

Department of the Navy SBIR/STTR Transition Program

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NAVSEA #2025-053

Topic # N192-124

Expeditionary Digital Support Platform for Unmanned Underwater Vehicles
Beacon Interactive Systems

WHO

SYSCOM: NAVSEA

Sponsoring Program: PEO USC

Transition Target: PMS 340 (UUVs)

Other Transition Opportunities: Program Offices across the DoD that field unmanned systems, whether maritime, air or land based, as well as commercial markets with the similar need for situational awareness of the readiness of deployed assets.

Notes: FLEX, a digital platform, supports distributed operations, readiness assessment, repairs, and sustainment of deployed unmanned systems. It addresses the shift from a centralized repair process to a distributed forward support of unmanned systems, ensuring consistent readiness of those assets at the point of performance. With its mobile, modular, scalable, and extensible capabilities, FLEX is interoperable across a wide variety of unmanned systems platforms.



US Navy image

WHAT

Operational Need and Improvement: Unmanned systems, such as the Navy's unmanned underwater vehicles (UUVs), are shipped out of theater and into designated locations for repairs, extending sustainment timelines and adding to logistical challenges. FLEX provides support at the edge for UUV operations and sustainment, increasing critical asset availability and alleviating the logistics burden of sustainment efforts. Using FLEX at the edge captures and aggregates operational data for fleetwide real-time visibility into Operational Availability (Ao).

Specifications Required: Built with flexibility and designed for distributed environments, the system can run as part of a hosted cloud environment or locally on an edge device. FLEX supports multiple types of unmanned systems of various size and range, purpose, domain or configuration. Open interfaces allow FLEX to seamlessly integrate with third-party systems, as well as accommodate planned and future unmanned vehicles. FLEX conforms to DoD cybersecurity requirements.

Technology Developed: FLEX streamlines unmanned vehicle operations and sustainment by combining seamless data capture, in-field protocol repository, and vehicle assessment tools with edge AI and modular interface software. As work is performed and logged in real time, the data on individual vehicle readiness, availability, and usage is collected, labeled, and integrated into Operational Availability (Ao) calculations. On-edge AI analytics drive decisions at tactical, operational, and strategic levels.

Warfighter Value: FLEX provides the much needed visibility and confidence in the readiness of unmanned systems. Operators gain the ability to perform troubleshooting anywhere at any time, reducing the need for shipping assets out of theater for repair. Decision-makers gain a single source of truth on parts failure rates and operational availability of unmanned vehicles. With increased uptime and availability in theatre, FLEX enables unmanned assets to rejoin the fight faster.

WHEN

Contract Number: N00024-24-C-S052

Ending on: Apr 18, 2027

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Initial Prototype Deployment	Medium	Delivery of prototype on an edge device	6	2nd QTR FY25
Prototype Testing	Low	Verified functionality in production environment	7	3rd QTR FY25
Final Design	Low	Approval by user community	7	1st QTR FY26
Delivery/Deploy	Low	Integration into US Navy UUV enterprise	8	2nd QTR FY26

HOW

Projected Business Model: FLEX is a licensable platform for both defense and industry organizations. Access can be cloud-based or local to an edge device. Beacon support includes deployment, training, and ongoing upgrades and maintenance of software.

Company Objectives: Identify additional partners and customers to scale the impact across defense and industry organizations.

Potential Commercial Applications: FLEX is a sustainment capability agnostic to unmanned systems, whether maritime, air or land based. As such, potential commercial applications beyond defense markets include first responder applications, police and fire & rescue. FLEX also directly addresses the sustainment needs of the increased use of drones in utilities, oil & gas and commercial maritime markets.

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