



OFFICE OF THE DEPUTY ASSISTANT SECRETARY OF DEFENSE SYSTEMS ENGINEERING

System of Systems Engineering Collaborators Information Exchange (SoSECIE)

September 26, 2013
11:00 a.m. to Noon Eastern Time

Addressing Navy's Information Dominance Technical Authority through System of Systems Engineering and Integration

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Abstract

With the United States Navy's focus on Information Dominance as a warfare enabler, mission success will require a greater need for operators in Naval, Joint, and Coalition Domains to synchronize and share resources to accomplish mission activities in a dynamic environment. To achieve this operational state, the Navy must re-engineer weapons, battle management systems, and warfighting concepts while placing increased importance on network and information integration through global enterprise net-centric operations. The dynamic nature of these Information Dominance challenges poses an unprecedented interoperability and integration necessity among Navy systems. To compound the technical challenges, the Navy must implement these changes as fiscal constraints continue to increase. To address these challenges, the Navy must place an emphasis on System of Systems Engineering and Integration (SoSE&I).

The Office of the Chief Engineer, Space and Naval Warfare Systems Command, has developed a SoSE&I approach that will aid the Navy in achieving its Information Dominance mission more efficiently and effectively. This SoSE&I construct addresses: engineering from a mission-thread, vice a grand system, perspective to achieve the desired warfighting capabilities and effects; "life-cycle" traceability throughout the mission-thread; interaction between SoSE&I and systems engineering (SE); and how SoSE&I can be used by decision-makers to increase systems integration and interoperability to directly impact the operational effectiveness of the Navy's networks and weapons.

Biographies

Warren Vaneman is a Professor of Practice in the Department of Systems Engineering at the Naval Postgraduate School, and a Captain in the Navy Reserve. His current research effort is developing and implementing a System of System Engineering and Integration approach for the Space and Naval Warfare Systems Command. Dr. Vaneman recently transitioned to academia after serving as an Intelligence Community Officer for more than 25 years. While in the IC, he held a variety of systems engineering jobs to include Chief Systems Architect of the National Reconnaissance Office Ground Enterprise Directorate. Dr. Vaneman has a M.S. and Ph.D. in Industrial and Systems Engineering from Virginia Tech, a B.S. from the State University of New York Maritime College, and a JPME Certificate from the Naval War College.

Richard Budka is a Partner and Vice President at Customer Inspired Solutions, a Veteran Owned Small Business specializing in systems engineering services. Mr. Budka is currently supporting the Office of the Chief Engineer, Space and Naval Warfare Systems Command to develop and implement a Systems of Systems Engineering & Integration methodology to support its role as the Navy IT Technical Authority. Prior to this role, Mr. Budka worked in the defense and aerospace industry for over 20 years providing



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systems engineering & integration services. During his career, Mr. Budka has held a variety of managerial and technical leadership positions with responsibility for conceptualizing, defining, designing and delivering complex information systems for the National Geospatial-Intelligence Agency (NGA), the National Reconnaissance Office (NRO) and the Department of Defense (DoD). Mr. Budka earned his B.S. in Electrical Engineering from The Pennsylvania State University and MBA from Saint Joseph's University.