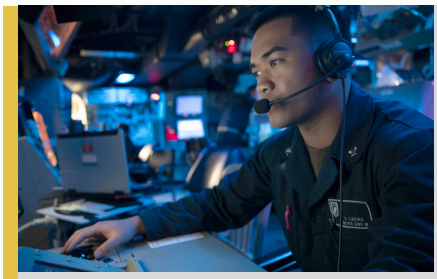
DEPARTMENT OF THE NAVY
SBIR/STTR TRANSITION PROGRAM

SUCCESS STORY

TOPIC NUMBER:
N11A-T031, N06-148

SBIR INVESTMENT:
$3,547,910

PHASE III FUNDING:
$4,005,036



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COLLABORATIVE KNOWLEDGE MANAGEMENT FOR NET-CENTRIC SYSTEMS: INTEGRATED DIGITAL OPERATIONAL LOG (OPLOG) FOR THE SURFACE ELECTRONIC WARFARE (EW) DISPLAY SUITE

Pacific Science & Engineering (PSE) has modernized electronic warfare (EW) monitoring with their integrated digital operational log (OpLog).

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THE CHALLENGE

Electronic warfare (EW) is a critical component of modern Naval combat, in which Sailors work to maintain control of the electromagnetic spectrum and strategically use that control against adversaries. EW watchstanders are responsible for detecting signals, documenting events, assessing threats, and communicating responses. Existing EW operational logs are manual, disconnected from system data, and heavily reliant on text entry. These limitations increase operator workload and often result in inconsistent records, reduced collaboration and data sharing, and difficulty analyzing existing records. To address these challenges, the Navy sought a more user-friendly, integrated EW operational log (OpLog).

THE TECHNOLOGY

The integrated digital OpLog developed by Pacific Science & Engineering (PSE) automatically records time-stamped events and links log entries directly to threat data. It improves analytic capabilities by enabling rapid operator annotation and making logs easily searchable and shareable. PSE's OpLog significantly reduces operator workload by pre-populating relevant data, reducing redundant text entry, standardizing terminology, and supporting collaboration among watchstanders.

THE TRANSITION

PSE's work to modernize EW OpLogs began on November 8, 2006, when ONR awarded the company a Phase I contract to demonstrate the feasibility of digital operational logging. Under this contract, PSE focused on collaborative knowledge management and operator workflow to develop a conceptual OpLog system. In 2011, the Navy released a new solicitation under a new topic number, shifting the focus from general net-centric knowledge management to surface EW systems. On February 28, 2018, NAVAIR awarded PSE a Phase II STTR contract to develop an operational prototype of a more useful and usable EW OpLog system in collaboration with engineers from Johns Hopkins University's Applied Physics Laboratory.

By August 14, 2019, PSE had successfully demonstrated compatibility with Navy systems, reduced log-entry time, and more complete and consistent OpLog entries. NAVAIR subsequently awarded the company a Phase II SBIR contract. Under this contract, PSE hardened the software for operational environments, improved cybersecurity alignment, expanded operator evaluation in mission scenarios, and prepared the OpLog system for transition into a production or sustainment pathway. NAVSEA sponsored PSE's Phase III contract, which was awarded through the General Services Administration Office of Assisted Acquisition Services on August 2, 2022. This contract supports integration into existing surface EW systems, fleet implementation, and ongoing support to continue meeting EW OpLog needs.

THE NAVAL BENEFIT

PSE's integrated digital EW OpLog system increases mission effectiveness by enabling faster, more accurate documentation and event records. Its automated features reduce cognitive workload, allowing operators more time to collaborate and focus on critical tasks. The enhanced collaboration supported by the OpLog system enables fleet-wide data standardization and rapid event analysis. Together, these features substantially reduce logging time, produce more complete and consistent data, and improve usability for operators.

THE FUTURE

The integrated digital EW OpLog system is currently positioned for deployment across multiple surface platforms with further integration and enhanced analytics capabilities forthcoming. PSE will continue supporting the EW OpLog system while also exploring applications in other data-driven Navy mission systems.