



2015 March ■ Quarter 1



Members
Newsletter

President's Corner

David Long, david.long@incose.org

Welcome to the inaugural issue of INCOSE's member newsletter. In this, our 25th year, INCOSE looks back to leverage strengths and looks forward to generate new value. This newsletter is the first of many advances to better serve our members and the community.



Over the past eight years, Bob Kenley, elevated *INSIGHT* to the content-packed publication that our members love with the help of theme editors and contributors from across INCOSE. To take the next step in serving members while simultaneously increasing the exposure for this technical content, INCOSE is replacing *INSIGHT* with two new publications. The first, continuing the *INSIGHT* brand, is a new practitioner's magazine dedicated to informative articles on advancing the state of the practice of systems engineering. Details on the new *INSIGHT* can be found on page 8.

In parallel, INCOSE is proud to launch this member newsletter focused on happenings of interest from across the systems community. Packed with events from around the world, news from working groups, insights on the upcoming standards, and items of interest from beyond INCOSE's

borders, this quarterly newsletter adds new depth as we share the latest news in the world of systems.

These are just two of the changes coming to INCOSE in 2015 as part of our silver celebration, a celebration focused on bringing new value to you while continuing to advance the cause of systems engineering. Look forward to more as we exploit past advances and frame new initiatives – anthologies highlighting the best of INCOSE from the last 25 years, the next steps in our IT evolution, the launch of the INCOSE Institute for Technical Leadership, innovations at the 2015 International Symposium, and much more! How will you celebrate and advance systems practices in 2015? ■

Twenty-Fifthness

We are in INCOSE's 25th Anniversary year, during which we are both celebrating our history and achievements and looking forward.

The INCOSE Foundation will be making grants to up to 25 chapters to help with new innovative ideas to develop systems engineering or INCOSE. We will be launching a competition to design a new icon to reflect systems engineering, and will announce the best entries at the International Symposium

During the year we will publish spotlight profiles of people who embody the essence of INCOSE today, from students to fellows, new members to staunch supporters.

If you feel you would be an interesting person to profile, please contact info@incose.org with a few words explaining why.



IN THIS ISSUE!

Welcome to the INCOSE Member Newsletter
Highlights in Pictures from the IW 2015
Message from Technical Operations
Chapter News – GLRC
Support for your Chapter

Spotlight on David Mason
Representing INCOSE
Academic Matters
25@25
The new *INSIGHT*!

INCOSE Member Newsletter

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Who are we? INCOSE is a 10,000+ member organization of systems engineers and others interested in systems engineering. Its mission is to share, promote, and advance the best of systems engineering from across the globe for the benefit of humanity and the planet. INCOSE chapters worldwide, is sponsored by a corporate advisory board, and is led by elected officers and directors.

2015 INCOSE Board of Directors

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Note from the Editor

Lisa Hoverman, lisa.hoverman@incose.org



Allow me to echo a warm welcome to the INCOSE Member Newsletter. It is a privilege to serve as the editor for this new publication. This first publication is a good representation of the breadth of INCOSE.

In this issue of the newsletter you learn about some of the plans for this 25th year of INCOSE, see highlights from the International Workshop, and the Great Lakes Regional Conference, learn more about ways to interact with and spread the word about INCOSE, and look forward to the coming *INSIGHT!*

I extend a huge Thank You to Bob Kenley, and Cecilia Haskins for their support and aid as I took on this job, and to all the authors for delivering their content in a timely manner. ■

Calling All Systems Engineers: Let's Be Social!!

Denise Haskins, haskinsdn@gmail.com

“Take the time to develop and practice your social skills—not just your social media skills.” — Earl G. Graves, Sr. Enterprise Magazine Chairman

INCOSE has established mechanisms to allow systems engineers to engage via social media to:

- Engage with cohorts in real-time
- Provide a collaborative environment to pose questions, determine solutions, or find the specialist in your field of interest
- Keep abreast of the latest INCOSE and organizational training, conferences, and webinars to increase your knowledge or promote your education
- Overcome barriers within the digital divide that separate us geographically; over 10K+ people have a similar career field
- Find a mentor or professional in your specific key capability area

It's easy to employ your social skills and all you need to do is:

- Take a minute to Like us on Facebook 
- Follow us on Twitter 
- Connect on LinkedIn 
- or just email us to find your workgroup (info@incose.org)

So, be a social systems engineer and make this the year where your systems engineering career becomes an unspeakable success!! If you have suggestions for a new social media venue please let us know. ■

Highlights in Pictures from the International Workshop 2015



First ever group photo taken at 25th anniversary IW in Torrance, US-CA.



Readers choice Favorite INSIGHT article: “The Role of Systems Engineering in Large-Scale Agile Projects” by Phyllis Marbach (Boeing), Larri Rosser (Raytheon), Gundars Osvalds (Praxis Engineering), and David Lempia (Rockwell Collins) – Phyllis and David accepting from David Long and Bob Kenley.



Readers choice Favorite INSIGHT issue: Volume 17 Issue 2: July 2014, theme “Agile Systems-Engineering AND Agile-Systems Engineering” – theme editor Rick Dove accepting from David Long and Bob Kenley. Bob Kenley later received an award in recognition of his many years as chief editor of the INSIGHT and for evolving it from a newsletter to a magazine.



Bo Oppenheim makes good on his promise to wear a “pink dress” in response to a gender error in a review article.



David Long and Bill Miller recognize outstanding contributions from Working Groups—Dr. David Kaslow, Chair of the Space Systems WG >

Highlights in Pictures from the IW 2015 *(continued)*

David Long and Bill Miller recognize outstanding contributions from Working Groups (continued) – receiving from top to bottom: Chris Unger for the Healthcare WG, Joe Marvin for the Small and Medium-sized Enterprises WG, and Kevin Forsberg for the 4th edition of the SE Handbook.



From the Technical Director

Paul Schreinemakers, technical-director@incose.org

In my first column as technical director, I want to honor the accomplishments of the past two years and look at future opportunities and challenges for Technical Operations (Tech Ops) leadership, organization working groups, and the chapter-working groups.

To start, I want to thank Bill Miller, our former technical director, for his years of service and contributions of Transparency, Collaboration, Inclusiveness and “Walk the Talk.” I am grateful for the guidance and mentoring he provided to me as deputy technical director.

Looking forward, I plan to build on Bill’s legacy by strengthening the transparency and extending the collaboration with chapter working groups. The Tech Ops – Corporate Advisory Board (CAB) cooperation is an example of the coverage of the needs from the Industry Outreach Board.

Part of our focus, and part of the INCOSE 5-Year objective, is the transformation of systems engineering to a model-based discipline. Our goal is to support Model Based Systems Engineering (MBSE) to become mainstream in systems engineering, rather than a separate camp in our organization. INCOSE provides the authoritative information on MBSE to practitioners, the community, and to discipline oriented model-based engineering-

Secondly the Tech Ops’ activities will focus on mining available products within Tech Ops as well as at chapter working groups, so we can share knowledge and collaborate in mutual activities. The aim is to start making these products available this year.

I look forward to working with you for the next two years. Please contact Mike Celentano, our newly appointed deputy technical director, or me with your questions concerning Technical Operations. ■

8th Annual Great Lakes Regional Conference

Reported by Paul White, Paul.White@incose.org



Official logo of the INCOSE
Eighth Annual Great Lakes
Regional Conference
(Logo by Patrick Hagerty)

Several Midwestern INCOSE chapters planned and conducted the Eighth Annual Great Lakes Regional Conference (GLRC) with the theme “Systems Engineering across the Lifecycle.” The conference was Friday and Saturday, October 10-11, 2014, at the IBM facility in Schaumburg, Illinois (US).

The conference broke many records for attendance, sponsorship, and number of presentations. GLRC 2014 featured new offerings and programs, including an opportunity to take a SEP beta exam for INCOSE certification credit (ASEP, CSEP, or ESEP), a joint Program Management – Systems Engineering (PM-SE) track of presentations, and a surplus-sharing agreement among contributing chapters.

The conference attracted 107 attendees—including 38 presenter-attendees—representing 70 companies and organizations across industry and academia. Attendees traveled from 18 states and from one province in Canada.

After opening remarks from Paul White, GLRC 2014 Chair, and Mark Borowski, IBM Technical Sales Executive Leader, attendees selected from workshops on topics including: cybersecurity, communication and leadership skills, medical device risk management, efficient and effective health care delivery, and working group meetings.



Attendees share a light moment of networking during the Friday night dinner at Maggiano's Little Italy. (Photo by Patrick Hagerty)

for Tomorrow: 21st Century Systems Engineering.”

On Saturday, Randy Iliff, bb7 (formerly Bjorksten | bit 7) vice president, gave a breakfast keynote speech, “The Unlimited Potential of Systems Engineering.” After the keynote, attendees selected from 23 presentations.

Conference sponsors set up tables with displays showcasing their organizations. During Saturday’s lunch, three sponsoring organizations—IBM, bb7, and ICTT System Sciences—presented their products and services. The conference wrapped up with a congenial two-hour networking event, Saturday evening.

The GLRC Committee and the Chicagoland Chapter Board of Directors extend a special “thank you” to Paul White, the 2014 GLRC Chair, for his leadership and extraordinary effort in making the conference a success. The GLRC Committee is grateful for the generosity of the GLRC’s sponsoring organizations—their funding largely enabled the success of the 2014 GLRC. Further, several chapters (Chicagoland, Cleveland – Northern Ohio, Crossroads of America, Michigan, and North Star) contributed greatly to the event and benefitted from the surplus-sharing agreement. Finally, the Chapter extends its gratitude to all presenters.

In today’s challenging economic climate, the GLRC Committee was pleased to be able to host a high-quality conference, and provide a forum for systems engineering practitioners and thought leaders to interact and support advancement of the state-of-the-art in systems engineering.

A great Ninth Annual INCOSE Great Lakes Regional Conference will take place in Cleveland, Ohio, in 2015. ■

Support for Your Chapter

Don Boyer, d3boyer@verizon.net

A great resource for all things related to INCOSE chapters is the Key to Effective Chapters Wiki. To find it quickly, search for “INCOSE chapters wiki.” The wiki contains resources such as Leader Training, the Chapter Planning Workbook, Use of Global Meet, and examples of plans, new member recruiting ideas, member surveys, members recognition, etc.

Struggling for chapter meeting speakers? Tie into another chapter’s presentations, or contact one of the many International Working Groups for a presentation via Global-Meet. Questions? Contact Chapter: Keys@incose.org. ■

Academic News

Thomas F. Gannon, tgannon@wpi.edu

2015 World Wide Resource Directory for Industrial and Systems Engineering Community

The Systems Engineering Research Center (SERC) and the International Council on Systems Engineering (INCOSE) have developed a directory of systems engineering and industrial engineering programs from around the world as a resource for the industrial and systems engineering communities.

Listings include the name and address of the university, what degrees that university offers, the academic unit that offers those degrees, the head of the academic unit offering those degrees, and a URL where more information can be found.

An initial version of the directory was posted on the SERC and INCOSE websites in January with information obtained from university websites; we invited institutions to contact SERC or INCOSE with corrections or additions of degree programs in Systems Engineering and Industrial Engineering. Since then numerous requests for changes and additions to the directory, resulted in the updated 2015 edition of the directory, found at: <http://www.incose.org/newsevents/announcements/docs/WorldWideDirectory.pdf>.

Contact for information: ISEDirectory@stevens.edu

Student Systems Engineering Conference (SSEC) — April 11, 2015

The INCOSE Student Division of INCOSE is preparing for the Student Systems Engineering Conference (SSEC) kick-off at California Polytechnic University, Pomona, California (US) (CPP) on April 11, 2015. The INCOSE Los Angeles Chapter, CPP, and enterprises electing to sponsor projects for the SSEC are co-sponsoring this event.

The vision for the SSEC is two-fold:

- Have all SSEC students graduate with the knowledge and leadership of Systems Thinking/ Systems Engineering gained through the application of an industry sponsored project, and
- Enable SSEC students to achieve INCOSE ASEP certification before graduation.

This SSEC has four stages; a systems engineering tutorial with enterprise project introduction stage, a mentoring stage (2 semesters), a formal presentation stage, and an awards stage. The kick-off will focus on the tutorial and enterprise introduction stage of the SSEC. This will provide the knowledge in the planning and development for an SSEC, something the Student Division will share across all INCOSE as one model to address the 4-Way Benefit Model value propositions of all stakeholders.

The Student Division members will execute the second stage across the summer and winter semesters with the third stage conducted before conclusion of the winter semester.

To assess the value of the SSEC, the first stage kick-off is limited to Student Division members at CPP. This enables the Student Division member to complete the short duration planning, the templates, and guidelines before distribution to the INCOSE membership. The Student Division members will present the results of the CPP SSEC kick-off at the INCOSE International Symposium along with other engineering competition models available for INCOSE sponsors globally.

Future SSECs can occur within academic geographical areas to optimize the number of students able to attend each SSEC. Local INCOSE Chapters, local enterprises, and the INCOSE Student Division will sponsor the conferences. The sponsoring university will hold the SSEC with the sponsorship rotated annually among the universities and INCOSE chapters within the academic region.

INCOSE Spring Academic Forum on Systems Education for All Engineers – May 18-19, 2015

The International Council on Systems Engineering (INCOSE), Academic Council, the Systems Engineering Research Center (SERC), and American Society is sponsoring the INCOSE Spring Academic Forum for Engineering Education (ASEE). The Systems Engineering and Leadership Institute (SELI) at Worcester Polytechnic Institute (WPI) is hosting the Forum, and Rick Adcock, INCOSE Associate Director for Education, will serve as the General Chairman of the Forum. >

Academic News (continued)

The purpose of this Forum is to engage academic, industry, and government leaders in engineering education across the world to consider how to make substantive progress to expand the role of systems knowledge in the education of all engineers.

The Forum will consider this topic in three ways:

- How can we better describe the value of systems knowledge in engineering education, for students, employers, and educators?
- What is the best way to build on existing successes to create useful materials, products, and recommendations to help deliver this value?

IBM 2015 InterConnect Panel on the Future of Systems Engineering

William Miller, former Technical Director,
wdmiller220@gmail.com

The InterConnect event held in Las Vegas, Nevada, USA on February 22-26 is IBM's annual premier event with over 20,000 participants. I represented INCOSE on a select panel to discuss the future of systems engineering over the next 10 years and paths to that future. Other panel members were Alberto Sangiovanni-Vincentelli who holds the Buttner Chair of Electrical Engineering and Computer Sciences at the University of California at Berkeley, Object Management Group (OMG) Chairman and CEO Richard Soley, and Airbus Group Corporate Research head of systems engineering research Andreas Keis. Michelle Specht, World-Wide Systems GTM Manager, Systems Communities and an INCOSE member, organized the panel facilitated by Brian Dalgetty, IBM World-Wide Director of Marketing for the Internet of Things (IoT).

The panel agreed on the need to transform systems engineering from manually intensive empirical practices often inappropriately applying the V concept to formal, model-based methods to cope with the complexity of systems on the horizon such as driverless automobiles. This transformation has already occurred in several domains including semiconductor device development and manufacturing. This topic on the future of systems engineering will be reprised in a panel at the INCOSE 2015 International Symposium this July in Seattle, Washington, USA. ■

- Is the systems engineering knowledge base sufficient to support these outputs?

The forum will provide recommendations to INCOSE, the SERC, and ASEE on how they should work together to expand their engagement with academic and professional communities to promote the integration of appropriate systems knowledge into the education of all engineers.

For more information contact: Shamsnaz Virani Ph.D., Assistant Teaching Professor, Systems Engineering, Worcester Polytechnic Institute, ssvirani@wpi.edu. ■

INCOSE Spotlight on David Mason

Interviewed by Sandy Young, info@incose.org

Name: David Mason, ESEP
Years in systems engineering: 22
Year joined INCOSE: 1998
Roles in INCOSE: Assistant Director, INCOSE Student Divisions; Board Member, INCOSE San Francisco Bay Area (former Chapter President)



Photo by Kimberly Hargrove

David Mason

What inspired you to become a systems engineer?

My inspiration came primarily from the need to find efficient processes and practices to develop, integrate and test complex aerospace products while achieving mission objectives and satisfying stakeholder needs. I was intrigued by finding ways to reduce the technical efforts and improve communications amongst my team members to develop quality products within approved time and budget constraints. This led me to discovering systems engineering and the tools and actions needed to accomplish my objectives.

Want to know more about David Mason? Be sure to check out Sandy's full interview with David in the new *INSIGHT*, where David shares insights with Sandy and *INSIGHT* on his experiences in systems engineering starting with gas engines, designing unique instruments and his thoughts on STEM! ■

25@25 – Susan C. Ruth

Interviewed by Sandy Young, info@incose.org

“25@25” is INCOSE’s new series of short profiles of INCOSE members – people who have helped make INCOSE what it is today and what it will be in the future. This is the first in the series that will appear throughout the year to honor our 25th Anniversary.

Name: Susan C. Ruth

Title: Senior Project Engineer

Organization: The Aerospace Corporation

Place of Birth: Norman, Oklahoma, USA

Current Residence: Whittier, California, USA

Domain: Aerospace

Years in systems engineering: Formally, 20

Year joined INCOSE: 1993

Roles in INCOSE: General “make it work” person; actively avoided any assigned role



Susan C. Ruth
(Photo by Aerospace)

How has systems engineering changed over the past 25 years?

Systems engineering as a field continues to mature and more people have the basic skill sets. We continue to find ways to work through difficult challenges and solve problems. In order to share what we learned, we develop tools, methods and pictures to communicate.

I’ve seen the V model, X model, W model, etc. Now, we mostly use the V model – a picture that captures many of the historical elements of systems development and illustrates how they connect in a functional sense (rather than the heritage waterfall which depicts the timeline view). Model-based systems engineering (MBSE) is also working to earn its place as a methodology.

What do you think is the most valuable benefit of INCOSE membership?

The people, the opportunities, [and] the education [are the most valuable benefit]. The most valuable thing about systems engineering for me was that it enabled my career transition from a materials and processes engineer to a systems engineer.

The Los Angeles Chapter has given out the INCOSE Susan C. Ruth Award for Outstanding Long Term Service since 2001. What do you find most rewarding about contributing to your INCOSE chapter?

The most rewarding contributions for me have been providing people with opportunities to grow their capabilities, who have then surpassed their goals to become even more than they ever thought they could be.

Anything you’d like to add?

It’s been fun. ■

INSIGHT Editor-in-Chief

William Miller, insight@incose.org

This April in the 25th year of INCOSE marks the re-launch of *INSIGHT* in cooperation with John Wiley & Sons publisher, as a magazine for systems engineering practitioners. *INSIGHT*’s mission is to provide informative articles on advancing the state of the practice of systems engineering. Furthermore, the intent is to accelerate the dissemination of knowledge to close the gap between the state of practice and the state of the art as captured in *Systems Engineering*, the Journal of INCOSE, also published by Wiley.

Thanks to former editor-in-chief, Bob Kenley, the *INSIGHT* re-launch has seven thematic quarterly issues in the pipeline. The focus of the forthcoming April issue is Resilient Systems. Theme editor Scott Jackson and the

authors have contributed the following articles:

1. Overview of Resilience and Theme Issue on the Resilience of Systems,
2. Resilience in Everyday Life,
3. A Generic State Machine Model for System Resilience,
4. Resilience, Latent Faults, and Systems that Learn,
5. An Introduction to the United States Department of Homeland Security Science and Technology Directorate’s Resilient Systems Division,
6. Engineering Resilient Space Systems,
7. Using DoDAF and Metrics for Evaluation of the Resilience of Systems, Systems of Systems and Networks Against Cyber Threats,
8. On Evaluating Resilience in C3 Systems,
9. Swarm-Based Concepts for Resilient Autonomous Interstellar Exploration Systems.

Join us in April for a great re-launch! ■