



SURVIAC Success Story

Integrating KCF Smart Tether Technology into Hull Search Unmanned Underwater Vehicle Localization System (HULS) and Diver Hull Imaging and Navigation System (DHINS)

<http://iac.dtic.mil/surviac/>

Customer:	United States Naval Sea System Command (NAVSEA) and Naval Explosive Ordnance Disposal Technology Division (NAVEODTECHDIV)
Challenge:	The Navy is constantly faced with the threat of mines – particularly in congested critical waterways. The two systems the Navy uses to counter these threats are the Diver Hull Imaging and Navigation System (DHINS) and the Hull Search Unmanned Underwater Vehicle Localization System (HULS). DHINS is the guidance and control umbilical subsystem to an underwater vehicle specialized for the counter-mine mission. HULS allows increased probability of mine localization and defeat with the capability to return (multiple times) to the exact suspect location. The Navy had to decide whether integrating the KCF Smart Tether into these systems would enhance mission performance sufficiently to overcome any cost. The KCF Smart Tether has the capability to geo-locate both the umbilical and main body/Remotely Operated Vehicle (ROV) position in real-time.
Approach:	Based on results from the operational data, analysis and performance of the KCF Smart Tether, SURVIAC provided recommendations leading to the Naval Explosive Ordnance Disposal Technology Division’s (NAVEODTECHDIV) program decision. The decision analysis framework allowed comprehensive consideration of KCF-Tether integration against the acquisition strategy of the HULS and DHINS programs. SURVIAC’s decision analysis products gave TECHDIV a quantitative methodology with rigorous analysis, a significant cost avoidance measure to the program, and a way forward for future potential DHINS and HULS program enhancements, which will maximize potential benefits to the explosive ordnance disposal (EOD) community while minimizing risk. SURVIAC recommended incorporating this technology in an EOD Technology Roadmap to identify and capture the current capability gaps and technical deficiencies that exist in the systems employing technologies that TECHDIV developed.
Value:	TECHDIV determined the KCF Smart Tether technology was operationally effective and suitable for use by EOD forces. After considering SURVIAC’s evaluations of the benefits to system operational effectiveness/suitability, TECHDIV determined that KCF-Tether integration into existing HULS and DHINS would provide the least risk versus the cost of developing a KCF-Tether capability. Many systems are currently fielded by DoD and other agencies to perform countermine taskings, and there are many opportunities by original equipment manufacturers (OEMs) to enhance the existing underwater robot/vehicle fleet. SURVIAC’s analysis and recommendations provided TECHDIV with a previously nonexistent, repeatable methodology to evaluate emerging capabilities for fielded systems, helped TECHDIV make sense of a plethora of OEM claims, and established a baseline for the future capability performance of geo-location/underwater navigation. The search and navigation provided by the DHINS and HULS systems will assist the EOD diver in the safe neutralization of underwater explosive and improvised

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