

**Acquisition Program Lead Systems  
Integration/Lead Capabilities Integration Decision  
Support Methodology and Tool**

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# Research Study Overview

- **Purpose of the Study:** The purpose of this qualitative research study was twofold. First was to provide PMs with a simulation tool to assist Program Offices in evaluating the relative merits and risks of utilizing NAWCAD and commercial OEMs for various LSI/LCI roles and responsibilities. Second, to understand where the Government (NAWCAD) lacks competitiveness on the capability to perform LSI (identify the gaps).
- **Problem Addressed:** Comparisons for sourcing are complex and require extensive decision support analysis to understand the solution space and foresight between Original Equipment Manufacturers (OEMs) and Government entities performing the Lead System Integrator (LSI) role.
- **Significance of the Study:** This research study will help Program Offices understand their most effective cost, schedule and performance-based solutions when faced with an acquisition requirement.

# Research Question

The research focused on the question:

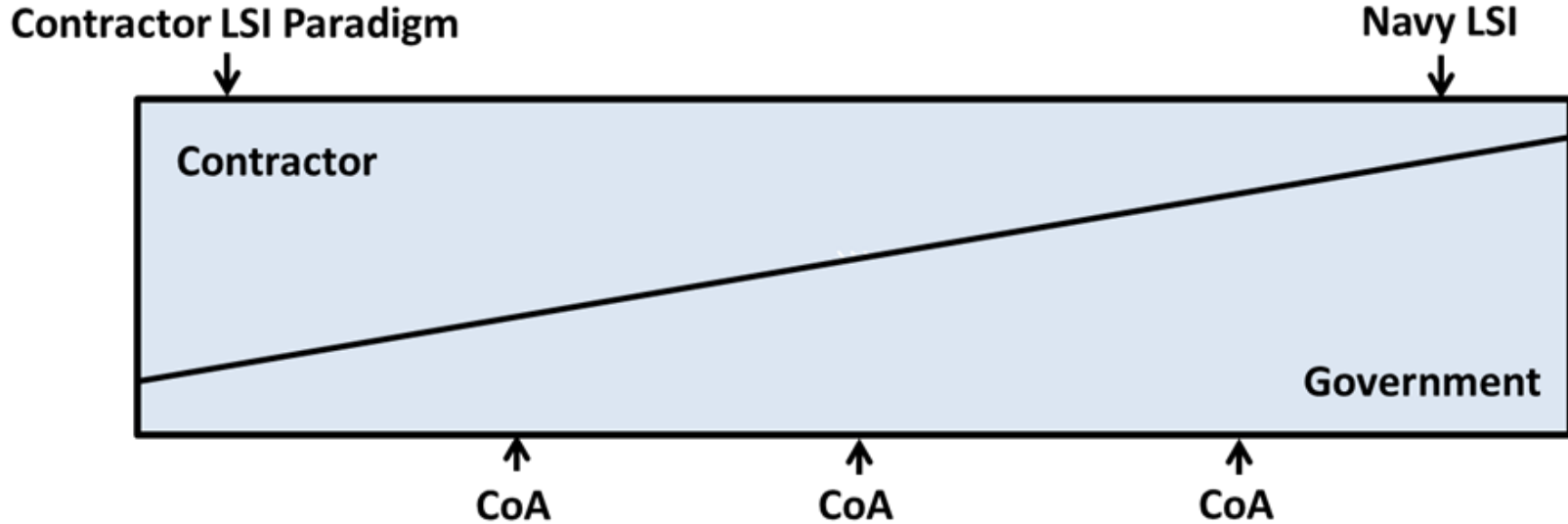
- How can Program Managers best determine their acquisition source solutions in a timely and cost effective manner?

NAWCAD wants to ensure that the Program Offices that it supports derive the best value for their resources.

# Methodology

- Dialogue decision process was used that focuses on a structured dialogue between the Decision Board and Project Team
- Develop a simulation tool to assist Program Offices in evaluating the relative risks of utilizing NAWCAD and commercial OEMs for various LSI roles and responsibilities
- Interview Eleven NAVAIR Program Managers (PM) and sixteen Competency Leads , and other stakeholders were surveyed online. Risk drivers were codified into a model based on lessons learned from PM's experience
- Develop and demonstrate Prototype LSI directional tool
- Conduct Four Beta tests on NAVAIR programs to stress the model's capability and to identify potential improvements

# Courses of Action Continuum



The PM or Integrated Program Team (IPT) can evaluate potential CoAs for any combination of government or industry LSI activity at the system, sub-system or component level.

# Risk Drivers Codified in Prototype

- Technical complexity (TRL)
- Re-use component or software level
- System complexity
  - Dimension 1 - Product & Context Complexity (Functions)
  - Dimension 2 - Interface Complexity & Information Diversity
- Program complexity
  - Customer Complexity
  - Supplier complexity
- Contract type
- Contract award time
- Integration readiness (IRL)
- Proprietary data rights
- Competency of personnel
- Availability of personnel
- Facility readiness
- Security clearance status
- Pass through cost

# Beta Project Objectives:

- ✓ Model functionality in an operational environment with the Program Management office in the acquisition process
- ✓ Incorporate lessons learned from the Beta programs into architectural changes to the model
- ✓ Identify and modify model reporting and graphics required for PMA use in the acquisition process
- ✓ Demonstrate directional merits of various courses of action regarding roles and responsibilities of executing entities enabling improved decision making by NAVAIR leadership and PMs

# Findings

- The model quantitatively demonstrated relatively low risk for Government LSI approaches for one of the PMA led efforts in which known contributions to risk were accurately predicted.
- The model was used in conversation with other PMAs to quantitatively demonstrate PMA success and compare government approaches to industry alternatives.
- The model demonstrated the ability to execute multiple CoAs allowing for “what-if” CoA assessments prior to execution and to assess the relative risk of each proposed approach.



# Findings (Cont)

- The structured process of discussing and inputting the various options also led to better overall IPT understanding of the risks associated with each approach.
- The PMA should conduct the assessments as a group or team in a disciplined manner with the aid of the LSI/LCI directional tool. It is critical to have the right people in the room during the assessment. Key SMEs include the PM, Technical experts, Acquisition expert, AIR 4.2 Should Cost expert, IPT Lead and a Supply Chain expert.
- The key is the learning that occurs across the entire IPT as CoAs are run, iterated and evaluated.

# Conclusions

- The concept of providing a useful tool to the PMA for programmatic decisions that also allows NAWCAD to aggregate data on NAWC capabilities, people and facilities proved to be extremely insightful.
- The model delivered LSI risk assessments as intended, with useful feedback to the PMA and NAWC in the Beta phase.
- The PMA response in the Beta phase was positive beyond intended LSI decisions, and the feedback indicated value for programmatic “what-if” analysis for other PMA decisions such as funding drills, sources selection, etc.

# Recommendations

- It is recommended data generated by this tool provide a basis for understanding the workforce skill set requirements gaps across both the PMA and NAWC.
- It is recommended to aggregate data to help NAWC to establish hiring, training and knowledge management goals to meet its customers' requirements.
- It is recommended organic integration capabilities provided by NAWC be improved to better support the PMA.
- It is recommended that a Version 1.2 be developed that provides a Web Based Programmatic Decision Tool.

# Concluding Thoughts

- The identification, development and implementation of the Programmatic Decision Tool for LSI decisions, followed a Dialogue Decision Process
- It provides the PMA and NAWC with a tool necessary for adapting efficiently and effectively in a VUCA environment (VUCA stands for volatility, uncertainty, complexity, and ambiguity) by facilitating collaborative decision making
- This methodology provides a quantifiable rationale to provide the Warfighter and taxpayer with the best value solution for LSI and other programmatic decisions

# Back-Up

# REFERENCES

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