**Overview**

**OBJECTIVE** – Develop methods and framework for an analytic workbench to analyze system interdependencies in context of SoS architecture and evolution to guide both systems and SoS development.

**Computational Methods**

**Functional/Developmental Dependency Network Analysis (FDNA/DDNA)**

Methods to analyze and quantify the effect of functional and development dependencies on the behavior of complex systems, to support architecture decision, evolution of SoS, and trade-off among competing metrics

**Decision Tools: Robust Portfolio Optimization**

Decision support approach from financial engineering/operations research to identify ‘portfolios’ of systems by leveraging performance against risk under uncertainties

**System Importance Measures**

Family of measures that rank systems based on their impact on the overall SoS performance. SIMs help determine which areas of the SoS have excess or inadequate resilience.

**Pilots of the Analytic Workbench Underway**

- AWB pilot on Army Always-On/On Demand application study—on site visit to ARL facility in Orlando proved best practice for pilots
- AWB pilot with NSWC Dahlgren Division, to examine interstitial space in Navy Integration & Interoperability studies; enabled by CRADA
- AWB pilot with MITRE Corporation on customer-inspired problems with initial end date of 12/31/14 to ensure quick feedback on the AWB

**Contacts/References**

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