

ONR pursuing affordable common radar for surface ships

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To upgrade the Navy's fleet of aging combat ship radar systems, the Office of Naval Research (ONR) is developing technologies that will combat the obsolescence of surveillance systems at a more affordable cost.

The Affordable Common Radar Architecture (ACRA) is an ONR Future Naval Capability (FNC) designed to replace multiple legacy systems. Its open design enables hardware and software reuse and fosters competition of commercially available technologies for system and subsystem components.

"This technology brings scalability, flexibility and modularity to next-generation radars for use aboard navy ships," said Dr. Michael Pollack, ONR program manager for surface and aerospace surveillance. "Most importantly, the design can meet the navy's future requirements in an affordable manner."

A major concern for the Navy and Marine Corps is the rate at which current shipboard surveillance radars are becoming obsolete. Additionally, these systems, designed and built more than four decades ago, can be difficult to change software and hardware interfaces to meet forward fit net-centric requirements.

The five-year initiative calls for an affordable Advanced Development Model risk-reduction prototype, which can be fielded either as rotating or fixed-array variant, depending on ship requirements.

The radar's architecture has a novel design, which contains two separate antennas to control cost and improve upgradeability. In contrast to the typical transmit-receive (TR) array set up, the new design features a full-size receiver (R) array and a reduced-size transmit (T) array. This should lower the cost of the overall system by reducing integration density and maximizing the use of digital technologies.

ACRA is built upon ONR's prior Digital Array Radar (DAR) concept, which is focused on developing a modular, loosely-coupled system to reduce costs and take advantage of commercial technologies. Through the use of [open architecture](#), ACRA is getting re-use of technology that has been developed for the Navy's advanced Air and Missile Defense Radar.

Oversight, technical direction and development, as well as the integration and demonstration activities associated with ACRA are taking place at the Naval Surface Warfare Center Dahlgren Division (NSWC-DD)

Provided by Office of Naval Research

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