INCOSE Working Groups What's In It for Me?

August 20, 2019

Beth Wilson
Systems Security Engineering WG Co-Chair
Systems of Systems WG
Agile Systems Engineering WG
Product Line Engineering WG
Competency WG
Systems Engineering Case Study WG

INCOSE Working Groups

Systems Security Engineering

Rick Dove / Keith Willett / Beth Wilson / Ken Kepchar

Analytic Enablers

System of Systems

Alan Harding / Judith Dahmann

Analytic Enablers

Agile Systems and Systems Engineering

Rick Dove / Ron Lyells, Larri Rosser, Kevin Gunn

Transformational

Product Line Engineering

H. Chale / R. Darbin / C. Krueger

Analytic Enablers

Competency

Cliff Whitcomb / Mimi Heisey

Analytic Enablers

Systems Engineering Case Study

Jorg Lalk

Analytic Enablers

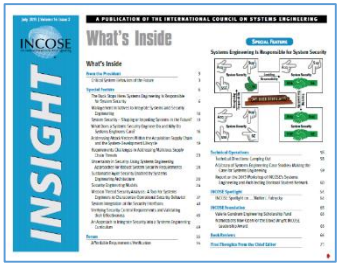
What Do Working Groups Do?

- **Activities Shape the Future of Systems Engineering**
  - Explore state of the art
  - Define state of the practice
  - Influence standards
  - Collaborate with related organizations (e.g., NDIA, IEEE)
  - Develop content for SE Handbook and SEBoK
  - Deliver products to guide practitioners

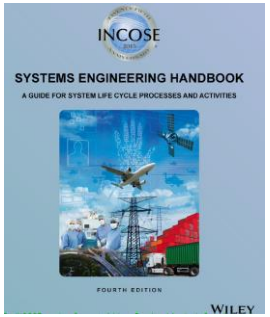
- **Products for the Systems Engineering Practitioner**
  - Webinars
  - Tutorials/Papers/Panels at International Symposium
  - INCOSE INSIGHT theme issues
  - Primers
  - Guides

SSE WG as an Example

- **INCOSE INSIGHT Theme Issues (5)**
  - Essay Format (~ 3 pages including graphics)
  - 10 essays plus overview aligned with theme
  - Practitioner is target audience



- **INCOSE SE Handbook: New Content for v4**
  - Section 10.11 “Systems Security Engineering”
  - Section 3.6.4 Stuxnet Cybersecurity Case Study



- **Standards Activity:** ISO, NIST draft reviews

- **Collaboration:** NDIA SSE, IEEE/NDIA/INCOSE SSS 2020, ABET, WGs

- **Sample Projects**
  - ***Cyber Secure and Resilient Approaches for Feature Based Variation Management (joint project with PLE WG)***
  - SSE/SE Roles and Responsibilities Framework

SSE/PLE Joint Project
One-Page Progress Summary

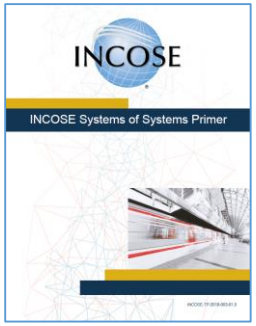
Kickoff: April 2018
Status: Aug 2019

- **Project Objective**: Bring systems security into product line design
  - **Goal**: Identify techniques for implementing systems security as part of product line design
  - **Goal**: Identify patterns for product line architectures that addresses systems security
  - **Goal**: Identify variation management approaches for secure and resilient product line assets
- **Progress to Date**
  - Literature search continuing on existing techniques
  - Identified concerns to address in project aligned with goals
  - Identified tasks to apply to notional examples
  - Search and Rescue sample problem and Automobile proposed as notional examples
  - Identify areas in notional examples to characterize with product line variations
  - Identify mission threads in notional examples
  - Develop notional example details to apply techniques

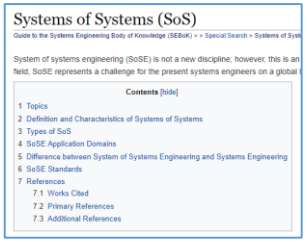
- **Planned Effort**
  - Apply cyber resiliency techniques to interim SE Products
  - Develop examples showing security application inside product line/variation point
  - Develop examples showing security should be applied outside product line/variation point
  - Relate SSE in PLE to design and testing activities
  - Identify potential SSE in PLE patterns
  - Develop guidelines for implementing techniques
- **Planned Deliverables**
  - INCOSE INSIGHT Q2 2020
  - Papers at NDIA/INCOSE conference April 2020
  - INCOSE webinar

SoS WG as an Example

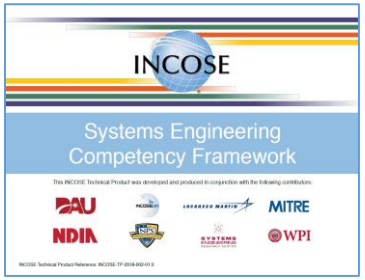
- **Systems of Systems Primer**



- **Standards Activity:** ISO
- **Monthly Webinars**
  - https://connect.incose.org/Library/Webinars/Pages/Working-Group-Webinars.aspx
  - Over 35 webinars to date, up to 100 participants (not counting views of recording)



- **SEBoK SoS Knowledge Area**
- **Collaboration:** IEEE, NDIA, WGs
- **Projects**
  - SoSE Competencies
  - SoS Case Studies



Who Belongs to Working Groups?

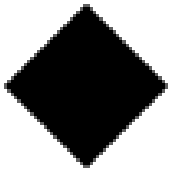
- **Novices**
  - Learn new things
  - Shape need for introductory material

Beginner

- **In-Between**
  - Expand knowledge
  - Contribute to working group projects
  - Collaborate across working groups and organizations

Intermediate

- **Experts**
  - Share expertise
  - Collaborate internationally with other experts



Expert

All Levels:

Explore state of the art
Define state of the practices
Develop products for practitioners

How Can I Find a WG for Me?

- **Drop Into a WG Session in Person**
  - International Workshop (longer working sessions)
  - International Symposium (short status sessions)

2020 Annual INCOSE international workshop
Torrance, CA, USA
January 25 - 28, 2020

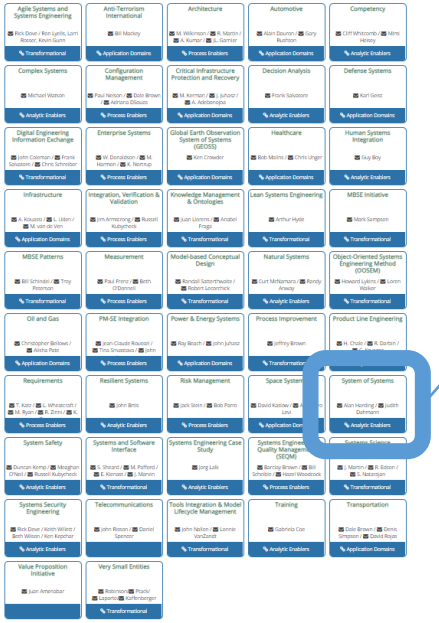
30th Annual INCOSE international symposium
Cape Town, South Africa
July 18 - 23, 2020

- **Explore on the INCOSE Website** (Find Your Community)

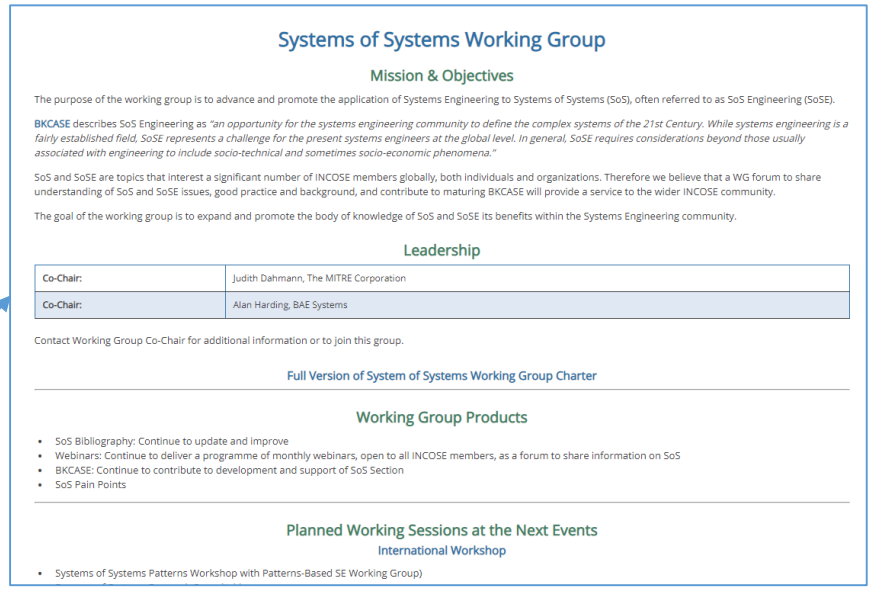
Check out the WG Information

Top of Page:

Bottom of Page:



Details on a WG:



Systems of Systems Working Group

Mission & Objectives

The purpose of the working group is to advance and promote the application of Systems Engineering to Systems of Systems (SoS), often referred to as SoS Engineering (SoSE).

BKCASE describes SoS Engineering as *"an opportunity for the systems engineering community to define the complex systems of the 21st Century. While systems engineering is a fairly established field, SoSE represents a challenge for the present systems engineers at the global level. In general, SoSE requires considerations beyond those usually associated with engineering to include socio-technical and sometimes socio-economic phenomena."*

SoS and SoSE are topics that interest a significant number of INCOSE members globally, both individuals and organizations. Therefore we believe that a WG forum to share understanding of SoS and SoSE issues, good practice and background, and contribute to maturing BKCASE will provide a service to the wider INCOSE community.

The goal of the working group is to expand and promote the body of knowledge of SoS and SoSE its benefits within the Systems Engineering community.

Leadership

Co-Chair:	Judith Dahmann, The MITRE Corporation
Co-Chair:	Alan Harding, BAE Systems

Contact Working Group Co-Chair for additional information or to join this group.

Full Version of System of Systems Working Group Charter

Working Group Products

- SoS Bibliography: Continue to update and improve
- Webinars: Continue to deliver a programme of monthly webinars, open to all INCOSE members, as a forum to share information on SoS
- BKCASE: Continue to contribute to development and support of SoS Section
- SoS Pain Points

Planned Working Sessions at the Next Events

International Workshop

- Systems of Systems Patterns Workshop with Patterns-Based SE Working Group)

- Mission & Objectives
- Leadership
- Working Group Products
- Planned Working Session at the Next Events

How to Engage with Working Groups

- **Workers (Active Members)**
  - Attend WG meetings at IW and IS (in person, some have virtual options)
  - Volunteer to participate in or lead a project
  - Volunteer to be a reviewer (products, INSIGHT, IS papers, standards drafts)

- **Lurkers (Fan Club)**
  - Join WG and check out activities
  - Sign up for email information
  - Attend WG meetings or just read the notes that come out after
  - Use WG products

How Do I Benefit?

- **Learn New Things**
  - Find out about new initiatives
  - Explore new techniques

- **Career Advancement**
  - Publication opportunities
  - Connections to experts and mentors

- **Even in Retirement**
  - Keep current in the Systems Engineering field
  - Contribute to and learn from practitioner products

Find a Working Group That is Right for You!