

MEMBERS NEWSLETTER

June 2016 - Quarter 2



President's Corner • Notes from the Board • Tech Ops Update •

IFSR Conversations • Chapter Updates •

Working Group Updates • Academic News •

Spotlight Section • Note from the Editor

Follow us



President's Corner

Alan D. Harding, alan.harding@incose.org



In the remarks that I gave at the INCOSE International Workshop in Torrance, CA on Saturday 30th January this year, I took as my theme how we all can contribute to fulfilling INCOSE's mission by contributing to the achievement of the INCOSE strategic objectives. The INCOSE

Systems Engineering Vision 2025 informs the mission, our vision, and these objectives.

The purpose of the Systems Engineering Vision 2025 is to inspire and guide the direction of systems engineering across diverse stakeholder communities, which include executives, policy-makers, academics and researchers, practitioners, and tool vendors. This vision will continue to evolve based on stakeholder inputs and on-going collaborations with professional societies.

The strategic objectives don't describe everything we intend to do, instead they highlight seven important areas where, if we make good progress during the next five years, it will result in the improvement of both systems engineering and INCOSE. Figure 1 summarizes these objectives, with the part of INCOSE that is championing each objective.

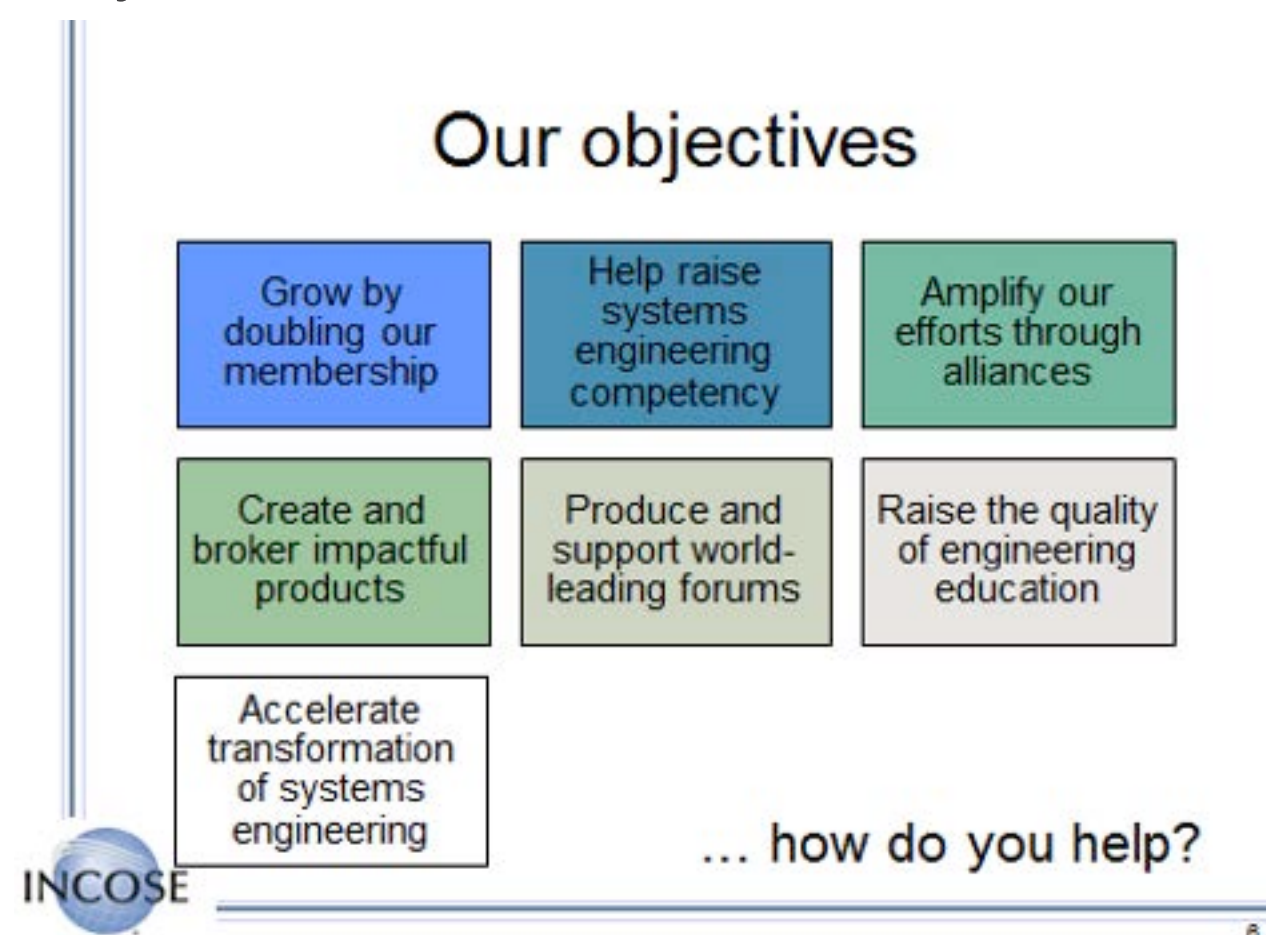


Figure 1. The INCOSE Strategic Objectives

Each objective is demanding in its own right, and the set of objectives are interconnected in quite a complex manner – for instance raising the quality of engineering education should be an enabler to improved systems engineering competence, which in turn should contribute to acceleration of transformation of the discipline.

So what can we as individuals do to help? It turns out that actually we can do quite a lot. Here are some examples:

- We can tell people about the value of systems engineering and how INCOSE helps you develop as a systems person.
- Where a member of another professional body, help us work together for the good of both organisations.

- As many people already do, you could offer to give guest lectures or provide mentoring advice to systems engineering students at local Universities and Colleges.

We can all contribute to fulfilling INCOSE's mission by contributing to achievement of INCOSE strategic objectives.

As chapter leadership we can:

- Welcome interested people to local meetings, and work to engage local systems engineers who are not already members.
- Use links with local Universities to offer guest lectures, practitioner inputs, and even members of course steering boards.
- Offer up your proudest products to the wider INCOSE audience.

As Organisations who are members of the Corporate Advisory Board we can:

- Ensure our specialist systems engineers are developing to their full potential by being active individual members of INCOSE and pursuing SE Certification.
- Look for opportunities to develop our own in-house systems engineering capabilities, and those of our supply chains.
- Be part of the INCOSE knowledge sharing as together we work to adopt model-based approaches.

Finally, in this set of examples cutting across our strategic objectives, as members of Technical Operations Working Groups and Initiatives we can:

- Shape and help working groups to develop state of the art products that address our strategic challenges.
- Seek out new and interesting types of technical events, while not being constrained by what we do today.
- Continue to lead the transformation of our discipline, explaining and engaging all interested parties.

These were just a few examples of what we can do. My challenge to you is twofold: First please make sure you are familiar with our strategic objectives so you can apply your creativity and experience to making a contribution; Second, I would love to hear from you about what you have achieved – individually or collectively.

As an example of amplifying our efforts through alliances, I am delighted to welcome the name change that the Institute of Industrial Engineers underwent on 1st April 2016, to the Institute of Industrial and Systems Engineers. This change reflects their evolution as an organisation, and that many academic departments and boards within IIE had already embraced "systems" in their naming.

We are thrilled with IISE's new name, recognizing that it further promotes the importance of systems in the industrial engineering sector. INCOSE and IISE have worked together very effectively on the Journal of Enterprise Transformation, and I am sure we may have other successful joint projects in the future.

Notes from the Board

Rachel LeBlanc, marcom@incose.org

At the recent INCOSE Board of Directors meeting, the Board reviewed the 5-year objectives in detail. The Board examined and noted the following:

Growth – The identified growth levers are geography, application domains, and recruitment and retention. For the geography lever, new chapters formed/will form in Portugal, Belgium, Canada, and Brazil. In addition, translation of the Systems Engineering Handbook continues. In application domains, members continue to identify potential alliances. INCOSE requires marketing support to highlight relevancy of systems engineering in the domains and to increase INCOSE presence. The Board is discussing recruitment and retention efforts, including improving the membership trend reporting.

Competence – This objective has strong links with many stakeholders including the Industrial Outreach Board, Technical Operations (Tech Ops), Academics, and Certification. The Board is exploring these interrelationships to determine the best path forward for stakeholder engagement. This will include connecting with various industry associations in sectors with help from industry ambassadors.

Alliances – Focus will be on increasing visibility of current alliances and continuing strategic growth of new alliances in areas such as MBSE in Building Information Modeling (BIM) and tool interchanges. The Board has activities in place to standardize processes and templates used in building these alliances.

Impactful Products – The Board has two primary efforts ongoing; building a product portfolio and improving access to products. There is a focus on better highlighting of existing products and improving the consistency of products by building templates and style guides. The Board formed a steering committee including Mike Celentano, Paul Schreinemakers, Jörg Lalk, Ken Zemrowski, Rachel LeBlanc, Bill Chown, and Bill Miller.

Forums – Diversifying and expanding global and local forums is central to this objective. Planned activities include benchmarking of similar professional organizations, continuing to pilot new events, and exploring additional methods for bringing technical knowledge to INCOSE members.

Education – Expansion of Academic Forums and events with organizations are underway. In addition, INCOSE continues to enhance relationships with ABET and the American Society for Engineering Education (ASEE). The Graduate Reference Curriculum for Systems Engineering (GRCSE) revision will provide an opportunity for stronger adoption by universities around the globe. INCOSE is also working to determine the role it will play in systems engineering training in the future.

Transformation – To accelerate transformation of systems engineering to a model-based discipline, the Board has several initiatives in place. These include compiling success stories from the CAB, further integrating MBSE into events and activities, and increasing visibility of model-based approaches to the external community.

Tech Ops Update

Paul Schreinemakers, technical-director@incose.org

I hope that many of you are getting ready to attend the 2016 International Symposium in Edinburgh, Scotland. From July 18 – 21, an excellent technical program and many networking opportunities to meet old and make new friends await you.

One of the things we worked on for almost one year is the organizational structure of Technical Operations (Tech Ops), INCOSE's technical heart and the bee-hive for many members working on products and advancing systems engineering. The current structure initiated in 2005 and served us well for many years. However, as one expects, INCOSE and its working groups continued to develop over time, which led to a graduate misalignment between the Tech Ops organization and the needs from the working groups, Corporate Advisory Board, Industry Outreach Board and the external stakeholders. These reasons prompted us to re-think the Tech Ops organizational architecture.

...[Tech Ops is] INCOSE's technical heart and the bee-hive for many members working on products and advancing systems engineering.

At the Edinburgh symposium, we will present the new Tech Ops organizational architecture during the leadership briefing on Sunday as well as the Monday Tech Ops Track. Please attend either of these meetings to see how we advanced Tech Ops to better serve our stakeholders' needs.

I am looking forward to meeting you all at the symposium in Edinburgh.

IFSR Conversations

International Federation for Systems Research (IFSR)

Timothy L.J. Ferris, Timothy.Ferris@cranfield.ac.uk

INCOSE is a member of the IFSR, a federation of over 40 societies focused on aspects of understanding and interacting with systems of all kinds. IFSR conducts periodic 'Conversations', meetings of people invited to participate, to discuss topics understood, across the systems community, to be important. The 'Conversations' differ from conferences because there are no papers describing completed work presented, instead participants with shared interests discuss subjects at the cutting edge with the purpose of generating shared understanding which can later be expressed in normal research products.

The Linz, Austria Conversation in 2016 was formed in three groups discussing: "Unity in Diversity: Making the Implicit Explicit"; "Looking for Systemicity through Boulding's Skeleton of Science, Hierarchy Theory and Transdisciplinarity"; and "Systems Research: Evaluation – What is "good" Systems Research?"

INCOSE participates in these conversations to learn from other systems theorists and include their work and perspectives into the fundamental research within INCOSE related to the nature of systems and ways of engaging with them. In addition, because the focus of members of INCOSE is pragmatic, to use knowledge of systems to engage effectively with real systems, INCOSE challenges the systems theorists to do research which is helpful for pragmatic purposes.

The Systems Research team discussed a number of issues related to research related to systems, drawing out a number of points of contrast with much of the other research which is performed. These questions for discussion included: what makes research fundamentally systemic, and not just research about a question prompted from an interest in systems; to what extent is practice in a systems area of interest necessarily research, to ensure appropriate interventions are made; and is taking a systemic perspective in engagement with a real matter ethically good or neutral?

The question of what makes research fundamentally systemic is important because it demands questioning of the research questions, methods, type of data to be collected, and data analysis methods, particularly compared with the answers to these questions which are valid for traditional scientific research exploring relationships of specific variables under defined conditions.

The extent to which systems engagement, whether of a systems engineering or soft systems type, is a research activity, depends on the need for doing research to discover the nature of the situation in which the intervention is proposed, the knowledge of the specific situation, and the need for formal prediction of the expected effects of any intervention.

In both the systems engineering and broader systems

communities there is an assumption made by a significant number and expressed in the common rhetoric that approaching interventions from a systemic perspective is inherently better, in an ethical sense. Approaching work using systemic methods should result in a system which functions in a coherent manner but whether the result is good for stakeholders depends on the value judgement of what is good of the person who does the intervention.

Chapter Updates

Contributions from Steven Dam, steven.dam@specinnovations.com; and Rick Dove, rick.dove@parshift.com

The Atlanta Metro Chapter of INCOSE presented its Annual Best Undergraduate Systems Engineering (SYE) Capstone Project Award at Kennesaw State University's (KSU) Systems and Aerospace Engineering Senior Design Symposium in Marietta, US-GA on 3 May. Featuring a \$1,000 cash prize for the winning team, the award was presented to the project titled "Sit Back and Smell the Tool-Ips: an ADU Analysis." The team was comprised of KSU SYE seniors, Stephen Fields, Ivan Maciel, and Taylor Sisson. Lockheed Martin, Marietta, US-GA, with Carlos Edwards, C-130 Industrial Engineering Manager, serving as site advisor/team leader, sponsored the project. Faculty advisor for the team was Woodrow W. Winchester, III.

The Texas Gulf Coast Chapter (TGCC) recently had the opportunity to represent INCOSE at the Boeing Sponsored Engineers Week. Various representatives (AIAA, Tech Fellows, SWE, and more) had a table where employees were to take time out of their busy day and learn more about the professional societies/ organizations represented. The topic that most folks found enlightening was that INCOSE has a certification program to certify Systems Engineering Professionals, as they were not aware of it. We know others companies are very active during engineering week and provide participation in various ways, if you think your company would support/benefit from an INCOSE/ TGCC representation feel free to let us know and we can provide material for you, or maybe find a volunteer to represent.

INCOSE Canada is hosting a conference concerning emerging Systems Security Engineering (SSE) requirements (cyber security falls under this) on Thursday, June 16 at the Army Officers Mess on Somerset Street.

Chapter Updates

SSE certification and capabilities will be mandatory for firms, and their suppliers/sub-contractors doing business with the Canadian and American governments in the near future. SSE will affect almost all business processes in an organization, however INCOSE will focus on those most closely related to platform security, information security, systems of systems, safety, and development. This presentation will interest systems and software developers, as well as business development to assist companies to get ahead of the wave. This is the first in a series of presentations regarding this topic that INCOSE Canada will organize. We have purposely set pricing low to encourage participation from the widest possible audience.

Hampton Roads Area (HRA) Chapter: John Clark Represents HRA INCOSE at the 2016 IW. John Clark, HRA Director of Training and Education, participated in the 2016 INCOSE International Workshop (IW) held in Los Angeles from Saturday 30 January - Tuesday 2 February.

2016 Tidewater Science & Engineering Fair. INCOSE HRA Board of Directors members Mary Stuczynski, Chad Peyton, Comfort Bell, and Duron Shearn were Special Judges at the 2016 Tidewater Science & Engineering Fair at Old Dominion University on 12 March. The chapter awarded \$25 gift cards to the two exhibits that best demonstrated the theory and practice of Systems Engineering. Suparanamaaya Prasad took 1st place and Rhiannon Edwards took 2nd place.

Southern Maryland Chapter: 13 February, St. Mary's County Science and Engineering Fair Judging. To reach prospective Systems Engineers in middle school and high school our chapter is heavily involved in the St. Mary's County Science Fair and helps facilitate the INCOSE International award presented at the International Science and Engineering Fair (ISEF), held in Phoenix, Arizona. To reach the high school and college crowd our chapter will be helping the Association for Unmanned Vehicle International (AUVSI) Seafarer's Chapter with their annual Unmanned Air Vehicle (UAV) competition, held at Webster Field in June. Karl Geist, John Walker, Mark Ragland, Julie Walker, and Steven Dam got up early on a Saturday morning to select the winners of our chapter's annual INCOSE awards at the St. Mary's County Fair.

The New Mexico INCOSE Enchantment Chapter has a mission to support Systems engineering needs and membership professional development and engagement. We are planning for a systems engineering 2-day multi-workshop event for October 28-29, in Socorro, New Mexico, NM Tech).

These workshops will not be tutorials, but rather working sessions on topics that can benefit from collaborative thought by people interested in learning more about what others know and think. The objective is to increase the knowledge base of participants wrestling with issues

at work that can benefit from broader exposure to what others with similar issues and interests experience, are thinking, and know.

We will choose 8 workshop topics that are of value to members and their organizations. We seek your input on choosing topics that will inspire you and others in your organization to attend and participate.

Final topics chosen will need workshop leaders – who will open their workshop with appropriate positioning and back-ground on the topic to focus subsequent collaborative discussion, and guide the effort toward meaningful knowledge sharing and development.

Event planning objectives are to minimize cost for participation and maximize participation value. To minimize cost, NM Tech is co-sponsoring this event with facilities and logistics assistance; an appropriately charming small-community location about 60 minutes south of the Albuquerque airport. To maximize participation value, we seek your assistance in identifying high-value topics.

Topics currently under consideration—But What do You Want? Tell rick.dove@parshift.com.

- High performance teaming • Agile hardware-development infrastructure and ConOps
- T&E for unmanned and autonomous systems • Agile security adaptable to adversary attack evolution
- Meaningful customer involvement • IPT support infrastructure for data and communication
- Sub-contractors as fully engaged team members • High-value relationships with/among academic institutions
- Design concepts of user-embraceable systems • Systems engineering cultural transformation
- Critical infrastructure resilience • Systems engineering as multidiscipline enabler, art, and science
- Systems of Systems evolutionary integrity • Integration in large-scale systems for operational upgrades

What systems engineering issues do you have that need some inspirational thought? Are any of the above suggestions, or suggestions you can offer, of sufficient interest to encourage you and/or personnel from your organization to participate?

Objectives: Engaged professional development. Expanded work-relevant network. New knowledge to take home. A stimulating time-out from deadline driven work that leaves little time for thinking.

Intent: Understand the problem and solution spaces of the topic area better—barriers to solution, roots of cultural incompatibilities and push back, systemic inertia, misaligned forces, and solution value propositions,

Chapter Updates

roots of cultural incompatibilities and push back, systemic inertia, misaligned forces, and solution value propositions, objectives, and requirements.

Day 1: Speed dating. Workshop leaders will provide an intro to their topic of about 1.5 hours each. Participants can attend four intros in the time allowed. During this 1.5 hour intro the leader will provide some background on the topic “issues” of workshop interest, limited to only a few issues for focus; outlining what is beyond best practice knowledge and generally accepted knowledge, and worthy of collaborative discussion. Leaders will also get each participant to provide a brief statement of their personal and organization’s interest and experience in the area, and their interest in the discussion issues. The session will conclude with objectives for the 2nd day workshop – which won’t be to solve the issues, but rather to share knowledge and experience that will cross pollinate everybody’s thinking. This will prepare all who remain interested for a more in-depth exploration on day-2, who will likely be contributing to the collaboration as a mission-driven team, and what is collective as the general perspectives.

Day 2: Two dance dates. Participants will choose the two 3-hour workshops they will participate in, one in the morning and one in the afternoon, which do not have to be among the four intros they attended on day 1. The objective of day 2 is to develop a teamwork environment, expose each participant to the thinking, practices, and knowledge of the others, and provide new contacts that can become longer term collaborative relationships. An equal objective is to have the workshop identify a clearer understanding of the problem, concepts, and knowledge that surfaces in the workshop – which will be briefed out in general session to all event participants.

A meet-and-greet reception at end of day 1 will help people socialize with new contacts. On-your-own group dinners after the reception will be facilitated, encouraged to include new contacts and not just who you know already.

It isn’t the expectation to solve issues here, as the issues to be discussed are necessarily open and insufficiently understood; but rather to increase the knowledge and idea base of all participants, exposed in a working environment with other people that may become professional colleagues with similar inquisitive interests. This event is for thinking people that recognize vexing issues worthy of attention, and not expecting quick answers, though some will likely surface for people who get ideas from others that have immediate application.

Registration information, plenary speakers, and final topic selection will be posted at the following link before end of June:

www.incose.org/ChaptersGroups/Chapters/ChapterSites/enchantment/library-and-resources/socorro-systems-summit---2016-oct-28-29.

Southwest Regional Mini-Conference (RMC). The first INCOSE Southwest RMC 2016 was held 9-10 April at Loyola Marymount University (LMU) in Los Angeles, CA. The Los Angeles chapter co-leads, Richard Emerson and Terry Rector led the way with shared support from: the Los Angeles, San Francisco Bay Area, San Diego, Central Arizona and Southern Arizona INCOSE chapters. The contributions and efforts of the sponsors and exhibitors, combined with the hours of tireless effort on the part of the volunteers and the graciousness of our host, LMU, all resulted in a successful conference that provided value to attendees. With its focus on “Systems Engineering Methods for the 21st Century”, the conference featured systems engineering professionals and students exchanging concepts and experiences in a forum designed to facilitate discussions of key topics related to the future of systems engineering. Thirty-four individual presentations and seven panel discussions occurred between over 170 participants during the two-day conference. More than 20 of the attendees were students from five universities. The students produced six poster presentations and contributed to two talks.

SOARizona and University of Arizona student division making strides at RMC 2016. This April, the SOAR Arizona (SOAR) chapter was proud to be a sponsor and active participant in the technical and planning committees for the first Regional Mini Conference (RMC) held by the three California chapters and two Arizona chapters of INCOSE. SOAR chapter member, Natalie Davila-Rendon gave a peer-reviewed presentation on Shoreline Surveillance and Defense Architecture Against Rockets. In addition, the University of Arizona student division had two entries in the student poster competition, and took second place with Traffic Signal System Design Modeling. **On a SOARizona experience from Barclay Brown (former INCOSE Director of the Americas):** I have long recommended that chapter meetings schedule two speakers for each chapter meeting and last week I experienced in person how well it works. Stephanie Chiesi of the Southern Arizona chapter scheduled me and another speaker to each give a 30-minute talk. The other speaker canceled the day of the meeting, so I simply expanded my talk a bit and filled the entire time. The two-speaker idea works in a number of ways. At the Southern Arizona meeting, we each were to present for 30 minutes. An alternative is to book a main speaker for a 45-minute talk and another speaker for a short topic talk 10-15 minutes. Having a shorter time slot may also give both speakers the encouragement to be concise, pithy, and punctual.

Systems Engineering in DC (SEDC) 2016 Conference: From 31 March to 2 April, Washington Metro Area (WMA) Chapter hosted the Systems Engineering DC Conference 2016. This year, our theme for the conference was “Critical Infrastructure Protection and Recovery,” which brings focus on how systems engineering and related disciplines support the analysis, planning, development, integration and operation of resilient systems. *Continued on page 8*



26th annual **INCOSE**
international symposium

Edinburgh, UK
July 18 - 21, 2016

Achieving excellence through Systems Engineering

Engage with your colleagues from the Systems Engineering community!

Learn about state-of-the-art methods and essential skills for Systems Engineers.

Find out how people are making a difference with Systems Engineering.

Help create some online Buzz by tweeting [#incoseIS](#), [@incose_org](#)

Keynote Speakers

Plan to be stimulated and challenged by our exciting keynote presentations given by experts!



Prof Larry Leifer



Prof John Loughhead



Julie Alexander



Kevin Robinson

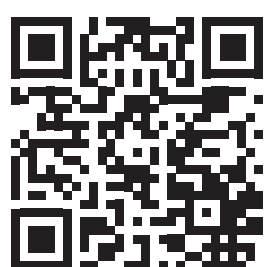


Dr Emma Langman

Join us as a Sponsor or Exhibitor

Building on last year's highly successful 25th Anniversary celebrations, the INCOSE International Symposium is returning to Europe, taking place at the Edinburgh International Convention Centre on 18-21 July.

This event has already established a new record for the number of paper submissions, and promises to be a well-attended event attracting a diverse cross-section of the global Systems Engineering community, including delegates from adjacent disciplines.



Mark your calendar now!

July 18 - 21, 2016

Visit www.incose.org/symp2016 and contact us TODAY - The IS2016 Team

Two excellent keynotes from R. James Woolsey, former Director of the CIA and Bill Murtagh, Assistant Director, the White House Office of Science and Technology Policy, mesmerized the audience. Participants experienced over 70 peer-reviewed presentations, panels, and tutorials during the 3 days. We would like to thank the Chesapeake Chapter, Southern Maryland Chapter, sponsors, steering committee, volunteers, presenters and participants for their continuous support and hard work in making the SEDC 2016 conference a great success.

Working Group Updates

Empowering Women as Leaders in Systems Engineering (EWLSE) track at the Regional Mini Conference (RMC) 2016

Stephanie Chiesi, schiesi@gmail.com

When the EWLSE initiative launched at the 2015 IS, it raised awareness of the need for advocates for women as leaders in system engineering. This outreach to membership continued at the 2016 IW, as more INCOSE members learned of the initiative. The sessions held at the IS and IW enabled regional event planners to learn about EWLSE and continue the snowball effect of raising awareness of the initiative's mission and vision. The EWLSE mission to develop engaging content and delivery approaches for promoting successful strategies for developing women leaders in systems engineering across cultures, locations and domains is being realized through tracks at regional events, such as the RMC 2016 conference held in Los Angeles, CA April 9-10, 2016. After members of the RMC 2016 planning team learned of EWLSE at the 2016 IW, a track was created for the conference to continue to engage more of the INCOSE community to raise awareness and garner support for the evolution that EWLSE promotes.

Many participants of RMC 2016 attended the EWLSE track, with over half of the audience being male attendees. To start the track, all attendees were asked to introduce themselves by name and to share what empowers them. This exercise was one of the first things experienced by the facilitator at the first EWLSE meeting attended at the 2015 IS, and it was a great kickoff to the program as it gave the entire audience a chance to learn a little about each other, to reflect on what empowerment may be, and also provided smiles and laughs to start the program.

The track keynote speaker, Rosalind Lewis from The Aerospace Corporation, further set the stage for the session with her engaging talk about the impact of knowledge and authority on actions and being empowered. Through Rosalind's examples in both engineering environments and day-to-day actions such as commuting, she showcased the choices that individuals have and how education and empowerment help shape the path that they choose. A panel for questions and discussion that included Rosalind, another leader in systems engineering, Phyllis Marbach, and a leader in STEM outreach and education in California, Susan Belgrad followed the Keynote. The engaging discussion by the panelists and questions and interaction from attendees provided insight to where we can make the most impact in continuing to encourage and empower women as leaders in systems engineering.

EWLSE events are continuing at other regional events. The leadership team continues to engage group members and to respond to requests for events and information. For more information, please join the group on incose.org through the following steps:

- Login to your member account
- Select Profile Home
- Scroll to My Committees/Working Groups
- Select Browse/Join a Working Group
- Select "Empowering Women" on the right
- Scroll down to Committee Tasks
- Select "Join this Working Group"

Empowering Women at the INCOSE 2016 International Symposium

Regina Griego, griego@sandia.gov; Donna Rhodes, rhodes@mit.edu; and Alice F. Squires, alice.squires@wsu.edu

Please support the vision of men and women working together as advocates for women as leaders in systems engineering by joining us at our two Empowering Women as Leaders in Systems Engineering (EWLSE) events at the INCOSE IS 2016 in Edinburgh.

Our first event is the EWLSE IS2016 Leadership Workshop on Sunday, July 17, from 1:00 – 5:15 pm (Please RSVP: ewlse@incose.org). We enthusiastically invite all symposium participants to join in an open sincere dialogue where we will share our stories, exchanging tips and insights from (or among) women leaders in systems engineering on navigating the leadership journey, with particular emphasis on the Women Systems Engineers' brand of leadership. The dialogue will continue throughout the symposium, so do not miss the conversation!

Human-Systems Integration (HSI): Harmonization of Human-Centered Design and Systems Engineering

Guy André Boy, gboy@fit.edu

During INCOSE International Workshop 2016, held in Torrance, California, 36 participants of the HSI Working Group (HSIWG) had a series of presentations and brainstorming over two days (January 31-February 1, 2016), which led to the generation of several action items.

First, the purpose of the HSIWG is to better define what HSI is, as well as its main objectives and scope. HSI attempts to integrate technology, organizations, and people in systems engineering practice. More specifically, HSI can be seen as an integration of systems engineering and human-centered design (HCD), during the whole life cycle of a product, including definition, development and delivery. HSI addresses:

- design and engineering practices
- certification and legal practices
- product usage and maintenance practices

We decided to organize the next HSIWG workshop on October 6-8, 2016. It will be hosted by Florida Institute of Technology in Melbourne, Florida. The main objective of this workshop is to gather the best subject matter experts in Human-Systems Integration and related disciplines, and generate structured HSI content for INCOSE. We will write, edit, and appropriately publish the content in both the SEBOK (Systems Engineering Book of Knowledge) and Systems Engineering Handbook.

HSI becomes stronger because it attempts to take into account human factors, ergonomics and interaction design from the early stages of design, based on modeling and simulation (more specifically, on human-in-the-loop simulation or HITLS) leading to human-centered agile development approaches. For example this year, the theme of the International Conference on Human-Computer Interaction in Aerospace (HCI-Aero 2016) is "From Human-Computer Interaction to Human-Systems Integration." A real paradigm shift! HCI-Aero 2016 will be held in Paris, France, on September 14-16, 2016 (<http://research.fit.edu/hci-aero/HCI-Aero2016/Home.html>).

Thomas Gannon, tgannon@WPI.edu

SEANET 2016 - Still Connecting Systems Engineering PhD Researchers

The Systems Engineering and Architecture Network (SEANET) continues the tradition of holding a workshop in conjunction with the annual Conference on Systems Engineering Research to attract researchers pursuing a PhD in systems engineering. Donna Rhodes initiated SEANET in 2005 with the support of INCOSE, and the workshop receives support from the Director for Academic Matters. Cecilia Haskins chaired the 2016 workshop.

This year 13 doctoral students joined the program and actively engaged with the speaker, Dr. Gina Guillaume-Joseph who shared her own PhD journey in a lively interactive Q&A session. The agenda always includes lots of opportunities for networking during lunch and breaks, as well as roundtables for exploration of three topics of importance to PhD researchers; A) establishing scope and research questions, B) performing data collection and validation, and C) the research end-game and defense. The participants receive suggestions about what to read, how to create a research design, and where to publish. Experienced educators share good ideas with the candidates as the PhD candidates share amongst themselves. For example, this year we all learned about "the research onion" as a good way to help classify our research. The University of Alabama at Huntsville hosted SEANET by providing ideal facilities and support that greatly contributed to the success of the 2016 workshop.

ABET Workshop at INCOSE IS 2016

Attendees of the forthcoming INCOSE 2016 International Symposium have a unique opportunity to attend a workshop designed to illuminate member benefits from their organizational membership in ABET (formerly known as the Accreditation Board for Engineering and Technology) at no cost. Dr. Michael Milligan (ABET's CEO and Executive Director) will lead an interactive workshop on this topic. To attend, sign up for session G.6 on Sunday afternoon, July 17, in Carrick 3 at the Edinburgh Convention Center.

INCOSE Sponsors Four Panels at the ABET Annual Symposium

INCOSE sponsored four panels at ABET's annual symposium held April 14th and 15th in Ft. Lauderdale, Florida. Seven hundred fifty educators attended, and all panels were listed in the "Disruptions and Innovations" track.

The best attended panel, “Using Systems Engineering Concepts to Enhance Student Outcomes” featured presentations from a professor from the Electrical Engineering department at Rose-Hulman, an associate professor of Biomedical Engineering from the Milwaukee School of Engineering, and a professor emeritus representing the International Society of Automation. This and the other three panels, as measured by the number of audience questions during and after the presentations, managed to convey the many ways systems engineering enhances technical education.

INCOSE Submits Comments on Proposed Revisions to ABET General Criteria

In early May, INCOSE submitted comments to ABET on its proposed revisions to the Engineering Accreditation Commission’s General Criteria 3 and 5. These comments emphasized inclusion of systems engineering thought, principles, and practice as student outcomes and integrating the same into an engineering program curriculum.

INCOSE Spotlight on Stephanie Chiesi, CSEP

Interviewed by Sandy Young, info@incose.org



Name: Stephanie Chiesi, CSEP

Title: Principal Systems Engineer; **Organization:** Raytheon

Current Residence: Tucson, Arizona, USA

Studied in college: Aeronautics and astronautics, biology

Year joined INCOSE: 2010; **Roles in INCOSE:** SOARizona chapter past-president; first class, INCOSE Leadership Institute, INCOSE events committee finance chair; **Years in systems engineering:** 15

1. What is your favorite part of being a systems engineer?

My favorite part of being a systems engineer is the broad view that I have over the overall system and understanding the sensitivities, impact analyses and trades that go into developing an effective solution. I really enjoy using system models to be most effective at this part of the job and to provide quantitative results and solutions.

2. What is your least favorite part of being a systems engineer?

My least favorite part is when other engineers or project team members think that all systems engineers do is write requirements, hand them over as a document and then walk away until it is time for verification. There is a lot more to the job than documentation.

3. What project/accomplishment are you most proud of in your career?

I would say to date I am most proud of my systems engineering and leadership efforts on delivering the environmental control and life support systems tubing for the Orion exploration flight test vehicle. There were a lot of interfaces and a lot of both technical and non-technical challenges to overcome, but, the hardware my team delivered all fit on the first integration efforts and performed well on the flight.

4. Why did you apply for INCOSE’s Leadership Institute? What have you learned so far?

I applied because it was a great supplement to a program that I was finishing at the time at Raytheon Missile Systems for advancing more women as technical leaders in their fields. While I had some experience in program management, I very much want to continue to grow as a technical leader to have an impact on technical discoveries and evolution. So far in the Leadership Institute I have learned a great deal about the roles that a technical leader is expected to fulfill and what kind of skills that requires.

5. What do you like to do outside of work?

I have a lot of hobbies outside of work and with my family. My husband and I love to ballroom dance and we compete as well. We also enjoy running (often with our dog), bowling, gaming, and travel. I really enjoy working on crafts too, such as making costumes, sewing, knitting and crochet. Overall though, I’m a true nerd through and through – so you’ll see me wearing Star Wars logo clothing and jewelry quite a bit to show my nerd pride!

INCOSE Spotlight on Olivier Dessoude

Interviewed by Sandy Young, info@incose.org



Name: Olivier Dessoude

Title: Senior Expert, "Systems Engineering"

Organization: AREVA NP

Place of Birth: Valognes, France

Current Residence: Cherbourg, France

Domain: Civil nuclear

Studied in college: Mathematics, physics, systems analysis, computer science

Year joined INCOSE: 2011

Role in INCOSE: First class, INCOSE Leadership Institute

Years in systems engineering: 20

1. Who do you admire in the systems engineering community? Why?

Henri Poincaré may be the last man in history to master all the scientific disciplines of his time. He paved the way for relativity theory. Poincaré is usually viewed more as a scientist than a systems engineer, but an interdisciplinary approach and curiosity are qualities for which I have the utmost respect and which are required from systems engineers.

2. Have you found that systems engineering practices are different in France than in other countries? Why or why not?

There are some differences due to history and culture. For instance, France has a history of aeronautics and defense program management and engineering standards, some of which have evolved into European standards. There is also an old school of functional analysis (taught to seventh grade students!). Whereas Anglo-Saxons have used Function Flow Block Diagrams (FFBD) or Integration DEFINITION (IDEF) diagrams for decades, French engineers are more familiar with "horned beasts" and "octopi" diagrams. Local practices and vocabulary require extra communications efforts, although the underlying concepts are not really different. Differences between industries within the same country are often bigger than differences from one country to another.

3. Why did you apply for INCOSE's Leadership Institute? What have you learned so far?

My mission is to bring expertise for the progressive implementation of systems engineering in my company, and to provide support to nuclear new build projects. We need to grow our systems engineering leaders to international standards as defined by INCOSE, and to pursue the adaptation, with our peers, to a fast changing world. INCOSE's Technical Leadership Institute is a perfect environment to learn and share experience.

I have already broadened my horizons and knowledge about technical leadership, due to the contributions of the coaches and all my fellow systems engineering leaders from various industries and cultures.

4. What advice do you have for young engineers?

I would like to encourage young engineers to embrace a career in our industry. We spend most of our time in a material world, don't we? There is no limit to human imagination, and a lot to be done to make this world a safer, cleaner, more beautiful place for all.

5. If you weren't a systems engineer, what would you do?

I might be a biologist or a doctor. I find living systems quite complex and fascinating. And, I find curing things as exciting as engineering them!

INCOSE Spotlight on DeAnthony Heart

Interviewed by Sandy Young, info@incose.org



Name: DeAnthony Heart

Title: Senior Systems Engineer

Organization: MITRE Corporation

Current Residence: McLean, Virginia, USA

Domain: Systems Engineering

Studied in college: Aerospace engineering and systems engineering

Year joined INCOSE: 2014

Roles in INCOSE: INCOSE Washington Metro Area STEM co-chair; First class, INCOSE Leadership Institute

Years in systems engineering: 5 years

1. What is the biggest challenge you face?

Peter Guber once said that to succeed you have to persuade others to support your vision, dream or cause. This is an understatement in the world of systems engineering as it is your job to create, connect, and at times persuade others of a greater unified vision. The challenge of becoming a world class technical leader of people, processes, and technology is something all great systems engineers must face. It's a continual challenge that I am both confident and exhilarated to undertake throughout my career.

2. Why did you apply for INCOSE's Leadership Institute? What have you learned so far?

Only during my work with the Leadership Institute did I realize why systems engineering demands a capacity for leadership. It is the systems engineer who must work across disciplines to bring all the pieces together. Therefore, a capacity for both people and technology is needed.

Stemming from the Leadership Institute, I was recently offered and accepted a position as INCOSE's Growth Initiatives volunteer program manager. I look forward to working with all of you and if you see me at the next INCOSE conference, stop and say hi! ☐

3. What have you been able to accomplish as INCOSE WMA's STEM co-chair?

Not enough, for all the events, working groups, conferences, school visits and mentoring sessions Marshai McIntyre (co-chair) and I have completed. It doesn't come close to the necessary impact for the engineers and scientists of tomorrow. Needless to say our commitment to STEM is a life-long investment with only three conditions: have impact, learn something, and have fun.

4. If you weren't a systems engineer, what would you do?

My many interests would eventually lead me back to the multidisciplinary field of systems engineering. Even as a budding entrepreneur I used many systems engineering principles when I created my first company MailAPotato.com. Long story made short: If I chose another field I would only be a systems engineer known by another name.

5. What do you like to do outside of work?

I coach 10th grade basketball and by the time this quarterly newsletter runs I would have proposed and hopefully began planning for my wedding. Wish me luck!

Lisa Hoverman, newsletter@incose.org

Publication of the International Council on Systems Engineering

Editor Lisa Hoverman
newsletter@incose.org

Member Services INCOSE Administrative Office
info@incose.org
+1 858 541-1725

On the Web <http://www.incose.org>

Article Submission newsletter@incose.org

Publication Schedule. The INCOSE Member e-Newsletter is published four times per year. Issue and article/advertisement submission deadlines are as follows: 2nd Qtr 2016 issue – 15 May; 3rd Qtr 2016 issue – 15 Aug; 4th Qtr 2016 issue – 15 Nov. For further information on submissions and issue themes, visit the INCOSE website as listed above.

© 2016 Copyright Notice. Unless otherwise noted, the entire contents are copyrighted by INCOSE and may not be reproduced in whole or in part without written permission by INCOSE. Permission is given for use of up to three paragraphs as long as full credit is provided. The opinions expressed in the INCOSE Member e-Newsletter are those of the authors and advertisers and do not necessarily reflect the positions of the editorial staff or the International Council on Systems Engineering.

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, includes a corporate advisory board, and is led by elected officers and directors.

2016 INCOSE Board of Directors

President: Alan Harding
President-Elect: Garry Roedler
Secretary: Tina Srivastava
Treasurer: Meghan O’Neil
Director, cademic Matters: Art Pyster
Director, Marketing and Communications: Rachel LeBlanc
Director, Outreach: Ian Gibson
Director, Strategy: Jonas Andersson
Corporate Advisory Board (CAB) Chair: Bob Swarz
Director, Americas Sector: Steve Dam
Director, Asia-Oceania Sector: Kerry Lunney
Director, EMEA Sector: Jean-Claude Roussel
Technical Director: Paul Schreinemakers
Chief of Staff: Andy Pickard
Chief Information Officer (CIO): Bill Chown
CAB Co-chair (non-voting position): Zane Scott
Deputy Technical Director (non-voting position): Mike Celentano

Welcome to the second Newsletter of 2016. I look forward to seeing you all in Edinburgh! I am excited to meet and interview our Plenary Session speakers and interact with a few sessions. I am also looking forward to the fun of participating on working groups (WGs) and continuing to learn from the sages. If you have yet to attend, I say it is something NOT to miss as an INCOSE Member or systems person!

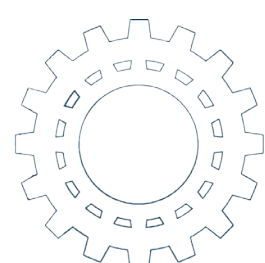


This newsletter and the upcoming issue of *INSIGHT* speak to the many applications that systems engineering has for humanity, where we can help, and look for inspiration.

Thank you to all who contributed for this Newsletter and spoke to the many ways we continue to further the mission of INCOSE. I look forward to your upcoming contributions (submission dates in the table below!) and articles as we continue to improve the Newsletter.

Have a wonderful June!

Newsletter Issue – Publication Date	Copy Submission Due Date for General Article Inclusion	Exceptional Copy Submission Due Date for Late Breaking News, Requires Advance Notice	Highlights
Third Quarter 2016 – September 15, 2016	15 August	31 August	INCOSE International Symposium & Current News
Fourth Quarter 2016 – December 15, 2016	15 November	30 November	INCOSE Year’s End & Current News



Follow us



7670 Opportunity Rd, Suite
220

San Diego, CA 92111-2222

USA

info@incose.org

www.incose.org

+1 858 541-1725

