

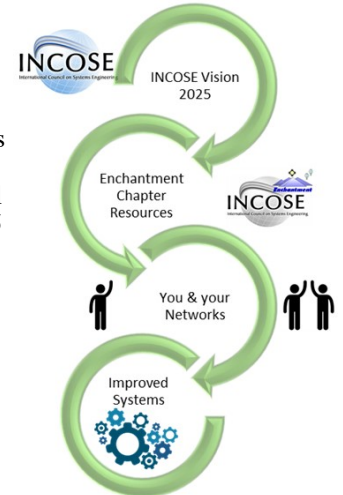


Meet the 2017 Chapter Board



Anthony Matta, President— As we proceed into this new year, I am energized by the possibilities and challenges we will face in our individual systems engineering roles, Enchantment Chapter's service, and INCOSE's global impact. Our INCOSE organization at the highest level has established a [Vision 2025](#) for the field of Systems Engineering that will shape the future of the world's complex, diverse, and evolving system architectures and technologies. How incredible is it to be a part of that? You, Enchantment Chapter members, are critical stakeholders in implementing and reaping the benefits of this Vision. Vision 2025 states, "Systems engineering is gaining recognition across industries, academia and governments." How are we a part of this? What value are we as systems engineers adding to our employment institutions? How are we promoting systems engineering? What needs are being met for and by INCOSE Enchantment membership? Who else in our spheres of influence would benefit from systems engineering knowledge or chapter benefits? As chapter president this year, I strive to assure that our Enchantment Chapter, and INCOSE as a whole, connects with each of you on a practical and relatable level. I hope that the resources that both our chapter and INCOSE provides are tools for you to enhance your working relationships and, as a result, improve the systems that you work with.

Thank you for this opportunity to serve as your president for 2017. ∞



Ron Lyells, Vice President, President Elect, and Past President—

Ron represents Honeywell International on the Board of Directors, and has over 34 years in the defense and space industry involved in the electrical and systems development of various avionics systems, including flight controls, digital mapping systems, ground and test systems. He has lead teams across product development stages from proposal to production support. Ron worked on an international team responsible for defining and deploying various methodologies to improve product development systems within the Honeywell Aerospace organization. He was specifically responsible for developing and integrating system engineering methodologies with various lean based product development strategies. ∞

New Board Members



Jason Jarosz is a Senior Member of the Technical Staff at Sandia National Laboratories with 9 years of experience in Systems Engineering. Jason's depth of expertise is in the use of SysML tools and MBSE methods. Jason has been an advocate for improving Systems Engineering competency at the labs and is interested in leadership, process management, and influencing the utility and integration of MBSE tools. Prior to embarking upon a career in Systems Engineering, he worked for 5 years at Sandia as an embedded systems software developer. ∞

fluencing the utility and integration of MBSE tools. Prior to embarking upon a career in Systems Engineering, he worked for 5 years at Sandia as an embedded systems software developer. ∞

Evan Richardson is a systems engineer at Sandia National Laboratories who is passionate about the SE process and toolset. He studied Systems Engineering for both his undergraduate and graduate degrees at the University of Arizona. At Sandia, he has focused on integrating MBSE into the existing SE workflow along with requirements and interface development. Evan's SE interest areas include: systems thinking, MBSE, simulation, interface development and maintenance, and customer interactions throughout the lifecycle. ∞



Continuing Board Members Bios at www.incose.org/enchantment



Ann Hodges
Sandia Labs

Tom Tenorio
White Sands



Mary Compton
Sandia Labs



Rick Dove
Paradigm Shift



Heidi Hahn
Los Alamos Lab



John Hunter
Sandia Labs



Bob Pierson
ATA



Ben Schaefer
Sandia Labs



Eric Smith
UTX, El Paso



IW17 INCOSE International Workshop Los Angeles — 28-31 Jan

Workshops	Sat 28 Jan	Sunday	Monday	Tuesday
Agile Systems and Systems Engineering			0900-1700	
Americas Chapter Leaders Meeting				1300-1430
Anti-terrorism International				0900-1100
Architecture				
Automotive	1030-1500	1030-1200	1000-1200	0900-1200
Competency			0800-1700	0800-1500
Complex Systems		1300-1700		0900-1200
Certification Exam		0800-1100		
Critical Infrastructure		0930-1800	0900-1800	0900-1500
Decision Analysis		1030-1200	0900-1200	
DOD Digital Engineering Efforts	1300-1888	1300-1400	1300-1400	
Empowering Women as Leaders in Systems Engineering			1330-1700	
Healthcare	1300-1700	0900-1700	0900-1200	
Human Systems Integration	1000-1800	1300-1800		1000-1500
INCOSE/PMI Alliance				1000-1100
Infrastructure		1300-1700	1400-1700	
Integration, Verification, and Validation (Initial Meeting)				0800-1000
Measurement		1300-1500		
Model Based Conceptual Design			1300-1500	
Model Based Systems Engineering	1030-1800	0900-1730	0800-1800	0800-1400
Model Based Systems Engineering Patterns		1030-1200	0900-1200	
Oil and Gas			0900-1700	0900-1500
OPM (ISO 19450) - Object Process Methodology			1030-1200	
PM-SE Integration (New WG Startip)			1000-1200	
Process Improvement		1400-1500	1400-1500	
Product Line Engineering		1600-1730		0830-1200
Quality Management (New WG startup)			1400-1600	1030-1200
Requirements	1330-1700	0900-1700	0800-1700	0800-1500
Resilient Systems	1300-1500			
Socorro Systems Summit - Reusable ConOps & Future				0800-1200
Space Systems			1100-1200	
Systems Modeling and Simulation			0900-1200	0800-1200
Systems of Systems			0800-1800	0800-1500
Systems Science	1000-1800	0900-1800	0800-1800	0800-1500
Systems Thinking RoundTable	0700-0800	0700-0800	0700-0800	0700-0800
Systems Security Engineering		0900-1700		
Tool Integration and Model Lifecycle Management	1300-1730	0900-1700	0900-1730	1030-1400
Transportation			0900-1500	
Very Small/Medium Enterprise SE		1330-1700		0800-1200

Take the INCOSE Certification exam at IW17 **FOR FREE** (normally \$80). Sign up on [IW17 registration form](#). Those who pass may use the results toward ASEP or CSEP certification, if they apply for certification within a year. Handbook version 4. ∞

For updates to this 24 December schedule go to the INCOSE IW17 site.

If you haven't decided about going yet, here are some things to think about ... Unlike INCOSE's annual International Symposium and other conferences, there are no paper, panel or tutorial presentations. Instead, attendees spend 4 days working alongside fellow systems engi-

neers. Systems Engineers at all levels and from all backgrounds are encouraged to engage in working sessions, and contribute their knowledge and experience to improve the discipline. And there are plenary sessions, town hall presentations, and of course social networking.

You will feel comfortable in attending any of the sessions. They are generally

informal gatherings of people interested in talking and hearing about the WG area of interest, and everyone is welcome to come and participate or simply lurk, whether officially a member of the working group or not. Activity varies, with mixtures of round-the-room discussion, presentations, break-outs, project planning, project work, project updates, and more. ∞



Recent Meetings

Ann Hodges, Sandia National Labs

Presentations and recordings are in the Library at www.incose.org/enchantment.

October 2016—Philipp Helle, Airbus Group, speaking from Germany at an experimental 9:00am meeting time, presented *Testing of Autonomous Systems – Challenges and State of the Art*. He noted that autonomous systems are often safety-critical systems envisaged to interact with humans without human supervision, and that ensuring their safe and fault-free behavior is not solved yet. He pointed out why testing autonomous systems is such a challenge, and provided an overview of the current state-of-the-art and state-of-practice, with guiding points for the way forward. The 9:00am meeting was well attended and will be considered for the future.

November 2016—Ed Carroll, Sandia National Labs, shared with us a literature review that investigated *How is Model-based Systems Engineering Justified?*

The primary conclusion is that there is a significant advantage to project performance: engineering processes on complex system development are more efficient by improving requirements completeness, consistency, and communication.

These advantages were seen in engineering processes involved in requirements management, concept exploration, design reuse, test and qualification, verification and validation, and margin analyses. MBSE was most effective at improving defect prevention strategies, with enhanced capability to find defects early in the system development life cycle, when they could be fixed with less impact and prevented rework in later phases, thus mitigating risks to cost, schedule, and mission.

December 2016—Mary Compton produced the December Holiday social this year at the Savoy Bar and Grill, featuring a three-course dinner at one of Albuquerque's restaurants to remember. Featured speaker was Jennifer Owen-White, with a rousing presentation of the first official urban wildlife refuge in the Southwest, [Valle de Oro](#), in south Albuquerque. ∞



Next Meetings *Ann Hodges, Sandia National Labs*

January 11: A Mission Assurance Framework for R&D Organizations.

Dr. Heidi Hahn, Los Alamos National Laboratory, Senior Executive Advisor to the Associate Director for Engineering Sciences. **Abstract:** Research and development (R&D) organizations such as the National Nuclear Security Administration's national security laboratories span a spectrum of R&D from basic scientific research to demonstration of actual system prototypes in an operational environment. Application of systems engineering (SE), engineering quality and rigor, and project management is often critical to successful R&D outcomes, but a graded approach is key – neither the type of project being performed nor the funding profile provided by the customer may support the application of very formal processes. To address these challenges, the Los Alamos National Laboratory (LANL) has developed and is implementing a Mission Assurance Framework that applies the concepts of systems engineering, project management, and engineering quality and rigor using a risk-based graded approach. This talk describes the LANL approach to developing and implementing the Mission Assurance Framework and discusses the policies, tools, and training that support the diverse set of projects performed across the Laboratory's mission space. Emphasis is placed on the SE and engineering quality aspects of the Framework.

February 8: Transforming Systems Engineering through a Holistic Approach to Model-Centric Systems Engineering.

Mark Blackburn, Stevens Institute of Technology, Research Associate Professor.

Abstract. This presentation discusses perspectives from several Systems Engineering Research Center (SERC) addressing research challenges and opportunities for leveraging model-centric engineering (MCE) sponsored by the Naval Air Systems Command (NAVAIR) and the United States (US) Army RDECOM-ARDEC. Model-centric engineering can be characterized as an overarching digital engineering approach that integrates different model types with simulations, surrogates, systems and components at different levels of abstraction and fidelity across disciplines throughout the lifecycle. Industry is trending towards more integration of computational capabilities, models, software, hardware, platforms, and humans-in-the-loop. The integrated perspectives provide cross-domain views for rapid system level analysis allowing engineers from various disciplines using dynamic models and surrogates to support continuous and often virtual verification and validation for tradespace decisions in the face of changing mission needs. This presentation provides information summarizing this year's research, and additional targeted organizational discussions with more details on the evidence to address the research question, the concept of a "future" state and a new operational model between Government and Industry.

March 8: Integration of Agile Principles into the Systems Engineering Lifecycle Model.

Alan Benson, California Department of Transportation, Project Manager.

Abstract: This presentation is about the State of California's Department of Transportation (Caltrans) experience integrating Agile principles into the Systems Engineering Lifecycle Model for software intensive projects. Caltrans has found that there is increased stakeholder involvement, immediate validation, faster deliveries of functionality, and reduced rework cycle time by integrating certain Agile principles into the design, development, and integration phases of the project. Caltrans contracts for software development services and provides guidance on what is required and when. The contractor is required to decompose functionality into 2-week cycles of demonstrable functionality. This results in documentation updated in a timely manner, and stakeholders continuously engaged in two ways: 1) by witnessing the bi-weekly demonstrations and offering immediate feedback or validation of the feature and 2) when the feature is completed it is hosted on a test server for the stakeholders to evaluate while the Contractor completes the documentation.

∞



December Holiday Social at the Savoy—What You Missed

Mary Compton, Sandia Nat'l Labs

For the final Chapter activity of 2016, on the 2nd of December, 25 of your fellow systems engineers and their guests gathered at the Savoy Bar & Grill in Albuquerque to celebrate the holidays. Partakers enjoyed renewing old acquaintances and meeting new ones over cocktails and appetizers. After a delicious three-course dinner we were regaled with a lively talk presented by Jennifer Owen-White, manager of the first official urban wildlife refuge in the Southwest, Valle de Oro.

The refuge, established in 2012, on what was Price's Dairy Farm, is located seven miles south of downtown Albuquerque. It protects land along the Rio Grande River, including significant water rights to address restoration of the Middle Rio Grande. Ms. Owen-White described how the refuge fits into the U.S. Fish & Wildlife Service National Wildlife Refuge System and how the funding to purchase land for the refuge was a cooperative effort of public and private entities. The refuge is in its infancy right now; planning for restoration and development of improvements for visitor use are underway.

She encouraged us all to take advantage and become involved in our local urban wildlife refuge. ∞



Not For Women Only

Here is a link to an article titled "Here are 4 Myths About Diversity in Science: What makes diversity initiatives fail, and how to fix them." Many of the tips are

www.huffingtonpost.com/entry/myths-about-diversity-in-science_us_58518708e4b0e411bfd4e73d
www.ted.com/talks/halla_tomasdottir_it_s_time_for_women_to_run_for_office

Heidi Hahn, Los Alamos National Labs

framed from an academia context, but are extensible to industry folks interested in recruiting, hiring, integrating (not assimilating!), and retaining a diverse workforce.

From TED, [Watch: It's Time for Women to Run for Office](#). Halla Tómasdóttir shares how she changed the tone of the political debate and surprised her entire nation when she ran for president of Iceland -- inspiring the next generation of leaders along the way. ∞

EWLSE Dinner Gathering at the Summit

Regina Griego, Sandia National Labs

The inaugural Socorro Systems Summit sponsored by the INCOSE Enchantment Chapter was held on October 28 and 29 in Socorro, NM. As part of the summit an Empowering Women as Leaders in Systems Engineering (EWLSE) Dinner Gathering was held on Friday evening at Socorro Springs Brewery. The invitation was made to over 40 participants and about 24 men and women participants attended the dinner, including six students from the INCOSE Student Chapter at UTEP. The intent was to have a dialogue in which participants shared their leadership stories, exchanging tips and insights about navigating the systems engineering leadership journey, with particular emphasis on the Women Systems Engineers' brand of leadership.

After enjoying a beverage and a helping from the pizza/pasta/

salad buffet, Regina Griego, Principal Systems Engineer at Sandia National Laboratories, started the conversation by sharing her story of leadership. Each participant shared their journey and gave testimony to the many women leaders in their lives. Some provided information on efforts that they were involved in to increase participation of women as leaders in Systems Engineering.

The gathering gave attendees the opportunity to share information and ideas about, and possibly collaborate on, activities that encourage young women to pursue careers in science. INCOSE leaders like Kevin Forsberg and Jack Ring provided sage advice. Everyone felt that the collective testimonies and camaraderie were very meaningful and the students were particularly inspiring as our future. ∞



UTEP—Online Masters of Science in Systems Engineering

<http://utepconnect.utep.edu/index.php/online-programs/master-s-programs/master-of-science-in-systems-engineering>

The online Master of Science in Systems Engineering (MSSE) offered by the University of Texas at El Paso (UTEP) is convenient, flexible and affordable. It is an ideal choice for aspiring engineers and current engineering professionals alike who want to perfect their engineering skills while learning how to manage large projects.

- Provided in an easily accessible 100% online format by UTEP's College of Engineering.
- Designed for engineers and other STEM professionals seeking technical and managerial skills.
- One of a few systems engineering master's programs in the nation.
- Created to serve industry partners.
- Learning is hands-on and culminates with a practicum.
- Curriculum takes into consideration the Systems Engineering Handbook of the International Council on Systems Engineering (INCOSE) and covers the full spectrum of Systems Engineering sub-disciplines.
- Capability Maturity Model Integration (CMMI) key concepts covered throughout the program of study and applied to build and manage engineering systems.

Students can acquire a firm understanding of how to design and manage complex systems of all kinds and also learn how to work with people in a team. The program curriculum can also give engineers an advantage in earning their Associate/Certified Systems Engineering Professional (ASEP/CSEP) certification and prepares graduates to work in companies that utilize quality models such as the Capability Maturity Model Integration (CMMI).

- Understand the modeling, creation and analysis of systems.
- Integrate studies in human factors, technology, process engineering and management into one multi-faceted discipline.
- Take a project from conception to completion by assessing a problem and providing the right solution for the customer's need.
- Manage teams throughout a system lifecycle.
- Apply the Capability Maturity Model Integration (CMMI) best practices for developing products and services.
- Learn the concepts for the International Council on Systems Engineering (INCOSE) ASEP/CSEP certification and be better prepared to pass the exam.
- Acquire the advanced interdisciplinary knowledge required for management-level positions.

UTEP's College of Engineering created this degree to serve industry partners by addressing specific skills needed by systems engineering professionals. The curriculum takes into consideration the INCOSE Systems Engineering Handbook and best practices from the Capability Maturity Model Integration (CMMI). The online systems engineering degree requires a minimum of 30 credit hours. A [graduate certificate option](#) is available for students who complete the 15 credit hours of the 5 core courses. ∞

UTEP Graduates Systems Engineers at Fall 2016 Commencement

Eric Smith, University of Texas El Paso

Samuel Terrazas, President of the UTEP Student Division of the Enchantment Chapter of INCOSE, organized a formal recognition for Systems Engineering M.S. graduates who are members of INCOSE, awarding them a special INCOSE stole at the IMSE (Industrial, Manufacturing & Systems Engineering) Department graduation banquet. Stoles are customarily awarded for participation in student organizations, and are worn throughout graduation ceremonies.

Of special note was the graduation of Aditya Akundi, who can be called the first PhD graduate in Systems Engineering at the University of Texas at El Paso. Dr. Akundi's dissertation is entitled *INFORMATION ENTROPY MEASURES APPLIED TO HIERARCHICAL COMPLEX TECHNICAL AND SOCIO-TECHNICAL SYSTEMS*. Dr. Akundi graduated from the Electrical and Computer Engineering Department, within the Industrial and Systems Engineering track. The dissertation applies Information Entropy measures to network topologies, including verbal communication networks within classrooms. ∞



Samuel Terrazas, INCOSE Student Division President, awarded INCOSE stoles to (from left to right): Bhriannon Tiscareno (Treasurer), Cynthia Vargas (Secretary), Maria Perez (ASEP Coordinator), and Miguel Armenta, all M.S. graduates in Systems Engineering.



Eric Smith, Advisor to INCOSE UTEP Student Division (left), hoods PhD recipient Aditya Akundi, with the help of Interim Dean of the College of Engineering Carlos Ferregut, as Dr. Charles Ambler, Dean of the Graduate School (at podium), recognizes Aditya Akundi and the title of his dissertation.



2016 Fall graduation party at UTEP, with (from left to right), Eric Smith (Advisor to Student Division), Cynthia Vargas (Secretary), Maria Perez (ASEP Coordinator), Miguel Armenta (member), Bhriannon Tiscareno (Treasurer), and Dr. Oscar Mondragon (Clinical Faculty of Systems Engineering).



Space Systems Working Group (SSWG) CubeSat Reference Model Project

David Kaslow, Chair,
Space Systems WG

Model-Based Systems Engineering (MBSE) is a key practice to advance the systems engineering discipline. The International Council on Systems Engineering (INCOSE) established the MBSE Initiative to promote, advance, and institutionalize the practice of MBSE. As part of this effort, the INCOSE Space Systems Working Group (SSWG) Challenge Team has been investigating the applicability of MBSE for designing CubeSats since 2011.

The SSWG team is made up of academics including students and professors, professional practitioners including engineers and software developers from NASA centers and industry, and representatives from commercial software tool vendors.

The team meets weekly via teleconferencing, and the standing meeting is on Friday at 1 P.M. U.S.A. Eastern Standard Time. Meeting materials and links to meeting recordings are in Google Docs. Email david.kaslow@gmail.com to join the working group and listen in or actively participate.

Conference papers are posted on the SSWG website:
www.incose.org/ChaptersGroups/WorkingGroups/Application/space-systems

A CubeSat, a type of nanosatellite, is a low-cost standardized satellite with its origin in the CubeSat Project, which was established in 1999 by California Polytechnic State University (Cal Poly San Luis Obispo) and Stanford University's Space and Systems Development Laboratory (SSDL).

The CubeSat Project was established to enable the university community to design, build, and launch satellites using primarily off-the-shelf components. The basic CubeSat unit is 10x10x10 centimeters with a mass of about 1.3 kilograms. CubeSat units can be joined to form a larger satellite. They are typically launched as secondary payloads or deployed from the International Space Station.

MBSE is the formalized application of modeling to support key systems engineering tasks for addressing requirements, design, analysis, validation, and verification. Our application of MBSE is enabled by the Systems Modeling Language (SysML), an engineering methodology, and a modeling tool set. SysML diagrams are used to describe requirements, structures, behaviors, and parametrics from the system down to the component level. Requirements and design are contained within the model rather than in a series of independent engineering artifacts. The system model can also integrate other discipline specific engineering models and simulations.

Previously, the SSWG demonstrated the ability to model behaviors, interface with commercial off-the-shelf (COTS) simulation tools, and carry out trade studies. Currently, the team is building a CubeSat Reference Model (CRM).

The CRM is to be used by university instructors in the class room or by student teams designing space missions utilizing the CubeSat form-factor. The CRM provides the logical architecture. The logical elements are reused as a starting point for a mission specific CubeSat logical architecture,

followed by the physical architecture and the CubeSat development.

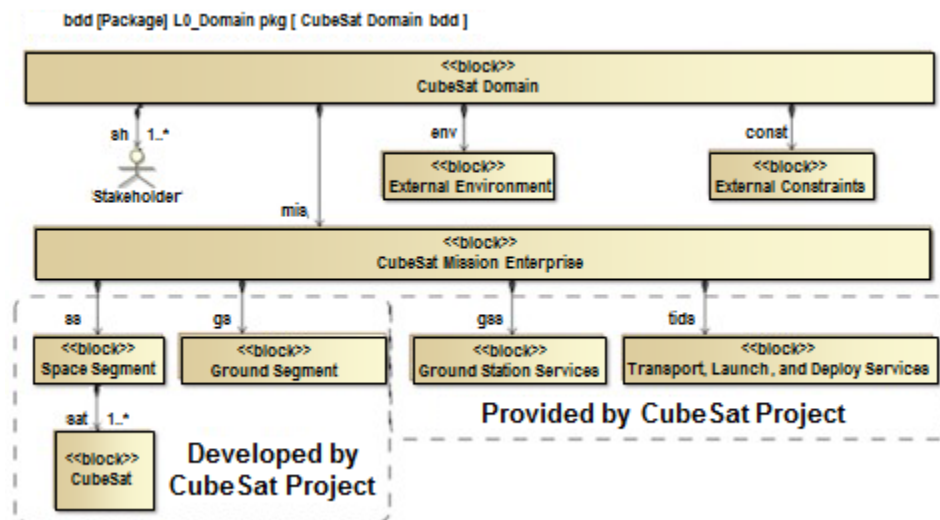
A stakeholder is any entity that has an interest in the system, and there are two sets of stakeholders. The first set is for the CRM itself, and they are concerned with the proper development, management, and distribution of the reference model. The second set is for the CubeSat mission and the CRM users, and their concern is mission success.

The first set of stakeholders include regulatory agencies. Licenses and regulations that cover CubeSat activities are administered at the national level, and the timelines and procedures for requesting and receiving approval must be well understood and part of the model. For example, the U.S. the Federal Communications Commission (FCC) regulates the radio frequencies and spectrum management, National Aeronautics and Space Administration (NASA) provides orbital debris guidelines, and National Oceanic and Atmospheric Administration (NOAA) regulates remote sensing. Another stakeholder is Cal Poly, San Luis Obispo with their CubeSat Design Specification.

The CRM domain consists of the stakeholders, CubeSat enterprise, external environment, and external constraints. The CubeSat enterprise consists of the space and ground segments. The CubeSat enterprise architecture accommodates an external service providing CubeSat transportation to a launch site, integration into a launch vehicle, launch, and deployment. It also accommodates a CubeSat project developing its own ground station or operating with an existing ground station that provides uplink and downlink services. Space and ground subsystems have been identified and use cases are being established to further define the subsystem capabilities.

We have initiated the development of a validation and verification strategy which includes providing the model to several universities. We are collaborating with the Object Management Group (OMG) Space Domain Task Force (DTF) to develop the CRM as an OMG specification.

David Kaslow
WG Chair:
Space Systems
david.kaslow@gmail.com





Socorro Systems Summit to be Model for INCOSE Replication

Rick Dove, Paradigm Shift International



A success by all measures, the Summit had 48 participants (close enough to our success target of 50); kudos from INCOSE President Elect Garry Roedler (see below); a call for replications INCOSE-wide; after-action input to working group follow-on projects; an agreement between the Agile Systems Engineering and Systems Science working groups to jointly sponsor additional Summits at INCOSE IS and IW semi-annual events starting at IW17; and a spawned project of the Agile Systems Engineering working group to develop a Systems Summit Concept of Operations framework document, in collaboration with Chapter members, for use INCOSE-wide. Notable is the feedback from participants (see next page). The evaluation form also asked three questions: “Glad you came?” averaged 4.68 out of 5, “Do it again?” averaged 4.77 out of 5, “Prefer October or August?” favored October by a large margin – 87% vs. 48% (some said either).

Feedback comments were sent to all participants, eliciting the following message from Garry Roedler:

From: Roedler, Garry J
Sent: Tuesday, November 01, 2016
To: INCOSE Board of Directors
Cc: Rick Dove
Subject: FW: Summit Feedback with Comments
 Alan Harding (et al.),

I wanted to share the feedback from the INCOSE Systems Summit that was held in Socorro, NM last week. The feedback is excellent. I think the format is one that can be replicated in other locations. It is a low cost approach that focuses on getting the systems engineers to interact and share in meaningful discussions. The sessions are not about presentations, they focus on facilitated discussion on specific topics that focus on a set of discussion objectives defined by the attendees. The end result, from my estimation, is that we should have some well-formed information and recommendations coming to the INCOSE Technical Operations. In more than one case, the groups in the workshop sessions are going to clean-up, organize, and/or extend their results and then provide them to the applicable INCOSE WG for consideration.

We should promote this type of activity, as the energy was excellent, resulting in great discussions. I am not sure if all attendees were INCOSE members, but any who are not probably walked away with a positive view of INCOSE and SE. At the beginning of the event, the host site leader [Aly EIOsery] stated that this was the first Systems Summit. At the end, I am convinced that this was the first summit, but not the last. Others felt the same way.

There are some lessons learned to capture and incorporate into the organization, preparation, and execution of this type of event. I would like to ask Rick Dove to consider putting some guidance together for others who would like to have similar events. I believe this is one new type of event that helps move towards more impactful events. ∞

Summit Session at IW17

In response to Garry Roedler’s request, and collaborative Summit interest expressed by the Systems Science working group, a 4-hour session at IW17 will occur on 31-January:

Systems Summit Concept and Planning Discussion

08:00-08:15	Agenda and Intros
08:15-08:30	Brief Review of 2016 Socorro Systems Summit Handout: Socorro Summit feedback
08:30-08:45	Socorro Summit Process Experience of Topic Moderator, Bill Schindel
08:45-09:00	Reusable System Summit ConOps Framework – joint project between Agile SE WG and Enchantment Chapter Handout: Draft Systems Summit ConOps
09:00-10:00	Discussion – Future Summit Options & Opportunities (e.g., local, regional, national, int’l)
10:00-10:30	Break
10:30-11:15	Discussion – Identification of “Grand Ideas” to Tackle via Summits
11:15-12:00	Discussion – Future Plans & Pursuits

Socorro Summit proceedings and participant list are posted at www.incose.org/enchantment under the Library tab. ∞



INCOSE President-Elect Garry Roedler gives opening keynote



Friday opening plenary session with two-tier participant seating



Moderator Ed Carroll’s Friday topic intro breakout to set Saturday objectives



Friday evening networking reception with posters for Saturday topic objectives



All Summit Like & Dislike Feedback—What You Missed

What you liked:

- Good place for both ABQ and UTEP. The basic format is interesting. Efficient for the purpose. Like the concept of giving results to Working Groups. See if can get more faculty and students from NMT. Dinner Friday night was good, both theme and food.
- Good discussion and feedback. The participants were interested and involved.
- Wide ranging; Framing up SoS Challenge area; Concrete steps to engagement.
- Survey to select topics.
- The content and informal structure of presentation/discussions.
- Relevant topics.
- Focus on discussion rather than presentations was a strong positive factor.
- Discussions that led to actionable items. Meeting new people.
- It was well organized, with a format that allowed us to first get an overview of the topic and if interested, come back for more detailed discussion.
- Very interesting discussions. Opportunity to interact with “real” SE’s!
- Topics. Meeting passionate and committed people. Student participation. Location in Southwest. Woman in SE event.
- Interaction with new and established colleagues. Meeting and hearing from students and faculties.
- Venue was great. Food was very good. Reception nicely done. Topic discussions were productively done. Like the structure. Collaborative discussions were fun to participate in. Out of state participants. Student help and participation.
- Great exposure to various industries’ points of view
- Great experience! We are very thankful for your invitation and support. We really like the integration of the topics and how the attendees discussed them. We also liked the Saturday workshops. Very helpful in making them more particular.
- The topics covered and the speakers invited. The hospitality of the refreshments were good. Keep continuing this good cause.
- The networking opportunity. Having the opportunity to hear other ideas. The gala dinner.
- Size and location.
- Most individuals were really open minded; I loved the lovely (seasonal) low-key campus environment; I REALLY LOVED having a mix of backgrounds (legacy industry to students).
- Size and location.
- Meeting people, learning, lots of discussion, being in Socorro, Friday night social and dinner, hearing about 2 regional opportunities, idea for HPT summit. Fail Fast & Recover early path forward/proposal to capture learning.
- Interaction with folks from a variety of backgrounds.
- Fall semester for student pre-preparation. Interactive format.
- Topics. Participation from attendees. That each session had student to help capture information on computers. This workshop offered an environment to express issues and frustrations.
- Balance of learning and taking action on the learning in the form of possibilities.
- Discussions and networking. Nice venue. Good topics.
- The topics were interesting and relevant for the Systems Engineers and community necessities. The organization was excellent. Brilliant people.
- All the knowledge gathered in 1 room is impressive. Tons of experiences and most, if not all, of the people are willing to

share them and all of what they’ve learned.

- Attendees wanted to hear from each other in even-handed way. Sessions very stimulating and worth the whole time.
- There was a lot of information covered. The speakers provided good information with examples.

What you didn’t like:

- Started too early. 9 am??
- Starting early in day. Loose structure challenged engagement. Some people who suggested issues didn’t come back Saturday. Topic winnowing.
- Too many per session.
- Too short talking about subject.
- Lack of caffeine (tea) on Sat. afternoon. Running out of hot water Friday afternoon. Too cold in rooms, especially Friday.
- The sessions on the first day should have been shorter so that I could attend more of them. 45 minutes should be sufficient.
- Long sessions 2nd day, some without breaks. Lack of diversity.
- Being compelled to choose between follow-up sessions was unfortunate – my top choices all ended up in the same time
- First day room layout.
- Lack of internet access on occasion. Can be dealt with if notified ahead of time, so hotspots can be brought. Lack of in-state participants.
- Opportunity to attend more topics.
- You may want to include other industry sectors other than government agencies or government defense related industry.
- Due to half on half session I missed few sessions. Interesting topics were scheduled at the same time. Second day was still challenging as I can attend only two for long time.
- In one section, the description of the topic and the initial presentation was not aligned to the work done during the session. On the second day, there was no coffee.
- Time. Too time driven; suggest split; extend to 4 days.
- It was quite a bit to pack into 2 days; perhaps only 4-6 topics next time? The outcomes of these scrums were very open ended, which provided a lot of freedom but also provided a large window (in some cases) for “railroading” discussions. I would have personally preferred a little more structure around the topics and expected outcomes.
- Timing of sessions didn’t allow for breaks.
- New format.
- Student desks in classroom were uncomfortable.
- Would like to have connectivity available. Would like to have more white board availability and encourage more collaborative discussions using them.
- Days too long. Scheduled breaks and some tweaks to the format of sessions/discussions.
- The time for each topic was really short.
- Is not that much time for 8 different topics. Either combine the topics (because some topics were very similar) or subtract some of the topics presented. Maybe have the summit twice yearly.
- Some sessions were a bit disjunctive or disordered, in the sense of inhibiting engagement. This is relatively common in most, not unique to this event, but we would all benefit from some learning about more effective workshop sessions and facilitators that encourage engagement.
- Most of the information is for full system engineers. It is complicated enough that someone that is just starting will be overwhelmed.



Reflecting On The Enchantment Chapter 2016



Ron Lyells, Honeywell International and Chapter Past President

I think I can speak for all the Board members that we have had a fun, and engaging year. We have been blessed with good speakers at our monthly chapter meetings. Attendance has been good and has expanded to where we are getting some participation from folks in the Southern AZ and Colorado front range chapter areas. We had a well attended tutorial on System engineering fundamentals in May. And people seem to be enjoying the summer and winter socials. The big experiment this year was standing up and hosting the Socorro Systems Summit with NM Tech. By all measures it was a successful experiment and one that is being recognized within INCOSE leadership as an experiment worth repeating. Not just here but in other regions.

It has been fun for me this past year; thank you to the members of the Board, and to the members at large for staying engaged.

Special Thanks:

I would also like to offer a special thank you to Rick Dove for pursuing and setting up most of the speakers for our chapter meetings last year. He was also the prime mover on the Socorro Systems Summit. Rick is a good example of turning a particular personal passion into a benefit for the members of the chapter and surrounding community.

I would also like to offer a special thank you to Mary Compton. For our social events and the Socorro Systems Summit, there is always someone behind the scenes that is doing a lot of detailed logistics work to ensure that all goes smoothly. For us, Mary is that person.

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Chapter Kudos From INCOSE Past Pres.

eMail from David Long:

"First a compliment on your quarterly newsletters. I truly appreciate the blend of content and pointers to topics and resources throughout the larger community. I hope this is an example that others in the chapter community choose to emulate as we deliver value to the members."

"As I was looking through the [White Sands] briefing which is a very strong ambassadorial piece, the listing of recorded presentations caught my eye. Going to your website, I was very pleased to see these recorded presentations available for all. I would love to share one or more of these with the larger community to show the great technical content and interaction ongoing in the Enchantment Chapter. Are there any that you would be willing to have us include in this effort?"

2016 Enchantment Chapter SEPs New Certs in Blue—Congrats to Heidi

Aguilar, Virginia
Arancibia, Demian
Bearden, Bill
Bustamante, Miriam
DeVilbiss, Nathan
Gruer, Mike
Hahn, Heidi
Hodges, Ann
Hunter, John
Matta, Anthony
McGoey, Paul
Phillips, Tim
Prokopchuk, Aaron
Smith, Eric
Turner, Rob
Young, Sharissa

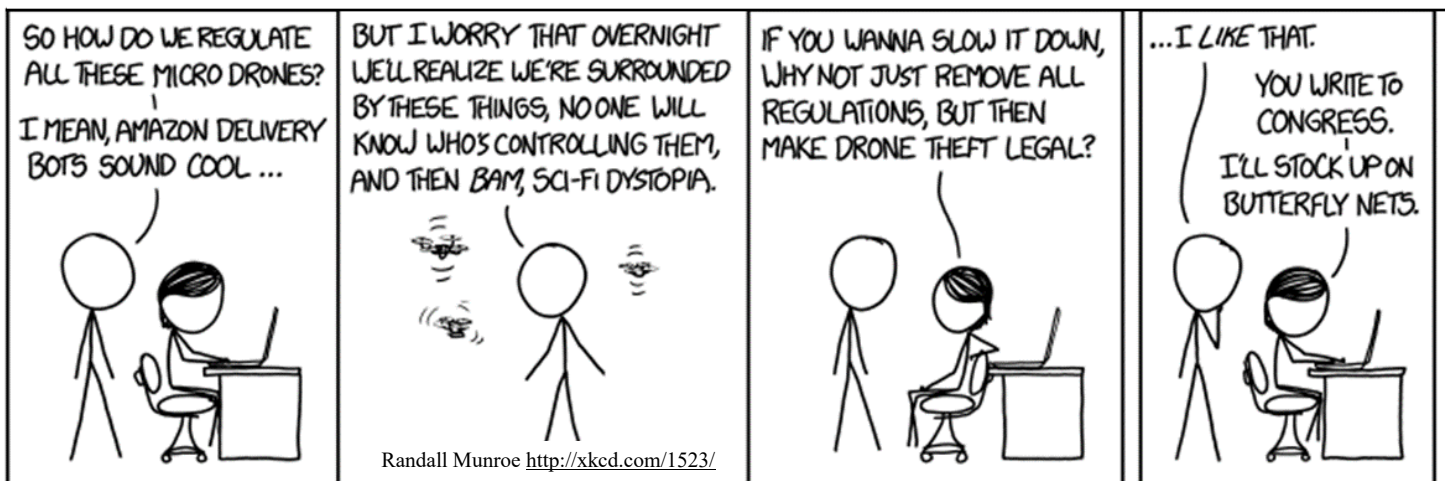
Honeywell,
National Radio Astronomy Observatory
Los Alamos National Laboratory
University of Texas at El Paso
ATA Aerospace
Honeywell
Los Alamos National Laboratory
Sandia National Laboratories
Sandia National Laboratories
Sandia National Laboratories
Retired
L-3 Communications
Lockheed Martin
University of Texas at El Paso
Stellar Solutions
Retired Sandia National Laboratories

CSEP 05/29/2014
ASEP 01/05/2014
CSEP 03/22/2009
ASEP 11/21/2016
CSEP 10/07/2016
CSEP 09/28/2013
ESEP 05/23/2016
CSEP 08/15/2009
ASEP 08/15/2009
CSEP 07/27/2016
CSEP 03/29/2010
CSEP 01/05/2011
ASEP 04/28/2016
ASEP 05/21/2010
CSEP 04/29/2016
CSEP 12/19/2007

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This request occurred in early 2016, and resulted in our submission of the four newsletters published in 2015, and the outreach presentation made to White Sands in 2015 on mutual benefit for Chapter and White Sands collaboration.

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Resources

From TED, [watch](#): *Pirates, nurses and other rebel designers.* In this ode to design renegades, Alice Rawsthorn highlights the work of unlikely heroes, from Blackbeard to Florence Nightingale. Drawing a line from these bold thinkers to some early modern visionaries like Buckminster Fuller, Rawsthorn shows how the greatest designers are often the most rebellious. As a columnist for Frieze and a writer for the *International New York Times*, Alice Rawsthorn explores the world of design, seeking projects that fit their function "while also being responsible, ethically and environmentally, and desirable."

From TED, [watch](#): *What I learned from going blind in space.* Astronaut Chris Hadfield offers an astronaut saying: In space, "there is no problem so bad that you can't make it worse." So how do you deal with the complexity, the sheer pressure, of dealing with dangerous and scary situations? Retired colonel Chris Hadfield paints a vivid portrait of how to be prepared for the worst in space (and life).

From TED, [watch](#): *5 ways to lead in an era of constant change.* Who says change needs to be hard? Organizational change expert Jim Hemerling thinks adapting your business in today's constantly-evolving world can be invigorating instead

of exhausting. He outlines five imperatives, centered around putting people first, for turning company reorganization into an empowering, energizing task for all.

From PopTech, [watch](#): *Mindfulness over Matter.* Harvard psychology professor Ellen Langer discusses the surprising power of being present during everyday activities. "We have many, many studies that suggest that the limits we assume are real are artificial, and that we don't have to accept them at all."

From TED, [watch](#): *What happens when our computers get smarter than we are?* Artificial intelligence is getting smarter by leaps and bounds — within this century, research suggests, a computer AI could be as "smart" as a human being. And then, says Nick Bostrom, it will overtake us: "Machine intelligence is the last invention that humanity will ever need to make." A philosopher and technologist, Bostrom asks us to think hard about the world we're building right now, driven by thinking machines. Will our smart machines help to preserve humanity and our values — or will they have values of their own?

New Chapter Members

Jeni Turgeon, Sandia National Labs

Enchantment Chapter now has 109 active members and student members. We welcome the following new regular members:

Lisa Espelien	Sandia National Laboratories
Edward Kennedy	United States Army
Jessica Weems	Sandia National Laboratories

We welcome the following new student members:

Abdulrahman Alsubaie	University of Texas at El Paso
Alan Guillen	University of Texas at El Paso
Angelica Marquez	University of Texas at El Paso

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Connect to Your Community of Practice

Chapter meetings with a focus on systems engineering are held monthly on the second Wednesday, except when social events occur, with mingling, dinner, and often a speaker chosen for enjoyment by systems engineers and guests alike.

Monthly meetings feature speakers from out-of-town as well as local subject matter experts on topics of relevance.

On occasion special facility tours are arranged, sometimes as the monthly meeting, and other times on a separate schedule.

Chapter meetings begin at 4:45 pm.

After chapter news, announcements and introductions, the presentation and discussion lasts until 6:00 pm; and are carried and recorded as a web meeting for anybody to access who can't attend in person.

Tutorials with coverage on topics of interest are arranged approximately twice a year. Delivered by experts in the field, tutorials range from 1/2 day to day+ durations, and generally involve a tuition.

Mix with people who have the same professional interests as you do, but with a diversity of perspective beyond daily

workmates. It comes in handy when you need help or answers to questions outside your accumulated experience, need a connection at another organization, or simply want some mind stretching thought.

Meeting announcements, event notices, and web-meeting links routinely go to all INCOSE members within the Chapter's geographic territory; as well as to names on a special *information* list open to one and all. Sign up for the *information* list with a request to the Chapter secretary listed below.

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Chapter Board

Anthony Matta	President	575-915-6800	armatta@sandia.gov
Ron Lyells	VP/President Elect	505-263-1893	rlyells@aol.com
Ann Hodges	Secretary	505-844-6284	alhodge@sandia.gov
Mary Compton	Treasurer	505-845-9268	mlcompt@sandia.gov
Ron Lyells	Past President	505-263-1893	rlyells@aol.com
Rick Dove	Director	575-586-1536	dove@parshift.com
Heidi Hahn	Director	505-665-4606	hahn@lanl.gov
John Hunter	Director	505-284-6053	jahunter@me.com
Jason Jarosz	Director	505-844-6671	jpjarosz@sandia.gov
Bob Pierson	Director	505-767-1210	pierson@apttec.com
Evan Richardson	Director	505-844-5581	edrich@sandia.gov
Ben Schaefer	Director	505-284-6403	bschaefer@sandia.gov
Eric Smith	Director	915-747-5205	esmith2@UTEP.edu
Tom Tenorio	Director	575-322-4123	tenoriot@gmail.com

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**Call or email
your news, reviews, announcements,
contributions, or suggestions to:**
Rick Dove, Newsletter Editor-In-Chief
Phone: 575-586-1536
dove@parshift.com