

On Principles of Complex Systems Engineering-Complex Systems Made Simple

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Abstract. On Principles of Complex Systems Engineering-Complex Systems Made Simple Systems engineering (SE) activity in System of Systems (SoS), Enterprise Systems Engineering (ESE), and Complex Systems Engineering (CSE) continues to increase. There is still some controversy as to how well conventional methods of SE are able to handle our most difficult complex systems problems, and whether new ways of systems thinking will help. This tutorial will: 1) explain and give examples of complex systems and CSE; 2) review related definitions and terminology; 3) present CSE principles to create "mindsights" that will accelerate progress in your application domains; 4) provide artifacts for characterizing SE environments and what is being done about it; and 5) suggest a methodology for CSE. Teamed class exercises will stimulate creative thought and interactions among participants. The presentation materials and accompanying discussions should deepen our understanding of SE and better prepare us for future SE endeavors.

Biography

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Brian E. White received Ph.D. and M.S. degrees in Computer Sciences from the University of Wisconsin, and S.M. and S.B. degrees in Electrical Engineering from M.I.T. He served in the U. S. Air Force, and for 8 years was at M.I.T. Lincoln Laboratory. For 5 years Dr. White was a principal engineering manager at Signatron, Inc. In his 28 years at The MITRE Corporation, he held a variety of senior professional staff and project/resource management positions. He was Director of MITRE's Systems Engineering Process Office, 2003-2009. Dr. White retired from MITRE in July, 2010, and currently offers a new consulting service, CAU?SES ("Complexity Are Us" ? Systems Engineering Strategies).