



OFFICE OF THE DEPUTY ASSISTANT SECRETARY OF DEFENSE SYSTEMS ENGINEERING

System of Systems Engineering Collaborators Information Exchange (SoSECIE)

Tuesday, May 22, 2012
11:00 a.m. to Noon EDT

Impact of Systems of Systems on Acquisition Programs

Dr. Judith Dahmann
The MITRE Corporation

Abstract

The US Department of Defense (DoD) has recognized the importance of systems of systems (SoS) and the need to apply systems engineering (SE) to ensure that SoS effectively support user needs that cannot be satisfied with individual systems. With this recognition has come the need to clearly understand expectations for new systems in terms of their support to effectively operate in a SoS context. DoD requirements, acquisition and systems engineering policy and guidance all reflect issues related to context from the initial materiel development decision through to operational test and evaluation. SoS can be viewed as being from one of three overlapping domains: Mission SoS, IT-based SoS and Platform SoS. Mission SoS are sets of systems work together to provide a broader capability or mission. Mission SoS themselves are typically not acquisition programs, but the constituent systems are typically acquired under independent acquisitions. IT-based SoS are networked information systems to support operations within or across platforms or systems to meet mission or platform objectives. These are typically modernizations of sets of existing IT systems. Finally, platform SoS are military platforms (e.g. ship, aircraft, satellite, ground vehicle) equipped with additional independent systems (e.g. sensor, weapons communication) needed to meet platform objectives. Platform systems are typically developed as acquisition programs with the platform program manager responsible for the broad set of platform requirements which depend on integration of systems onto the platform which are the product of other, independent acquisition programs. This presentation discusses the characteristics of SoS in each domain and the issues these characteristic pose for acquisition with a focus on the challenges of mission and platform SoS.

Biography

Dr. Judith Dahmann is a principal senior scientist in the MITRE Corporation Center for Acquisition and Systems Analysis. Dr. Dahmann supports the Principal Deputy in the Office of the Deputy Assistant Secretary of Defense (DASD) for Systems Engineering and Acting Director of Systems Analysis, where she is the Technical Director and the lead for systems engineering for systems of systems. She led the development of the DoD Guide for Systems Engineering of Systems of Systems. Prior to this, Dr. Dahmann was the Chief Scientist for the Defense Modeling and Simulation Office for the US Director of Defense Research and Engineering (1995-2000) where she led the development of the High Level Architecture, a general-purpose distributed software architecture for simulations, now an IEEE Standard (IEEE 1516). Dr. Dahmann holds a Bachelor's Degree from Chatham College in Pittsburgh, PA with a year as a special student at Dartmouth College, a Master's Degree from The University of Chicago and a Doctorate from Johns Hopkins University.