SBIR Phase II – Topic N234-P02: Low Probability of Detection/Interception (LPD/LPI) Quantum-Resilient Communications for Tactical Edge and UxS Systems.

Transition Target: Navy SBIR Transition Program (STP)- Forward Edge-AI aims to transition SmartBeam QRC™ into operational use via the Navy STP pathway by aligning with Navy priorities for low observable, resilient communications for autonomous maritime systems.

TPOC: (301) 342-2094
anthony.d.brescia.civ@us.navy.mil

Other Transition Opportunities: -NAVWAR – Integration with shipboard and maritime UxS platforms supporting EW and RF deception
-SOCOM – Secure autonomy and low-probability-of-detection communications for denied environments
-DISA / Joint Staff J6 – TRANSEC modernization and resilient tactical C2 architectures
-Commercial Dual-Use – Quantum-resilient comms for SATCOM, ISR drones, and critical infrastructure



SmartBeam QRC™ Pototype Image – Demonstrates the integration of AI-driven adaptive beamforming, quantum-resistant encryption, and RF deception to enable secure, low-observable communications for UxS platforms operating in contested environments. Developed under NAVAIR SBIR Phase II (Contract #N68335-25-C-0170) by Forward Edge-AI, Inc.

Notes: SmartBeam QRC™ integrates AI-enhanced adaptive beamforming, quantum-resistant encryption, and RF obfuscation to deliver resilient, low-detectability communications for UxS platforms and tactical command nodes. The system aligns with Navy priorities in JADC2 and TRANSEC modernization and is designed for rapid field deployment with plug-and-play interoperability across multi-domain systems, including maritime, airborne, and ground environments.

WHAT

Operational Need and Improvement: Current tactical communication systems are vulnerable in electronically contested environments where adversaries employ jamming, sensing, and cyber exploitation to disrupt mission-critical operations. There is an urgent operational need for a quantum-resilient, low-observable communication solution that ensures continuity of command and control across uncrewed systems (UxS), even in GPS-denied or degraded conditions. SmartBeam QRC™ addresses this challenge by integrating AI-driven adaptive beam steering, RF deception, and post-quantum encryption to sustain secure, covert communications and maintain operational tempo across maritime, air, and ground domains.

Specifications Required: -Resilient performance in GPS-denied, jammed, and electronically contested environments
-Quantum-resistant encryption compliant with CNSA 2.0 standards (e.g., CRYSTALS-Kyber)
-AI-driven adaptive beam steering supporting Low Probability of Detection/Interception (LPD/LPI)
-RF signature obfuscation and spoofing resistance to counter adversarial sensing
-Sub-5W SWaP-C footprint for integration across UxS platforms (UAVs, USVs, UUVs)
-Modular, plug-and-play architecture for rapid deployment and platform interoperability
-Validated through operational test environments across maritime, aerial, and ground domains

Technology Developed: SmartBeam QRC™ is a quantum-resilient communications system that integrates AI-enhanced adaptive beamforming, RF deception, and post-quantum cryptographic algorithms. It autonomously maintains encrypted communication links while evading detection, interception, and jamming. Developed under NAVAIR SBIR Phase II funding, the system is purpose-built for tactical edge operations and seamlessly integrates across uncrewed and autonomous systems in maritime, aerial, and ground environments.

Warfighter Value: SmartBeam QRC™ enables warfighters to maintain secure communications in contested environments, ensuring continuity of C2, ISR, and targeting. Its low observability and RF deception enhance survivability and mission success across domains. The system supports TRANSEC modernization, aligns with JADC2, and improves lethality, especially in high-risk scenarios like downed pilot recovery, where maintaining covert, resilient links with isolated personnel is critical for successful extraction.

Given the long replacement cycle of military comms, next-generation solutions must integrate quantum-resistant encryption, real-time encrypted voice, video, and data, and secure connectivity to UxS, downed personnel, sensors, and mission systems, while remaining adaptable to evolving standards through 2040.

WHEN

Contract Number: N68335-25-C-0170 **Ending on:** Sep 25, 2027

Milestone	Risk Level	Measure of Success	Ending TRL	Date
System Integration on UxS Platform	Medium	Successful integration and field testing on UAV, USV, and UUV platforms	6	4th QTR FY26
Demonstrated LPI/LPD in Live EW Event	High	Effective communications with no detection/interception during jamming exposure	7	4th QTR FY26
Secure Transmission Validation	Low	Quantum-resistant encryption achieving throughput > 500 Gb/s	7	4th QTR FY27
Field Deployment in Simulated Mission	Medium	Successful C2 communications with Isidore integration in a simulated operation	8	4th QTR FY27

HOW

Projected Business Model: Forward Edge-AI will implement a hybrid business model that combines direct government procurement via Phase III sole-source SBIR authority, integration partnerships with defense prime contractors, and commercial sales through the Microsoft Azure Marketplace. SmartBeam QRC™ will be offered through subscription-based and licensing models, with modular options for platform-specific integration on UAVs, USVs, UUVs, mobile SCIFs, and tactical command and control nodes.

Company Objectives: To deliver the most secure and resilient communications system for contested environments by integrating artificial intelligence, quantum-resistant encryption, and RF deception technologies into scalable, low-SWaP platforms ensuring the protection of national defense assets, critical infrastructure, and mission-critical communications.

Potential Commercial Applications: -Secure communications for offshore oil and gas platforms
-Resilient drone network operations in disaster response and remote monitoring
-Private SATCOM and telemetry support for logistics and freight operations
-Quantum-resilient communications for the banking, utilities, and telecommunications sectors
-Infrastructure protection and encrypted data transmission for nuclear and energy industries

Contact: Peter Bayley, Principal Investigator
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NAVY SBIR TRANSITION PROGRAM

Air Platforms

Company	Topic	Project Title	SYSCOM
Candent Technologies Incorporated	N22A-T002	Multifunctional Heat Exchanger for Aerodynamic Aircraft Inlets	NAVAIR
Creare LLC	N131-005	Ultrasound Communications Systems for the Flight Deck	NAVAIR
Creare LLC	N23A-T016	Lightweight Turbogenerator for VTOL UAV	ONR
Dare Venture Group	N222-114	Project Fins	ONR
Maher & Associates LLC	N221-067	Pi2Enhanced Reliability and Confidence Effort- 2 (PiERCE 2)	ONR
TGV Rockets Inc.	N231-069	Low Cost Flatpack Aircraft with Ultrasonic Additive Manufacturing	ONR

Department of the Navy SBIR/STTR Transition Program

Topic # N22A-T002
Multifunctional Heat Exchanger for Aerodynamic Aircraft Inlets
Candent Technologies Incorporated

WHO

SYSCOM: NAVAIR

Sponsoring Program: NAWCAD STTR Program

Transition Target: At this point in time, no Program of Record or specific weapon system has been identified as the target of this technology. However, the heat exchanger design and its embedded advanced technology would be applicable to current and future aircraft, both manned and unmanned, in particular those equipped with serpentine or long duct configuration aerodynamic turbine engine air inlets.

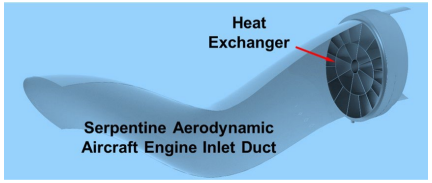

Image courtesy of Candent Technologies, Inc.

TPOC: (302) 858-2152

Other Transition Opportunities: Another potential transition opportunity is the application of the heat exchanger technology, and the multi-objective optimization/multi-physics design tools developed for the optimization and design of the heat exchanger system, to compatible turbine engine powered weapon system aircraft pods, or similar internal systems on board larger airframes carrying large numbers of weapons systems with electronics or directed energy weapons generating substantial waste heat loads. Candent is in contact with interested major Primes in the aerospace and defense sector

Notes: The heat exchanger system shown in the graphic above weighs less than 50 lbs and has the capability to dissipate well in excess of the Soliciation requirement of 20kW.

WHAT

Operational Need and Improvement: Modern military aircraft increasingly need better and more numerous capabilities enabled by electronic systems, which require more power to function and more heat rejection from the system, with an equally growing number and size of heat exchangers on board the aircraft. Typical turbine engine inlets have large air flow and can be used to simplify and integrate Thermal Management into a smaller and more effective system. While inlet guide vanes might be used, the required alterations come with larger volumes, greater weight, flow blockage, separation, pressure losses, and inlet distortion.
Solutions are sought for a new heat exchanger technology that can simultaneously improve inlet diffuser aerodynamic performance and heat transfer effectiveness. The proposed technology needs to be fully understood to ensure gas turbine engine compatibility and enable future, advanced Navy propulsion systems

Specifications Required: The solution will be required to demonstrate the following criteria:
- Heat exchanger effectiveness greater than, or equal to, 0.4.
- A total pressure drop across the heat exchanger no greater than 8%.
- A decrease in the element average circumferential and radial distortions as defined in SAE AIR 1419C.
- The front face of the heat exchanger positioned no more than two (2) diameters upstream of the Aerodynamic Interface Plane (AIP).

Though not required criteria, proposed solutions are encouraged to consider impacts (e.g. maintainability, performance, weight (<50lbm total)) and capabilities on the turbine engine and air platform as a whole. Candent's design will meet all Threshold and Objective requirements.

Technology Developed: In Phase I Candent completed the conceptual and preliminary design of a fully compliant, optimized, compact, lightweight, high effectiveness heat exchanger, compatible with installation in a serpentine aerodynamic turbine engine air inlet duct. For greatly improved safety, the system utilizes a non-flammable coolant solution in lieu of aircraft fuel and is designed with due consideration of full and optimum airframe integration, including such aspects as aerodynamic and mechanical design, as well as aircraft stealth characteristics. The design and development of multi-objective optimization tools, closely coupled with multi-physics analysis and CAD capability, has been continued and refined during the Phase II program. Final design completion is imminent, which will lead to prototype construction, wind tunnel aerodynamic testing, and thermodynamic rig testing.

Warfighter Value: The technology under development by Candent will greatly enhance the capability of aircraft to incorporate more electronic weapons systems onboard, as the greater heat rejection capacity will provide the means to operate additional systems, thus increasing lethality, stealthiness, and survivability of the aircraft while minimizing the required numbers of heat exchangers and any detrimental effect on the aircraft's propulsion system.

WHEN

Contract Number: N68335-24-C-0216 **Ending on:** Mar 31, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Phase I, Multi-Objective Optimization & Multi-Physics initial boundary conditions	Medium	Multi-Objective optimization & Pareto analysis yield viable/compliant designs	4	4th QTR FY23
Phase II Optimization and Physics integration with CAD + additional design constraints	Medium	Algorithms/multi-physics analysis, coupled with CAD Pareto to produce optimum design configuration/Final design	4	4th QTR FY25
Phase II Prototype Aerodynamic and Thermodynamic Testing	Medium	Prototype aerodynamic wind tunnel tests and heat transfer rig test results meet stated test plan objectives	5	2nd QTR FY26

HOW

Projected Business Model: Commercialization involves marketing through conferences, trade shows, and expositions, such as Sea Air Space (SAS) and NAVAIR FST Event, using Navy STP facilitation. The recent acquisition of Candent by Bascom Hunter Technologies, a larger company with excellent engineering, R&D, and experience transitioning SBIR Phase II programs to Phase III, confirms plans to produce all models and variants for various aircraft in the US fleet, including manned and unmanned, through LRIP and FRP.

Company Objectives: The objective of the commercialization plan is to secure and expand its current market position and continue production of thermal management systems and devices for dual use aerospace and defense applications.

Potential Commercial Applications: Although no specific application has been confirmed at this time, Candent will pursue potential use on commercial aircraft, fixed wing, and other, unconventional configuration, as well as manned and unmanned aircraft.

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Department of the Navy SBIR/STTR Transition Program

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NAVAIR SPR-2025-0676

Topic # N131-005
Ultrasound Communications Systems for the Flight Deck
Creare LLC

WHO

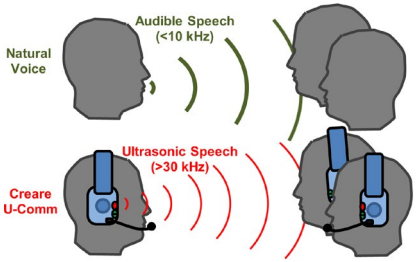
SYSCOM: NAVAIR

Sponsoring Program: PMA-202

Transition Target: Aircraft Carrier Flight Decks

TPOC: (732) 323-7884

Other Transition Opportunities: Creare's U-Comm system allows for Non-RF voice communications in any high noise environment and is designed for easy integration into existing Command and Control (C2) equipment configurations from a variety of manufacturers.



Creare LLC, 2024

Notes: Normal speech is conveyed as sound waves at audible frequencies (10 kHz) passing through the air. With the U-Comm system, speech is still conveyed through the air as sound waves, but now at ultrasonic frequencies (30 kHz).

WHAT

Operational Need and Improvement: Hearing is critical to the warfighter: hazards must be heard, identified, and localized and voiced warnings and commands must be heard and acted upon. On the flight deck of an aircraft carrier, the extreme noise levels from nearby aircraft and other equipment make face-to-face voice communication especially challenging, if not impossible. Some positions on the flight deck are equipped with portable radios to help convey voice comms. However, most of the deck crew must function without such tools, relying instead on non-verbal comms (like hand signals) or attempting to shout over the noise or through their hearing protection.

Specifications Required: An innovative communication transmission technology is desired that can provide flight deck crews reliable wireless voice transmission with other personnel in high noise and high energy electromagnetic environments. These technologies should be capable of integration with existing manufacturer's communications equipment with minimal impact on space, weight, and power requirements, with consideration for EMCON and environmental factors in typical military air operations at sea. Potential future development that allows the technology to extend to all flight deck personnel, including aircrew, to allow constant communications even when operating outside of the aircraft.

Technology Developed: Creare has been developing its ultrasonic voice communication (“U-Comm”) technology to meet the Department of Defense’s (DoD) need for a non-radio voice communication system that functions in noisy environments. Our U-Comm system conveys a person’s voice using ultrasonic sound waves instead of radio.

Warfighter Value: Ultrasound is a form of sound; no radio waves are emitted. Equipping some or all flight deck personnel with U-Comm would enable improved communications in high noise and high energy environments, regardless of EMCON.

WHEN

Contract Number: N68335-24-C-0481 **Ending on:** Jul 25, 2025

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Proof of Concept for USN	Medium	Wearable Ensemble	4	3rd QTR FY22
Application of U-Comm for US Army Infantry	Medium	Helmet Mounted Device for Situational Awareness	4	4th QTR FY23
Hardware Refinement for High Noise Environments Tested	Medium	Hear-Through-Noise Capability Demonstrated	5	1st QTR FY24
U-Comm Integrated With HGU-99 Flight Deck Helmet	Medium	Head Mounted Configuration Validated	6	2nd QTR FY25

HOW

Projected Business Model: The flight deck is the focus of the program goal and we understand the market and the market players well. On the HGU 99/P program, we teamed with a recognized acoustics electronics engineering firm to first harden and productize, and now to manufacture the electrical wiring harnesses and communications interfaces for the system. Our partner has an established business area in communications equipment for aerospace, military, and industrial customers. We plan the same approach for U-Comm. Creare, working with the Navy, will, during this Phase IIB, determine the system requirements, develop proof of concept prototypes, and demonstrate system performance and capabilities. We will then collaborate heavily with our partner on a follow-on effort to harden, productize, and formally qualify the system components.

Company Objectives: We plan to license the technology to our partner for sales outside of NAVAIR.

Potential Commercial Applications: Our U-Comm helmet sits within a broader product category of hearing protection devices that include electronic enhancements such as “hear-through.” We have noted that hear-through hearing protection devices are commanding an ever-growing proportion of the $3B annual global hearing protection market. There is a clear market opportunity for a hardened device that provides better voice clarity than hear-through, especially in noisy environments. These markets encompass users that include other warfighters, security forces, and first responders as well as construction, transportation, and heavy industry (e.g., mining, oil, and gas) personnel. We know these other markets exist because the civilian variant of Creare’s hearing protection helmet (without U-Comm) has been successful with the national and international oil and gas industry. The success of our helmet with the industrial market provides us an excellent entry point for transitioning our U-Comm system into the private sector.

Contact: Jed Wilbur, Principal Engineer
jcw@creare.com (603) 643-3800

Department of the Navy SBIR/STTR Transition Program

Topic # N23A-T016
Lightweight Turbogenerator for VTOL UAV
Creare LLC

WHO

SYSCOM: ONR

Sponsoring Program: ONR Code 351 Power, Propulsion and Thermal Management

Transition Target: Future Group 3 VTOL UAVs

TPOC: David Gonzalez
david.r.gonzalez32.civ@us.navy.mil

Other Transition Opportunities: Legacy UAVs, small generators for ground power, Auxiliary Power Units (APUs), Advanced Air Mobility (AAM) or "air taxis", hybrid-electric propulsion for Future Vertical Lift, DARPA Ancillary, Navy Blue Water Maritime Logistics Program

https://news.lockheedmartin.com/2024-05-22-Sikorsky-Flight-Tests-Scalable-Rotor-Blown-Wing-UAS-for-DARPA-Project

Notes: Rotary wing aircraft can operate from ships with a relatively small footprint but are less efficient in terms of range or time on station than fixed wing aircraft. The Navy recently retired the MQ-8C Fire Scout helicopter UAV, and there is a need for rotary wing UAVs that can operate at sea with limited infrastructure and logistics. These aircraft could expand capabilities for ISR, resupply, and strike. The photo above is a Sikorsky (Lockheed Martin) concept for a VTOL UAV that they are developing as part of the DARPA ANCILLARY program which could benefit from a lightweight, efficient generator.

Since its founding in 1961, Creare has commercialized a wide range of technologies—especially by spinning off new firms, licensing to other firms, and occasionally marketing its own products—while remaining principally an engineering services company. Our efforts in commercialization predate the advent of SBIR and include the establishment of numerous independent product businesses in fields as varied as plasma-arc torches, precision motion controls, color ink-jet printers, computational fluid dynamics, cryogenic machining, and boothless audiometers. SBIR projects resulted in the creation or direct assistance in the growth of five of these spin-off companies. In total, these product firms and new ventures now generate revenues of over $1.61 billion per year and employ over 3,400 people. To date, we can trace over $7.7 billion of revenues at Creare, our technology licensees, and our spin-offs to commercialization of Creare SBIR projects.

WHAT

Operational Need and Improvement: The Navy is seeking to develop next-generation Unmanned Aerial Vehicles (UAVs) that are capable of operating at low cost and with limited logistics. Many next-gen concepts involve Vertical Takeoff and Landing (VTOL) capability which allows the UAV to takeoff vertically without a runway and then transition to more efficient horizontal flight. These aircraft will require lightweight, efficient propulsion systems suitable for VTOL operations.

Specifications Required: In this program, Creare and UAV Turbines are developing a very lightweight (about 30 lb) turbogenerator for Group 3 UAVs. The generator produces 43 kWe power with SFC less than 0.7 lb/hp-hr.
For general UAV applications:
-14 to 60 SHP,
-SFC < 3 lb/hp-hr,
-Specific power > 2 hp/lb.
-Compatible with marine environments and vertical or horizontal operation.

Technology Developed: Creare and UAV Turbines are developing a lightweight turbogenerator that meet's the Navy's requirements for future Group 3 VTOL UAVs. Our generator is based on use of gas foil bearings (GFBs) which eliminate the oil lubrication and cooling system. We are also developing an advanced 43 kWe high-speed starter-generator, and are using lightweight materials in our design that are marine compatible.

Warfighter Value: This combination of power density and efficiency will enable VTOL UAVs with maximum capability for a variety of missions including resupply, ISR or strike. Lightweight propulsion allows the aircraft to takeoff either with more fuel, or a heavier payload, including sensors or munitions. Efficiency extends the aircraft's range or time on station. VTOL UAVs can takeoff from a small ship and then transition to efficient horizontal flight. They are also able to operate as swarms for missions such as ISR or defense.

WHEN

Contract Number: N68335-24-C-0540 **Ending on:** Sep 30, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Complete Design Concept Meeting Navy Reqs	Low	Model performance meets reqs	3	1st QTR FY25
Rotor Component Test	Medium	Validated bearings and displacement at speed	4	4th QTR FY26
Turbogenerator Demonstration Test	Medium	Demonstrated performance	5	4th QTR FY28
Aircraft Adoption of Generator	Medium	Sales or licensing	6	2nd QTR FY29

HOW

Projected Business Model: Turbogenerator IP will be held by UAV Turbines to market the engine in their product line. UAV Turbines intends to market the engine as the Monarch 5 VTOL, a lightweight version of their Monarch 5 SWIFT engine. UAV Turbines recently entered into an agreement with HopFlyt to supply Monarch 5 Swift engines for their Cyclone UAV targeting long-range maritime cargo applications. The Monarch 5 VTOL would be a next generation propulsion upgrade for the Cyclone UAV. We also intend to market the turbogenerator to defense primes such as Sikorsky for their future VTOL UAV propulsion needs.

Company Objectives: Creare's business objective is to perform valuable R&D for the Navy to ensure future R&D business. By aiding in the development and transition of this technology, we help the Navy meet its future VTOL UAV objectives.
UAV Turbines seeks to supply turbogenerators to military or commercial customers as a manufacturer of small UAV engines.

Potential Commercial Applications: Conventional UAVs (non-VTOL) such as MQ-1C Gray Eagle
Very lightweight generators for ground power
Auxiliary Power Units (APUs) for commercial aircraft
Auxiliary Power Units (APUs) for military ground vehicles
Urban air mobility (UAM) or advanced air mobility (AAM) or "air taxis". Most air taxis are being developed with all-electric (battery) power systems that are significantly restricted in their range.

Contact: Darin Knaus, Engineer
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Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
ONR Approval #2025-9-19-1443

Topic # N222-114
Project Fins
DARE Venture Group

WHO

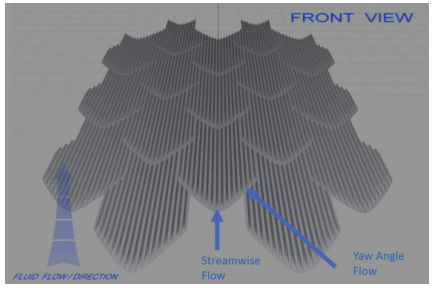
SYSCOM: ONR

Sponsoring Program: Naval Air Warfare Center Aircraft Division

Transition Target: Naval Air Systems Command

TPOC: Leighton Myers
leighton.m.myers.civ@us.navy.mil

Other Transition Opportunities: Air Force Materiel Command (Air Force Life Cycle Management Center - per System Program Office (SPO)
US Air Force Armament Directorate



Project Fins - Riblet Design

Notes: Project Fins extends operational range and endurance, allowing aircraft to loiter longer or reach further without refueling. It improves fuel efficiency, reducing mission costs and extending mission capability under fuel constraints, while preserving payload capacity, supporting larger sensor or weapons loads without compromising performance. Additionally, the project requires minimal maintenance, aligning with current Navy workflows and depot cycles, and accelerates adoption with dual-use applicability, supporting both defense and commercial aviation platforms.

WHAT

Operational Need and Improvement: U.S. Navy aircraft like the P-8A Poseidon operate long-range missions where fuel efficiency, endurance, and range are mission critical. These platforms burn large quantities of fuel during cruise, which limits time on station, payload flexibility, and operational reach. Reducing aerodynamic drag—specifically skin friction—presents a low-risk, high-payoff opportunity to enhance platform performance without major redesigns.

Specifications Required: Develop methods to produce accurate riblet profiles in outer mold line (OML) surfaces that yield significant drag savings (> 5%), require little or no maintenance or cleaning, are inexpensive to apply or to include in production or normal maintenance, and achieve long useful life (> 5 years), yielding fuel cost savings and extended range for USN aircraft.

Technology Developed: Project Fins has developed a precision-engineered riblet film that reduces aerodynamic drag on aircraft surfaces. The film features microstructured grooves that align with airflow to minimize skin friction. Designed specifically for Navy platforms like the P-8A Poseidon, the film is durable, lightweight, and easy to apply to complex aircraft surfaces. It delivers proven drag reduction of 5–8%, enhancing fuel efficiency, range, and overall mission performance with minimal maintenance burden.

Warfighter Value: Project Fins enhances warfighter capability by increasing aircraft range, endurance, and fuel efficiency without altering the airframe. This means crews can stay on station longer, cover a larger area, and respond faster—critical for missions such as maritime patrol, surveillance, and anti-submarine warfare. The riblet film reduces logistical burdens by lowering fuel consumption and integrating easily into existing maintenance workflows, allowing the fleet to operate more effectively and sustainably in high-tempo environments.

WHEN

Contract Number: N68335-24-C-0266 **Ending on:** Feb 20, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Kickoff / Current systems and environments	N/A	Identify and refine solution conditions and validate requirements.	3	4th QTR FY24
Produce and deliver prototype riblets / Material and performance testing report	Low	Manufacture riblets to USN specification; Develop initial report presenting results from current materials and performance testing, including validation of riblet geometry and recommendations to meet objectives	4	1st QTR FY25
Produce prototype	Medium	Perform material testing and report results	5	2nd QTR FY25
Develop and demonstrate prototype	Low	Demonstrate real-world application and resiliency; Provide initial findings from testing	5	3rd QTR FY25
Develop and test solution	Low	Deliver draft installation, maintenance and integration solution and testing report matching USN requirements	6	4th QTR FY25
Final report	N/A	Completion	6	4th QTR FY25

HOW

Projected Business Model: - Sale of riblet film rolls (priced per m²)
- Integration service packages (installation + QC + inspection)
- Maintenance & sustainment kits
- Licensing fees for OEM/partner production

Company Objectives: Dare Venture Group's objective with Project Fins is to organically develop and transition a resilient riblet film solution that delivers real operational value to the U.S. Navy and broader defense community. By focusing on in-house innovation, Dare aims to produce a scalable, durable, and low-maintenance drag-reduction technology that enhances aircraft range, fuel efficiency, and mission endurance. This effort supports Dare's broader mission to bring agile, defense-first engineering solutions into operational environments—while building a repeatable pathway from concept to fielded capability across high-priority DoD platforms.

Potential Commercial Applications: 1. Commercial Aviation: Airlines operating fuel-intensive fleets
2. Air Freight Operators: FedEx, UPS, DHL, and other logistics carriers
3. Business and Private Jets: OEMs and retrofit providers for Gulfstream, Bombardier, Dassault, etc.
4. Maritime Shipping: Tankers, cargo ships, and high-speed naval craft
5. Sustainability Initiatives: Companies seeking carbon credits or operational efficiencies under sustainability mandates
6. OEM Partnerships: Licensing or co-development with aircraft manufacturers and maintenance providers

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Department of the Navy SBIR/STTR Transition Program

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ONR Approval #2025-9-2-1356

Topic # N221-067
Pi2Enhanced Reliability and Confidence Effort- 2 (PiERCE 2)
Maher & Associates LLC

WHO

SYSCOM: ONR

Sponsoring Program: Code 35 Naval Air Warfare and Weapons / Aerospace Structures and Materials

Transition Target: Maher & Associates, dba Maher Advanced Manufacturing (MAM), is targeting Aerospace manufacturing firms to implement our novel, rapid, robust manufacturing and fabrication processes for bonded aircraft structures

TPOC: Anisur Rahman
anisur.rahman.civ@us.navy.mil

Other Transition Opportunities:
DoD aircraft that can benefit from our advanced manufacturing processes:

Joint Strike Fighter (JSF), B-21, F-18, F-22, F-16

Commercial aircraft: Airbus A350, Boeing 787

Other composite bonding manufacturing:

Composite structures with high through thickness structural properties requirements

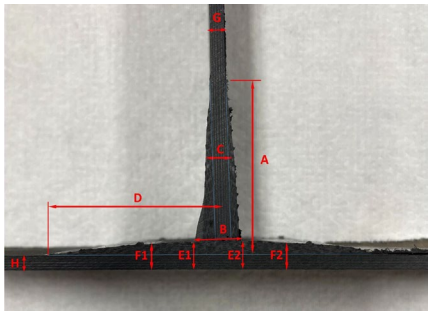

Image courtesy of MAM (2025).

Notes: MAM and our proprietary manufacturing processes evolved from the DARPA Open Manufacturing program, which we have further refined for commercialization.

WHAT

Operational Need and Improvement:
- Improved bonded structure reliability
- Improved platform availability
- Lower sustainment costs

Specifications Required:
- Novel composite joint process demonstrates feasibility of pi joint use in composite materials.
- Novel composite joint process should be able to transfer shear, tension, compression, and torsion.
- Models to predict performance and inform joint design verified and validated.
- Identify and validate sensors used for manufacturing process health monitoring.
- Improve through thickness mechanical requirements.
- Improve pi joint reliability through reduced data scatter.
- Proof of concept testing at lab scale to establish joint allowable and associated scatter in data.
- Assess maintenance and cost requirements in preparation for technology transition.

Technology Developed: MAM has developed a novel manufacturing method developed to increase interlaminar interaction during fabrication. By using ultrasonic energy, this increased interaction drives the development of "Z" oriented fibers, significantly improving through thickness properties of the resulting pi joint.

By leveraging information science to gain control over the bonding process, MAM can confidently predict the reliability of bonded structures, dramatically reducing part count in bonded composite fuselages, while also reducing the risk of this manufacturing process.

Warfighter Value: Composite materials are increasingly used in both military and civilian aerospace platforms. MAM's manufacturing process supports the use of improved pi joints in composites fabrication that confers increased robustness, improved reliability, and increased load-carrying capacity. Any platform spending less time in maintenance reduces cost, and stronger structures can lead to lighter overall designs, while simultaneously improving the lifting capabilities. Robust composite manufacturing also means less risk of platform damage during mission operation, therefore improving warfighter safety.

WHEN

Contract Number: N68335-23-C-0372 **Ending on:** Aug 25, 2025

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Prototype Process	Medium	Demonstrate process on different material system	4	4th QTR FY24
Model verification	Low	Model compared to emprirical test data from material characterization testing.	4	3rd QTR FY25
Material characterization	Low	Database generation for laminates including ZRT fibers	4	3rd QTR FY25
Reliability assessment	Medium	Report based on the reproducability of the process and the quality of the fabricated parts	3	4th QTR FY25

HOW

Projected Business Model: MAM's business model is focused on monetizing our novel technology through licensing to OEM composite manufacturers. In particular, we intend to target work with the substrate and Z fiber material manufacturers to receive royalties on bulk material sales on a new material format. Specific licenses for fabrication technologies will be obtained through component manufacturers.

Company Objectives: Maher & Associates (dba Maher Advanced Manufacturing) is aiming to establish itself as the premier prototyping producer for low cost composite manufacturing through novel research, product development, and strategic partnerships.

Potential Commercial Applications: Unitized, adhesively bonded composite primary structures on aircraft could offer substantial cost savings by dramatically reducing part and fastener counts, as well as time and labor for airframe fabrication and assembly. If a manufacturing process can provide proven, predictable performance, it could well become a standard practice for future bonded structures in both military and commercial aircraft, including manufacture of Urban Air Mobility vehicles.

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Department of the Navy SBIR/STTR Transition Program

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ONR Approval #2025-9-16-1428

Topic # N231-069
Low Cost Flatpack Aircraft with Ultrasonic Additive Manufacturing
TGV Rockets Inc.

WHO

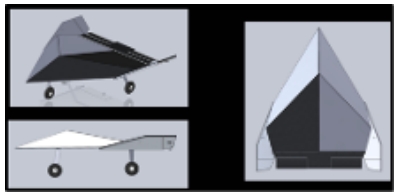
SYSCOM: ONR

Sponsoring Program: ONR

Transition Target: NAVAIR PEO-Aviation

TPOC: Anisur Rahman
anisur.rahman.civ@us.navy.mil

Other Transition Opportunities: PMA-263,PMA-266, MCWL, AFRL-LCAAT, Army PEO-Aviation, Army FTUAS (RQ-7 Follow On). US Park Service-Rangers, DHS-CBP.



[Image: Work product of TGV Rockets. N6833523C0378

Notes: Current Phase II is an ONR activity, but is targeted towards drone program offices in USMC and NAVAIR.

WHAT

Operational Need and Improvement: USMC field units are increasing the use of small UAS as organic to Platoons and Companies. Increasing the range and improving the number of small UAS that can be stored in field containers will improve war fighter situational awareness, improve terrain shaping and provide communications or improved combat power

Specifications Required: Group 2 UAS, Range 30 miles, Payload 15 lbs, Flexible payloads

Technology Developed: Flatpak aircraft design and components, Integrated manufacturing tied to Ultrasonic Additive Manufacturing, Tool free manufacturing.

Warfighter Value: 2X range of quadcopter Class 2 UAS, 2X density of conventional fixed wing FPV UAS.

WHEN

Contract Number: N68335-25-C-0034 **Ending on:** Mar 25, 2027

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Evaluate Powerplant and Launch Trades	Low	A list of useable hardware components.	2	4th QTR FY25
Structural Analysis and Verification Using a Finite Element Solver	Low	Structural analysis of the CAD models	3	3rd QTR FY26
Interface Connection Analysis and Coupon Production	Low	Fabricated connector coupons	4	4th QTR FY26
Final CAD Model	Low	Improved CAD model of the aircraft for prototyping	3	1st QTR FY27
Fabricate Demonstration Aircraft	Low	Complete fabrication of demonstration aircraft panels, and elevons.	5	2nd QTR FY27
Construct the Demonstration Aircraft	Low	Demonstration aircraft assembled and tested for control of elevons, and avionics.	3	2nd QTR FY27
Flight Demonstration	Low	Prototype flight test	6	3rd QTR FY27

HOW

Projected Business Model: Licensed production to System Integrators. Sale of small units and parts to end users.

Company Objectives: Push through to TRL 6, participate with major integrator into CONOPS and mission design.

Potential Commercial Applications: Sale of small units to large land owners that want responsive drone operations. Sale of units to local police, rural police/rescue operations.

Contact: Pat Bahn, CEO
Bahn@TGV-Rockets.com (301) 913-0071

NAVY SBIR TRANSITION PROGRAM

Autonomy

Company	Topic	Project Title	SYSCOM
Archarithms, Inc.	N231-037	Gun Weapons Systems Synthetic Unmanned Aerial Systems Imagery Data Set	NAVSEA
Vivum Computing Inc	N244-D04	Dynamic Neural UMVs - Enhanced Autonomy for the U.S. Navy	ONR

Department of the Navy SBIR/STTR Transition Program

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NAVSEA #2025-058

Topic # N231-037
Gun Weapons Systems Synthetic Unmanned Aerial Systems Imagery Data Set
Archarithms, Inc.

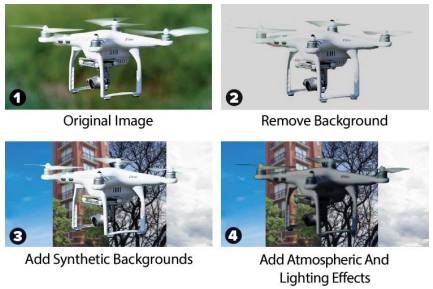
WHO

SYSCOM: NAVSEA

Sponsoring Program: NAVSEA

Transition Target: U.S. Navy surface ships, USMC and Navy shore installations, Critical infrastructure protection Mission Applications: Protection of ships and expeditionary assets, Counter-UAS, Counter-cruise missile, Counter-manned aircraft, Armed personnel detection, and localization (USMC)

TPOC: (540) 656-9743
joshua.e.mollohan.civ@us.navy.mil



Original Image | Remove Background | Add Synthetic Backgrounds | Add Atmospheric And Lighting Effects

ImageBrew® generates data from captured images, augments the images with environmental effects and labels the data to required specifications.

Other Transition Opportunities: U.S. Army C-UAS and ISR programs (RCCTO, DEVCOM), U.S. Air Force base and asset protection (AFWERX, SF/Defender initiatives), DHS and CBP for border surveillance and security, NATO and allied military C-UAS solutions, Commercial security: nuclear facilities, airports, stadiums, Critical infrastructure: energy, utilities, ports, rail

Notes: ImageBrew supports aerial, maritime, ground, and indoor target detection and identification. Originally created for counter-UAS, it has broader surveillance uses. Component testing with surrogate imagery planned Q3 FY26. Commercial potential in critical infrastructure surveillance. Candidate for Aegis Combat System AI/ML integration; seeking support for TRL 6-7 transition.

WHAT

Operational Need and Improvement: The Navy needs faster, more effective ability to detect, identify and defeat threats in cluttered, contested environments. ImageBrew rapidly generates realistic, labeled imagery to improve AI model accuracy, reduce false alarms, and enhance shipboard and fixed-site gun system performance.

Specifications Required: Compatible with common AI frameworks
Standard image formats (JPG, PNG) at 1080p+ resolution
Embedded metadata per DoD standards
Cybersecurity-compliant for DoD environments

Technology Developed: Arcarithm's ImageBrew, an AI-powered synthetic image generation and augmentation tool, accelerates the training of computer vision algorithms for Department of the Navy applications. ImageBrew automates the creation of highly realistic imagery—complete with embedded metadata, environmental effects (e.g., weather, lighting, motion blur), and labeled targets—enabling faster, more accurate training of AI models for object detection, classification, and identification. The technology supports automated annotation, metadata insertion, and environmental simulation to meet operational demands such as counter-UAS, counter-cruise missile, and armed personnel detection missions.

Warfighter Value: ImageBrew enhances the warfighter's ability to detect, classify, and respond to airborne, sea and ground-based threats—especially in contested and cluttered environments. By rapidly generating high-quality, labeled training data for computer vision AI models, ImageBrew enables faster development and deployment of detection and identification systems. This means more accurate and timely threat recognition using shipboard or ground-based sensors integrated with existing weapon systems, such as naval guns. The improved precision and reduced false alarm rates increase engagement confidence, reduce cognitive burden, and ultimately protect critical assets, personnel, and platforms.

WHEN

Contract Number: N00024-24-C-S184 **Ending on:** Aug 21, 2025

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Dataset delivered to Navy	Low	Dataset Integrates with Navy AI Algorithms in Lab Environment	5	4th QTR FY25
At sea testing one target	Medium	Targets detected in non weather and rain environment	7	3rd QTR FY26
At sea testing multiple targets	Medium	Multiple targets detected in weather and cluttered environments	8	1st QTR FY28

HOW

Projected Business Model: Arcarithm sells high-quality, labeled computer vision image datasets to DoD and defense contractors. Using ImageBrew internally, we generate realistic, metadata-rich synthetic and augmented images tailored to mission needs. We offer curated datasets and on-demand generation services, partnering with primes for integration into fire control and threat detection systems. This data-as-a-product model supports recurring revenue and meets DoD AI training data demand.

Company Objectives: Arcarithm's objective is to become a leading provider of high-fidelity, metadata-rich computer vision training datasets to the Department of the Navy and broader DoD AI systems. By leveraging our ImageBrew technology, we accelerate the development and deployment of automated target detection, classification, and tracking systems.
We will support this goal by: Supplying mission-specific datasets to Navy, Marine Corps, and defense prime contractors. Building long-term partnerships with programs requiring AI/ML-based situational awareness and fire control capabilities

Potential Commercial Applications: Key markets include:
Autonomous Vehicles: Generation of edge-case training datasets for object detection in varying environmental conditions
Industrial Robotics: Dataset creation for machine vision in manufacturing, assembly, and quality inspection processes
Security and Surveillance: Training imagery for AI-enabled perimeter monitoring, threat detection, and anomaly recognition
Agriculture: Precision farming applications such as crop/animal detection and yield estimation from drone imagery

Contact: Randy E. Riley, President/CEO
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Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
ONR Approval #2025-9-22-1461

Topic # N244-D04
Dynamic Neural UMVs - Enhanced Autonomy for the U.S. Navy
Vivum Computing Inc

WHO

SYSCOM: ONR

Sponsoring Program: Sea Warfare and Weapons / Undersea Systems

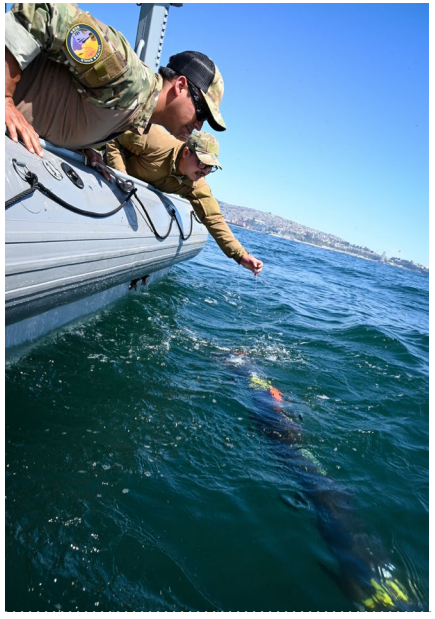
Transition Target: PMS-406

TPOC: Bob Brizzolara
robert.a.brizzolara.civ@us.navy.mil

Other Transition Opportunities: Vivum AI can provide tailored technical solutions to autonomous capabilities, across all domains.

Notes: Vivum AI's dynamic neural models deliver truly autonomous capabilities to sea, air, land, and space unmanned vehicles. Our on-device intelligence and learning capabilities can provide true autonomy to multiple platforms with dramatically less power and fewer resources.

Photo details: DVIDS #8628531. The appearance of U.S. Department of Defense (DoD) visual information does not imply or constitute DoD endorsement.



WHAT

Operational Need and Improvement: The Navy's Intelligent Autonomous Systems Science and Technology Strategy states the key importance of smaller, more numerous, and distributed capabilities as a complement to larger, more powerful, and proven capabilities: intelligent machines that can adapt in unstructured environments at machine speed given overwhelming data and are attritable when necessary, and decision superiority achieved through ubiquitous and persistent data collection, situational understanding at the edge and support to a robust information warfare capability.

Specifications Required: Desired future autonomy for Unmanned Maritime Vehicles (UMVs) will have the following four capabilities:

- Perform complex tasks with little to no human interaction
- Handle dynamic, unstructured, uncertain and harsh maritime environments
- Support a variety of diverse missions and tasks
- Support many heterogeneous UMVs that cooperate autonomously on perception and decision-making

Technology Developed: Vivum AI is an industry leader in neuromorphic computing and autonomous systems research and development. With our novel neural engine, we can push the boundaries of autonomous maritime technology to achieve the stated objectives while ensuring that UMVs are equipped to tackle the challenges of tomorrow's maritime missions with enhanced efficiency, adaptability, and reliability. We embed dynamic neural models such as Continuous Time Recurrent Neural Networks and Liquid Time Constant Networks on Field Programmable Gate Arrays, delivering ultra-compact, fault-tolerant processors that significantly reduces power and latency while unlocking unprecedented AI capabilities.

Warfighter Value: Improved, true autonomy in advanced robotics - including unmanned vehicles - will enhance efficiency, precision, and safety for our armed forces, aiding Warfighters in sophisticated global operations while simultaneously reducing the risk to human life while conducting reconnaissance, transportation, logistics, casualty recovery and evacuation, and threat neutralization.

WHEN

Contract Number: N00014-24-C-1333 **Ending on:** Aug 31, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Concept Development & Mission Analysis	N/A	Operational use cases and mission requirements defined with end users	2	4th QTR FY24
System Architecture & Modeling	Low	Digital models and subsystem architectures validated in simulation	3	1st QTR FY25
Early Software Prototype Demonstration	Medium	Neuromorphic control algorithms tested in software-in-the-loop simulation	4	2nd QTR FY25
Hardware-in-the-Loop Integration	Medium	Control algorithms executed on FPGA in lab environment using UMV emulator	5	3rd QTR FY25
Alpha UMV Prototype with AI Integration	Medium	Functional prototype demonstrated in controlled water environment	6	4th QTR FY25
Beta UMV Operational Testing	Low	Integrated AI system field-tested in relevant maritime conditions	7	2nd QTR FY26
Transition to Government Test Partners	Medium	Deployed on government-owned UMV platform for extended trials and feedback loop	8	4th QTR FY26
Phase III Fielding and Support	High	Technology integrated into operational workflows or Programs of Record (PoRs)	9	2nd QTR FY27

HOW

Projected Business Model:

Vivum AI is a venture-capital funded small business seeking non-dilutive USG funding to enable improved research, development, and implementation of our novel autonomy solutions. We will continue to develop our technology, consider licensing, and/or partnering with other companies to subcontract the work.

Company Objectives:

Vivum AI seeks to integrate our advanced neuromorphic computing solutions into the operational frameworks of the Department of the Navy (DoN) and other DoD Services. The target customers for this project include specific DoN/DoD platforms or programs that require enhanced autonomous capabilities in UMVs, addressing critical gaps in dynamic, GPS-denied maritime environments.

Potential Commercial Applications:

Vivum AI offers customizable and highly adaptable autonomy modules for rapid integration into platforms across domains (sea, air, and land). Some of our representative novel capabilities include: 1) an emergency recovery module, which can react to hardware failures within milliseconds and preserve system safety; 2) an adaptive path planning module, which can dynamically reduce power consumption while maintaining mission trajectory, and 3) an AI-augmented dead reckoning module, which can facilitate navigation in GPS-denied conditions. Such capabilities are currently unmatched in the industry and can be installed on commercial off the shelf (COTS) units. Whether deployed individually or as a suite, these modules deliver order-of-magnitude improvements in safety, efficiency, and mission effectiveness.

Contact: Dr. Derek Whitley, Ph.D., Chief Technology Officer
derek@vivum.ai (812) 573-8051

NAVY SBIR TRANSITION PROGRAM

Battlespace Environments

Company	Topic	Project Title	SYSCOM
ARiA	N221-025	Advanced Technologies for Automated Replay and Reconstruction of Theater Undersea Warfare Mission Data	NAVSEA

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
NAVSEA #2025-049

Topic # N221-025
Advanced Technologies for Automated Replay and Reconstruction of Theater Undersea Warfare Mission Data
ARiA

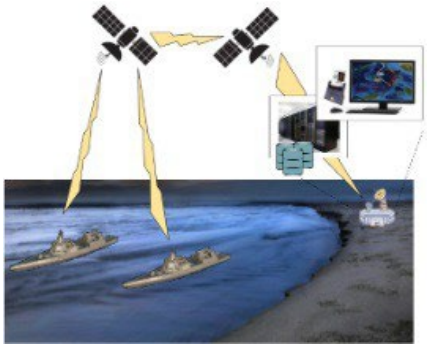
WHO

SYSCOM: NAVSEA

Sponsoring Program: NAVSEA PEO IWS 5E

Transition Target: AN/UYQ-100 Undersea Warfare Decision Support System (USW-DSS) Build 3 (B3) Program of Record (POR). This will be developed initially for USW-DSS B3 Ashore and later extended to USW-DSS B3 Afloat installations.

Other Transition Opportunities: Systems that interface with USW-DSS, such as the AN/SQQ-89A(V)15, CV-TSC, IUSS, GCCS-M, DCGS-N, and tactical data links including Link 11 and Link 16.



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Notes: Over its fifteen-year history, ARiA has a strong record of transitioning cutting-edge research into solutions that meet urgent government needs though the SBIR/STTR program. Leveraging over $4m of private investment and over $25m in research investment, ARiA has transitioned multiple products through SBIR/STTR funding to DoD PoR. Most recently this has involved transitioning AI/ML software tools to the CDAO JATIC PoR resulting in a return on the SBIR/STTR investment of over 20x.

WHAT

Operational Need and Improvement: Current methods for reconstructing and analyzing Theater Undersea Warfare (TUSW) mission data, essential for comprehensive event reconstruction and a wide-area view, are hampered by manual collation, filtering, and editing across disparate tactical systems. This technology gap is addressed by Record, Replay, Reconstruct & Analyze - Automated & Extensible (RAX). RAX is an advanced capability for the AN/UYQ-100 Undersea Warfare Decision Support System (USW-DSS) Build 3 (B3), providing automated and configurable data collection, long-term storage, replay, and reconstruction. RAX effectively collects and manages mission data for analysis and reduces the labor-intensive processes of existing solutions.

Specifications Required: The RAX system design and architecture supports automated and configurable data collection and recording, long-term data storage and archive, data replay, and automated reconstruction. It reduces the workload required for watch floor personnel to perform essential reconstruction and analysis.

Technology Developed: ARiA is developing algorithms for event and track retrieval, filtering, detection, and labeling based on AI/ML and information-retrieval theory. These algorithms will provide the capability to automate and accelerate the reconstruction and analysis of multi-platform TUSW mission data.

Warfighter Value: ARiA's innovative algorithms for event and track retrieval, filtering, detection, and labeling improve the reconstruction and analysis of mission data, particularly for multi-platform TUSW missions with large data sets. This automates and accelerates the current process and enables a 25% reduction in workload, measured in operator hours, required for watch floor personnel to perform these analyses. Essentially, RAX makes it faster and easier for watch teams to benefit from lessons learned from past operations to improve Anti-Submarine Warfare (ASW) mission effectiveness.

WHEN

Contract Number: N00024-24-C-S057 **Ending on:** May 07, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Initial prototype	Medium	Replay web service streaming tracks	5	4th QTR FY25
MVP Integration with USW-DSS	Low	Technology demonstrated in a relevant environment	6	3rd QTR FY26

HOW

Projected Business Model: ARiA plans to retain the SBIR data rights for its developed Record, Replay, Reconstruct & Analyze - Automated & Extensible (RAX) software. ARiA's technology is targeted for a phased transition into the AN/UYQ-100 Undersea Warfare Decision Support System (USW-DSS) Build 3. The initial Minimum Viable Product (MVP) is scheduled for integration in Q2 FY26 (CD 26-2), with the full-capability build planned for Q4 FY27 (CD 27-2). Following this, ARiA plans to transition the technology to other related tactical systems, including the AN/SQQ-89A(V)15, CV-TSC, and IUSS, as well as pursuing Foreign Military Sales (FMS).

Company Objectives: ARiA's objective is to address the Navy's need for an automated and extensible capability for recording, replaying, and reconstructing Theater Undersea Warfare (TUSW) mission data. ARiA intends to integrate the developed Record, Replay, Reconstruct & Analyze - Automated & Extensible (RAX) software as a primary transition into the AN/UYQ-100 Undersea Warfare Decision Support System (USW-DSS) Build 3. Following the initial integration, ARiA is looking for programs and prime partners to transition this technology to other Command and Control (C2) systems, such as the AN/SQQ-89A(V)15 and Carrier Tactical Support Center (CV-TSC), that can benefit from a robust, automated data collection, management, and analysis capability.

Potential Commercial Applications: The technologies developed for RAX are applicable to a wide range of organizations beyond the U.S. Navy. The core capabilities for robust, long-term data collection, management, replay, and automated Reconstruction & Analysis (R&A) can be leveraged by an organization needing to analyze large, disparate datasets over extended periods. Potential commercial applications include improving operational efficiency, enhancing decision-making processes, and assessing geospatial operational trends.

Contact: Scott Swan, Technical Program Manager
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Biomedical (ASBREM)

Company	Topic	Project Title	SYSCOM
Arcascope	PA20-265	Continuous, best-in-class open source sleep classification with extreme runtimes	ONR

Department of the Navy SBIR/STTR Transition Program

Topic # PA20-265
Continuous, best-in-class open source sleep classification with extreme runtimes
Arcascope

WHO

SYSCOM: ONR

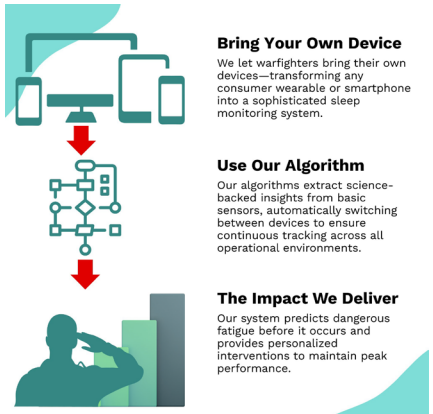
Sponsoring Program: Warfighter Performance (Code 34)

Transition Target: Command Readiness, Endurance, and Watchstanding (CREW) program

TPOC: Peter Squire
peter.n.squire.civ@us.navy.mil

Other Transition Opportunities: Arcascope's monitoring applications are wearable device agnostic, and already available in the commercial sector for use.

Notes: Arcascope uses Artificial Intelligence (AI), mathematical models, and wearable data to fully characterize real world circadian rhythms and pave the way for innovations that optimize not only sleep but every vital function where timing matters. We are pleased to offer a customized version of our software for Warfighter use to combat fatigue and improve readiness!



Arcascope has the flexibility and validated tools to support Warfighter readiness. Image provided by Arcascope 2025.

WHAT

Operational Need and Improvement:

Operational schedules, heavy workloads, and staffing challenges are all challenges that can lead to inadequate crew rest, leading to fatigue that if left unresolved can reduce alertness and Warfighter effectiveness. Wearable technology exists that can monitor physiologic functions, and software exists to provide advanced scheduling recommendations based on user data, but to date there is no DoD approved application that provides a secure, reliable method of tracking fatigue in the military.

Specifications Required:

The Navy has a current requirement to systematically collect timely and quality fatigue data from Sailors that are accessible to operational commanders to support underway decision-making.

Technology Developed:

Arcascope's algorithms are a tested and validated fatigue assessment tool, using data from any wearable health monitoring system to accurately and reliably provide information to the individual Warfighter, medical support teams, and Commanding Officers regarding their individual and unit readiness.

Warfighter Value:

Warfighter fatigue affects alertness and decision-making. Improving individual and unit readiness by improving fatigue assessment will reduce risk and improve Warfighter safety on and off the battlefield.

WHEN

Contract Number: N68335-25-C-0173 **Ending on:** Apr 08, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Define Arcawatch Hardware Kit v.1 specifications	Low	Custom application modifications made for shipboard operations.	3	4th QTR FY25
Collect environmental acceleration from 3 ship classes	Medium	Data collection complete.	3	1st QTR FY26
Collect 100 nights of acceleration and EEG data on ships	Medium	Data collection complete.	6	2nd QTR FY26
Benchmarking of shipboard algorithm v1 vs. gold standard ground truth for overnight sleep	Medium	Data analysis complete.	4	3rd QTR FY26
Benchmark algorithm for nap accuracy against gold standard truth for multi-day sleep/naps	Medium	Data analysis complete.	4	4th QTR FY26
Report accelerator performance across consumer wearables	Low	Final report submitted.	7	1st QTR FY27
Report on battery consumption/algorithm performance trade-offs	Low	Final report submitted.	7	1st QTR FY27

HOW

Projected Business Model: Arcascope currently uses a subscription model for their wearable application to provide customized analysis of customer physiology. We anticipate extending this subscription model as an option for purchase through standard government purchasing methods.

Company Objectives: Arcascope is built on a model of customized healthcare through wearable data collection and tailored analysis. By remaining device agnostic, we can reach the largest customer base. By retaining the best sleep and fatigue researchers, we will remain a leader in circadian rhythm analysis for the commercial, military, and industrial sectors.

Potential Commercial Applications: Arcascope already has three applications available for commercial use - Arcashift, Chronomedicine, and Arcasync. Arcashift and Arcasync are the commercial applications most closely resembling our customized military application; Chronomedicine is designed for the pharmaceutical industry Contract Research Organizations (CROs) that provide clinical research services for drug development.

Contact: Olivia Walch, CEO
olivia@arcascope.com (703) 328-0848

NAVY SBIR TRANSITION PROGRAM

C4I

Company	Topic	Project Title	SYSCOM
Monterey Technologies, Inc.	N161-015	Collaborative Undersea Warfare Decision Application (CUDA)	NAVSEA
Onebrief, Inc.	AF221-DCSO1	Rapid Operational Planning	NAVWAR
QuNav LLC	N224-130	Prototyping and Demonstration of GPS Interference DOA Initiative for User Purposes (GIDI-UP)	NAVWAR
Silver Bullet Solutions, Inc.	N221-050	Shipboard Defensive Cyberspace Operations (S-DCO)	NAVSEA
Torrey Pines Logic, Inc.	N231-041	Enhanced AN/PAQ-6 Phone Distance Line Replacement (PDL-R) for UNREP distance measurement and bridge-to-bridge communications	NAVSEA

Department of the Navy SBIR/STTR Transition Program

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NAVSEA #2025-048

Topic # N161-015
Collaborative Undersea Warfare Decision Application (CUDA)
Monterey Technologies, Inc.

WHO

SYSCOM: NAVSEA

Sponsoring Program: PEO IWS 5A

Transition Target: All Navy attack submarines

TPOC: (202) 781-4233

Other Transition Opportunities: All subsurface and surface platforms

Notes: Representative CUDA Heat Map depicting Caution and No-Go Areas based upon selected planning constraints.

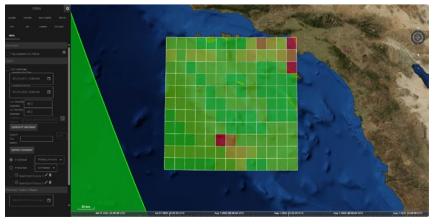

Image courtesy of Monterey Technologies, Inc., 2025.

WHAT

Operational Need and Improvement: Submarine crews contend with a wide variety of factors when developing courses of action (COA). Some are hard constraints (e.g. seabed topography), while others are soft constraints better characterized as "critical planning factors" (e.g bathymetry or a target's last know course and speed). Regardless of the type of constraint, the data resides in separate, disparate systems that crews must reference, cross-reference, and transcribe across systems when developing COAs for presentation to the commander or watch officer.

Specifications Required: Design a workflow-based Collaborative Undersea warfare Decision Aid; Use authoritative data sources; Develop a CUDA User Interface, Develop an environmental parametric analysis algorithm to produce rapid ASW environmental assessments; Provide GIS Data Normalization and Display services

Technology Developed: CUDA incorporates digitized workflows and system data inputs, Artificial Intelligence and Machine Learning, and a COA rehearsal interface to visually present the users with executable COA recommendations.

Warfighter Value: CUDA creates decision advantage for submarine crews by improving situational awareness and accelerating decision-making, bringing together geographical and temporal data, and providing 4D visualization tools and tactical decision aids to support specific tasks and decisions.

WHEN

Contract Number: N00024-25-C-S028 **Ending on:** Dec 18, 2027

Milestone	Risk Level	Measure of Success	Ending TRL	Date
All CUDA workflow analysis complete, digitized, and validated; Develop CUDA User Interface; Initial development of AI/ML to source recommendations	Low	Ready for Advanced Processor Build (APB) Step 1	5	1st QTR FY26
CUDA AI/ML tool internally validated	Low	Ready for APB Step 3	6	1st QTR FY27
Refine CUDA AI/ML tool for Sea Test	Low	Complete APB Sea Test	7	TBD
Complete APB Cycle	Low	Fielded as part of BYG-1 CCS build	8	TBD

HOW

Projected Business Model: Deploy the first CUDA model in the AN/BYG-1 Submarine Combat Control System through PMS 425. This will support all US SSN and SSBN submarines, with the potential to also deploy on Australian SSK submarines.

Company Objectives: Have CUDA integrated into the submarine combat systems across the fleet, and eventually have a form of CUDA integrated into the surface fleet combat systems.

Potential Commercial Applications: CUDA is developed as a military-grade, containerized software solution, capable of being used in classified environments, but is not itself classified until provided with data sets. The methodology and the computing engine behind CUDA can be applied to any commercial endeavor that has a similar level of complexity of constraints and time-impacted decisions. Flight route selection for air carriers across the aviation industry would be a good application, as might sea lane selection for the maritime shipping industry.

Contact: Gary Loberg, Director of Business Development
globerg@mti-inc.com (435) 352-4257

Department of the Navy SBIR/STTR Transition Program

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NAVWAR PA Approved with contingency notes annotated

Topic # AF221-DCSO1
Rapid Operational Planning
Onebrief, Inc.

WHO

SYSCOM: NAVWAR

Sponsoring Program: Naval Air Systems Command

Transition Target: This technology addresses the Navy's need for operational planning, strategic decision-making, and military staffs effieciency to plan at the speed of war.

TPOC: (619) 553-2861
Nicholas.j.gizzi.civ@us.navy.mil

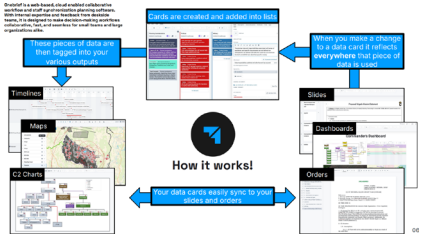

Image courtesy of Onebrief, LLC

Other Transition Opportunities: Transitioning the Navy toward true offline operational capability with Onebrief by deploying afloat servers across Carrier Strike Groups to ensure staff can plan and collaborate without internet connectivity, with auto-reconciliation and proven performance in exercises like Pacific Sentry 25-2. At the same time, AI Assist on SIPR is being positioned as a force multiplier for Navy staffs, automating routine workflows, accelerating mission planning, and enabling critical thinking and faster decisions by embedding AI-driven insights directly into the planning process.

Notes: Command and Control (C2)
Artificial Intelligence/Machine Learning
Operational Planning
Mapping
Geospatial
Cause and Effects Plots
Scheduling

WHAT

Operational Need and Improvement: Naval staffs need a unified, collaborative planning platform that eliminates fragmented workflows, accelerates decision-making, and operates reliably both afloat and ashore including in periods of degraded or denied connectivity. Today's legacy tools require excessive manual effort, complicate version control, and hinder real-time synchronization and information sharing, forcing staff to fall back on manual methods when disconnected and creating serious operational risk. Onebrief addresses these critical gaps by enabling multi-user planning and collaboration, even when ships are offline, auto-reconciling changes fleet-wide when reconnected, and ensuring minimal bandwidth use for operational speed at sea. With robust version control, seamless synchronization, and the ability to function in disconnected, intermittent, and limited bandwidth environments, Onebrief streamlines planning, reduces administrative overhead, and empowers globally integrated teams to move at the speed of operations, supporting mission effectiveness wherever the fleet is deployed.?

Specifications Required: Onebrief provides secure, web-based access on NIPR, SIPR, JWICS, and coalition networks, with deployment options for shipboard/offline use and automated reconciliation of updates once reconnected. The system supports full-spectrum planning artifacts (maps, timelines, orders), employs role-based permissioning for data security, offers integration APIs, enables rapid deployment (COTS/firm-fixed-price), and has active Authority to Operate (ATO) across key Navy networks.?

Technology Developed: Onebrief is an AI-enabled, cloud-native planning application designed for real-time, multi-user editing and synchronization (updates propagate across all products within 250 milliseconds). The platform features doctrinal templates, auto-updating content libraries, mapping overlays, workflow automation, and structured/ML-ready data for future integration with C2 and intelligence systems. Its modular microservices architecture allows for rapid feature delivery, offline resilience, and scale from small teams to large naval task forces.?

Warfighter Value: Onebrief empowers operators and commanders with faster, more accurate, and collaborative planning from the Maritime Operations Center to the strike group and ship level. It dramatically reduces planning cycle times (up to 60%), enhances cross-unit coordination, ensures "single source of truth" for operational data, and enables timely, informed decisions even in contested and disconnected environments directly increasing mission effectiveness, readiness, and operational agility for the fleet.?

WHEN

Contract Number: N68335-23-C-0585 **Ending on:** May 29, 2024

Milestone	Risk Level	Measure of Success	Ending TRL	Date
STACC Network Software Modifications	Low	Implementation on the STACC network the C2X Service Mesh Architecture.	1	4th QTR FY23
Software Delivery	Low	Provide Onebrief software to end users using C2X DevSecOps environment.	6	3rd QTR FY24
Exercise / Key Event Planning	Medium	End users conduct an exercise or key operational planning event using Onebrief.	3	3rd QTR FY24
MTC2 Tactical Planning Tool Integration	Medium	Integrate Onebrief with MTC2 TPT	7	3rd QTR FY24
Software Delivery	Low	Provide Onebrief software deployable to end users on classified networks.	6	3rd QTR FY25

HOW

Projected Business Model: Onebrief operates under a predictable, fixed-price, subscription-based model, offering unlimited user access and integrated support at a cost significantly below traditional command-and-control tools, avoiding hidden fees for maintenance or integration. The product is delivered as a Commercial Off-The-Shelf (COTS) solution, making rapid fielding possible via standard contracts or direct procurement, and is positioned for broad enterprise adoption across government defense organizations and partner agencies. This provides organizations with scalable, secure, and cost-effective modernization while enabling Onebrief to capture recurring revenue from long-term, multi-network deployments.?

Company Objectives: The core objective is to accelerate and improve military decision-making worldwide by transforming how staffs plan and collaborate. Onebrief aims to become the operating system of operational planning which enables fast, integrated, and data-driven decisions for military commands. Continuous investment in core product capabilities, AI-accelerated workflows, and secure, global interoperability supports this vision, with an expanding presence in the U.S. Combatant Commands and allied headquarters.?

Potential Commercial Applications: Onebrief's real-time collaboration, offline operational resilience, and automated planning capabilities make it a strong candidate for Navy adoption as a commercial off-the-shelf solution. Its proven effectiveness across defense and enterprise environments demonstrates clear value for large-scale, mission-critical naval planning and coordination.

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Department of the Navy SBIR/STTR Transition Program

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NAVWAR PA Review Complete

Topic # N224-130
Prototyping and Demonstration of GPS Interference DOA Initiative for User Purposes (GIDI-UP)
QuNav LLC

WHO

SYSCOM: NAVWAR

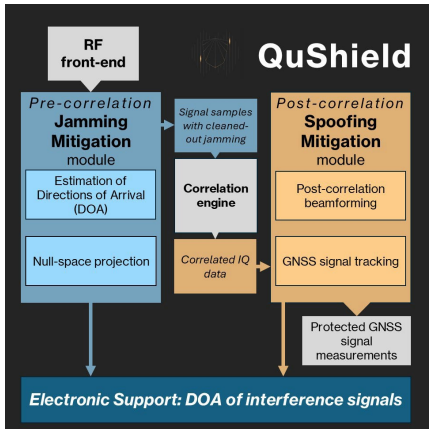
Sponsoring Program: PMW/A 170 Communications & GPS Navigation

Transition Target: Global Positioning System-Based Positioning, Navigation, and Timing Service (GPNTS)

TPOC: (619) 524-2510

Other Transition Opportunities: Military and civilian applications that require electronic protection and electronic support for GPS-based positioning navigation and timing equipment

Notes: The Navy's GPS Interference Direction of Arrival Initiative for User Purposes (GIDIUP) program enables situational awareness in complex radio-frequency (RF) environments while protecting the GPS band against deliberate interference (jamming and spoofing). QuShield is designed for GIDIUP implementation, using QuNav's multi-element antenna technology for jamming and spoofing mitigation, which has been validated in live-sky tests.



Implementation of QuSheild for GIDIUP

WHAT

Operational Need and Improvement:
GPNTS currently enables electronic protection via multi-element antennas and secure ranging codes. The GIDIUP program enhances this existing capability with spectrum situational awareness, which is critical in complex RF environments.

Specifications Required:
1-degree angular estimation accuracy for Directions of Arrival (DOA) of jamming and spoofing signals; Interface compatibility with GPNTS messages.

Technology Developed:
GIDIUP leverages the QuShield technology and implements a cascaded signal processing mechanization with pre-correlation estimation of jamming and post-correlation estimation of spoofing. The system also includes codeless processing of military codes (such as GPS M-code) to enable electronic support without opening up secure correlation engines:

- Pre-correlation jamming estimation module is cascaded ahead of spoofing estimation module: Jamming is strong, detected & suppressed before despreading, once for all satellites. Nullspace projection preserves spatial information;

- Two spoofing estimation modules are in parallel after jamming suppression: Authentic/spoofing are weak, brought up above noise by despreading (if PRN is known) or spectral compression or squaring (unknown PRN, codeless angular estimation). MGUE/INS/GPNTS, when available, facilitates spoofing estimation.

Warfighter Value:
Electronic protection and electronic support of GPS signals, including the most difficult cases of combined jamming and spoofing attacks

WHEN

Contract Number: N64267-24-C-0028 **Ending on:** Mar 25, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Hardware prototype	Low	Prototype assembly and testing	4	3rd QTR FY25
Algorithm refinement	Low	Accuracy requirements are satisfied with simulated and partial experimental data	4	4th QTR FY25
Software prototype	Low	Software prototype functionality is validated	5	2nd QTR FY26
GPNTS interfacing	Low	GPNTS interface is completed	5	2nd QTR FY26
Testing and validation	Low	GIDIUP prototype is tested with experimental data	5	2nd QTR FY26

HOW

Projected Business Model:

QuShield will be added to GPNTS as a software-based add-on through GIDIUP. The business model for technology transitioning is based on strategic partnerships and software licensing.

Company Objectives:

QuNav intends to continue to develop and commercialize QuShield through GIDIUP, via strategic partnerships with DoD primes and commercial entities.

Potential Commercial Applications:

Any safety-critical autonomous systems that require position, navigation, or timing data for operation are vulnerable and need improved jamming and spoofing protection. We believe one of the primary commercial applications will be the emerging advanced air mobility market (i.e., semi- and fully autonomous aerial taxis in urban environments).

Contact: Andrey Soloviev, CEO
soloviev@qunav.com (740) 541-1529

Silver Bullet Solutions, Inc.

Topic #: N221-050

Shipboard Defensive Cyberspace Operations (S-DCO)

Department of the Navy SBIR/STTR Transition Program

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NAVSEA #2026-088

Topic # N231-041
Enhanced AN/PAQ-6 Phone Distance Line Replacement (PDL-R) for UNREP distance measurement and bridge-to-bridge communications
Torrey Pines Logic, Inc.

WHO

SYSCOM: NAVSEA

Sponsoring Program: PEO Ships

Transition Target: PMS 400D Arleigh Burke Class Destroyer (DDG 51)

TPOC: (301) 227-2257

Other Transition Opportunities:

Notes: WISPER-UNREP (Wireless Information Secure Point to point Exchange and Relay) is a non-RF replacement for the antiquated Phone & Distance Line (P&D Line). The WISPER-UNREP system provides high quality voice communications and continuous ranging between ships using EMCON compliant Free Space Optic Communications (FSOC). This system increases sailor safety by removing the need for P&D line handlers during Underway Replenishment (UNREP).

WHAT

Operational Need and Improvement: The P&D line has been in service since the 1940s. The P&D line is a rope that is passed between ships and tended by sailors during an Underway Replenishment (UNREP). Conning officers use the P&D line to determine the distance between ships by looking down and reading the distance flags on the rope. A sound powered phone line integrated into the rope provides bridge-to-bridge voice communications.

The P&D line is simple, cheap, and effective. The downside is that it requires sailors on the approach ship to physically tend the line and hold it taut for hours; typically 5-8 sailors aboard Navy ships are required to man the P&D line. This is a very dangerous evolution. By updating the voice and ranging methodology to the WISPER-UNREP system, sailors can be removed from this dangerous station on the ship's fo'c'sle and repurposed for other shipboard tasks.

Specifications Required: The WISPER-UNREP system has been tested to meet NTTP 4-01.4 requirements for bridge communications and measuring ship separation. This system has demonstrated improved voice quality (97% voice intelligibility vs. 81% for sound powered phones), and the ranging capability provides highly accurate ship-to-ship distances compared to the P&D line flags.

Technology Developed: We have developed a Free Space Optic Communication (FSOC) technology that provides voice, data, and ranging between units. The technology will work in RF denied AORs or where RF operation is undesired (i.e. EMCON). Our FSOC systems operate as a wireless ethernet cable between end devices. The technology acts a 10/100 Base-T Ethernet passthrough and doesn't require any drivers; the FSOC link operates as a Physical Layer device with data rates up to 20mb/s. Voice and ranging functions are intrinsic to the underlying FSOC data link.

Warfighter Value: Sailors will no longer be needed to tend the P&D line during Underway Replenishment (UNREP). This is a significant safety improvement and frees sailors to perform other tasks rather than be holding a line on a dangerous deck in the elements for hours.

WHEN

Contract Number: N00024-24-C-S218 **Ending on:** Sep 18, 2025

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Solicit Stakeholder Feedback - MSC	Low	Successful land based demo @ MSC Norfolk	4	1st QTR FY25
Solicit Stakeholder Feedback - NAVSEA	Low	Successful land based demo @ NAVSEA / Navy Yard	6	1st QTR FY26
At Sea Test Demo - MSC to DDG	Low	Successful voice/communications and ship skin to skin distance measurement at sea	7	3rd QTR FY26
System Delivery	Low	Prototype system delivery to NAVSEA	7	3rd QTR FY26

HOW

Projected Business Model: The WISPER-UNREP system is a standalone system designed to replace the P&D line. The system is intended to be a carry on/carry off system that can be setup by ships' company on the port or starboard side as needed. This system would be supplied to every Navy and MSC ship to provide ranging and bridge-to-bridge communications by replacing the P&D line. The primary goal is to improve sailor safety by removing the P&D line handlers from the deck of the approach ship during the entire Underway Replenishment (UNREP) operation. By providing a P&D line replacement system, sailors and their supervisors are not subject to unsafe conditions on the ship's fo'c'sle.

Company Objectives: We are capable of meeting Low Rate Initial Production (LRIP) demands and support to seed the system acceptance into the Navy. We have a modern laboratory and production facility in San Diego, CA. We would like to work with a prime to take on system manufacturing, training, repair, and support of the systems upon fleet acceptance.

Potential Commercial Applications: The underlying technology of our Free Space Optic Communication (FSOC) technology has many uses beyond P&D line functionality. Our FSOC technology can provide Non-RF data communications between systems up to 10+ kilometers. We have been working with different DoD entities to increase communication robustness and capability in C4 environments. Programs of interest include the Air Force Agile Combat Employment (ACE), and Army Mobile Command Post (MCP) initiatives.

Contact: Russell Purcell, Program Manager
russell.purcell@tplogic.com (858) 740-9092

NAVY SBIR TRANSITION PROGRAM

Directed Energy

Company	Topic	Project Title	SYSCOM
Sensing Strategies, Inc.	N07-100	Sensors for Laser and Broadband Source Detection	NAVSEA

Department of the Navy SBIR/STTR Transition Program

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NAVSEA #2025-067

Topic # N07-100
Sensors for Laser and Broadband Source Detection
Sensing Strategies, Inc.

WHO

SYSCOM: NAVSEA

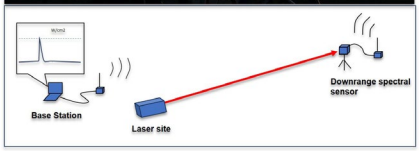
Sponsoring Program: IWS-11

Transition Target: OT&E

TPOC: (812) 854-1784

Other Transition Opportunities: Sensors can be used for live feedback to laser operators in training and testing. With broadband sources, the sensor can characterize atmospheric extinction and visibility to guide use of EO/IR systems. Pollution detection for oil/gas industries.

Notes: SSI develops electro-optic sensors including laser characterization sensors. We are extending the technology to measure lasers over a broad spectral range as well as broadband sources. The new sensors will make testing more efficient by providing real-time feedback on irradiance levels received downrange.



Prepared by SSI

WHAT

Operational Need and Improvement: The Navy has increasing needs to measure spectral irradiance of laser and broadband sources downrange in field test conditions. The prototype being developed will fulfill this need with broadband measurement capability allowing the same sensor to be used under a wide range of field test applications.

Specifications Required: The sensors need wide field-of-view so they are easy to point and must cover a broad spectral range so that a variety of laser sources can be characterized.
The sensors need fast processing to provide answers in real-time which will accelerate developmental and acceptance testing. The sensors must work in day and might conditions and work over a very wide irradiance dynamic range.

Technology Developed: A novel architecture is being developed to cover the wide spectral range so seamless spectral irradiance data is provided. Tests will be carried out with calibrated broadband sources to verify the spectra produced meet the measurement requirements.

Warfighter Value: Sensors provide confidence to the warfighter that lasers are performing as expected. In training and testing, live feedback sensors can accelerate the acceptance of the emerging directed energy weapons.

WHEN

Contract Number: N00024-24-C-S074 **Ending on:** Aug 09, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Breadboard measurements of sources	Low	Lab demo of capability	4	3rd QTR FY25
Prototype laboratory testing	Medium	Prove sensor capabilities	5	1st QTR FY26
Prototype delivery for field use	Medium	Sensors provides live feedback to laser operators	6	2nd QTR FY26
Government operation of prototype	Low	Prototype transitioned to Crane	6	4th QTR FY26

HOW

Projected Business Model: SSI will handle full production of the laser sensors. Mechanical, electronic, and optical designs are done in-house by our engineering team. Fabrication of components and printed circuit board assemblies is performed by trusted vendors based on our specifications.
System assembly is carried out in-house. Optical calibrations and acceptance testing to demonstrate system performance specification is conducted in one of our electro-optic test labs.
Field demonstrations of sensor performance will also be provided.

Company Objectives: Our expectation is that the need for sensors of this type will be in the tens of units as different test ranges develop their capabilities. If the Navy decides to build more units to support at-sea operations and training, we will weigh options for the larger fabrication task.

Potential Commercial Applications: The sensor technologies developed are applicable to single and folded path characterization of atmospheric extinction and molecular absorption. The spectral ranges covered are suitable for detecting a variety of pollutant gases.

Contact: Richard Preston, President
rpreston@sensingstrategies.com (609) 818-9801 x101

NAVY SBIR TRANSITION PROGRAM

Electromagnetic Warfare (EW)

Company	Topic	Project Title	SYSCOM
Indiana Microelectronics LLC	N171-074	Notch Filters for Interference Mitigation in SATCOM Systems	NAVWAR
Metamagnetics, Inc.	N101-075	Switchable L-Band Auto-tune Filter Module	NAVWAR
SimVentions, Inc.	N181-025	Electronic Warfare Data Analysis and Reduction Tool (E-DART)	NAVSEA
Vadum	N171-044	Cognitive Software Algorithms Techniques for Electronic Warfare	NAVSEA

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NAVWAR Approved

Topic # N171-074
Notch Filters for Interference Mitigation in SATCOM Systems
Indiana Microelectronics LLC

WHO

SYSCOM: NAVWAR

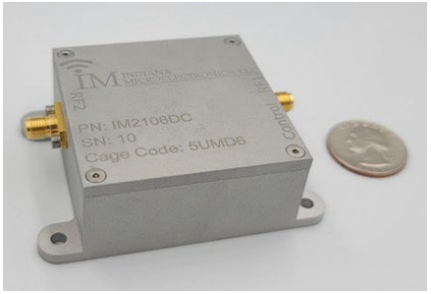
Sponsoring Program: PMW/A 170

Transition Target: SATCOM system interference mitigation/anti-jamming

TPOC: (564) 226-7339

Other Transition Opportunities: Other SATCOM systems

Notes: The tunable filters are high quality factor (Q) reconfigurable bandstop (notch) filters incorporating cavity resonators and a number of different tuning mechanisms to control both the center frequencies (fc) and bandwidths. Bandpass filters are also available.



Fast-Tuning High Q Notch Filter. Copyright 2025 Indiana Microelectronics, LLC

WHAT

Operational Need and Improvement: There is a need for dynamic mitigation of co-site interference and jamming signals that degrade the performance of SATCOM systems, Electronic Warfare (EW), radar, and communication systems.

Specifications Required: Provide dynamic mitigation of co-site interference and other undesirable RF signals through reconfigurable filters covering the L though Ku bands (1 to 18 GHz). Filter characteristics are controlled via a serial or parallel digital interface to the host system.

Technology Developed: The tunable filters are high quality factor (Q) reconfigurable bandstop (notch) filters incorporating cavity resonators and a number of different tuning mechanisms to control both the center frequencies (fc) and bandwidths. Bandpass filters are also available.

Warfighter Value: Benefits include dynamic RF and microwave filtering to mitigate co-site interference and jamming sources, resulting in increased reliability, operational readiness and probability of detect and decreased probability of false alarm.

WHEN

Contract Number: N68335-24-C-0514 **Ending on:** Aug 08, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Experimental Proof of Concept	Low	Successful laboratory demonstration and simulation verification	3	2nd QTR FY24
Component Validation in Laboratory	Low	Filter produced, tested and verified against simulations	4	3rd QTR FY24
Component Validation in Relevant Environment	Medium	Filter operates properly in simulated environment	5	3rd QTR FY24
System Demonstration in Relevant Environment	Medium	System meets specifications in simulated environment	6	3rd QTR FY24
System Demonstration in Operational Environment	Medium	System meets specifications in actual operational environment	7	3rd QTR FY25

HOW

Projected Business Model: Indiana Microelectronics is pursuing a variety of business relationships, including consultancy, in-house development, in-house small batch manufacturing, third party manufacturing for medium volumes, and technology licensing for larger volumes.

Company Objectives: Indiana Microelectronics seeks to introduce the reconfigurable filter technology to both DoD and commercial systems in the manner that is most appropriate for each application.

Potential Commercial Applications: Mitigation of non-linearities in wideband power amplifiers, software-defined radios, TV whitespace, spectrum management and cost reduction for mobile network Base Transceiver Stations (BTS)

Contact: Mike McPheters / Eric Hoppenjans, Business Development / President
Info@IndianaMicro.com (630) 868-8381 x7652373397

Department of the Navy SBIR/STTR Transition Program

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NAVWAR PA Review complete

Topic # N101-075
Switchable L-Band Auto-tune Filter Module
Metamagnetics, Inc.

WHO

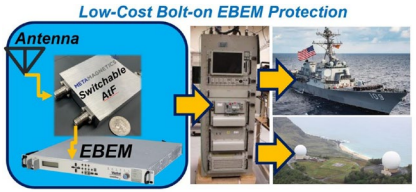
SYSCOM: NAVWAR

Sponsoring Program: PMWA-170

Transition Target: Demonstrate and Deliver Switched L-Band AtF modules with capability to protect the front-end receiver of a modem for PMWA-170 system.

TPOC: (619) 524-2510

Other Transition Opportunities: The technology and associated module can be adapted to various applications beyond the Satcom including shipside, airborne, UAV and dismounted solider handheld receivers.



Notes: As UAS, EW, ISR, and radar platforms grow more complex—housing receivers, transmitters, and radar systems in tight form factors—co-site interference and intentional jamming have become mission-critical issues. Metamagnetics' AtFs dynamically mitigate interference across wide frequency ranges in real-time—without manual tuning or fixed bandwidth constraints.

WHAT

Operational Need and Improvement: To protect the receiver's down chain components, while preserving a low noise figure, Metamagnetics will develop a switchable L-band Auto-tune Filter (AtF) module that selectively attenuates high power spectral components from +30 dBm to 0 dBm over the specified full temperature range (-40°C to +85°C). The module will contain two paths; one that provides AtF protection of the RF signal chain, an another that is a low-loss bypass

Specifications Required: Parameter Threshold Specification Operating Frequency 1300-2150 MHz Objective Specification Instantaneous Bandwidth 1300-2150 MHz >250 MHz Insertion Loss/ Noise Figure >500 MHz <4.5 dB Maximum Power Out at +30 dBm Input <3.5 dB <+5 dBm <+2.5 dBm Maximum Survivable Input Power +37 dBm (average) +47 dBm (peak) +40 dBm (average) +50 dBm (peak)

Technology Developed: L-band switched Auto-tune Filter module

Warfighter Value: Maintaining receiver linearity without sacrificing sensitivity is one of the greater challenges in electromagnetically congested and contested environments. A future war will be won by whoever controls the electromagnetic spectrum. Neer peer adversaries have been developing sophisticated electronic warfare (EW) technologies that can disrupt and even damage sensitive radio receivers.

Metamagnetics offers a unique technology to help mitigate electromagnetic interference called the Auto-tune Filter (AtF). The Auto-tune Filter (AtF) is a passive RF component that discriminates signals based on power spectral density and automatically applies attenuation notches selectively to signals that exceed the power threshold set during filter design. Simultaneously, signals below the power threshold pass through the AtF linearly and with low insertion loss (i.e. low noise figure) so long as there is sufficient frequency separation (typically > 10 MHz). Multiple dynamic notches are supported and no a priori knowledge of an interferer is required.

WHEN

Contract Number: N64267-24-C-0092 **Ending on:** Nov 26, 2025

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Assembly & Test	Low	ccess	4	4th QTR FY25
Assemble Improved Devices	Low	Prototype Success	4	1st QTR FY26
Test Improved Devices	Low	Prototype Success	4	1st QTR FY26
Initial Customer Delivery	Low	Prototype Success	4	1st QTR FY26

HOW

Projected Business Model: Metamagnetics has a deep technical team that can utilize IRaD or Non-Recurring Engineering for Material and Breadboard Development. We are able to lay out L-band switched AtF module engineering builds utilizing in-house manufacturing, assembly and test. From there the team can tweak and modify the engineering development builds to ensure customer satisfaction and technical execution of the solution(s).

Company Objectives: Demonstrate and deliver RF solutions that have the capability to protect the front-end receiver of a modem for PMWA-170 systems and other relevant DoD and US Aerospace platforms and systems.

Potential Commercial Applications: Successful development of a module could be used by commercial aircraft receiving communication interference; therefore, private and commercial airlines could also benefit from this technology development.

Contact: Alex Barani, Senior Director Business Development
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Department of the Navy SBIR/STTR Transition Program

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NAVSEA #2025-060

Topic # N181-025
Electronic Warfare Data Analysis and Reduction Tool (E-DART)
SimVentions, Inc.

WHO

SYSCOM: NAVSEA

Sponsoring Program: NAVSEA PEO IWS-2

Transition Target: Surface Electronic Warfare Improvement Program (SEWIP) Block 2

TPOC: (540) 742-8895
john.j.boudreaux.civ@us.navy.mil

Other Transition Opportunities: SEWIP Block 2/3

Notes: Acronyms:
DTR - Detailed Trouble Report
DX - Data Extraction
E-DART - Electronic Warfare Data Analysis and Reduction Tool
EW- Electronic Warfare
GUI - Graphical User Interface
I&T - Integration and Test
IWS - Integrated Warfare Systems
PEO - Program Executive Office
SEWIP - Surface Electronic Warfare Improvement Program
SoS - System of Systems
STE - Seminal Transition Event
T&E - Test and Evaluation
TOR - Test Observation Report
TR - Trouble Report
TSTE - Technology Seminal Transition Event
XML - eXtensible Markup Language

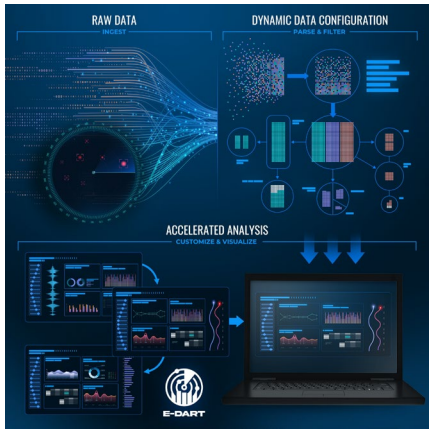

Image courtesy of SimVentions, Inc.

WHAT

Operational Need and Improvement: The Navy Electronic Warfare (EW) community needs a robust, flexible, and user-friendly data analysis tool capable of efficiently processing and visualizing test data across complex systems-of-systems (SoS) environments. Current tools are not equipped with customizable graphical user interfaces (GUIs), methods to easily handle large and diverse datasets from multiple sources, and cutting-edge capabilities for efficient filtering, visualization, and diverse data format imports. Analysts, testers, and engineers need a streamlined tool to address diverse data formats and structures, drive analysis efficiency and effectiveness, and promote rapid issue identification to aid in their ability to verify requirements, resolve Test Observation Reports (TORs), Trouble Reports (TRs), Detailed Trouble Reports (DTRs), and document new findings. The Navy and the broader Test & Evaluation (T&E) and Integration & Test (I&T) communities require a comprehensive solution that enhances analyst capabilities, reduces workload and human error, and enables fast, accurate, and collaborative decision-making in support of system validation and performance assessment.

Specifications Required: SimVentions understands that the Navy needs a software tool that promotes portability, ease, and flexibility. E-DART offers a sleek, responsive interface and a modular microservice architecture that ensures flexibility, scalability, and ease of maintenance to create the needed solution for the Navy.

Technology Developed: E-DART is a powerful, cross-platform desktop application designed to streamline the analysis of complex and varied test data. Users benefit from dynamic data visualization, timeline playback, and summarized data views that make it easy to understand system behaviors and identify key insights. The tool suite supports a wide range of input file types and can be configured to handle additional formats, adapting to evolving project needs. Advanced features enable detailed inspection, validation, and efficient data exploration. E-DART's unified backend and frontend system, along with integrated tools and centralized dashboard notifications, provide a seamless and intuitive user experience, while its efficient local database handling ensures high-performance processing of large datasets. Engineered with a future-ready design, E-DART empowers analysts and testers with the tools they need to perform rapid, accurate, and insightful data analysis across diverse test environments.

Warfighter Value: SimVentions' E-DART accelerates delivery of critical Navy warfighter capabilities by reducing analyst / tester workloads. E-DART enables smarter design across T&E and I&T environments via flexible, intuitive data analysis capabilities and improved insight generation.

WHEN

Contract Number: N00024-24-C-S183 **Ending on:** Dec 11, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Initial Concept	N/A	Concept delivered and approved by the customer.	4	4th QTR FY25
Initial Prototype	N/A	Prototype approved by the customer.	5	1st QTR FY27
Final Prototype	N/A	Prototype approved by customer; ready for TSTE.	6	1st QTR FY28
STE Transition Event	N/A	Solution approved by customer; STE complete.	7	1st QTR FY30

HOW

Projected Business Model: SimVentions' business model is based in the development, tailoring, modification, installation, use of, maintenance, training, and support of solutions as engineering service contracts. As E-DART transitions to the Program Executive Office (PEO) Integrated Warfare Systems (IWS) 2, Block 2, it will be aligned for immediate use. SimVentions is a leader in Department of Defense (DoD) SBIR contracting, having successfully applied the technology services model for over 25 years.

Company Objectives: SimVentions seeks to leverage E-DART to expand value and service opportunities across PEO IWS 2 and other similar programs. The tools developed have broad application to several programs expanding opportunities to tailor the tools and expand our support service value and opportunities across the Navy and other DoD applications.

Potential Commercial Applications: E-DART is a powerful tool for organizations managing large-scale, diverse data across complex systems. It can be tailored for enterprise/cloud use to efficiently ingest, reduce, and visualize large volumes of varied data. This helps users spot trends, detect anomalies, and quickly identify root causes. E-DART supports cross-functional teams in analyzing data relationships, speeding up decisions, and improving operations. By simplifying complex data, E-DART turns raw information into actionable insights for ongoing improvement and strategic planning.

Contact: Scott Streisel, Principal Investigator
ScottStreisel@simventions.com (540) 372-7244

Department of the Navy SBIR/STTR Transition Program

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NAVSEA #2025-066

Topic # N171-044
Cognitive Software Algorithms Techniques for Electronic Warfare
Vadum

WHO

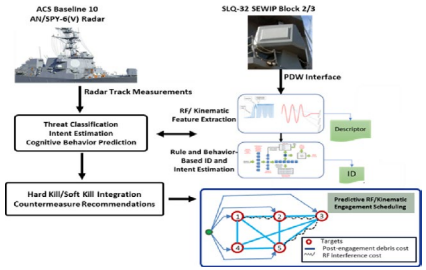
SYSCOM: NAVSEA

Sponsoring Program: Program Executive Office Integrated Warfare System (PEO IWS) 1.0 - Aegis

Transition Target: Aegis

TPOC: (202) 781-0567

Other Transition Opportunities: Navy Frigate FFG(X), Ship Self-Defense System (SSDS), and any system with requirements for cruise missile defense to include those supported by the Missile Defense Agency's (MDA) and the US Army, e.g., MIM-104 Patriot



Notes: Vadum Inc. is a Software supplier for multiple prime contractors and direct to the government. Vadum's experience stretches across air, land, and sea platforms.

WHAT

Operational Need and Improvement: Anti-ship threat capability is increasing rapidly. More evolved techniques to characterize, ID, predict, and schedule against the evolved threats is necessary to increase survivability and probability of successful engagements. Multi-sensor coordination amongst hard kill and soft kill systems allows more flexibility during engagement and better conservation of kinetic inventory.

Specifications Required: A solution will not increase combat system processing time to achieve its primary objective. It will integrate with all elements of the ACS. Track visualization, battle damage assessment and HK/SK Coordination will be delivered through existing ACS console Graphical User Interfaces (GUIs) to support operator track management and decision-making. It shall also be able to integrate with the AEGIS Test Bed (ATB) to facilitate system evaluation against more advanced and prolific threats. This enables shortening of testing and certification timelines for new baselines. This will also help in maintaining and improving product quality through the early detection of deficiencies in the product. The speed and accuracy of the solution must exceed existing ACS performance attributes resonant in the ATB by 10% or better.

Technology Developed: Vadum Inc. has developed algorithms to combine sensor data from multiple sources to track, identify, and predict incoming threats. Utilizing that information Vadum has developed additional algorithms to coordinate interceptor systems (hard-kill and soft-kill) to achieve more accurate and higher probability of successful threat engagement.

Warfighter Value: Improving the tracking, identification, and prediction of threats allows Vadum to also coordinate higher success rate of interceptions. Interceptor coordination will enhance the ability to utilize non-kinetic interceptors; saving limited kinetic inventory. Overall better awareness of the damage inflicted during conflict and improved coordination increases survivability against increasingly complex threats and raid scenarios.

WHEN

Contract Number: N00024-24-C-S055 **Ending on:** Jul 02, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Enhanced threat behavioral prediction	Medium	Accuracy of threat prediction	6	4th QTR FY26
Improve methods of batle damage assesment	Medium	Accuracy of damage assessment	6	4th QTR FY26
Demonstration of CTCS	Medium	Probability of Kill and Survivability	6	4th QTR FY26

HOW

Projected Business Model: Algorithms will be integrated into to Aegis Combat System (ACS). Revenue will result from Vadum involvement with initial algorithm integration, testing, and ongoing support and maintenance as well as development and testing to support new Aegis system requirements.

Company Objectives: We anticipate the Navy SBIR/STTR Transition Program (STP) Forum will facilitate connecting with a prime or system integrator that wishes to add CTCS algorithms to existing and future ship defense platforms.

Potential Commercial Applications: Commercial applications include those in which vehicles must be identified based on unique aspects of their motion.

Contact: Chris Cunningham, Program Manager
chris.cunningham@vaduminc.com (919) 341-8241 x160

NAVY SBIR TRANSITION PROGRAM

Energy & Power Technologies

Company	Topic	Project Title	SYSCOM
Lynntech, Inc.	N222-088	Retrofittable High-Power Kit	MCSC
Lynntech, Inc.	N232-086	Structural Composite Battery for Small UAVs	NAVAIR
nou Systems, Inc.	N221-057	Development of a Low-Cost, Single-Use, and Extremely Compact Air-Independent Power System	NAVSEA
Physical Sciences Inc.	N212-102	Modular Collapsible Hydro-Electric Generator (MCHEG)	MCSC

Lynntech, Inc.

Topic #: N221-088

Retrofittable High-Power Kit

Department of the Navy SBIR/STTR Transition Program

Topic # N232-086
Structural Composite Battery for Small UAVs
Lynntech, Inc.

WHO

SYSCOM: NAVAIR

Sponsoring Program: Chief Technology Office, Naval Air Systems Command (NAVAIR)

Transition Target: Initial target application: VXE30 STALKER

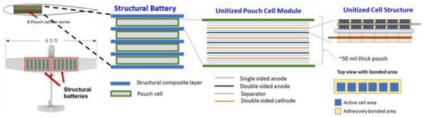


Image courtesy of Lynntech, Inc

Other Transition Opportunities: Other UAS platforms with VTOL such as AeroVironment Quantix Recon or Aurora Flight Systems SKIRON-X. Additionally, could be implemented into any structure that acts as a beam under load

Notes:

WHAT

Operational Need and Improvement: Unmanned aerial systems (UASs) are vital to modern military operations, providing intelligence, surveillance, reconnaissance, and real-time situational awareness, enhancing operational efficiency, and minimizing risks to personnel. However, current UAS designs face challenges related to flight duration, mission capabilities, and structural efficiency, limiting their performance for extended missions and adaptability to operational needs.

Specifications Required: Lynntech's structural battery solution can be implemented directly into a fixed wing structure to add additional energy storage within the lift generating structure.

Technology Developed: Batteries or "energy and power" need being ubiquitous to pretty much any application, such structure integrated battery solution can be utilized in any application where the battery needs to the targeted UAS applications.

Warfighter Value: Lynntech's structural battery solution will improve performance and efficiency, extend mission duration, and provide feasibility to add new capabilities or functionalities to small UASs within current mass/volume envelope, thereby maintaining a technical advantage in the battlefield.

WHEN

Contract Number: N68335-25-C-0006 **Ending on:** Apr 21, 2027

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Interfacial layer development	Medium	Development of an interfacial layer that can bond the anode, separator and cathode layers together such that the bond can survive the expected shear stress experienced in chosen UAS platform.	4	4th QTR FY25
Year 1 Demonstration	Medium	Demonstration of multilayer pouch cell under structural and electrochemical testing.	4	3rd QTR FY26
UAS Platform integration design	Low	Design mechanism for incorporating the structural battery within the wing structure of a UAS platform	4	1st QTR FY27
Final Demonstration	Low	Demonstrate fully integrated and functional structural battery within wing like component under both structural and electrochemical performance.	5	3rd QTR FY27

HOW

Projected Business Model: Lynntech has a proven track record of moving technology to market, primarily through our ability to match technologies with the correspondingly appropriate business models. In recognition of this, Lynntech received the 2016 Tibbetts Award, a prestigious award that recognizes organizations that exemplify the very best in SBIR achievements. We are a for-profit organization and transition/commercial success is the objective of every development effort. Being a small company, we are highly versatile and are therefore open to adopting different, unique, and creative methods to achieve transition and commercialization success. Successful commercialization is part of our company's growth strategy.

Company Objectives: Lynntech operations are currently managed by Barton Arndt (Chief Operations Officer), who has over 25 years of experience in senior manufacturing positions and managing Fortune 500 companies. Lynntech's Business Development efforts are supported by Sanjiv Lalwani, who has prior experience in the launch and management of a technology-based start-up that successfully commercialized a range of products, and currently works to identify all potential partners (Commercial and Government) to create the critical mass needed to carry product development efforts beyond Phase I and Phase II (SBIR). Additional marketing personnel may be brought in for successful commercialization of Lynntech's Structural Battery technology as needed when the product is ready for commercialization.

Potential Commercial Applications: Primarily we believe successful commercialization of Lynntech's Structural Battery could be through a collaboration with the Battery Innovation Center (BIC). BIC was founded in 2013 with the mission of accelerating innovation in the field of battery technology by providing access to the entire spectrum of R&D to commercialization. BIC will undertake scaling up and mass producing the underlying technology and manufacturing process developed at Lynntech for commercialization. Additionally, Lynntech could partner with UAS manufacturer such as AeroVironment, Aurora Flight Sciences or Edge Autonomy to ingrate the structural battery design into a future UAS product.

Contact: Sanjiv Lalwani, Chief Strategy Officer
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Department of the Navy SBIR/STTR Transition Program

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NAVSEA #2025-032

Topic # N221-057
Development of a Low-Cost, Single-Use, and Extremely Compact Air-Independent Power System
nou Systems, Inc.

WHO

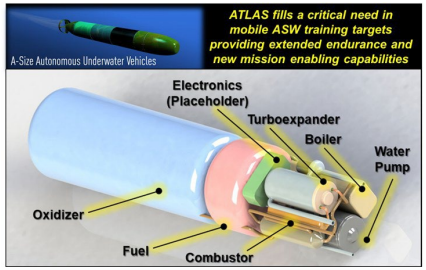
SYSCOM: NAVSEA

Sponsoring Program: Naval Undersea Warfare Center Division, Newport, Code 859, ASW Training Targets and D&D Devices

Transition Target: NUWC's MK 39 Expendable Mobile Anti-Submarine Warfare Training Target (EMATT)

TPOC: (111) 111-1111

Other Transition Opportunities: (1) Small/Medium UUV Platforms (Battery Replacement or Augmentation): REMUS Family, Mk18 Mod 1/2 Kingfish, Knifefish UUV — ideal for endurance enhancement. (2) Large/Extra-Large UUVs (Modular or Auxiliary Power): ORCA XLUUV (Boeing), Submarine-launched UUVs (SLUUVs) — auxiliary, mission-specific modular power supplement where space and energy density are critical. (3) Persistent Stationary Platforms / Maritime Surveillance Nodes. Persistent environmental monitoring stations, oceanographic floats, and distributed sensor networks. (4) Mobile/Stationary UUV Recharging Stations for battery-dependent UUVs for longer operations without surface recovery. (5) Non-Navy / Joint Service: USMC Expeditionary Unmanned Systems requiring independent, high-endurance underwater power. SOCOM platforms with emphasis on covert, long-duration underwater ops. Civilian sector: Long-endurance oceanographic research, commercial subsea monitoring, offshore energy.



ATLAS On-Demand High-Energy-Density Electric Power for Advanced UUV and Maritime Systems

Notes: ATLAS enables: -Extended training duration. -Improved mission realism, with higher speeds, additional sensors, and more realistic submarine emulation. -Greater flexibility, allowing commanders to tailor missions without being constrained by battery limitations. -Enhanced readiness, enabling more frequent and effective ASW exercises without relying on expensive live submarine assets. -Reduced logistical burden, through scalable, storable, and higher-density power compared to traditional batteries. Beyond EMATT, ATLAS supports the broader undersea mission space, enhancing UUV endurance, powering persistent sensor nodes, and enabling recharging infrastructure, ultimately strengthening undersea dominance, situational awareness, and warfighter effectiveness in contested maritime environments.

WHAT

Operational Need and Improvement: The Navy requires a higher-energy, compact, single-use power source to extend the operational endurance, speed, and capability of the MK39 Expendable Mobile Anti-Submarine Warfare Training Target (EMATT). Current EMATT systems rely on batteries with limited energy capacity (< 1.0 kW-hr), constraining mission realism, speed profiles, and endurance for ASW training exercises. ATLAS directly addresses this operational need by providing a scalable, fuel-powered generator capable of delivering greater than 3.6 kW-hr within the required 6.75-inch diameter by 30-inch length form factor. This represents a multi-fold increase in available energy compared to the current Li/SO2 battery solution.

Specifications Required: Form Factor: 6.75-inch diameter × 30-inch length extended endurance section
Power Output: Maintain baseline 45 Volts (V); 10-15 Amps during operation
Energy Capacity: Greater than 3.6 kW-hr; Mission Endurance: > 24 hours of continuous operation
Usage Profile: Expendable, single-use power source, no recharge requirement
Buoyancy Requirement: Neutrally buoyant, CG within -1.5 inches of center of buoyancy
Operational Temperature: -5°F to 135°F
Vibration Tolerance: Exposure to 20 Hz to 1126 Hz random vibration for 3 hours
Cost Consideration: Drive down cost per hour below \$100 per hour of operation
Testing Requirements: Bench, environmental, and safety testing (S9310-AQ-SAF-010, SG270-BV-SAF-010)

Technology Developed: The ATLAS system is a compact, fuel-powered, micro-expander turbo generator designed to serve as a high-energy, single-use power source for the MK39 EMATT and other unmanned undersea platforms. ATLAS converts the stored chemical energy of safe, storable bipropellants into electrical power via a high-efficiency turboalternator, delivering continuous, reliable energy output within strict size, weight, and operational constraints.

Warfighter Value: ATLAS provides a significant increase in mission endurance, realism, and flexibility for Anti-Submarine Warfare (ASW) training and -unmanned undersea operations. By delivering more than three times the energy capacity of the current EMATT battery system within the required form factor. Enabling: (1) increased mission realism, supporting higher speeds, added sensors, and expanded capabilities, and (2) improved logistics flexibility, with energy density exceeding traditional batteries, reducing reliance on battery supply chains.

WHEN

Contract Number: N00024-24-C-S036 **Ending on:** Aug 16, 2025

Milestone	Risk Level	Measure of Success	Ending TRL	Date
In-the-loop Controlled Lab Test	Low	Stable electric power generation, controllable system response	4	4th QTR FY25
Build and Test Self-Contained Prototype	Medium	Self-contained prototype operates independently under controlled conditions	5	3rd QTR FY26
Develop EMATT Integrable Unit	High	Prototype integration meets EMATT form factor and operational requirements	5	1st QTR FY27
Hardware-in-the-loop with EMATT power delivery	Low	Atlas meets power requirements during mission-representative system	6	3rd QTR FY27
Shallow water testing with integrated unit	Medium	Integrated system operates without failure	6	3rd QTR FY27
Hydrostatic depth qualification tests	Low	Unit passes pressure tests	6	4th QTR FY27
Full system representative operational test	Medium	Integrated Atlas/EMATT operates successfully in representative mission	7	1st QTR FY28

HOW

Projected Business Model: The ATLAS system is intended to transition through a prime/system integrator, such as SAAB Inc., for incorporation into the Navy's MK39 EMATT program and other undersea platforms.

Company Objectives: Leverage the ATLAS technology to establish a scalable, high-energy power solution product line for defense and commercial markets. The initial focus is on meeting Navy requirements for expendable UUV power sources, with follow-on opportunities to supply compact, high-density generators for broader unmanned maritime platforms, persistent ocean sensors, and mobile recharging infrastructure. By transitioning ATLAS from prototype to a commercially viable, production-ready system, we will create new market opportunities while enhancing undersea operational capabilities for national security.

Potential Commercial Applications: Offshore Energy & Infrastructure Monitoring: Power for long-endurance, unmanned systems monitoring oil platforms, pipelines, or subsea infrastructure. Oceanographic Research & Environmental Monitoring: High-endurance energy for buoys, autonomous floats, or seabed sensor nodes used in climate studies, seismic detection, and marine ecosystem observation. AUVs: Replacement or augmentation of battery systems for commercial AUV fleets supporting underwater inspection, surveying, and data collection. Compact portable generators for remote operations, including disaster response, scientific expeditions, or defense teams operating in denied environments. Maritime Security & Port Surveillance: persistent power for unmanned maritime patrol nodes. Recharge Stations for Commercial UUV Operations: high-density recharge platforms for battery-powered AUVs.

Contact: Francisco Valentin, Sr. R&D Engineer & Technology Area Manager
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Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
MCSC-PRR-175

Topic # N212-102
Modular Collapsible Hydro-Electric Generator (MCHEG)
Physical Sciences Inc.

WHO

SYSCOM: MCSC

Sponsoring Program: Marine Corps Logistics Combat Element Systems

Transition Target: Marine Corps System Command

TPOC: sbir.admin@usmc.mil

Other Transition Opportunities: The technology developed will support DoD groups that require power generation in the field. The dimensions of the system may be modified to fit on a wide range of military transport vehicles.

Image Courtesy of Physical Sciences, Inc.

Notes: The Modular Collapsible Hydro-Electric Generator (MCHEG) improves on existing hydrokinetic turbines by offering a lightweight collapsible solution designed specifically for rapid deployment and transport. Existing turbines are too heavy to relocate and transport in the field. The MCHEG system modules can be linked together in a variety of configurations to generate the maximum amount of power over a range of river and stream geometries to meet unique mission requirements.

WHAT

Operational Need and Improvement: The Marine Corps need power generation solutions to recharge batteries and ancillary equipment in the field. The state-of-the art is to support missions by carrying extra batteries or fuel. The ability to generate power in the field will increase the range of these forward operating missions.

Specifications Required: The system must generate 500 W power in streams flowing as slow as 1 m/s and stow within a volume of one cubic meter. It should be able to be deployed by two operators in less than 30 minutes. Individual components may not weigh more than 88 pounds, enabling a two person lift.

Technology Developed: The Modular Collapsible Hydro-Electric Generator (MCHEG) can be deployed by two operators in less than 15 minutes to generate 500 W power from any stream or river source at last 1 m/s and up to 1500 W power for streams flowing faster than 1.5 m/s. The modular system is configurable to a wide range of streams that have a minimum depth of 0.5 m and width of at least 1.2 m. The system includes features to shed debris in the stream, offering continuous uninterrupted power generation in harsh environments.

Warfighter Value: Warfighters will benefit from increased mission range. The MCHEG reduces the need to carry extra batteries and compliments solar power generation solutions by providing the ability to generate power continuously under canopy and at night without detection.

WHEN

Contract Number: M67854-23-C-6529 **Ending on:** Sep 01, 2025

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Turbine performance validated	N/A	Shaft power of 125 W per module demonstrated in laboratory tow tank testing	3	1st QTR FY23
Turbine-generator system performance demonstrated	Low	Electrical power of 125 W demonstrated in a laboratory flume tank using a prototype floating turbine module paired with a compact, high efficiency generator	4	4th QTR FY24
Field deployment of a single turbine module	Medium	Deployment and retrieval time of less than 30 minutes achieved for a single floating turbine prototype module at a river site with flow up to 0.5 m/s	5	1st QTR FY25

HOW

Projected Business Model: The MCHEG is a standalone device that may be fielded by the Marine Corps, Navy and Army. PSI has the capacity to assemble up to 100 units per year for a period of three years when the product initially launches. PSI will identify a manufacturing partner to assist in longer-term production as demand increases.

Company Objectives: Founded in 1973, Physical Sciences Inc. provides advanced research and design to government and commercial customers. PSI completes technology transition and product development for government and industrial customers, prototyping for commercial applications and limited production of special instruments. PSI has completed technology and product licensing with many strategic partners and has launched four spin-out companies to date.

Potential Commercial Applications: Commercial markets include off-grid & sustainable living, outdoors and recreational power. The turbine design and materials used in construction can be scaled to optimized system cost, power generated and required maintenance interval for unique power generation applications.

Contact: Ziv Arzt, Principal Engineer
zarzt@psicorp.com (978) 689-0003

Ground and Sea Platforms

Company	Topic	Project Title	SYSCOM
Triton Systems, Inc.	N231-046	Revolutionized Undersea Training Target Motors	NAVSEA
Micro Nano Technologies	N231-064	Reversible Replenishment Air-Conditioning System	ONR

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
NAVSEA #2025-052

Topic # N231-046
Revolutionized Undersea Training Target Motors
TRITON SYSTEMS, INC.

WHO

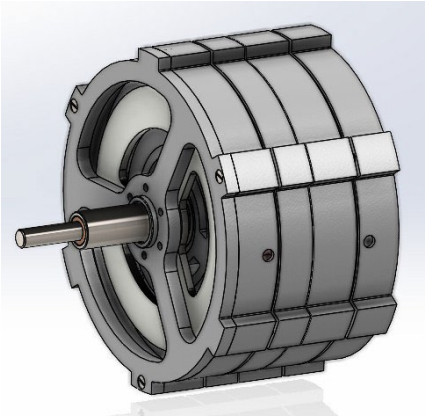
SYSCOM: NAVSEA

Sponsoring Program: PMS 404, Undersea Weapons Programs Office

Transition Target: MK39 Expendable Mobile Anti-Submarine Warfare (ASW) Training Target (EMATT)

TPOC: (401) 832-3730

Other Transition Opportunities: Adjacent markets include mobile countermeasures (PMS 415/NUWC Code 15), small deep diving UUVs for subsea seabed warfare (ONR Code 32 FSUSW INP), submarine launched decoys (PMS 404), and UUV undersea mobile communication nodes (PMS 485/PMW 770). Current commercial applications in oceanography profiling, water sampling, and other underwater data collection can benefit from this high-efficiency motor technology. High-Efficiency, light-weight, compact and affordable electric motor for the MK39 EMATT incorporates contra-rotating dual motors.



High-Efficiency, light-weight, compact and affordable electric motor for the MK39 EMATT incorporating contra-rotating dual motors

Notes: This compact, efficient, light-weight and affordable electric motor for the MK39 EMATT incorporates contra-rotating dual motors. It delivers 95% efficiency and over 1.15 Nm torque at 4050 rpm, offering significant advantages for high sprint speed run profile options.

1. 95% efficient motor design – the motor is optimized using software combining artificial intelligence (AI), genetic algorithms, and finite element analysis (FEA) to find designs along the Pareto frontier. The motor also features novel stator teeth with proprietary material combinations and processes to minimize stator core losses.
2. Contra-rotating electric motor streamlines EMATT propulsion integration and reduces cost: Inherent roll control eliminates the need for complex pre- or post-swirl stators, independent torque-balance actuators, or static fin deflection, thereby increasing control authority and reducing drag.
3. The design offers high low-speed torque with direct-drive and specialized controllers, further minimizing torque ripple and back-EMF harmonics resulting in overall lower radiated noise.

WHAT

Operational Need and Improvement: Modernize, innovate, and enhance the efficiency of the MK39 Expendable Mobile Anti-Submarine Warfare (ASW) Training Target (EMATT) motor to enable short duration high speed sprints without excessive radiated noise or compromising current low speed performance.

Specifications Required: To meet operational needs, the motor design requires a test point efficiency of over 80% at 4050 RPM, with a minimum torque requirement of 1.15 Nm. In addition, the total weight of the motor should not exceed 2 pounds, and its length must be limited to a maximum of 2.5 inches. The production cost for the new motor should be less than $1,250.

Technology Developed: Developed an innovative contra-rotating, highly efficient, affordable, light-weight and low-noise electric motor for the MK39 EMATT MOD 4 high speed variant.

Warfighter Value: This new motor will have a cost less than or equal to the current MK39 EMATT MOD 3 motor while providing a 10-12% increase in energy efficiency at high sprint speeds. Once matured, this technology could be scaled up to larger UUVs or be incorporated into analogous air or surface launched A-Sized form factored UUVs for delivery of kinetic effects.

WHEN

Contract Number: N00024-25-C-S008 **Ending on:** Nov 07, 2025

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Simulation Performance	Medium	>90 efficiency at 4050 rpm and 1.15 Nm	3	3rd QTR FY25
Efficiency Test in Dynamometer	Medium	>90 efficiency at 4050 rpm and 1.15 Nm in dynamometer	4	1st QTR FY26
Acoustic Evaluation	Medium	TBD/Classified	4	4th QTR FY26
Extended Duration and Thermal Evaluation	Medium	TBD/Classified	5	1st QTR FY27
Integration Test	Medium	TBD/Classified	6	4th QTR FY27

HOW

Projected Business Model: The motor will be sold as a component for an UUV (Unmanned Underwater Vehicles) or as a complete propulsion system that consists of the motor, controller, shaft and propeller. The motor and propulsion system can be customized to specific UUV requirements.

Company Objectives: The company's objective is to mature and prove this technology, initially incorporate the motor into the Mk 39 EMATT MOD 4 high speed variant, and later offer the design as an option for future small UUV applications, including decoys or kinetic effectors.

Potential Commercial Applications: Micro-AUV market, where high speed and efficiency are differentiators. Current commercial applications for oceanographic profiling, water sampling, and other underwater data collection. This technology can also be utilized in aeronautical applications where efficiency and torque density are differentiators.

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Department of the Navy SBIR/STTR Transition Program

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ONR Approval #2025-10-8-1584

Topic # N231-064
Reversible Replenishment Air-Conditioning System
Micro Nano Technologies

WHO

SYSCOM: ONR

Sponsoring Program:

Transition Target: Future Surface Ships

TPOC: Mark Spector
mark.spector.civ@us.navy.mil

https://wall.alphacoders.com/big.php?i=104073

Other Transition Opportunities: A wide variety of applications can benefit from this technology due to its ability to reduce HVAC energy usage, enable tight control of humidity levels, simplify HVAC system design, and reduce equipment failures and corrosion-related structural damage. These features make it especially valuable for a range of Department of Defense (DOD) applications (e.g., ships, hangars, forward operating bases, temporary structures, command centers) as well as for commercial and industrial settings, including commercial vessels, food processing and preparation areas, hospitals, cleanrooms, data centers, laboratories, museums, archives, storage facilities, and other spaces where precise humidity control is mission-critical.

Notes: Separating the handling of latent (humidity) and sensible loads has long been a challenge in the HVAC industry. The high efficiency and unique system architecture of this technology overcome the traditional limitations of liquid desiccant systems, enabling the implementation of separate sensible and latent cooling (SSLC) systems and opening up new opportunities for improved performance and energy savings.

WHAT

Operational Need and Improvement: The heating, ventilation, and air conditioning (HVAC) system is critical to the functionality of a ship's combat and damage control systems, as well as to the comfort and health of its crew. Navy ships operate in humid environments, where latent (humidity) loads from outside or replenishment air account for a significant portion of the total cooling load during the summer, while sensible heating from heaters drives substantial electrical demand during the winter months. Evolving battle-space doctrine — emphasizing operations in both littoral and Arctic environments — along with changing climate conditions, further contribute to these demands and highlight the need for more adaptable and efficient HVAC solutions.

Specifications Required: A system capable of conditioning 2000 cubic feet per minute (cfm) of outside air entering the ship to reduce the air conditioning latent load and improve system efficiency to reduce the power consumption. The system shall be compact, non-hazardous, and efficient, minimizing airside pressure loss while reducing size, weight, and electrical power consumption of the shipboard HVAC systems.

Technology Developed: An efficient, compact, light, HVAC technology capable of dehumidification/cooling and heating is being developed to condition shipboard outdoor ventilation air to greatly reduce the overall shipboard HVAC energy consumption. This program will result in the development of a production ready system that has been operational tested at Navy design and off-design conditions.

Warfighter Value: This system reduces shipboard HVAC energy consumption, increasing the amount of available power to other shipboard systems, improves shipboard humidity control and indoor air quality (IAQ), helping to reduce humidity-driven failure of shipboard equipment, and reduces the use of hydrofluorocarbon (HFC) based refrigerants which are in the process of being phased-out of production.

WHEN

Contract Number: N68335-25-C-0166 **Ending on:** Aug 24, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Performance Test 2000 cfm Fully Operational Prototype	Low	Experimental validation of performance at scale.	6	4th QTR FY26
System shipboard interoperability tested	Medium	Demonstrated ability to meet shipboard mechanical operational requirements.	8	4th QTR FY27

HOW

Projected Business Model: Micro Nano Technologies' (MNT) business model is to research, design, and manufacture its dehumidification and drying technologies, and market them to commercial original equipment manufacturers (OEMS), defense primes, and directly to consumers dependent on market size and maturity. For the Reversible Replenishment Air Conditioning System, MNT is looking to work with the government and prime contractors to integrate the system into ship HVAC system designs, ultimately marketing the technology to the government and defense prime contractors.

Company Objectives: MNT is currently developing a range of modular dehumidification and drying technologies, to provide the ability to efficiently control humidity in ships, buildings, industrial processes. These technologies enable the ability to significantly reduce HVAC related energy consumption, especially in the hot and humid climates in which the Navy operates. MNT envisions that these scalable technologies can be retrofitted into existing ships of many sizes, incorporated into new ship designs, and used in a variety of shore-based applications.

Potential Commercial Applications: This technology can be leveraged in a wide range of applications where tight control of indoor humidity is critical — especially in spaces with large humidity loads that require independent management of humidity alongside temperature. These include hospital operating rooms, commercial buildings, food processing and preparation areas, hangars and storage facilities with humidity-sensitive equipment, cleanrooms, laboratories, data centers, silos, archives, and other settings where precise humidity control directly impacts performance, safety, and operational efficiency.

Contact: Michael Schmid, President
mschmid@mntusa.com (407) 719-5435

NAVY SBIR TRANSITION PROGRAM

Human Systems

Company	Topic	Project Title	SYSCOM
Barron Associates, Inc.	N23A-T014	Human Automation Teaming for Efficient Knowledge Extraction and Test Generation	NAVSEA
Sonalysts, Inc.	N231-044	Expeditionary Command/Control and Training (ECaT)	NAVSEA
Luna Labs USA, LLC	N232-089	Sentinel: Automatic LPU for Ejection Seat Aircraft	NAVAIR

Department of the Navy SBIR/STTR Transition Program

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NAVSEA #2025-053

Topic # N23A-T014
Human Automation Teaming for Efficient Knowledge Extraction and Test Generation
Barron Associates, Inc.

WHO

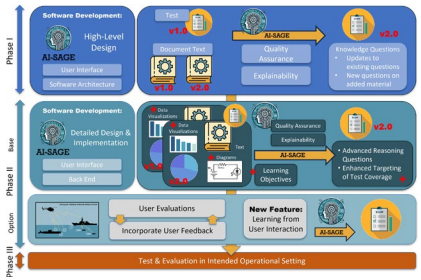
SYSCOM: NAVSEA

Sponsoring Program: PEO IWS

Transition Target: SQQ-89, SWFTS, USW-DSS

TPOC: (757) 810-4898

Other Transition Opportunities: Training organizations throughout DOD including the Navy Surface Combat Systems Training Command, the Submarine Learning Center, and other organizations with the Naval Education and Training Command; the Naval Air Warfare Center Training Systems Division; the U.S. Army Training and Doctrine Command; and the U.S. Air Force Air Education and Training Command



Barron Associates, Inc.

Notes: The AI-SAGE software tool is designed to allow human users to effectively team with AI to efficiently generate and update training materials. It emphasizes explainability of AI through an explicit decomposition of the process that provides visibility into key intermediate steps, and includes extensive automated quality assurance to maximize the accuracy of outputs while minimizing human labor.

WHAT

Operational Need and Improvement: Military systems including those used in USW operations are frequently updated, necessitating updated training materials. Preparation of those training materials is currently time consuming, and there is a need to speed development of training materials to enable rapid deployment of new technologies.

Specifications Required:
Significantly reduce man hours required for generation of updating training material
Achieve very high accuracy to ensure correctness of training

Technology Developed: The AI-SAGE technology will facilitate effective human-automation teaming with advanced natural language processing to automate the process of generating and updating training materials corresponding to new and updated systems.

Warfighter Value: AI-SAGE will facilitate safe and rapid deployment of new technologies that enhance the effectiveness of the warfighter, and free man hours for other high value tasks.

WHEN

Contract Number: N00024-25-C-T014 **Ending on:** Jan 16, 2027

Milestone	Risk Level	Measure of Success	Ending TRL	Date
AI-SAGE V0 Software Prototype	Low	Successful text processing	4	3rd QTR FY26
AI-SAGE V1 Software Prototype	Medium	Successful processing of graphical elements	5	2nd QTR FY27
AI-SAGE V2 Software Prototype	Medium	Learning based on user interaction	6	2nd QTR FY28

HOW

Projected Business Model: Direct sales of locally-hosted software solutions for DOD and other organizations with highly restrictive security requirements. Secure cloud-based solution for unclassified documents.

Company Objectives: Barron's near-term objective is to deploy the technology to support programs of record related to USW, including SQQ-89 and USW-DSS under PEO IWS (5.0), and SWFTS under PEO UWS, followed by additional customers in the Naval Education & Training Command (NETC). The longer-term objective is to reach a broader set of customers within all branches of DOD as well as other federal agencies including DOT (including FAA), DHS, DOE, and DOJ. The initial focus is on safety-critical systems for which the high accuracy of the proposed technology is essential.

Potential Commercial Applications: With increasingly complex technology deployed in a huge variety of domains, and with software updates common in many systems, the need for training and training updates is vast. AI-SAGE will improve the efficiency of training development in applications ranging from transportation (e.g., emerging air vehicles, increasingly automated ground vehicles) to infrastructure, IT, cybersecurity, and factory automation.

Contact: Alec Bateman, Technical Director
bateman@barron-associates.com (434) 973-1215 x128

Department of the Navy SBIR/STTR Transition Program

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NAVSEA #2025-036

Topic # N231-044
Undersea Warfare Adaptive Trainer (UWAT)
Sonalysts, Inc.

WHO

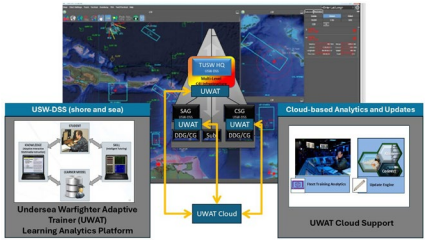
SYSCOM: NAVSEA

Sponsoring Program: PEO IWS-5

Transition Target: Undersea Warfare Decision Support System (USW-DSS) (AN-UYQ 100)

TPOC: (619) 524-6588

Other Transition Opportunities: AN-SQQ89 Surface Ship Anti-Submarine Warfare Combat System
AN-BQQ10 Submarine Sonar System
AN-BYG-1 Submarine Tactical System
Other surface ship, submarine, and aircraft training systems



https://navysbir.us/n22_1/N221-025_Reference_4_USW_DSS_Overview.pdf

Notes: Learning Analytics Platform leveraging mature adaptive training technology with Moodle Learning Management System and artificial intelligence-machine learning (AI/ML) enabled analytics to enable efficient mastery development of the warfighter.

WHAT

Operational Need and Improvement: Significant Innovation and development of USW-DSS increases the need for more training for operators to effectively employ the system. Current tactical environment requires USW-DSS operators to be able to use the system effectively during a variety of situations. Reservists have little opportunity to practice on the system prior arrival at the operational commander.

Specifications Required: The Navy seeks to (1) improve training for USW-DSS, (2) virtualize USW-DSS to a) reduce operating costs, b) minimize downtime, c) increase infrastructure agility, and d) enable faster provisioning of updates across fielded USW-DSS instantiations. The integrated training capability will meet a 10% increase in mission effectiveness and 10% reduction in time to mission success across a range of simulated missions across varying environments and stages of mission complexity.

Technology Developed: Containerized Learning Analytics Platform enabling adaptive training that will train the operator on only the sections of the system that is required for the individual. The system contains TRL9 closed-loop adaptive training system, open source Moodle learning management software, combined with a retrieval augmented generation large language model (RAG/LLM), scenario generation, and data analytics toolkit. The system will connect with a cloud based analysis capability that will enable shore based training commands and fleet generation organizations to review world-wide training progress. Additionally, the cloud architecture provides training commands the ability to create and deliver new training content to USW-DSS systems as tactics and technology change providing efficient adaptive system upgrades.

Warfighter Value: Improved speed for USW-DSS operators to obtain mastery in system use. Increased system performance and stability due to the containerization of the system. Fleet level knowledge of training deficiencies and increased update to training content to enable warfighters to learn faster.

WHEN

Contract Number: N00024-25-C-S019 **Ending on:** Dec 09, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Phase II Base MVP	Low	Initial demo of the capability	4	1st QTR FY26
Initial Prototype Delivered	Medium	Fully functioning intial prototype	5	1st QTR FY27
Technology Seminal Transition Event	Medium	Successful user testing of system capability	5	3rd QTR FY27
Final Prototype Delivered	Medium	Integration into USW-DSS Capability Build	6	1st QTR FY28

HOW

Projected Business Model: Complete development of the prototype and integrate with USW-DSS in Capability Drop 28.2 for IWS-5 under future Phase III contract. Continue sustainment and future system capability improvements to improve warfighter performance. Prior to full delivery of system, establish contract path to deliver mature capabilities to fleet sooner (Moodle, Learner Model). Establish additional opportunities to develop training content for USW-DSS using innovative Generative AI training content creation system Training Accelerator (TrAcc).

Company Objectives: While developing UWAT, Sonalysts will look for opportunities to deploy subsections of the system as needed to additional organization to support training demands including other IWS tactical systems, DOD Training Commands, and tactical system Prime Contractors. Additionally, Sonalysts will look for opportunities to develop capability in the commercial market.

Potential Commercial Applications: Adaptive training system in many different domains such as Fire, Police, EMT, Airplane Pilots and air traffic controllers, emergency management personnel, and medical personnel.

Contact: Ken Huff, Vice President - Decision Support and Analysis Group
khuff@sonalysts.com (860) 885-4662

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
NAVAIR SPR-2025-0675

Topic # N232-089
Sentinel: Automatic LPU for Ejection Seat Aircraft
Luna Labs USA, LLC

WHO

SYSCOM: NAVAIR

Sponsoring Program: PEO (U & W)

Transition Target: PMA-202

TPOC: (301) 995-2673

Other Transition Opportunities: USAF Human Systems (AFLCMC/WNU)

Notes:

The current Life Preserver Units (LPU) for Fixed-Wing Ejection Seat Aircraft are equipped with FLU-8B/P automatic inflation assemblies that initiate inflation automatically upon sensing water immersion. Current units were designed in the late 1970s and deployed in the early 1980s. Technology is now several generations ahead of the legacy FLU-8 design.

Luna Labs USA's new Sentinel automated inflation system is ready to update operational flotation to the 21st Century!

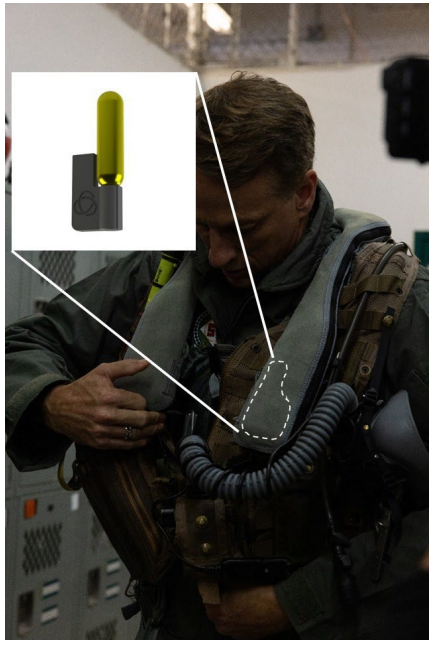


Photo: DVIDS # 7988751. The appearance of U.S. Department of Defense (DoD) visual information does not imply or constitute DoD endorsement. Inset image courtesy of Luna Labs USA 2025.

WHAT

Operational Need and Improvement:

One principal challenge to maintaining the legacy system is that the procurement control for MW-14 6V alkaline batteries used to power the FLU-8B/P resides with Naval Sea Systems Command (NAVSEA) instead of NAVAIR. Cyclic procurement of these custom batteries causes a push-pull effect in the logistics chain where the end user either has too many batteries or not enough. A new commercially available power source would change logistical control and open additional procurement availability to fleet maintainers.

Specifications Required:

Key requirements include:

- Reduction in size and weight from current design, with ability to retrofit existing LPU product lines

- Full inflation in 30 seconds with automatic and manual capabilities

- Maintain high standards of operation in multiple operational environments or emergency situations

- Development, demonstration, and validation of the prototype

Technology Developed:

To address this Navy and Marine Corps challenge, Luna Labs is developing the Sentinel automatic inflation system, that can automatically inflate LPUs for fixed wing ejection seat aircraft and reduce the burden on the user by reducing the weight and required pull force for manual activation. The Sentinel system design will also improve system procurement for this life saving technology.

Warfighter Value:

An updated automatic inflation system would improve safety and life-saving capabilities for all ejection seat aircraft in the current and future DoD aviation enterprise. Eliminating need for unique power sources means that procurement availability can be immediately resolved, improving reliability and reducing burden on Fleet maintainers.

WHEN

Contract Number: N68335-25-C-0215 **Ending on:** Mar 25, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Full inflator prototype completed.	Low	Prototype produced and ready for testing / demonstrations	5	4th QTR FY25
Finalize form factor, ruggedize	Medium	System optimized, units undergoing end user testing	6	1st QTR FY26
LRIP Manufacturing	Medium	Initial units produced and distributed to stakeholders	6	3rd QTR FY26
T&E, compliance testing	Medium	Relevant compliance testing passed, units being evaluated at T&E events and representative environments	7	1st QTR FY27

HOW

Projected Business Model:

Luna Labs USA has identified a strong manufacturing production partner for Low Rate Initial Production (LRIP) of SENTINEL's final iteration, following successful SBIR program evolutions.

Company Objectives:

Luna Labs is a technology resource for aerospace, energy, automotive, health sciences, first responders, telecommunications, and defense. Our scientists and engineers generate solutions that save time, money, and lives. Working with a robust global network of manufacturers, suppliers, licensees, and distributors, Luna Labs develops everything from small-scale prototypes up to market-ready products.

Potential Commercial Applications:

This product can be used for any inflatable product where automatic inflation is desired or required for commercial / industry air and sea safety.

Contact: Kelley Virgilio, Project Manager
kelley.virgilio@lunalabs.us (434) 220-7699

NAVY SBIR TRANSITION PROGRAM

Materials & Manufacturing Processes

Company	Topic	Project Title	SYSCOM
Boston Engineering Corporation	N221-040	Shipboard Laser DED Metal Additive Manufacturing System	NAVSEA
METSS Corporation	N221-055	Improved Towed Array Acoustic Hose	NAVSEA
Cornerstone Research Group, Inc.	N23B-T032	Active Part Filtering for Additive Manufacturing Candidate Identification	NAVAIR
Integrated Solutions for Systems	N221-075	Enhanced Lethality Warhead: Phase II	ONR
Product Innovation and Engineering L.L.C.	N221-021	Modeling and Process Planning Tool for Hybrid Metal Additive/Subtractive Manufacturing to Control Residual Stress and Reduce Distortion	NAVAIR
Triton Systems, Inc.	N231-076	Electrically Conductive Self-Assembled Monolayer (SAM) Anti-Stiction Coating for Micro-Electromechanical Systems (MEMS)	SSP

Department of the Navy SBIR/STTR Transition Program

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NAVSEA #2025-056

Topic # N221-040
Shipboard Laser DED Metal Additive Manufacturing System
Boston Engineering Corporation

WHO

SYSCOM: NAVSEA

Sponsoring Program: NAVSEA

Transition Target: 2028

TPOC: (215) 897-1179
shaun.m.verrinder.civ@us.navy.mil

Other Transition Opportunities:
Additive Technologies- setting up additive technologies to allows shipboard shock and vibe to exist, and still perform
Subtractive Technologies- similar in a lot of ways, but removal of parts in a shipboard environment.
Unique Implementation- this could include the effort to allow increased speed of deposition, active shock and vibration response.

Notes: The Boston Engineering Laser Directed Energy Deposition (LDED) will allow vessels who encounter a part failure while underway to quickly regain full mission capability. The LDED can organically produce parts on-board, on-demand, thus reducing supply chain and logistics dependence and freeing stowage space of spare parts.

This image shows the current state of the art. The future designs could utilize ground or above ground based systems, allowing capacity in smaller spaces.

The laser directed energy deposition (LDED) provides needed parts for underway vessels. Using a wire and directed energy, the ship can produce its own near net shaped components. No longer forced to sail with limited land-based storage, the LDED provides the Navy with on-demand, on-board parts. The LDED technology will help the Navy to achieve a fully functional, fully autonomous fleet, able to project worldwide.

This effort with the building of shipboard parts in demand, means the part supply chain is no longer the constraint. This effort focuses on the shock and vibration necessary to perform these constructions, with the final goal of part supply chain fleet autonomy, with every system available.

WHAT

Operational Need and Improvement:
Program challenge of shipboard automation and reduction of logistics. The ability to supply components on-demand, as needed, will reduce the logistics supply chain.

Specifications Required:
-5in x 5in x 5in to 5ft x5ft x 5ft part
-316 SS as primary
-MIL-S-901D, Amended with Interim Change #2, Shock Test, H.I. (High Impact); Shipboard Machinery, Equipment and Systems, Requirements for
-MIL-STD-167-1, Mechanical Vibration for Shipboard Equipment (Type I - Environmental and Type II - Internally Excited)
-MIL-STD-461F, Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment
-MIL-STD-740-2, Structure-borne Vibration Acceleration Measurements and Acceptance Criteria of Shipboard Equipment

Technology Developed:
This effort will allow the shipboard manufacture of parts and components necessary vital to the maintenance of the ship. Each part can be performed to a near-net shaped object, using a minimum of materials. The wire-based extrusion using focused directed energy will provide a simple solution for just-in time components, without land-based supply.

Warfighter Value:
The ability of the warfighter to quickly overcome broken parts allows utilization of all aspects of the ship. No longer will parts require land-based transportation and logistics, but the components can be made on site.

“You will not find it difficult to prove that battles, campaigns, and even wars have been won or lost primarily because of logistics.”
– Dwight D. Eisenhower

WHEN

Contract Number: N00024-25-C-S046 **Ending on:** Mar 04, 2028

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Subtractive Technology	Medium	Demonstrating Success for net shape	4	2nd QTR FY27
Additive Technologies	Low	Demonstrating near net shape production of parts for shipboard	5	2nd QTR FY26
Shock and Vibration	High	Point of exercise, to show effectiveness of the system in shipboard environment	5	2nd QTR FY28
Control Scheme	High	Need to utilize shipboard as well as local sensors, and operate in a manner to allow the warfighters easy access	3	2nd QTR FY28
Manuals	Medium	Require manuals to allow for simplicity of operation, with understanding of the system components, will require above efforts	3	2nd QTR FY28

HOW

Projected Business Model:
Advance the Additive Manufacturing model
Advance the Manufacturing process through a part integration
Advance the Subtractive Manufacturing Model

Company Objectives:
Develop a shipboard system that can provide Additive, Subtractive, and finishing applications in one step.
Sailor understanding of the system through ease of implementation and simple instructions.
Customers include the Navy, other commercial shipboard manufactures, and remote locations where virtually all the material can be utilized.

Potential Commercial Applications:
Available to ships in fleets to make just-in-time repairs without requiring supply ships or ship downtime, applicable to commercial shipping as well.
Application to remote areas, providing parts on-demand for locations for which parts/supply chains cannot reach.
Application to develop molding for parts, allowing multiple parts to be made from identical fixtures.

Contact: Douglas S. Schmidt, Ph.D.
dschmidt@boston-engineering.com (781) 314-0709

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
NAVSEA #2025-073

Topic # N221-055
Improved Towed Array Acoustic Hose
METSS CORPORATION

WHO

SYSCOM: NAVSEA

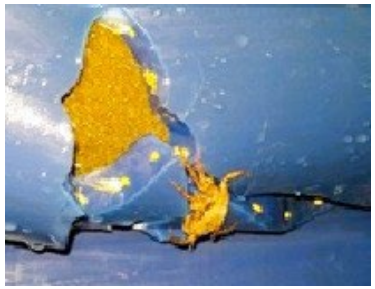
Sponsoring Program: PEO IWS 5.0

Transition Target: Qualified acoustic hoses for TB-34A, TB-37A, and TB-29C towed array systems

TPOC: (401) 832-8229
robert.cutler@navy.mil

Other Transition Opportunities: US Navy surface ships and submarines that depend on towed sensor arrays will benefit.

Notes: Beyond METSS' innovative material solution, METSS has developed unique testing capabilities that use actual fishhooks to evaluate punctures and slices to acoustic hoses. In this way, objective analyses can be made.



Towed Array Snag Ocean Debris / Damage Acoustic Hose

WHAT

Operational Need and Improvement: The Navy seeks improved cut-resistant towed array acoustic hoses to increase the availability of existing towed arrays and reduce lifecycle costs – an innovative solution to reduce or eliminate susceptibility to cutting and puncturing hazards often experienced during at-sea surveillance operations.

Specifications Required: Exceed current specifications
- operational temps and pressures
- pass vibration tolerances per MIL-STD-167A
- tolerate seawater, ISOPAR L/M exposure for at least 5 years
- compatible with nylon, polyester, Kevlar, and Vectran reinforcement cords
- outside diameters (ODs) that range from 1.1 to 3.5 inches
- wall thicknesses up to 0.5 inches; surface roughness of 125 µ-inches
- dcable/Ddrum ratio of 1:24 when wrapped on a drum
- tolerate a leak-proof swage or crimped termination.

Technology Developed: METSS is incorporating novel additives to existing materials of construction to improve the abrasion- and cut-resistance that much be compatible with current acoustic hose manufacturing practices.

Warfighter Value: Increase operational availability; reduce maintenance and out-of commissions of ships/submarines; improve toughness without sacrificing performance.

WHEN

Contract Number: N00024-24-C-S008 **Ending on:** May 09, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Phase I Base Awarded	Low	Prove concept feasibility via lab-scale testing	4	4th QTR FY22
Phase II Base Awarded	Low	Continue development and testing methods	7	3rd QTR FY24
Prototype Acoustic Hoses	Low	Successfully manufacture acoustic hoses using existing practices	6	3rd QTR FY26
Meet LRIP Requirements	Medium	Improve physical properties without sacrificing performance	8	4th QTR FY26
Qualification Testing	Low	Meet USN requirements during at-sea trials	9	2nd QTR FY27

HOW

Projected Business Model: The current plan is to sustain manufacturing operations within the subcontractor's facilities and improve processing practices where feasible. METSS plans to be a materials supplier under a licensing agreement to safeguard SBIR Data Rights.

Company Objectives: METSS plans to address current shortcomings in acoustic hose material properties by improving the overall toughness and resistances to damage in an effort to avert fail-to-sail conditions or premature operational readiness for ships ands submarines. Key platforms include the fat-line TB-34A and TB-37A, as well as the thin-line TB-29 towed array systems. Each of these towed sensors are susceptible to damage caused by 'ghost fishing" fishing gear (derelict longlines and fishhooks), marine animal attacks, and a plethora of surface and subsurface ocean debris.

Potential Commercial Applications: Within the Anti-Submarine Warfare community, US surface combatants and submarines that deployed towed sensor arrays depend on threat awareness to achieve mission profile success. A damaged acoustic module impacts operational readiness and exacerbates ship vulnerabilities, especially submarines that depend on remaining undetected.

Contact: Brian Collett, Director
bcollett@metss.com (614) 390-3171

Department of the Navy SBIR/STTR Transition Program

Topic # N23B-T032
Active Part Filtering for Additive Manufacturing Candidate Identification
Cornerstone Research Group, Inc.

WHO

SYSCOM: NAVAIR

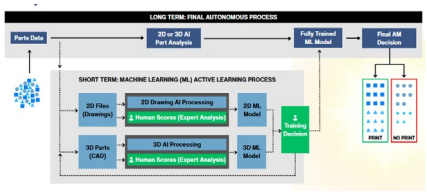
Sponsoring Program: NAVAIR

Transition Target: PEO MLB

TPOC: (732) 323-7134
kyle.w.cobb.civ@us.navy.mil

Other Transition Opportunities: DLA, Air Force RSO, Army

Notes:



CRG Defense

WHAT

Operational Need and Improvement: The Navy is seeking an autonomous software that can evaluate 2-dimensional part drawings or 3-dimensional part models to identify whether they are good candidates for additive manufacturing. The software will be a decision aid for Navy additive manufacturing engineers that will accelerate identification of good part candidates. Print cost and time estimates will be provided as well to assist in the decision-making process.

Specifications Required:
- Compatible with 2D drawings and 3D models
- Minimal human assessment involvement required
- Autonomous machine learning-based technology
- IL4 cloud-based software
- Easy-to-use, intuitive user interface
- Provides AM suitability score, print cost, and print time estimates

Technology Developed: Parts producers and organizations that maintain extensive parts libraries are turning to additive manufacturing (AM) for its design flexibility, cost savings, and faster production times. While AM offers the flexibility to produce limited runs of many different replacement parts, it isn't always the optimal choice for every component. Given the sheer volume of parts in these libraries, manual analysis to determine AM suitability is impractical. As a result, CRG is developing Additive Manufacturing Candidate Identification (AMCI), a human-guided artificial intelligence (AI) software that automatically identifies suitable AM candidates with associated lead-time and cost prediction.

Warfighter Value: AMCI benefits the warfighter by identifying parts that can be made using AM. This will increase mission system readiness by producing replacement parts as they are needed thereby reducing supply chain fragility and logistical challenges associated with bulk procurement.

WHEN

Contract Number: N68335-25-C-0023 **Ending on:** Apr 15, 2027

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Scoring rubrics established	Low	Expert and TPOC acceptance	3	4th QTR FY25
Software components established	Low	Components developed in AWS GovCloud	3	1st QTR FY26
Machine Learning Suitability Score completed	Low	Machine learning demonstrated for suitability score	3	1st QTR FY26
Time and Cost Methodology completed	Low	Expert and TPOC acceptance	3	2nd QTR FY26
2D part reader completed	Medium	2D reader demonstrated high accuracy	3	2nd QTR FY26
Software Alpha version completed	Medium	System is functional and results are reproducible	4	3rd QTR FY26
Software Alpha version tested	Medium	NAVAIR usage testing	5	4th QTR FY26
Software Beta version tested	Medium	NAVAIR usage testing	6	3rd QTR FY27

HOW

Projected Business Model: Software-as-a-service license model

Company Objectives: CRG will sell and maintain the software

Potential Commercial Applications: Other industries with a large quantity of legacy parts, such as the aerospace, automotive, and medical sectors.

Contact: Catherine Ashley, Research Engineer
ashleycb@crgrp.com (937) 914-1373

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
ONR Approval #2025-9-25-1507

Topic # N221-075
Enhanced Lethality Warhead: Phase II
Integrated Solutions for Systems

WHO

SYSCOM: ONR

Sponsoring Program: Naval Air Warfare and Weapons (Code 35), Kinetics Weapon Division

Transition Target: PMA-201 Precision Strike Weapons

TPOC: Chad Stoltz
chad.a.stoltz.civ@us.navy.mil

Other Transition Opportunities:
Integrated Solutions for Systems (IS4S) developed novel additive manufacturing (AM) techniques for application in warhead manufacture, principally for the North American market where missile manufacturers can implement advanced missile technologies to reduce cost and increase production while maintaining or improving missile effectiveness.

Photos, images and icons all generated by IS4S (2025).

Notes:
IS4S is a 100% employee-owned small business, performing dynamic engineering and management activities supporting government and commercial customers to include engineering design, custom product development, and research, development, test, and evaluation (RDT&E) services.

WHAT

Operational Need and Improvement:

Legacy warhead designs are often decades old and do not incorporate state of the art ingredients and design concepts. More importantly, these weapons are proving inadequate for emerging and even current threats, as they were originally developed for different historic target sets. Where more complex explosive responses are desired for special target applications and lethality enhancements, few material solutions have been available short of combinations of legacy warhead design features.

Specifications Required:

- Demonstrate warhead feasibility for lethality enhancements
- Complete detailed modeling and simulation
- Pursue partnerships and work with appropriate DoD contractors

Technology Developed:

IS4S's novel AM-enabled design features create efficiencies in fragmentation lethality tailoring, explosive claim-space, and blast directionality. Additionally, AM manufactured warheads can better combine reactive fragments with additively manufactured inert materials, potentially increasing available energy in the warhead while enhancing the efficiency of energy transfer to the target.

Warfighter Value:

ISFS proposes an additively manufactured warhead providing the same form-factor as fielded weapons to allow those missiles to punch above their weight class by efficiently engaging a broader range of target sets with greater destructive power.

WHEN

Contract Number: N68335-23-C-0290 **Ending on:** Jan 30, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Finalize fire-starting RM integration for weaponized warhead configuration	Low	Incendiary effects on relevant surrogate target	4	4th QTR FY25
Static arena test of full-scale warhead	Low	Incendiary effects on relevant surrogate target(s)	4	1st QTR FY26
Preliminary integration of warhead into a tactical weapon platform	Low	Fit checks, weight and balance, M&S of detonation	5	1st QTR FY26
Finalize ESAF selection / design	Low	Relevant MIL standards and cost	5	2nd QTR FY26
Finalize integrated tactical weapon design	Medium	Fit checks, weight and balance, M&S of detonation, relevant MIL standards	5	3rd QTR FY26
Flight testing of integrated weapon system	Medium	Fit checks, weight and balance, M&S of detonation, relevant MIL standards	6	4th QTR FY26
Live Fire Tests of integrated tactical weapon system in representative target environment (static)	Medium	Incendiary and lethality effects on relevant surrogate target(s)	6	1st QTR FY27

HOW

Projected Business Model:

IS4S intends to partner with DoD contractors directly engaged in warhead development in order to provide drop-in improvement in manufacturing processes, increasing lethality and broadening target sets for the proposed ordnance, and increasing market share for the partnership.

Company Objectives:

IS4S belives that rapid technology advances are continually creating opportunities to integrate emerging technologies into innovative system solutions, which explains our name: Integrated Solutions for Systems. While some of our efforts involve fundamental research and development, much of our company remains focused on leveraging and integrating emerging technologies to provide our customers with innovative solutions. This integration focus relies heavily on digital engineering.

Potential Commercial Applications:

Commercial entities can benefit from bi-metallic additive manufactured products using our novel processes. Aluminized steel is commonly used in commercial applications where corrosion resistance in combination with thermal conductivity are required; AM permits the printing of complex flow patterns for maximizing heat exchange efficiency in these designs, using thin-walled channels coated with aluminum.

Contact: Jack Otto, Principal Engineer
jack.otto@is4s.com (678) 350-5006

Department of the Navy SBIR/STTR Transition Program

Topic # N221-021
Modeling and Process Planning Tool for Hybrid Metal Additive/Subtractive Manufacturing to Control Residual Stress and Reduce Distortion
Product Innovation and Engineering L.L.C.

WHO

SYSCOM: NAVAIR

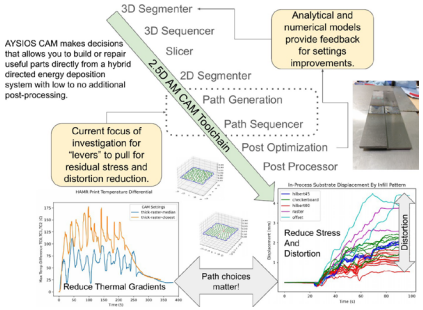
Sponsoring Program: NAVAIR Chief Technology Office

Transition Target: High value metallic components

TPOC: (301) 342-9359

Other Transition Opportunities: Repair of damaged components, replacement part manufacturing, coatings

Notes: Directed energy deposition (DED) paired with CNC machining promises a production path to large metal components from a relatively small footprint with positive implications for supply chain improvements. However, this class of additive processes has proven to be more difficult to master than their plastic coutnerparts. Since the "tool" is generally a laser, there is no guaranteed contact position with the workpiece. Heat transfer during the process is hopelessly non-steady state, which makes the consistency of the resultant material a constant object of concern. The rate at which events occur during processing tends towards conditions that are outside most available metallurgical data. The potential to produce or repair functional, high-value metal components on-demand via a digitally driven process is significant enough to make addressing these issues worthwhile.



PINE'S AYSIOS CAM software makes manufacturing plan choices using a combination of empirical and analytical methods to satisfy the user's strategic objectives.

WHAT

Operational Need and Improvement: As additive manufacuting technology matures, the number of choices available for a machine operator is becoming increasingly daunting. Our philosophy is to put the human in control of the objectives and use automation to make the miriad of choices needed to fulfil this objective. The present work allows us to create objectives based around geometric and stress requirements.

Specifications Required: Create a build planning and simulation tool to optimize hybrid DED processes such that:
* Resulting geometry is within tolerances
* Stresses are within acceptable ranges
* Near surface stresses acceptable for fatigue life

Technology Developed: PINE has created a software solution for creating bespoke path plan solutions for building high quality metallic parts via hybrid DED systems. Our highly modular solution is scalable and configurable for bespoke applications. We have created a data exchange mechanism for partner physics models to be applied to PINE CAM paths to create measuremnts for our path plan optimization routines to satisfy user objectives.

Warfighter Value: The value proposition of our work is in a highly automatic toolchain for creating bespoke manufacturing plans for equipment organizations may already possess that allows them to make or repair parts with the best-scenario state for their internal stresses. This will result in parts that are dimenionally correct with the desired mechanical properties.

WHEN

Contract Number: N68335-24-C-0215 **Ending on:** Feb 02, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
CAM System	Low	CAM system operational for external users with multiple target systems	7	4th QTR FY25
Heruistics Demonstration	Medium	Demonstrate categorical decision making for the CAM process for minimizing distortion derived from experimental results.	6	4th QTR FY25
Physics Model Ensemble	High	Three surrogate models derived via disparate methods predicting thermal and stress fields, targeting 1000:1 speedup over conventional FE methods	5	2nd QTR FY26

HOW

Projected Business Model: There are a few possible revenue streams here:
For the SBIR project, we are building a UI for customers to interact with the CAM solution. I already have some beta users at some partner universities. I would like to build an income stream around this eventually.

The machining optimization partner for this project has also proposed using a subset of this project's output as an additive module for their machining simulation. i.e. Generate the stressed and distorted from the AM process as an input to their machining simulation to optimize output.

I would also include some or all of this at a system controller level for future DED systems developed at PINE.

Company Objectives: Steadier, non-SBIR income! We have been fairly successful in securing SBIR funds, but transition has been a challenge. This has affected our ability to retain talent.

Potential Commercial Applications: Service Parts
Part Repair
Data generation for machine learning applications (2 ongoing efforts here)
OEM integration into DED Systems

Contact: Todd Sparks, Director of R&D
toddesparks@mopine.com (573) 612-1352

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
12/1/25

Topic # N231-076
Electrically Conductive Self-Assembled Monolayer (SAM) Anti-Stiction Coating for Micro-Electromechanical Systems (MEMS)
TRITON SYSTEMS, INC.

WHO

SYSCOM: SSP

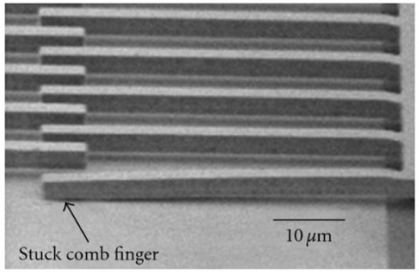
Sponsoring Program: Navy SSP

Transition Target: MEMS Foundries

TPOC: SSP.SBIR@ssp.navy.mil

Other Transition Opportunities: Microchip Fabs

Notes: Vapor-Phase Processing via Atomic Layer Deposition (ALD)
Seeking MEMS partnership for testing and evaluation of dissipative anti-stiction coatings



Fonseca D. and Sequera M., Intl J Quality Statistics and Reliability 2011, 820243

WHAT

Operational Need and Improvement: Charge-dissipating anti-stiction coatings are desired for mitigating blocked surface charges in harsh environments.

Specifications Required: High-temperature stability.
Vapor-phase processing.

Technology Developed: Silicon functionalization processing was transferred to the vapor phase

Warfighter Value: Durable functional coatings for critical MEMS and electronics systems

WHEN

Contract Number: N64267-25-C-7120 **Ending on:** Jul 30, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Metric Development	Medium	Identifies native oxide test case.	2	4th QTR FY25
Vapor Phase Processing	Low	Coating via ALD	3	1st QTR FY26
Test Device Evaluation	Medium	Evaluation of a coated MEMS	5	3rd QTR FY26

HOW

Projected Business Model: Technology licensing or precursor formulation sales to MEMS and electronics foundries.

Company Objectives: Materials and Device Innovation

Potential Commercial Applications: Advanced silicon-based devices, including plasma generators, energy harvesters, microsensors, and chips.

Contact: John Lock, PhD, Director, Sensing Technologies
jlock@tritonsys.com (978) 856-4170

NAVY SBIR TRANSITION PROGRAM

Modeling and Simulation Technology

Company	Topic	Project Title	SYSCOM
Spectral Sciences, Inc.	N221-081	Automated Full Trajectory Aero-Thermo-Mechanical Simulation Coupling for Hypersonic Flight	SSP

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
12/19/2025

Topic # N221-081
Automated Full Trajectory Aero-Thermo-Mechanical Simulation Coupling for Hypersonic Flight
Spectral Sciences, Inc.

WHO

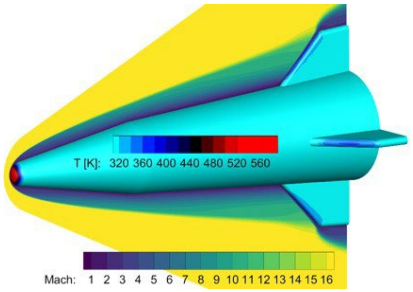
SYSCOM: SSP

Sponsoring Program: Navy SSP

Transition Target: Modeling and simulation engineers within Army/Navy in need of improved prediction of coupled aero-thermo-mechanical response of hypersonic flight

TPOC: SSP.SBIR@ssp.navy.mil

Other Transition Opportunities: Aerothermal modeling and ablation work within Army and Navy, and/or DoD Primes. Prediction of survivability as part of trajectory development.



Notes: Our method couples two widely used tools within the modeling community, US3D for computational fluid dynamics and ABAQUS for finite element modeling. The continuous regular coupling of results over a trajectory provides an full flight analysis and survivability assessment rather than targeting pre-selected points throughout flight.

Provided image is fictitious 3-pieces finned spherecone with surface heating due to Mach 16 flow. Image created by SSI.

WHAT

Operational Need and Improvement: Hypersonic vehicle flight operates in an extreme aerothermodynamic environment where high temperatures and nonequilibrium flow lead to a complex thermostructural material response. Accurately predicting vehicle survivability in these conditions requires temporal coupling of high-fidelity finite element analysis (FEA) and computational fluid dynamics (CFD) over a trajectory, as the thermostructural landscape evolves in time and is history-dependent. High-fidelity tools exists for modeling both CFD and FEA, but current techniques require major generalizations, simplifications, and assumptions to combine the two. Moreover manual mapping of data between tools is time-consuming and can be error-prone. Thus, streamlined and automated mapping of data between disparate tools would greatly improve the efficiently of engineering design and analysis for hypersonic flight at all stages of the design process.

Specifications Required: Automate the process of of mapping data between computational fluid dynamics and finite element analysis to provide a high fidelity aero-thermo-structural design tool that will give survivability assessments for hypersonic flight trajectories.

Technology Developed: Spectral Sciences, Inc. (SSI) is developing a novel coupling framework for full trajectory aero-thermo-mechanical modeling for hypersonic vehicle trajectories that combines thermo-structural FEA using ABAQUS and CFD using US3D. Automation and streamlining within the coupling framework simplifies the workflow and reduces the number of inputs required to run the highly specialized simulations. The new coupling framework uses US3D plugins TASC (Trajectory Ablation and Shape Change) and CHASM (Coupled Hypersonic Aerothermal Solid Modeling) to simulate hypersonic trajectories and regularly pass surface heating and shape evolution data using an efficient binary messaging protocol. Meanwhile, ABAQUS receives the data, performs the thermostructural calculation, and uses the same messaging protocol to send deformation and surface heating data to US3D. This process is automatically performed over a full trajectory, constantly updating the boundary conditions for each calculation as the vehicle evolves in time.

Warfighter Value: Enhanced predictions from existing engineering design and analysis tools will lead to increased survivability of U.S. hypersonic weapon systems. Our tools will also accelerate the process of trajectory selection and analysis and allow for quicker selection and assessment of new thermal protection systems, overall improving the decision-making process for the Navy.

WHEN

Contract Number: N64267-24-C-0020 **Ending on:** Jan 05, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Alpha Software Release	Low	Compiled software framework completes basic test cases	3	2nd QTR FY26
Test Case Report	Medium	Navy flight data test case demonstrated on coupled framework	3	2nd QTR FY26
If option exercised, Beta Software Release	Low	Compiled software framework with extended material capabilities	4	4th QTR FY26

HOW

Projected Business Model: The product is a verified prototype software for coupling CFD in US3D to finite element in ABAQUS. We anticipate that the software framework will be included in JANNAF distribution of US3D-Plume-Wake-Hypersonic set of tools, for which SSI is the prime distributor. We anticipate our framework will initially be used/tested through our continued partnership/support with Navy SSP. SSI will also provide use of our framework as a service to interested and cleared customers.

Company Objectives: Spectral Sciences, Inc. (SSI) is a leading provider of hypersonic fluid dynamics tools and software. SSI's objective is to provide the hypersonics community with enhanced predicative capabilities to reduce the uncertainty in hypersonic vehicle design, analysis, and detection, enabling improvement in performance metrics and ultimately reducing cost.

Potential Commercial Applications: Due to the sensitive nature of this work, we expect our framework to initially be utilized by DoD partners and prime defense contractors like Lockheed. Our framework is designed to be used for aero-thermo-mechanical analysis of flight vehicles, but may also be extended, with some additional funding, to scramjet nozzles and/or cruise missiles. We will initially market out framework to existing customers of VirtusAero, LCC (distributors of US3D and frequent SSI collaborator). Beyond the DoD, our framework could be adapted to assist with design and analysis for hypersonic flight at NASA and in the commercial aerospace industry.

Contact: Alexandra Woldman, Automated Full Trajectory Aero-Thermo-Mechanical Simulation Coupling for Hypersonic Flight
awoldman@spectral.com (781)273-4770

NAVY SBIR TRANSITION PROGRAM

Sensors

Company	Topic	Project Title	SYSCOM
Secure Planet, Inc.	SOCOM163-003	Advanced Tactical Facial Recognition at a Distance Technology	MCSC
Advis	N22A-T026	Low-Cost, Low-Power Vibration Monitoring and Novelty Detector	ONR
Agile RF Systems LLC	N231-063	Additive Manufactured Low-Loss Small-Size Low-Profile Conformal GRIN Lens in the K-Band	ONR
IXI Technology Electronic Warfare, LLC DBA IXI EW	N22A-T021	Affordable Stabilized Directional Antennas for Small Platforms	ONR
SK Infrared LLC	N22A-T020	3D Multimodal Imaging with LiDAR-like Engineered Sensor (3D-Miles)	ONR
Triton Systems, Inc.	N23A-T021	Autonomous, Long-Duration, Directional Ambient Sound Sensor	ONR

Secure Planet, Inc.

Topic #: SOCOM163-003
Advanced Tactical Facial Recognition at a Distance Technology

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
ONR Approval #2025-8-28-1335

Topic # N22A-T026
Low-Cost, Low-Power Vibration Monitoring and Novelty Detector
ADVIS

WHO

SYSCOM: ONR

Sponsoring Program: Office of Naval Research

Transition Target: Advis' intelligent vibroacoustic sensing platform targets transition to multiple Navy, Marine Corps, and broader DoD stakeholders engaged in condition-based maintenance, machine health monitoring, and platform sustainment. Specific transition pathways include: NAVSEA, NAVAIR, PEO IWS, PEO Ships, Marine Corps Systems Command (MCSC), Office of Naval Research (ONR) and NAVWAR.

TPOC: Danielle Paynter
danielle.m.paynter2.civ@us.navy.mil

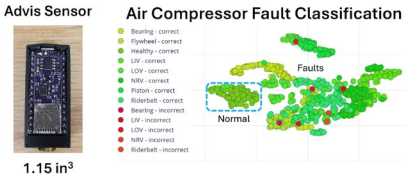


Photo source: Advis, Inc., fault classification diagram created using Advis sensor collected training and test data with Edge Impulse software.

Other Transition Opportunities: The platform is compatible with open development frameworks and supports end-user customization, making it ideal for deployment across a wide range of Navy and Marine Corps maintenance, sustainment, and ISR applications.

Notes: With more than 20 years of experience in this area, the Advis principals pioneered the development of low-power smart vibration and acoustic sensors for machine health monitoring. Advis principals also have extensive manufacturing experience in the consumer electronics area.

WHAT

Operational Need and Improvement: There is a need for compact, low-power, and easily deployable machine health monitoring solutions that enable condition-based maintenance (CBM+) across sea, air, and ground platforms. Advis' intelligent vibroacoustic sensor platform provides early detection of mechanical faults in machinery and persistent, unattended acoustic surveillance for threat detection, vehicle tracking, and perimeter monitoring. The Advis system also provides for rapid customization and deployment by non-expert personnel in operational environments.

Specifications Required: Key specifications are: form factor: 1 cubic inch, battery-powered with 3-year service life under duty-cycled operation, sub-milli-g resolution vibration sensing with 1 Hz – 10 kHz bandwidth, optional acoustic sensing. Supports Edge Impulse, MATLAB, and Python-based toolchains, Operating temperature: –40°C to +85°C, MIL-STD-810 compliant enclosure for shock, vibration, and moisture resistance.

Technology Developed: Advis has developed a compact, low-power intelligent vibroacoustic sensing platform that integrates a custom low cost, high-sensitivity vibration sensor with an embedded ARM microcontroller capable of running onboard machine learning algorithms. The system provides support for Edge AI development using Edge Impulse, MATLAB, and open-source Python toolchains enabling rapid creation and deployment of anomaly detection and fault classification models by non-experts.

Warfighter Value: Advis' smart sensor platform enhances warfighter effectiveness by enabling real-time awareness of equipment health, reducing mission risk due to unexpected mechanical failures, and streamlining logistics through predictive maintenance. This technology directly contributes to force agility, resilience, and operational dominance.

WHEN

Contract Number: N68335-24-C-0010 **Ending on:** Mar 24, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Brassboard System Demonstration	Low	Successful demonstration of Advis vibration sensor and integrated smart sensor system	4	1st QTR FY25
Integrated and Packaged Prototype Lab Demonstration (1.15 cubic inch pkg)	Low	Packaged, battery powered, device demonstrated for training data collection and fault classification in laboratory environment	6	2nd QTR FY25
Demonstrate Level 2 integration - less than 1 cubic inch, Bluetooth radio, acoustic sensor	Low	Eliminate need to connect to sensor via wires	6	4th QTR FY25
Low volume production (50 units)	Low	Meet cost target, demonstrate reliability in relevant environment while retaining functionality	7	1st QTR FY26
Integrated system ready for deployment	Medium	Provide user friendly integrated system and end-user documentation in integrated system with all previously demonstrated functionality	8	3rd QTR FY26

HOW

Projected Business Model: Advis will employ a hybrid manufacturing and service-based business model to support scalable deployment and long-term sustainment of its intelligent sensing platform. The platform follows an open-hardware model to encourage adoption and integration flexibility. By keeping hardware costs low, Advis will ensure it remains more economical for customers to purchase Advis-built units than to self-fabricate.

Company Objectives: Advis' primary objective is to provide a low-cost, accessible entry point into intelligent machine health monitoring (MHM), condition-based maintenance (CBM), and unattended acoustic sensing for a broad spectrum of defense and civilian users. Our aim is to lower the technical and economic barriers to implementing AI-driven sensing through affordable hardware, open development tools, and user-friendly deployment workflows.

Potential Commercial Applications: Advis' intelligent sensing platform has broad applicability across commercial and industrial markets where predictive maintenance, condition monitoring, and acoustic surveillance are valuable. Key application areas include industrial equipment monitoring, transportation and fleet management, smart buildings and infrastructure, wind turbines, and heavy equipment monitoring for agriculture and construction. With its low cost, small footprint, and support for embedded AI, the Advis platform enables scalable commercial deployment and supports the growing demand for Industry 4.0 and smart asset management solutions.

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Department of the Navy SBIR/STTR Transition Program

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ONR Approval #2025-8-27-1329

Topic # N231-063
Additive Manufactured Low-Loss Small-Size Low-Profile Conformal GRIN Lens in the K-Band
Agile RF Systems LLC

WHO

SYSCOM: ONR

Sponsoring Program: ONR SBIR

Transition Target: Air Platforms; Ground/Sea Platforms

TPOC: Trevor Snow
trevor.m.snow3.civ@us.navy.mil

Other Transition Opportunities: Telecom infrastructure, satellite communciations, automotive radar, 5G/6G base stations and research

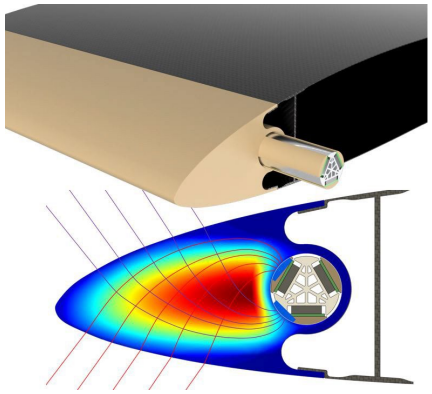

Image courtesy of Agile RF Systems, LLC

Notes: Freeform Gradient Index (F-GRIN) lenses in microwave and mm-wave applications could provide lower cost beam steering options for high power radar, SAR, communications, and EW implementations in small and envelope-constrained platforms, without the cost, complexity, and aperture geometry constraints of phased array implementations. Agile RF Systems has demonstrated an F-GRIN additive manufacturing method capable of dielectric constants as high as 20 using polymer materials with some of the highest available thermal, mechanical, and dielectric loss properties for microwave and mm-wave applications. A new class of lensing apertures for simple point feed or line array emitters - lens systems that are compact, conformal, and even structurally integral to the platform - are being explored.

WHAT

Operational Need and Improvement: The Navy seeks conformal gradient-index (GRIN) lens structures for integration onto curved surfaces like the fuselage of small Group 2 unmanned aerial systems (UAS). These lenses must deliver wideband, high-efficiency beam steering while minimizing weight, thickness, and thermal/electromagnetic losses. This effort aims to improve sensor and antenna integration on compact platforms by enabling lightweight, broadband, power-tolerant lenses that maintain performance across wide scan angles and harsh maritime conditions.

Specifications Required: The lens must be capable of operating across a broad 10:1 bandwidth, ideally spanning 2 to 40 GHz, while conforming to curved surfaces like a small UAS fuselage. The design must maintain high beam steering performance, with a scan loss exponent below 2.5 and sidelobe levels at least 20 dB below peak gain at boresight and 15 dB at 50° scan. Additional requirements include minimal weight and thickness, low dielectric and efficiency losses, thermal resilience up to 10 kW microwave power, cost-effective manufacturability, and suitability for naval maritime environments.

Technology Developed: Agile RF Systems' freeform gradient index (F-GRIN) microwave and mm-wave lens design and manufacturing workflow is capable of producing lenses with novel RF loss performance, steering performance, thermal-structural performance, and true mm-wave capability, while virtually eliminating the design constraints imposed by legacy subtractive and additive GRIN & F-GRIN lens manufacturing processes. This new F-GRIN lens production method is uniquely suited to weight sensitive applications with constrained envelopes, and applications where a structurally and/or functionally integral lens antenna system is advantageous.

Warfighter Value: These novel lens structures and lens antenna systems can enable greater sensing, detection, communication, & response capabilities for smaller platforms at a lower cost than alternative beamforming methods. The desired impact is a greater number of more capable and less expensive systems contributing to enhanced warfighter situational awareness and control throughout the electromagnetic operational environment.

WHEN

Contract Number: N68335-24-C-0287 **Ending on:** Aug 31, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
F-GRIN Manufacturing Methods Review	N/A	Comprehensive review of the state-of-the-art, shortcomings & research lacuna	1	2nd QTR FY24
Novel Manufacturing Method Demonstrated	High	Lab-scale manufacturing method developed, expected properties achieved	4	4th QTR FY24
Design Synthesis, Software, Hardware Strategies for Higher TRL	Low	Downselections complete	4	1st QTR FY25
Lens Material Properties Validated thru W Band	Medium	Materials produced via novel method shown functionally isotropic, non-scattering	4	2nd QTR FY25
Manufacturing Software Demo	Low	Basic functions of manufacturing software (custom CAM) demonstrated	5	4th QTR FY25
Manufacturing Hardware Demonstration	Medium	Basic functions of higher TRL manufacturing system demonstrated	5	1st QTR FY26
All-up F-GRIN Manufacturing Workflow Demo	Medium	End-to-end functionality of design synthesis, mfg. software, mfg. hardware, testing & validation	6	2nd QTR FY26

HOW

Projected Business Model: Agile RF Systems is seeking primarily to facilitate design for manufacture (DFM) and manufacturing of F-GRIN lenses with novel capabilities via the manufacturing method being developed. This approach allows for the focused refinement of the manufacturing method and adjacent technologies, to serve an emerging market which is becoming saturated with interest and lens antenna system concepts, but is markedly deficient in adequate manufacturing capability to serve this interest.

Company Objectives: Agile RF Systems aims to enable a new class of flexible, practical, affordable directional antenna systems with this technology. Agile's expertise in high performance, low-cost phased array antenna system implementation suggest several commercial and defense applications which could be simplified and made more capable through the application of high performance lensing, including envelope-constrained EW, SAR, atmospheric sensing, and wideband communications.

Potential Commercial Applications: Wideband, high steering capability lens antenna systems, including hybrid electronic/mechanical steering systems, could enable:
- High performance/low cost SATCOM terminals, replacing phased array or gimbaled dish systems
- Increased 5G/6G base station performance, reduced envelope & power consumption
- Security & surveillance radar systems with reduced reliance on moving parts or large antenna arrays
- Smaller sensor footprints for autonomous vehicles and other obstacle avoidance radar-equipped systems

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Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
ONR Approval #2025-11-17-1679

Topic # N22A-T021
Affordable Stabilized Directional Antennas for Small Platforms
IXI Technology Electronic Warfare, LLC DBA IXI EW

WHO

SYSCOM: ONR

Sponsoring Program: US Navy / Naval Air Warfare Center AD (LKE)

Transition Target: US Navy sonobuoy applications; AN/SSQ-125 (multistatic sonar field generation), AN/SSQ-53F (DIFAR), and AN/SSQ-62F (DICASS) sonobuoys.

TPOC: Santanu Das
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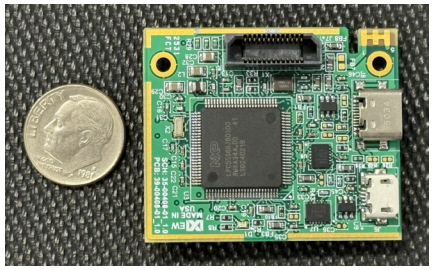

"Image courtesy of IXI EW 2025"

Other Transition Opportunities: Low-asset, attritable, or disposable moving platforms including sensor buoys, handheld equipment, USVs, UAVs including loitering munitions, UGVs, and Army convoy vehicles. Commercial UAVs, UGVs, and parcel delivery. Integration into other IXI product lines including XTAK™ portable servers and radios, COUNTERPOINT™ rifle mount C-UXS units, and SEMPRE™ vehicle mount C-UXS units.

Notes: The image depicts a Low Size, Weight, Power and Cost (SWaP-C) controller with inflatable antenna array sensing and transmitting at a wave swell apex all being developed through this phase II. The result is improved communications, especially at higher sea states, and power savings allowing assets to communicate for longer periods.

WHAT

Operational Need and Improvement: Sea state conditions significantly impact communications between vessels, aircraft, and sensor platforms. In the North Atlantic and North Pacific, sea states 4–6—where swells exceed deployed antenna heights—occur over 67% of the time.[1] These swells degrade datalink reliability due to long-period motion. Similar signal degradation can occur in ground or airborne vehicles due to terrain or evasive maneuvers. This STTR addresses the need for robust communication by developing a low-cost Automated Antenna Control Unit (AACU) that senses platform motion and dynamically adjusts antenna aim. The AACU also optimizes transmission timing by maximizing range at the swell apex or minimizing detectability at the trough nadir. Paired with a compact, inflatable beamforming-capable antenna array, the system improves range, saves power, and extends operational lifetime.

[1] Lee, W.T., Bales, S.L., 1984, Environmental data for design of marine vehicles, SNAME.

Specifications Required: Develop a low-cost, inertially stabilized beam-pointing system (<10 cu. in., <8 oz, <1 W) with high accuracy (100 Hz refresh), <3 dB PATS loss, and full integration with antennas for VHF, UHF, and L-band. System must support autonomous, long-range comms in sea states up to 4, with TRL 6 demos, stress testing, and variable beam widths for robust mobility and SATCOM use.

Technology Developed: A pair of standalone integrated printed circuit card assemblies for antenna control supporting full-duplex VHF/UHF up/downlink with phase control. A multi-element VHF/UHF antenna array with radio and ACU payload suitable for a Size A sonobuoy. Control software with a swell detection and feedback feature as well as designated platform communications compatibility.

Warfighter Value: For sonobuoy and wave glider platforms, the warfighter value is in improved lifetime, range, sea state resilience, datalink access, and reduced probability of interception and detection of our disposable and attritable sensor assets. This technology can also be applied to enhance radio communications of other marine, ground, airborne, and civilian assets. The additional value from expanded deployment of these technologies in other platforms includes improved pervasiveness of datalinks and tactical awareness for dismounted warfighters especially when on the move and in inclement weather and terrain conditions.

WHEN

Contract Number: N68335-24-C-0366 **Ending on:** Aug 04, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Open water test ANTX 2024	Low	Communications data quality measurement with captured motion	5	1st QTR FY25
Complete control unit	Low	Integrated miniaturized module ready for software development	5	3rd QTR FY25
Antenna array complete	Medium	Deployable array ready for open water test	5	1st QTR FY26
Open water test ANTX 2026	Medium	System integration ready to test with aircraft	5	3rd QTR FY26

HOW

Projected Business Model: This STTR technology will be incorporated into a product consisting of a circuit card and antenna array with integrated software. This product will be sold to Lockheed Martin and other sonobuoy vendors such as Sonobuoy TechSystems (Erapsco), a joint venture between Ultra and Sparton. IXI will manufacture the product up to a few thousand units per month. If the demand increases, NuWaves has higher-volume capable facilities.

Company Objectives: To deliver and sustain valuable technology to our nation's warfighters and increase shareholder value.

Potential Commercial Applications: This technology enhances radio communications and local positional awareness of ground, air, and commercial vehicles, and handheld equipment. For example, there are over 100,000 UPS delivery vehicles, over 100,000 FedEx delivery vehicles, and approximately 645,000 postal service vehicles. A core product that simplifies phased array development and reduces cost, power, and weight would be invaluable to enabling and enhancing data on-the-move networking capabilities beyond conventional cellular and satcom-based infrastructure.

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Department of the Navy SBIR/STTR Transition Program

Topic # N22A-T020
3D Multimodal Imaging with LiDAR-like Engineered Sensor (3D-Miles)
SK Infrared LLC

WHO

SYSCOM: ONR

Sponsoring Program: ONR

Transition Target: LiDAR systems. Object tracking and distance estimation.

TPOC: Behzad Kamgar-Parsi
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Other Transition Opportunities: Army, Navy, Air Force, Automotive. Industrial and warehouse safety and material handling. Surveillance and situational awareness.

Notes:

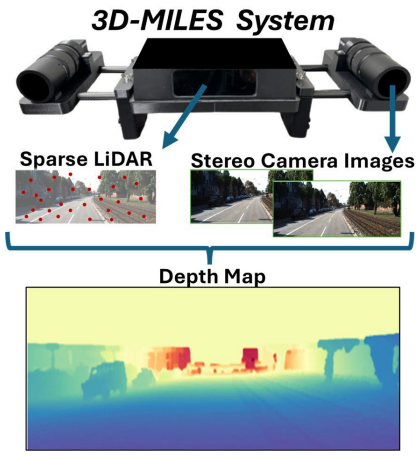

Image courtesy of SK Infrared, 2024. Image courtesy of KITTI Vision Benchmark Suite; https://www.cvlibs.net/datasets/kitti/raw_data.php

WHAT

Operational Need and Improvement: The Navy seeks an inexpensive Lidar-like 3D imaging suite that has high depth and lateral resolution, a large field-of view (FOV), reliable object detection and depth calculation, responds in real time, and performs at medium to long ranges in indoor and outdoor environments. SK Infrared has developed a hardware and software platform that can accurately detect and estimate the distances of objects over a large FOV in dynamic environments under differing conditions. Our product, 3D-MILES (3D Multimodal Imaging with LiDAR-like Engineered Sensor), is designed for deployment on a variety of platforms, from ground-based vehicles, unmanned autonomous vehicles (UGVs and UAVs) to small vessels and large ships.

Specifications Required: The system requires a "Design for Cost" approach to meet the size, weight, and power plus cost (SWaP-C) need for deployment on lightweight platforms. A sensor suite with a high FOV and high resolution must be able to accurately detect objects and calculate depths at distances of up to 300m with high accuracy and low latency in changing environments.

Technology Developed: The 3D-Miles platform is developed to provide operational and performance improvements compared to an expensive LiDAR system. The hybrid platform integrates state-of-the-art (SOTA) machine learning and computer vision algorithms with stereo cameras and a time-of-flight (TOF) system. The 3D-MILES algorithm, GRAFT-stereo (LiDAR data fused with stereo images), outperforms RAFT-Stereo (only stereo images) by reducing the average pixel error by 20% while using fewer than 500 LiDAR points for guidance. Our method even outperforms a state-of-the-art system which uses a 64-beam LiDAR.

Warfighter Value: 3D MILES system offers adaptive resolution and optimal range while maintaining portability with a small, lightweight, and low power footprint. This will allow for mounting it in small autonomous platforms (UxVs) for reliable surveillance and identification. For example, this will be provide value to the warfighter in rescue missions, determine distant adversaries, or provide risk assessment in contested, cluttered, and dynamic environments. While traditional LiDARs offer high depth accuracy, they are very expensive and limited in range with regards to maritime environments.

WHEN

Contract Number: N68335-23-C-0704 **Ending on:** Sep 12, 2025

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Design & Model System Hardware	N/A	Understand system requirements for the design and acquisition of software and hardware to develop a system prototype	5	1st QTR FY23
Sparse LiDAR Subsystem	Low	Design and develop hardware and software to assemble a dynamically adjustable sparse time-of-flight point cloud	4	1st QTR FY25
Stereo Depth Estimation Algorithm	Low	Develop an efficient algorithm to fuse LiDAR data with stereo images to accurately estimate depths of human sized objects in a scene	5	2nd QTR FY25
FPGA Implementation	Medium	Implement and run an object detection and depth estimation algorithm in a FPGA using real world data	4	4th QTR FY25
System Evaluation	Medium	Demonstrate system operation using real world data	4	4th QTR FY25

HOW

Projected Business Model: SK Infrared models a dual-path plan to commercialization that includes manufacturing the key Sparse Lidar component of the 3D-MILES system and engaging with established system integrators and government contractors for insertion into systems appropriate for the Navy and other U.S. government organizations. We have developed a foundry manufacturing business model to mirror the fabless model popularized by the semiconductor industry. This avoids the high cost of the capital equipment and allows new products to ease into emerging markets, as well as enhancing the return on investment by leveraging existing foundry supplier resources.

Company Objectives: We would evolve and qualify our prototype unit with further refinements for transition and commercialization and ensure that the real-time imaging system is operable in relevant environments. This technology would be adaptable to smaller platforms to extend coverage of additional operational environments within the DoD in need of tracking or surveillance within their areas of interest.

Potential Commercial Applications: The innovative 3D-MILES system is designed for surveillance and navigation on land and airborne vehicles. We expect to pursue the commercial sector for various technology applications such as agriculture, maritime movement, and dynamic environments where typical Lidar systems are limited in operation. Market reports for Lidar systems indicate that the global market is growing at approximately 21% annually with a value of $7.25B by the end of 2030. This growth is attributed to the integration of LiDAR and artificial intelligence in various applications, from enhancing self-driving vehicle navigation to aiding in smart city management. SK Infrared's 3D-MILES improves upon this traditional Lidar technology by expanding the range, with keeping cost considerations sustainable.

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Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
ONR Approval #2025-8-15-1270

Topic # N23A-T021
Autonomous, Long-Duration, Directional Ambient Sound Sensor
TRITON SYSTEMS, INC.

WHO

SYSCOM: ONR

Sponsoring Program: ONR Code 32

Transition Target: Naval Oceanographic Office (NAVO)

TPOC: Jason Chaytor
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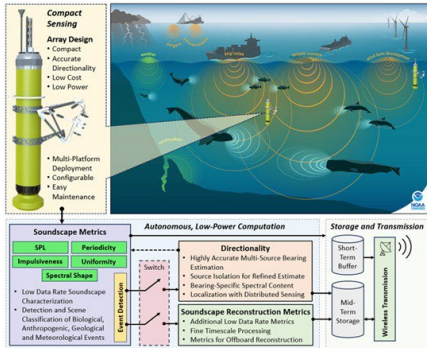
Other Transition Opportunities: National Oceanographic and Atmospheric Administration (NOAA), PMS 485 Mobile Surveillance Systems, PMS 485 Deployable Surveillance Systems, PMA 264 Naval Air ASW



Ambient Sound Directional Acoustic Receiver (ASDAR) System Overview

Notes: Triton's Ambient Sound Directional Acoustic Receiver (ASDAR) conducts lightweight, low-power processing of acoustic data to extract key metrics that characterize the soundscape and its directionality and transmit these periodically over low-data rate radio links. These metrics are also quickly interpreted by human observers or by event detectors and classifiers based on machine learning techniques. They are also suitable for incorporation into large oceanographic databases and prediction models. The soundscape metrics paradigm and the low power, real-time data stream it enables, is key to the ability to field large numbers of low-cost, autonomous sensors that can gather this data and put it to use. ASDAR has three key advantages versus competing approaches:

- Best Characterization of Soundscape per Byte.
- Widely Scalable Directionality and Power Consumption to Enable Long Durations.
- Modular Design for Versatile Platform Deployment.

WHAT

Operational Need and Improvement: There is significant commercial need for acoustic monitoring. In traditional offshore oil exploration, there is a need to monitor for marine mammals during many phases of exploration and development. Similar requirements exist in offshore wind. Acoustic monitoring for METOC is also in demand from commercial and civilian government customers. Following successful defense sales, our technology will be transitioned into these commercial markets. Triton's R&D group is co-located with a recent spin-off, Triton Anchor, LLC, which focuses on the offshore wind technology market and has an extensive business development network with this customer base from developers down to service providers.

Specifications Required: ASDAR addresses the key requirements the customer has defined. Sound waves generated by natural and anthropogenic sources convey information about both the source and the environment. Underwater recordings of ambient sound have been previously used to estimate local weather, identify the presence/absence of marine organisms, and, particularly when directional information is included, to characterize the undersea environment. These systems, however, have not found widespread usage in the near-real-time reporting systems that currently exist in ocean observing networks due to challenges in their size, weight, and power (SWAP) and constraints on power of onboard processing.

Technology Developed: The ultimate product for the use by the Navy will be an Ambient Sound Directional Acoustic Receiver (ASDAR). This system provides an autonomous, long-duration, directional ambient sound sensing system capable of being integrated into a variety of platforms including floats, gliders, and ocean observation buoys. Triton intends to develop ASDAR and then commercialize it for use in ongoing Navy operations. We will support technology maturation by collaborating with manufacturers delivering relevant ocean monitoring platforms to key Navy programs.

Warfighter Value: Low-SWaP ability to characterize the undersea environment, estimate local weather, and identify the presence/absence of marine organisms with directionality, using underwater recordings of ambient sound

WHEN

Contract Number: N68335-25-C-0159 **Ending on:** Mar 03, 2027

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Core Use Cases Defined	Low	SME/TPOC agreement	2	2nd QTR FY26
In-Water Performance Assessment	Medium	Testing data collected	2	2nd QTR FY27
Algorithm Embedding	Low	Bench-level operation	4	2nd QTR FY28
At-Sea Deployment	Medium	Test data collected	6	2nd QTR FY29

HOW

Projected Business Model: The anticipated initial customer base is US Navy oceanography and marine monitoring efforts. End users such as the Naval Oceanographic Office (NAVO) will benefit from this sensor in their mission to characterize the ocean environment in support of operational models and forecasts of meteorology and oceanography (METOC) conditions. Other end user are the US Navy's Marine Species Monitoring program in support of the Navy's environmental compliance and permitting processes. These programs make wide use of diverse scalable platforms such as ARGO floats (~3800 deployed currently) and Slocum gliders (~300 in NAVO service). Beyond those known platforms ASDAR could be adapted to buoys, UUVs, USVs and diverse operating platforms including crewed vessels.

Company Objectives: In Phase II we will develop a prototype and conduct initial testing as described to validate our technology against current observations systems so that output from ASDAR is a known quantity for users. After Phase II, we envision an adoption period during which ASDAR will be transitioned to use on an actual representative platform, such as an ocean drifter. Our project team including Pacific Gyre and UNH have numerous test platforms and commercial products available for testing. We have the necessary expertise to rapidly advance the solution, scale up the number of devices, and support integration of data products with Navy operations centers – bringing the system into practical use with the US Navy. We plan to use this team to support the initial transition period.

Potential Commercial Applications: There is significant commercial need for acoustic monitoring. In traditional offshore oil exploration, there is a need to monitor for marine mammals during many phases of exploration and development. Similar requirements exist in offshore wind. Acoustic monitoring for METOC is also in demand from commercial and civilian government customers.

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Sustainment

Company	Topic	Project Title	SYSCOM
Shipcom Federal Solutions, LLC	N201-X02	Semantic Modelling for Lifecyle Mission Capability	NAVAIR

Department of the Navy SBIR/STTR Transition Program

Topic # N201-X02
Semantic Modelling for Lifecyle Mission Capability
Shipcom Federal Solutions, LLC

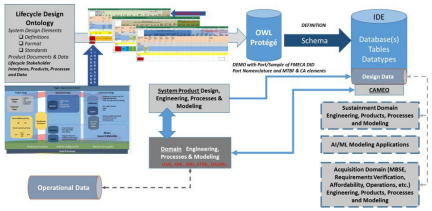
WHO

SYSCOM: NAVAIR

Sponsoring Program: Naval Sustainment System–Aviation (NSS-A)

Transition Target: Naval Aviation Enterprise (NAE), with initial integration and deployment at Fleet Readiness Center East (FRCE) in support of the Naval Sustainment System–Aviation (NSS-A).

Other Transition Opportunities: Air Force Sustainment Center (AFSC) at Robins AFB, other Fleet Readiness Centers (FRC Southwest, FRC Southeast), and Marine Corps depot-level maintenance and logistics modernization initiatives.



Semantic Modeling for Lifecycle Mission Capability: This diagram illustrates how Shipcom's solution captures lifecycle design ontology using OWL/Protégé to define schema and interfaces across stakeholder systems. It integrates operational and design data into the Naval Aviation Enterprise (NAE) digital ecosystem, enabling enhanced engineering, sustainment, and AI/ML applications for improved system reliability and mission readiness.

Notes: Solution leverages COTS tools (e.g., Protégé), Shipcom AI platform, and prior SBIR deployments. Requires Authority to Operate (ATO) for production-level integration. Shipcom is finalizing its facility clearance at the Secret level to support secure collaboration and deployment. Direct-to-Government sales strategy; no subcontractors.

WHAT

Operational Need and Improvement: Naval depots face significant challenges in maintaining mission-critical platforms due to aging infrastructure, fragmented data systems, and limited visibility into lifecycle design and sustainment needs. The Navy requires modern tools to accelerate depot throughput, improve readiness, and reduce delays. Shipcom's Lifecycle Mission Capability solution addresses these issues through AI-enabled semantic modeling, enabling rapid response to maintenance degraders and supporting the Navy's "speed to the fleet" goal.

Specifications Required: - Support for OWL-based ontology modeling (e.g., Protégé)
- Integration with Naval Aviation Enterprise (NAE) hosted systems
- Compatibility with REST APIs and secure network environments
- Scalable AI/ML processing capabilities
- Modular design for future expansion
- Designed to meet DoD cybersecurity standards for ATO approval

Technology Developed: Shipcom is developing an AI-enabled semantic modeling platform that captures and structures lifecycle system design ontology. The solution uses commercial ontology tools (e.g., Protégé) and Shipcom's AI platform to create an interactive, visual representation of system design, sustainment, and operational dependencies. It enables data-driven decision-making, improved visibility, and integration with Navy digital engineering initiatives.

Warfighter Value: By accelerating depot maintenance cycles and improving sustainment decision-making, Shipcom's solution directly supports higher aircraft availability, mission reliability, and faster return of platforms to the fleet. The technology reduces lifecycle cost, minimizes downtime, and enhances operational readiness—ultimately increasing the combat effectiveness and flexibility of Navy aviation forces.

WHEN

Contract Number: N68335-25-C-0189 **Ending on:** Jan 30, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Kickoff & Requirements Finalization	Low	Stakeholder-approved configuration and implementation plan	4	2nd QTR FY25
Ontology Framework Installation and Semantic Model Capture	Low	Working semantic model using Protégé with stakeholder-defined lifecycle design ontology	5	2nd QTR FY25
Shipcom AI Model Configuration and Initial Use Case Implementation	Low	AI/ML model supporting depot maintenance use case with measurable accuracy	6	3rd QTR FY25
Application Integration and Initial Demonstratio	Low	Integration into NAE environment and demonstration of core ontology and depot capabilities	7	4th QTR FY25
Final System Refinement and Use Case Validation	Low	Refined AI-assisted system validated against real-world FRCE use cases and SME	7	1st QTR FY26
Final Report, Transition Planning & Closeout	Low	Submission of final technical report, user guide, and transition plan package	7	2nd QTR FY26

HOW

Projected Business Model: Shipcom will pursue a direct sales model to the Navy and broader DoD agencies. The solution will be hosted within government-accredited environments and integrated into existing NAVAIR and Naval Aviation Enterprise (NAE) systems. The platform is built on COTS technologies, enabling rapid deployment and sustainment through licensing, integration services, and platform support.

Company Objectives: Shipcom aims to lead the transformation of DoD sustainment through AI-driven lifecycle management and ontology-based modeling. Our goal is to deliver scalable, secure, and mission-aligned platforms that improve readiness, reduce lifecycle costs, and empower data-informed decisions across the Naval Aviation Enterprise and other defense organizations.

Potential Commercial Applications: The semantic modeling and AI-enabled platform developed for NAVAIR has broad applicability across sectors such as commercial aerospace, heavy manufacturing, energy, and logistics. It can be used for digital thread implementation, predictive maintenance, supply chain integration, and asset lifecycle management for large-scale infrastructure and operations.

Contact: Frank Zahiri, Customer Engagement, Defense Programs
fzahiri@shipcom.ai (478) 714-1866

NAVY SBIR TRANSITION PROGRAM

Weapons Technologies

Company	Topic	Project Title	SYSCOM
NP Photonics, Inc.	N221-041	Compact High Power Mid-Wave Infrared Laser System	NAVSEA
Penta Research Inc.	N231-030	An Innovative Approach to Leverage System Safety MBSE Model Information Using AI/ML	NAVSEA
TDA Research, Inc.	N211-026	Reactive Boron Fuel for Energetic Applications	NAVAIR

Department of the Navy SBIR/STTR Transition Program

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NAVSEA #2025-063

Topic # N221-041
Compact High Power Mid-Wave Infrared Laser System
NP Photonics, Inc.

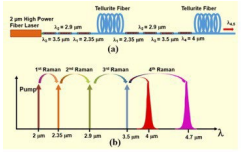
WHO

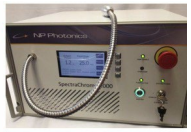
SYSCOM: NAVSEA

Sponsoring Program: IWS 2

Transition Target: SEWIP Block 4

TPOC: (202) 404-7675





6-U Rack, Turn-Key

Other Transition Opportunities: 1. Laser-based defense systems - Counter-UAV applications: The ability of DIRCM lasers to track and disrupt missile guidance systems can be adapted to develop effective counter-UAV (Unmanned Aerial Vehicle) systems - Counter-Artillery applications: Though still further out, the same principles used in DIRCM could potentially be applied to counter artillery threats with directed energy, according to USNI News.
2. Remote sensing and detection
Chemical and biological hazard detection: The high efficiency and power of some DIRCM laser technologies, such as Quantum Cascade Lasers (QCLs), could enable the creation of handheld remote sensors for detecting chemical and biological hazards.
3. Industrial and scientific applications
Materials processing: The precision and energy delivered by DIRCM lasers could find applications in industrial materials processing, such as cutting, welding, and surface treatment.
Research and development: QCL technology, a key component in advanced DIRCM systems, can be used in various research and development settings requiring high-performance lasers.
4. Medical applications
Potential for medical treatments: While requiring significant further development and regulation, the precise energy delivery of DIRCM lasers might hold potential for specific medical applications or diagnostic tools in the future.
5. Other emerging applications
Covert communications: QCL technology, as used in DIRCM systems, supports the advancement of covert communication systems.
Integration with other systems: The open architecture and modular design of some DIRCM systems make them adaptable and upgradeable, allowing for seamless integration with other defensive aid systems or platforms.

Notes:

WHAT

Operational Need and Improvement: The operational need for MWIR lasers in countermeasures stems from their ability to provide enhanced atmospheric transmission, superior sensitivity and contrast, reduced solar background noise, and suitability for long-range applications. These characteristics make MWIR lasers indispensable for a wide range of defense and security applications, including directed infrared countermeasures, standoff threat detection, targeting and acquisition, and battlefield imaging.

Specifications Required: Mid-Wave Infrared Laser source emitting > 100 W with operating wavelength covering the two atmospheric transparency sub-bands of 4-micron and 4.7-micron

Technology Developed: Multiple technology platforms are being developed.
1. Highly nonlinear tellurite optical fiber with low loss and high power handling; 2. All fiber based cascaded Raman laser design for > 100-W MWR laser system covering the two atmospheric transparency sub-bands of 4-micron and 4.7-micron.

Warfighter Value: Directed Infrared Countermeasures (DIRCM): MWIR lasers are used in DIRCM systems to protect aircraft from heat-seeking missiles, such as Man-Portable Air-Defense Systems (MANPADS). By emitting a high-powered MWIR laser beam, DIRCM systems can jam or blind the missile's infrared guidance system, diverting it away from the aircraft.
Standoff Detection of Threats: MWIR lasers can be used for the non-contact detection of explosives, chemical warfare agents, and other hazardous materials from a safe distance. By analyzing the unique spectral absorption features of these substances in the MWIR range, the presence of threats can be identified with high sensitivity and low false alarm rates.
Targeting and Acquisition: MWIR lasers are employed in targeting and acquisition systems for precision strikes and guidance of laser-guided weapons. Laser designators utilize MWIR lasers to illuminate targets, allowing smart bombs or missiles equipped with laser seekers to home in on the designated target.
Beacons and Identification Friend or Foe (IFF): MWIR lasers can be used as beacons for combat identification, enabling friendly forces to distinguish themselves from adversaries. This helps prevent accidental targeting and enhances situational awareness on the battlefield.
Imaging through battlefield conditions: MWIR imaging systems provide enabling capabilities for military imaging applications in challenging conditions such as smoke, dust, and fog, says the SPIE Digital Library. This capability allows for continuous surveillance and reconnaissance, even in adverse weather or obscured environments.

WHEN

Contract Number: N68335-23-C-0339 **Ending on:** Jun 25, 2025

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Waveguide power > 100 W	Medium	Test total output power at > 100W	4	2nd QTR FY26
Spectral bands 4-micron & 4.7-micron	Medium	Test optical spectrum at 4.0- and 4.7-micron	4	1st QTR FY26
Beam Quality M2 <2	Low	Test beam quality at 4 and 4.7 microns.	4	1st QTR FY26
Wall Plug Efficiency > 10%	Medium	Test the output power vs electrical power	4	3rd QTR FY26

HOW

Projected Business Model: Partnership with Defense Prime to support further laser development/maturation for integration in military systems.

Company Objectives: Commercialize high power mid-IR fiber lasers

Potential Commercial Applications: LIDAR/LADAR for Remote Sensing: MWIR lasers are crucial in LIDAR (Light Detection and Ranging) and LADAR systems used for remote sensing, target acquisition, and obstacle avoidance, with potential applications in autonomous vehicles and robotics.
Infrared Scene Illumination: Enhancing situational awareness in military, law enforcement, and civilian applications.
Standoff Detection of Chemical and Biological Threats: MWIR spectroscopy can identify hazardous substances from a safe distance.
Non-Destructive Testing: Detecting flaws and analyzing materials in industrial systems based on thermal changes or material absorption in the MWIR range.
Material Processing: MWIR lasers are utilized in specialized cutting, welding, and selective etching/marking of materials, particularly those with strong absorption in this range like plastics and glass.

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Department of the Navy SBIR/STTR Transition Program

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NAVSEA #2025-068

Topic # N231-030
An Innovative Approach to Leverage System Safety MBSE Model Information Using AI/ML
Penta Research Inc.

WHO

SYSCOM: NAVSEA

Sponsoring Program: PEO IWS 3.0

Transition Target: Standard Missile (SM-2/SM-6)

TPOC: (540) 653-6607

Other Transition Opportunities: PEO IWS 12 - ESSM
PWO IWS 11 - RAM

Notes: The Penta-INTUITIVE team is using Digital Engineering principles outlined by the Department of Defense (DoD), specifically Model-Based Systems Engineering (MBSE), Artificial Intelligence (AI), and Machine Learning (ML), to enhance the safety processes for the development and deployment of Navy munition and missile systems.

Photo courtesy DVIDS. The appearance of U.S. Department of Defense (DoD) visual information does not imply or constitute DoD endorsement.

WHAT

Operational Need and Improvement: The safety process and requirements for these systems contain various constraints that prevent rapid changes to the systems. Therefore, embracing these Digital Engineering techniques will position the Navy to become more agile towards adversarial threats when designing, testing, and fielding missile and munition systems.

Specifications Required: The final version of AIM-SAFE (AI In MBSE for Safety Assessment and Failure Evaluation) will provide a prototype digital model of the Navy safety framework that bridges relationships between explosive hazard classifications, explosive hazard mitigation, and associated risks with requirements and testing processes. AIM-SAFE shall illustrate the decision analysis techniques that provide efficiencies. A subset of existing munition program cases are being used to trace the conceptualized system performance across both operational and system safety level analysis events to support model validity and potential process efficiencies that could reduce development time and costs.

Technology Developed: Using MBSE and Retrieval-Augmented Generation (RAG) models, the Team is creating AIM-SAFE (AI In MBSE for Safety Assessment and Failure Evaluation), a RAG-enabled Requirements and Test Data Extraction tool. The Penta-INTUITIVE Team is utilizing the Unified Architecture Framework (UAF) methodology for developing the MBSE model. This allows the Team to develop the MBSE model in a standardized way that can accept many different munition and missile systems. The Team is currently using RAG models to comb through the standards and provided test data to extract the necessary information to ensure that accurate information is being passed back to the MBSE model for verifying that requirements are being met.
The Team is also developing a capability that seeks to minimize the time and effort involved with conducting FMEA and FMECA during the system engineering process. The Team plans to develop the capability to automatically recommend failure mode mitigations for a given system design choice based on AI/ML analysis of similar failure modes of similar systems. To accomplish this recommendation capability, the Team is collecting historical FMEA and FMECA studies and reports containing failure modes considered for a given munition or missile system and the corresponding mitigations that were evaluated. The Team will fine-tune and use a pre-trained LLM to scan these reports and extract the munition name, failure mode, mitigations, and the respective evaluation or favorability of each mitigation.

Warfighter Value: Improving the efficiency of the safety processes for the development and the deployment of Navy missile and munition systems will allow the Navy to provide the warfighter with evolved missile and munition systems faster which will better position the fleet to combat evolving adversarial threats.

WHEN

Contract Number: N00024-24-C-S166 **Ending on:** Aug 19, 2025

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Model Demonstration	N/A	Validated effectiveness of MBSE Model	2	1st QTR FY25
Phase I Option	N/A	Phase I Option awarded allowing the team to pursue AI/ML integration.	3	3rd QTR FY24
Prototype Delivery	N/A	Prototype of AI/ML integration with MBSE model to be delivered	4	4th QTR FY25
Updated Prototype Delivery	N/A	Updated prototype delivered with FMEA/FMECA Diagrams included	5	4th QTR FY26

HOW

Projected Business Model: The Penta-INTUITIVE team plans to license the AIM-SAFE tool being developed to a Navy SYSCOM or other DoD organizations.

Company Objectives: The Penta-INTUITIVE team's objective is to work with a Navy SYSCOM or other DoD organizations. The Team has been working closely with IWS 3.0 and plans to pursue a transition strategy through Standard Missile. However, other missile systems within NAVSEA have expressed interest and the Team is beginning to communicate with these other Program Offices as well.

Potential Commercial Applications: The MBSE model that is being developed is specifically being created for DoD Hazard Classification (HC) and missile system development processes. However, the AI/ML integration piece could be widely used by any industry. Therefore, with some redevelopment of the MBSE model, AIM-SAFE could be used for automatically verifying requirements across several different industries.

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Department of the Navy SBIR/STTR Transition Program

Topic # N211-026
Reactive Boron Fuel for Energetic Applications
TDA Research, Inc.

WHO

SYSCOM: NAVAIR

Sponsoring Program: PEO (U&W)

Transition Target: PMA-201 Precision Strike Weapons, additive/subcomponent of Navy missile propulsion systems.

TPOC: (760) 939-8064

Other Transition Opportunities: Air Force and Army missiles and other rocket propelled munitions. AFRL research and development. Additives to rocket motors, energetic materials and pyrotechnics.

https://www.navair.navy.mil/news/AMRAAM-Completes-Two-Free-Flight-Test-Shots/Thu-05132021-1510

Notes: TDA Research Inc. (TDA), located near Denver Colorado, is actively developing novel high-performance propellant, explosives and pyrotechnic ingredients that improve rocket and missile performance. Currently, there are no Boron-based fuels or fuel additives used in solid or liquid propellants in the DoD. TDA's technology will fill this gap with more energetic boron-containing materials that can be integrated as a drop-in additive to solid and liquid propellant formulations. TDA's boron additives will provide a simple means to boost the performance of missiles and rocket propulsion.
TDA has 20+ years of experience working on energetic materials projects for the DoD, and TDA has all the capabilities to both work with and characterize energetic materials while safely performing this work.

WHAT

Operational Need and Improvement: New means to increase the performances of rockets and missiles are required to increase their effective range and enhance performance. New stable, safe, high-boron content energetic materials will facilitate the use of these energy-enhancing combustible additives in both liquid fuels and solid propellants for Navy propulsion applications. The Navy seeks to use the energy of boron-based fuel additives to increase the range of missiles and rocket propelled munitions with increases of up to 10% in operational range and/or speed are anticipated.

Specifications Required: The boron-based additives need to be compatible with current solid and liquid fuel ingredients. Compatibility criteria include solubility in liquid fuels, and miscibility with solid fuel ingredients. Implementing boron in energetic materials in a solid matrix for use in solid rocket motors and in hydrocarbon fuels is a requirement. Materials compatibility for use in an afterburner or rotating detonation engine is also sought.

Technology Developed: TDA Research is developing novel energetic molecular boron materials for use as combustion-enhancing additives to solid and liquid fuel formulations that are critical to Navy propulsion applications. The element boron has high energetic potential to enhance the performance of propellants, but it is otherwise difficult to fully realize this potential. Our technology allows boron to be used in current solid and liquid propellant fuel ingredients in a form that has not been previously achieved.

Warfighter Value: TDA's fuel additives will increase the performance and range of missiles such as AMRAAM, LRASM, Sidewinder and other applications including rotating detonation engines. The technology allows boron to be used in rocket fuels to enhance propellant energy and make Navy and DoD missile systems more effective with increased weapon range and lethality.

WHEN

Contract Number: N68936-22-C-0051 **Ending on:** Sep 26, 2025

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Complete Phase II Option	N/A	Development and demonstration of energy enhancement	4	2nd QTR FY26
Begin Phase II.5 optimization and qualification	Medium	Demonstrate additive in small-scale rocket motor testing	5	3rd QTR FY26
Navy qualification	High	Full qualification	6	3rd QTR FY27
Phase III: TDA manufacture	Low	Sales of boron additive to Navy or Prime Contractor	6	4th QTR FY27

HOW

Projected Business Model: We will collaborate with a major industry partner to transition the technology being developed in this project and pursue qualification of the product by the Navy. We will demonstrate our materials in a in a system level test-bed (or operation in a real system) with insertion planning into a Navy system. We expect to support the prime/system integrator with expertise on the production and use of our materials. TDA has the ability to produce intermediates and products at the kg scale and above, but at some point it is likely that the entire production process will be taken over by a major propellant manufacturer (with the partner ultimately selected by the Navy).

Company Objectives: TDA is motivated to supply the Navy with performance-enhancing boron-based additives for solid and liquid propulsion. We expect to lead the market for boron-based additives, and open new markets in both solid and liquid propulsion for the DoD. TDA's other efforts in materials development for propellants, explosives and pyrotechnics are likely to also benefit from new boron additives. Transitioning new military technologies is an important part of the company's growth strategy.

Potential Commercial Applications: Missile propulsion and rocket motor ingredients for the DoD are the primary targets for technology transition. Besides the US Navy applications, the new energetic boron materials developed in this project will benefit applications in the commercial space-launch and transport industries, including heavy lift craft.

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