



## OFFICE OF THE DEPUTY ASSISTANT SECRETARY OF DEFENSE SYSTEMS ENGINEERING

### System of Systems Engineering Collaborators Information Exchange (SoSECIE)

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## Systems Engineering Management and the Relationship of Systems Engineering to Project Management and Software Engineering

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### Abstract

Complex systems bring many disciplines together and their boundaries are not always the same in different project environments. A major challenge is defining the specific concerns of systems engineering management with respect to boundaries and roles of project management, software engineering and systems development. There is no one-size-fits-all way to define the details of where various SE management functions are performed. This briefing will highlight why some functions are managed exclusively within the SE function, while others are managed in collaboration with the management of systems development and with overall project/systems management. This briefing will also examine the scope and content of the Systems Engineering (SE) Management knowledge area within the Body of Knowledge and Curriculum to Advance Systems Engineering (BKCASE) initiative that is underway. It will discuss the challenges and issues in developing an acceptable and concise representation of the knowledge, and ensure reasonable application to a wide range of domains.

This briefing will also address why the advent of net-centric systems has made software engineering much more critical to SE. Strong synergy exists between them, but there are some key distinctions and management challenges between SE and software engineering to address.

### Biography

Dr. Raymond Madachy is an Associate Professor in the Systems Engineering Department at the Naval Postgraduate School. His research interests include systems and software cost estimation and measurement; simulation of systems and software engineering processes; risk management; and integrating systems engineering and software engineering disciplines.

Previously he was a Research Assistant Professor in the Industrial and Systems Department at the University of Southern California and a Principal in the USC Center for Systems and Software Engineering. He has over 20 years of management and technical experience in industry including Chief Science Officer at Cost Xpert Group and Manager of the Software Engineering Process Group at Litton Systems.

He has over 90 publications including the book *Software Process Dynamics* and is a co-author of *Software Cost Estimation with COCOMO II*. He is currently writing *Systems Engineering Principles for Software Engineers*.