



Terms of Reference

Research Topic Title: Mission Engineering Competencies

Principal Investigator: Dr. Gregg Vesonder (gvesonde@stevens.edu)

Co-Principal Investigator: Dr. Dinesh Verma (dinesh.verma@stevens.edu)

Research Team Members: Mr. William Miller ([wmiller@stevens.edu](mailto:wmilller@stevens.edu)), Dr. Nicole Hutchison (nicole.hutchison@stevens.edu), and Ms. Hoong Yan See Tao (hseetao@stevens.edu)

Purpose: This research initiative is to develop a model of the key competencies required for the U.S. Department of Defense (DoD) acquisition workforce to support Mission Engineering (ME). ME is an established practice in many DoD and industry organizations that applies the mission context to System of Systems (SoS) and complex systems. The standard Systems Engineering (SE) practice does not address some of the unique characteristics of current ME. The proposed ME competency model will include aspects of ME that are truly unique and relevant to the acquisition workforce, as well as skills and experiences necessary to perform the ME activities across complex systems and SoS.

Definition: Mission Engineering is the deliberate planning, analyzing, organizing, and integrating of current and emerging operational and system capabilities to achieve desired warfighting mission effects (Gold, 2016).

Action: The research team will engage with potential Subject Matter Experts (SMEs) and other stakeholders to seek their expert opinions in order to understand how ME can evolve and what skills are necessary for a Mission Engineer.

Expected Outcomes: The discussion with SMEs and the stakeholders will benefit the broader acquisition workforce by providing a better understanding of the state of the practice for ME drawing on the experience of SE for SoS, and support building the interdisciplinary ME knowledge and abilities to advance the knowledge base of ME. A gap analysis will be conducted to identify the possible gaps between the current curricula against the competency requirements.

Reference: Gold, R. (2016). Mission Engineering, Presentation at the 19th NDIA Systems Engineering Conference, Springfield, VA.