System of Systems Engineering Collaborators Information Exchange (SoSECIE)

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System Interoperability Influence on System of Systems Engineering Effort

Dr. Jo Ann Lane, University of Southern California and Dr. Ricardo Valerdi, University of Arizona

Abstract
An important characteristic of a System of Systems (SoS) is interoperability among its constituent systems. It enables the flow of information and the seamless introduction of new systems into the SoS. But interoperability comes at a price. Current studies indicate that there is significant engineering effort involved in making systems interoperable. However, this feature is not adequately represented in current cost models. To characterize and quantify the interoperability (or non-interoperability) influence on SoS engineering effort, this presentation analyzes 14 interoperability models and presents two approaches that can be used as an extension to the COSYSMO or COSYSMO for SoS cost models.

Biography
Dr. Jo Ann Lane is a research assistant professor at the University of Southern California Center for Systems and Software Engineering, conducting research in the areas of SoSE, systems engineering, and innovation. She was a co-author of the 2008 Department of Defense Systems Engineering Guide for Systems of Systems. She received her PhD in systems engineering from the University of Southern California and her Master's in computer science from San Diego State University.

Dr. Ricardo Valerdi is an Associate Professor at the University of Arizona in the Department of Systems and Industrial Engineering. His research focuses on systems engineering and cost estimation. He is the co-Editor-in-Chief of the Journal of Enterprise Transformation and the Journal of Cost Analysis and Parametrics. He served on the Board of Directors of the International Council on Systems Engineering (INCOSE) and is a Senior Member of the Institute of Electrical and Electronics Engineers (IEEE). He received a PhD in Industrial and Systems Engineering from the University of Southern California.