



## MARITIME DOMAIN AWARENESS

### THE CHALLENGE

The Maritime Domain is defined as "All areas and things of, on, under, relating to, adjacent to, or bordering on a sea, ocean, or other navigable waterway, including all maritime-related activities, infrastructure, people, cargo, and vessels and other conveyances." NSPD-41/HSPD-13. These waterways are of vital importance to our National Security and our lives:

- 95% of the world's telecommunications travel via undersea cables.
- 90% of the world's commerce moves by sea.
- 84% of the estimated resources in the Arctic are located offshore.
- 50% of the world's oil transits seven major chokepoints.
- 44% of the world's population lives within 93 mi/150 km of a coast.

Maritime Domain Awareness (MDA) is defined as "The effective understanding of anything associated with the global maritime domain that could impact the United States' security, safety, economy, or environment." The impact of a maritime event can be significant.

### THE STRATEGY

To achieve this awareness requires National, International and multi-agency coordination as well as the sharing of information, intelligence and surveillance and reconnaissance. The ultimate goal is to provide this awareness as thoroughly and rapidly as needed to allow effective decision making. This requires a multidisciplinary approach. Information on vessels, people, cargo and infrastructure as well as financial transactions must be collected, correlated and analyzed. This information can come from electronic signals, acoustics signals, radar positions, electro optic sensors, hyperspectral sensors, self reported information, information collected for insurance, commerce or personnel verification as well as open source information and many more potential sources. This information must be correlated and potentially fused and refined to obtain the basic understanding of a current state (position, direction, speed, identification, etc.) and then

further analyzed to assess potential risk. All this must be assembled in a manner to be interoperable and achieve a persistent monitoring of all these entities on a global level with a historical archive to be able to perform forensic analysis as new information becomes available.

Achieving MDA also requires gathering, correlating and potentially fusing information from multi-national sources. The international cooperation needed must be established and maintained through formal teaming agreements and frequent exchange of new technologies and successes.

### THE RESULTS

CSCI has provided specific support in this area since 2004. This support has been at the technology development management, policy and planning development as well as international cooperative efforts to achieve MDA.

The Technology Cooperation Project Maritime Action Group 8 is a multi-national group from Australia, New Zealand, Canada, the United Kingdom and the United States directed to look at sharing Maritime Information. They have achieved a number of successful experiments and data exchanges advancing MDA objectives.

The Vessel Tracking project provided MDA for Homeland Security and Naval Anti Terrorism/Force Protection. The effort included the development of a Common Distributed Virtual Database for the development of tracks fused with intelligence and sensor inputs using open architecture methods, the development of a Modular Sensor System using legacy sensors for ship detection, tracking and identification, the evaluation of a High Frequency Surface Wave Radar for wide area surveillance, the evaluation of a hyperspectral imaging capability for ship identification and studies supporting the range extension of the Automatic Identification System.

Additionally, CSCI has provided subject matter expertise in the review and assessment of highly classified projects and studies relating to MDA as well as during War Games and Exercises.



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