



OFFICE OF THE DEPUTY ASSISTANT SECRETARY OF DEFENSE
SYSTEMS ENGINEERING

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

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Developing Standards for Systems of Systems (SoS) Engineering

*Mr. Garry Roedler, Lockheed Martin Corporation
Dr. Judith Dahmann, The MITRE Corporation*

Systems of systems engineering (SoSE) practice is maturing to the point that the International Organization for Standardization (ISO) has initiated the development of a set of SoSE Standards. Following the recommendations of a 2016 Special Study Group on SoS Standards, three new work item proposals for SoS standards were approved and work has begun. This presentation presents the background on the new SoS standards development and describes the new standards in development, including the content and conclusions of the ISO Special Study Group report which provided the basis for the proposed new standards for SoSE and discusses the three development activities. This study was conducted from May 2015 through May 2016 under the ISO Joint Technical Committee 1 (JTC 1). The study reviewed the current perspectives on SoSE and its state of the practice. The study group assessed the existing level of standardization for SoSE, along with the potential need for additional SoSE standardization and recommended three new standards development activities to support the needs of SoSE. These new standards development activities are under the auspices of Sub-Committee 7 (SC 7) of JTC 1, responsible for systems engineering and software engineering.

The focus of this presentation is on ISO/IEC/IEEE 21839 Systems and Software engineering - Systems of systems considerations through the lifecycle of a system. This standard, which is being jointly developed with the IEEE Computer Society is based on work done as part of The Technical Cooperation Program (TTCP) Technical Panel of Systems Engineering for Modernization which produced a guide to SoS Considerations for Engineering Systems . This group is largely focused on defense systems, but the guide has broad applicability. A working draft of the new standard, circulated as part of the new work item proposal, is based on the TTCP document. In the development of the draft standard, the information in the TTCP guide has been revised to better align with the lifecycle stages in ISO/IEC 24748 – Systems and software engineering lifecycle management, part 1 and to generalize it beyond defense. This standard was released as a Committee Draft in March and is being updated based on the comments from the Nation bodies. The structure and content of the standard will be described along with the plans for continued development.

Biographies

Mr. Garry Roedler is a Senior Fellow and the Engineering Outreach Program Manager for Lockheed Martin. His systems engineering (SE) experience spans the full life cycle and includes technical leadership roles in both programs and business functions. He is the President of the International Council on Systems Engineering (INCOSE).

Dr. Judith Dahmann is a principal senior scientist in the MITRE Corporation Center for the MITRE Systems Engineering Technical Center and the Capability Action Team leader for Systems of Systems (SoS). Dr. Dahmann is currently the MITRE project leader for the Office of the Director of Systems Engineering in the US DOD Office of the Under Secretary of Defense for Acquisition, Technology and Logistics and is the MITRE task lead for a set of systems of systems technology development projects at the Defense Advanced Research Projects Agency (DARPA).