

Topic: N03-202

STILMAN Advanced Strategies

RAID Technology Innovative Research, Predictive and Causal Modeling for NAVSEA

The complexity of the Battlespace has evolved to the point that it is no longer possible to manually maintain awareness of, and optimally allocate all resources in real-time. Accelerated decision-aiding coupled with dynamic, optimal sensor and weapon target pairing (i.e., enhanced mission planning, battle management aiding and automated resource controllers) are urgently needed to maintain the initiative against near-peer and above peer threats. LG-RAID Enhanced Mission Planning capabilities address the acute lack of adequate, real-time, integrated, multi-resource planning tools. LG-RAID technology rapidly produces superior integrated plans providing warfighters the tools to create and evaluate the viability of their proposed integrated plans (space, air, surface, subsurface) against a broad range of enemy threat systems and courses of action.

Technology Category Alignment:

Human Computer Interfaces (HCI) for Decision Making

Synthesis/Analytics/Decision Tools

Engineered Resilient Systems (ERS)

Modeling and Simulation Technology

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SYSCOM: NAVSEA

Contract: N00178-17-C-7000

Department of the Navy SBIR/STTR Transition Program

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NAVSEA #2018-0556

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WHO

SYSCOM: NAVSEA

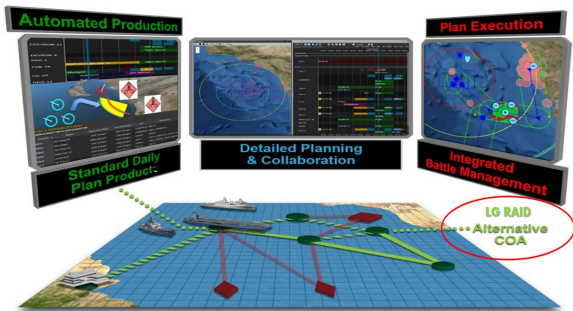
Sponsoring Program: AEGIS

Transition Target: Maritime Planner Environment

TPOC:
(202)781-4932

Other transition opportunities:
Special Operations, Law Enforcement, First Responders, and Homeland Security Planners -- this technology is domain agnostic.

Notes: Overlays for tactical displays and commercial displays such as Google Maps provide the end user with real-time adversarial intelligence via an animated estimate of Enemy Location and Intent. This information is deterministic. It is based on the Intelligence provided and can be shown to be mathematically optimal for the input parameters and threat data provided. In this fashion, sensitivity analyses can be conducted by quickly adjusting inputs (automatically or manually) and executing the estimation process in real-time. This provides the commander with a heretofore unavailable level of tactical planning and in-execution adaptability.



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WHAT

Operational Need and Improvement: Adaptive, cross-domain web-enabled planning and optimal resource allocation, LG-RAID produces optimal sensor and weapon target pairing that is based on the current intelligence information and internal estimates of threat forces. This allows the commander to assess and prioritize resources in a rapid and quantitative fashion. Mission additions (adds) and deletions (drops) can be made quickly based on quantitative metrics such as target servicing sequence and delivery times. LG-RAID's animated Enemy Course of Action (ECOA) can be produced in real-time on hand-held (tablet), desktop, stand-alone server, or cloud-based server applications. Estimation of Enemy location and intent (ECOA) enables rapid operational planning, mission execution and supervised autonomy of Automated Resource Controllers and Battle Management Aids including: Integrated Air & Missile Defense of Ships and Littoral Forces, C2 & Decision Aiding, Combating Asymmetric and Irregular Threats, Naval Platform and Systems Operational Availability Training

Specifications Required: Host Application Interface Control Documents or Software Developer Kit (SDK).

Technology Developed: The underlying technology is an Artificial Intelligence-based cross domain LG-Hypergame. The LG-Hypergame provides an E-Commerce equivalent cost function. In this fashion, movements and actions in one domain are simultaneously evaluated (cost versus benefit) for their impact on other domains. This information is displayed in near real-time allowing the commander to visualize and quantitatively select and coordinate the most suitable cross domain and intra domain Course(s) of Action for their assigned mission(s).

Warfighter Value: The complexity of integrating forces has eclipsed the human's ability to make timely decisions, synchronize fires, and optimize allocation of resources. LG-RAID supports the volume and diversity of data required to make tactical decisions in a dynamic and uncertain environment. This capability improves the commander's ability to plan and quantitatively evaluate multiple "what if" analyses and adapt quickly to dynamic and evolving threats.

WHEN

Contract Number: N00178-17-C-7000 **Ending on:** August 20, 2019

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Transition to Maritime Planner Environment	Med	Integrated software	6	September 2018

HOW

Projected Business Model: LG RAID Software Application will be integrated into a Program of Record (AEGIS), STILMAN provides on-going enhancements, maintenance and technology support

Company Objectives: Transition LG-RAID into the Maritime and Cross Domain Applications that need automated planning and Battle Management Decision Aids

Potential Commercial Applications: Unmanned system control, planning for optimal employment of manned and unmanned Law Enforcement assets