##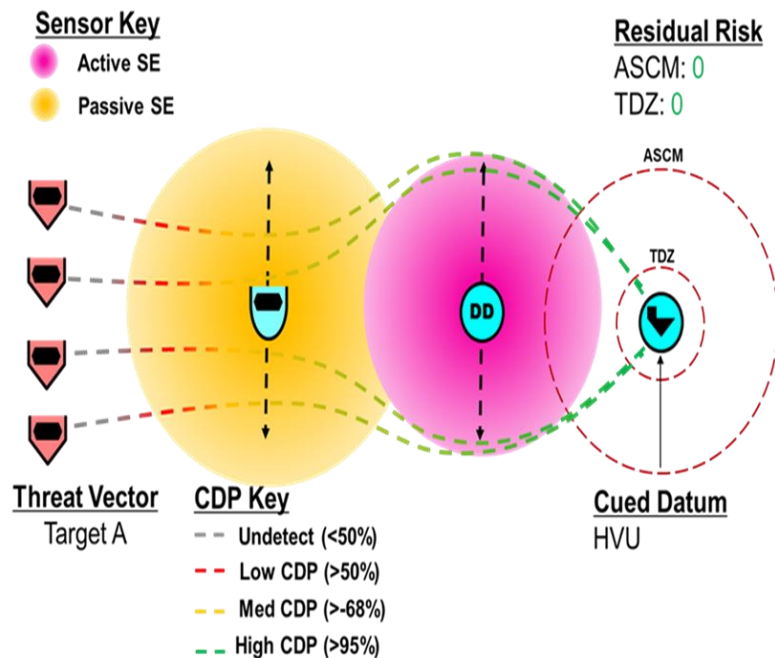 MAI Awarded $1.6M Phase II Small Business Innovative Research (SBIR) for a Theater Anti-Submarine Warfare (TASW) Risk Analysis Tactical Decision Aid (TDA)

MAI, in coordination with partners L3Harris, are pleased to announce the award of a Phase II Small Business Innovative Research (SBIR) grant for a Theater Anti-Submarine Warfare (TASW) Risk Analysis Tactical Decision Aid (TDA).
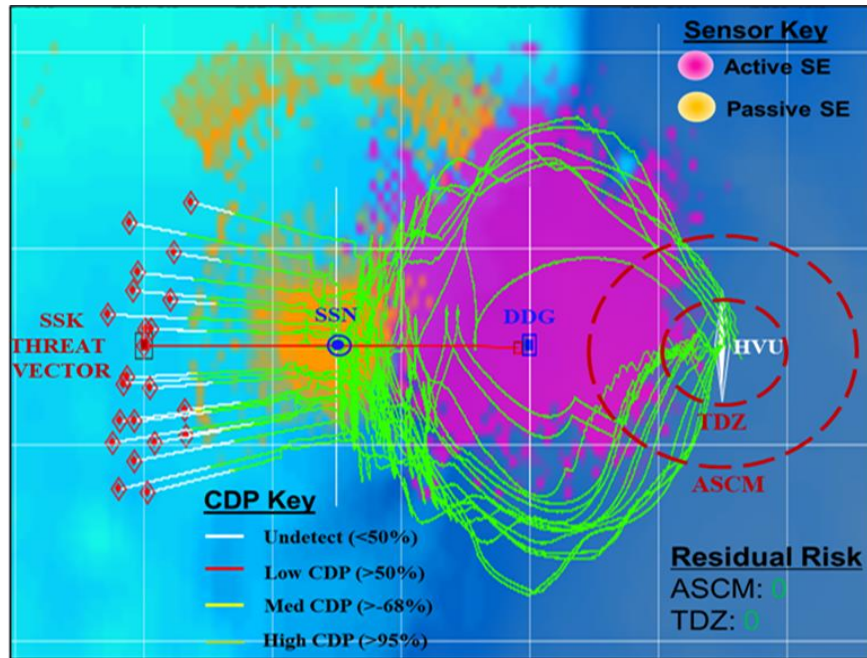
Theater Anti-Submarine Warfare (TASW) Planners may be overwhelmed by decisions regarding risk to future plans, according to current asset allocation (mitigation) against potential threats. At the Commander, Task Force (CTF) Watchfloor, the TASW planners have a series of resources to analyze risk vs mitigations to current TASW operations, to include a Common Operating Picture (COP), METOC and Intel Support. The Undersea Warfare Decision Support System (USW-DSS), a Command and Control (C2) system, was designed to help fuse this data into an ASW tactical picture, however, current USW-DSS functionality lacks risk analysis mission planning capability that captures the full needs of the disparate users in both understanding and assessing risk (relative to existing mitigation measures) to future plans.

TASW planners require risk analysis mission planning capability in order to "visualize" and "evaluate" the full impact of the risk involved to future operations in a high op-tempo, multi-threat environment. Further this capability must not only provide decision makers situational awareness they currently lack regarding the nature of the risk but also provide an evaluation of "residual" risk resulting from current mitigation measures; and do so in an intuitive way within a GUI able to interface with current UWS-DSS display and architecture.

TASW Risk Assessment Visualization Concept

During the Phase I effort, the MAI team was able to demonstrate proof of concept for a Theater Anti-Submarine Warfare (TASW) Risk Analysis Tactical Decision Aid (TDA) able to visualize TASW risk to Future Operations (FUOPS) planners. The TDA utilizes MAI's logic-based, 4-D Monte-Carlo acoustic modeling and simulation software, as well as acoustic databases and sensor libraries developed as part of the Phase I effort.

TASW Risk Assessment Prototype Concept

MAI's Java-based TDA software is designed to integrate as an overlay with USW-DSS via an existing surrogate framework developed at [L3Harris](#). Further the TDA, though designed to operate as a standalone overlay in Phase II, will be capable of operating complementary to existing USW-DSS overlays as well as leverage existing acoustic models and databases as part of Phase III transition planning.

This technology directly addresses current lack of TASW watchfloor tools tuned to the needs of Future Operations (FUOPS) planners, specifically the ability to "visualize" and "evaluate" acceptable Commander's risk to future operations in order to provide guidance at key decision points in the planning process, as well as formulate appropriate mitigation plans.