



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

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

Tuesday, August 14, 2012  
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#### Patterns of Success in Systems Engineering: Acquisition of IT-Intensive Government Systems

Mr. George Rebovich  
The MITRE Corporation

#### Abstract

Despite numerous attempts at reform of systems engineering and acquisition processes, government acquisition of IT-intensive systems has remained resistant to improvement. Both more and less oversight has produced equally unsatisfying results. Better requirements gathering, evolutionary development, etc., all aimed at solving specific problems, seemed not to produce lasting results.

The objective of this effort was to discover patterns of success in the systems engineering of information technology (IT)-intensive systems in a government acquisition environment using the method of positive deviance.

Positive deviance is an approach to improvement based on the idea that every community performing an activity has certain individuals or teams whose attitudes, practices, strategies or behaviors enable them to function more effectively than others with the same resources and environmental conditions. It is a search for what works.

Thirty government programs were identified, each with some notable success in the acquisition of IT-intensive capabilities. Twelve were selected for extensive follow-up and analysis, including detailed interviews with front-line practitioners who cope with the demands of the government acquisition system and are in a position to influence or observe positive deviance in their environment.

This presentation describes two large-scale success patterns that were observed, each with several recurring sub-patterns. "Balancing the Supply Web" addresses "social" interdependencies among enterprise stakeholders who have different equities in the capability being developed. "Harnessing Technical Complexity" addresses the technical interdependencies among system components that together deliver an operational capability for the enterprise. The large-scale patterns are two sides of the same coin. The programs studied achieved success because of the way they each navigated through these dual interdependencies.

#### Biography

Mr. George Rebovich is the director of the MITRE Systems Engineering Practice Office. He has held a variety of systems engineering positions at MITRE, including leading technical departments and groups, directing sponsor projects and technology projects, and serving as the chief systems engineer for a C4I system program.

Mr. Rebovich has worked in tactical and strategic sensor and C2 systems, DoD initiatives, international and foreign military sales programs, NATO working groups, and cross-agency communities of practice. His experience includes strategic planning, concept exploration and program development, systems



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engineering and acquisition of surveillance and C2 information systems, multi-sensor information systems, and combat identification systems.

Mr. Rebovich is active in the systems engineering technical community. He serves on systems engineering technical committees of the IEEE and NDIA and has authored or co-authored numerous articles, papers and reports. Mr. Rebovich is the author of invited chapters in several systems engineering books and is a co-editor of the CRC Press book *Enterprise Systems Engineering: Advances in Theory & Practice*. He is the technical lead on the publicly available *MITRE Systems Engineering Guide* and was a co-author the Department of Defense *Systems Engineering Guide for Systems of Systems*.

Mr. Rebovich holds a BS from the U.S. Military Academy, an MS in mathematics from Rensselaer Polytechnic Institute, a certificate of administration and management from Harvard University, and is a graduate of the U.S. Army C&GSC. Before joining MITRE, he served in the U.S. Army, including assignments in the U.S., Europe, and with the 101st Airborne Division in Vietnam. Mr. Rebovich is a former assistant professor of mathematics at the U.S. Military Academy.