



SUCCESS STORY

TOPIC NUMBER: N06-109

SBIR INVESTMENT: \$1,115,575

PHASE III FUNDING: \$18,385,298



DATA FUSION HANDOFF

L3 Adaptive Methods developed a data fusion and integrated undersea warfare combat management technology that is being used across the fleet to decrease operator workload and increase situational awareness.

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THE CHALLENGE

Data fusion is critical to many Navy missions and platforms. The Navy must have the ability to persistently track surface vessels as they move from one coverage area to another, including moving in and out of the same coverage area, using data from disparate sources. Many missions and platforms rely on target tracking systems, which focus on fusing data from multiple heterogeneous sensors with overlapping coverage areas. However, the data from one region may not be available to nearby regions in a timely manner, adding data latency to the problem of tracking across regions. The Navy sought means to develop higher quality and higher precision tracks using data from all the sensors collectively. The overall goal of this SBIR effort was to develop innovative data fusion tracking techniques to combine data from different sensor sources.

THE TECHNOLOGY

L3 Adaptive Methods leveraged SBIR funding to develop an automated collaborative data exchange capability that significantly reduces anti-submarine warfare (ASW) contact declaration and classification times. The technology facilitates data exchange between platforms to more rapidly produce a cross-fix solution from multi-platform passive observations; resolve ambiguous bearing observations using multi-platform data; and assign classification and threat to declared contacts. The technology is being fielded on the AN/SQQ-89(V) series—the first integrated surface ship undersea warfare (USW)/ASW combat system. The AN/SQQ-89(V) series has a continuing development program, using an open system architecture to incrementally modernize the existing systems by providing contact fusion capabilities, improved data processing performance, and classification improvements.

THE TRANSITION

L3 Adaptive Methods was awarded a \$8,156,530 cost-plus-fixed-fee and cost modification to contract N00024-20-C-5211 to exercise options and incrementally fund existing contract line items for program management, systems engineering, and software development for the AN/SQQ-89A(V)15 tactical sonar data processing engineering efforts.

Total Phase III revenue for this project is nearly \$78 million. The U.S. Naval Sea Systems Command, Washington, is the contracting activity.

THE NAVAL BENEFIT

The AN/SQQ-89(V) Surface Ship ASW Combat System presents an integrated picture of the tactical situation by receiving, combining and processing active and passive sensor data from the hull-mounted array, towed array and sonobuoys, thus maximizing situational awareness for the warfighter. The system also provides integrated USW combat management, fire control, command and control, and onboard training to enable surface combatants to support engagement of USW targets in both open ocean and littoral environments. It provides surface warships with a seamlessly integrated USW/ASW detection, localization, classification and targeting capability, so that operator workload and manning requirements are lessened. In addition to active and passive detection, the system provides a full range of USW functions and integration with the Light Airborne Multi-Purpose System (LAMPS MK III and Block II Upgrade) helicopter for sonobuoy signal processing. The system incorporates hull-mounted sonar (AN/SQS-53C), wideband omni-directional receivers supporting acoustic intercept, and the Multi-Function Towed Array (MFTA), also integrated with an acoustic intercept capability; greatly expanding sensor performance by building on open architecture level 3 commercial off-the-shelf (COTS) processing.

THE FUTURE

The AN/SQQ-89(V) system has been deployed on Oliver Hazard Perry (FFG 7) class frigates, Arleigh Burke (DDG 51) class destroyers, and Ticonderoga (CG 47) class cruisers, and will be deployed on the future Guided Missile Frigate (FFG(X)) class. The newest variants of the AN/SQQ-89(V) system are being provided to the fleet in an ongoing, multi-year back-fit effort to upgrade installed legacy USW systems on destroyers and select cruisers; many of these units have received back-fits. The technology has many dual-use applications in the commercial market for any industry that shares data generated from multiple sources over a large distributed environment, such as commercial shipping.