NEWSLETTER

INCOSE LOS ANGELES

Gold Circle Award
2002, 2004-08

Silver Circle Award
2003

2008 President's Award for Most Outstanding Chapter

INCOSE
International Council on Systems Engineering

UPCOMING EVENTS

April Speaker Meeting
Network-Centric Architecture and Systems Engineering
Mr. Kenneth Cureton
WHEN: April 13, 2010
(Rescheduled from March)
See page 3 for more information

Los Angeles Mini-Conference
The Los Angeles Chapter has started work on another Mini-Conference!
WHEN: October 16, 2010
See pages 2 and 6 for more information

A $5.00 Deal for Guests!

Know of anyone who might be interested in attending an INCOSE-LA speaker meeting that includes a light meal? If so, then pass the word about our next three speaker meetings. We would like to encourage your guests to attend our speaker meetings. Each of the next three speaker meetings will cost only $5.00 per guest

(still free for members).

For up-to-the-minute event details:
♦ *Check future editions of the Newsletter*
♦ *Watch your email for the Reflector*
♦ *Visit the INCOSE-LA website at* www.incose-la.org

Inside This Issue

Spring Membership Review

By Past President David Boyd and Membership Chairman Paul Cudney

With the close of the first quarter 2010 in sight, your Board of Directors held one of several scheduled Strategic Planning Sessions on Sunday, March 14, 2010. This article is in response to a concern of our Membership Committee.

In early June, a large portion of our 400+ active members will reach the end of their annual membership year. This milestone, in turn, triggers membership renewal notices. Though you will receive an email reminder from INCOSE Headquarters, we ask you, our members, to take a few minutes today to review your current membership status via the INCOSE website (http://www.incose.org/membership/updateinfo.aspx).

If you are undecided about renewing your membership, then we'd like to know what we can do to encourage your continued membership in INCOSE. The volunteers who create and coordinate speaker meetings, tutorials, this newsletter, networking mixers, conferences, and the Chapter website are dedicated to making this Chapter of value to the members, and they welcome inputs from the membership as to how this Chapter can be "value-added" to the members. You are important to us; feel free to send your inputs to the appropriate board member listed on page 5.

When you renew, please be certain that the Los Angeles Chapter is identified as your chapter. This helps the Chapter continue to be of service to you, since each INCOSE chapter receives a portion of its members' dues, and this portion is the primary source of our operating funds. Our secondary sources include any surplus that is received from quarterly tutorials, from INCOSE-LA conferences, and through the occasional participation in planning other INCOSE activities such as the annual INCOSE International Symposium. The operating funds support regular activities such as the monthly speaker meetings (free to members), quarterly tutorials, networking mixers, and chapter products such as our monthly newsletter and website. Your dues also support our ability to fund and host events that require at least a six-month-to-one-year commitment, such as the upcoming Mini-Conference (Fall 2010) and CSER 2011 (April).

In closing, our mission regarding speaker meetings, joint meetings, tutorials, and conferences is to provide you with value. Your Board works hard to strike a balance of cost, value, and quality for all events. Please help your Chapter continue to deliver value to you and your colleagues. Please provide any feedback to your Membership Committee: membership@incose-la.org.

2010 Mini-Conference
A Work in Progress

Inputs from members of the Board of Directors

Work continues apace in preparations for the 2010 Mini-Conference, which will be held on Saturday, October 16, 2010. The leadership team is in place. The Technical and Program Chair is Rick Cline, the Venue Chair is Harvey Soldan, the Financial Chair is Beth O'Donnell, the Registrations Chair is David Boyd, the Volunteer Chair is Nehal Patel, and the Promotions Chair is Shirley Tseng. One leadership position is still open: the Operations Chair.

The theme of the conference has the working title "Increasing the Value of Systems Engineering's Portfolio to Our Stakeholders." The thought behind this working title was to capture succinctly the essence of the INCOSE mission and goals, while giving prospective speakers latitude to cover a wide array of systems engineering domains and issues.

Additional thoughts on this theme include:

1. Portfolio: we, systems engineers, provide a "portfolio" of products, processes, tools, and services to the programs we serve. Are our customers "busting down the doors" trying to get our stuff?
2. Value: Since the successful implementation of our process is not universal, we need to increase the value of our products, processes, tools, and services as perceived by our customers.
3. Stakeholders: not just the program manager, or the user, but all who depend on us to perform system requirements management, etc.

The team is working to develop topics that are stimulating and can serve as a basis for papers and professional discourse. Topics considered so far include the following:

1. Deeper and more consistent penetration into product development and support
2. Better alignment, collaboration, and integration between adjacent business segments
3. Better measurement and correlation between systems engineering performance, product, and service success
4. Systems engineering: architecting the front end for optimum performance, project execution, and customer satisfaction
5. Systems engineering: value-adding capabilities
6. Making systems engineering more effective in industry
7. Approaches to better balance program cost, performance, schedule, and risk
8. Systems engineering: learning from the private sector

Inputs and volunteers from the Chapter members are essential to producing another successful mini-conference. And suggestions are welcome. As in the past, volunteers are the key to a great conference. Individuals interested in serving should contact Dick Emerson at remerson9@gmail.com.

Hardware, software, shareware, firmware… humans can be thought of as "live-ware."

Be wary of a software tool becoming "shelfware" and "staleware."

Notes from the
International Workshop

With inputs from Josh Sparber, Dick Emerson, and Jorg Largent

Several members of INCOSE-LA were able to attend this year's workshop in Mesa, Arizona. The following are some of the "sound bites" ("word bites?") from the meetings. As space permits, their insights and lessons learned will be published in this and future editions of the *Newsletter*.

One common assessment was that the International Workshop was an excellent and rewarding experience with many opportunities to learn, to network, and to contribute. There were four days of technical working groups — a smorgasbord of opportunities. These technical working groups were the cutting edge of systems engineering development and applications.

There were some themes and questions shared by several of the working groups:

- how to get more productive involvement in the work of the group
- how to use *INCOSE Connect* effectively
- how to present the results in the most effective way
- what to do with draft results
- what to do next?

Some of the comments from Chapter members are below.

The Requirements Working Group worked on the System of Systems Requirements process, agreeing to release the first draft of the *How to Write Requirements* document; and on REGAL – the "Requirements Guide for All." REGAL is intended to be a requirements engineering tool that will be optimized to support requirements engineers in the deriving and refining of good, workable requirements. The group is addressing several tasks, including upgrading the document and managing the configuration of REGAL. The group worked on a new criterion for a Configuration Management function and a charter for a Configuration Management Group for REGAL.

In addition, this working group, with help from the INCOSE Tools Working Group (WG), created a new set of review standards for all the Requirements Engineering tools that are available. One vision for the future is an evaluation of the analysis tools a requirements engineer might use.

The Requirements WG was able to assist an individual working with International Organization for Standardization (ISO) standards for small businesses and who was having a problem getting assistance on ascertaining the correct business processes on military contracts. A member from the Los Angeles Chapter guided him toward the National Contract Management Association for more specific guidance.

The Architecture WG presented the results of their work on Model-Driven Systems Engineering and Architecture (MBSE & MDA).

The Infrastructure WG has launched two development activities for large-scale physical-economic infrastructures.

The Risk WG has published an updated guideline section in the SE handbook and is looking for new topics to explore.

Roget's Thesaurus is an example of a very old use of object-oriented classification and organizational techniques.

James N. Martin, *Systems Engineering Guidebook*

APRIL SPEAKER MEETING
"Network-Centric Architecture and Systems Engineering"
Presenter: Mr. Kenneth Cureton,
Senior Engineering Manager for Information and Knowledge Systems, The Boeing Company
PARTICULARS

WHEN: Tuesday, April 13, 2010, 5:30 p.m. to 8:00 p.m.
Meeting Schedule:
5:30 - 6:20 p.m. Registration, networking, refreshments
6:20 - 6:30 p.m. Welcome and announcements
6:30 - 7:45 p.m. Presentation followed by questions and answers
WHERE: Boeing Huntington Beach; R.S.V.P. REQUIRED
See details for individual sites below

Remote sites will be available

COST: Members: FREE; non-members: $5.00

Substantial refreshments will be provided at the host site. (Refreshments may not be provided at remote sites, or may be provided at no charge. Contact Remote Site POCs for more information).

ABSTRACT: Net-centric systems comprise a diverse category of large and complex systems whose primary purpose is providing network-type services. Net-centric systems are also frequently called "net-enabled" or "collaborative systems" — systems built on the partially voluntary and uncontrolled interaction of complex elements in an *ad hoc* environment. This presentation addresses the intersection between network engineering and the needs of systems architecting and engineering.

BIOGRAPHY: Mr. Cureton is a Senior Engineering Manager for Information and Knowledge Systems, a business area of The Boeing Company's Defense, Space & Security Systems. In that role he supports the guidance for all Boeing systems in becoming net-enabled and interoperable. He was named to this position in November 2002 as part of the original Strategic Architecture Initiative.

Cureton, an industry lecturer at the University of Southern California, has presented master's-level engineering classes in systems architecting and engineering since 1996.

He is currently assigned as the Technical Council Vice-Chair (becoming Chairman on April 1, 2010) in the Network-Centric Operations Industry Consortium. An active member since 2004, he has served in various capacities, including chairman of the Engineering Processes Functional Team, now known as the Systems Engineering and Integration Team.

In his prior role, Cureton managed Strategic Architecture development efforts, including systems engineering and ongoing development of a common interoperable, network-centric architectural reference model that was to be used across all Boeing programs.

Before that, he supported the conversion of aerospace and defense systems for Emergency Management System applications, with special emphasis on analysis and design of computer hardware, software, and data/voice communication systems for wild lands firefighting.

Previous Boeing assignments also included systems engineering, design, and analysis of various digital avionics systems, components, and software for space flight systems, including the Space Shuttle, Advanced Launch System, Single-Stage-to-Orbit, and Assured-Crew-Return Vehicle (a.k.a. Space Station lifeboats).

Cureton earned a Bachelor of Science degree in Physics from California State University, Los Angeles in 1988.

R.S.V.P.: R.S.V.P. by registering online at www.incose-la.org or by sending an email to registration@incose-la.org (please include "INCOSE-LA April Meeting" in subject line). Please be certain to indicate the site at which you will be attending. Additional requirements for the different locations are below.

Boeing, Huntington Beach: R.S.V.P. by April 9, 2010. Attendance at the host site is limited to U. S. citizens and resident aliens; we regret that foreign nationals will not be able to attend at the host site. You MUST R.S.V.P. to attend. NO EXCEPTIONS. If you are uncertain whether or not you'll be able to attend, DO make a reservation and indicate that you're uncertain. Please bring your picture identification (driver's license, passport, or green card) to the meeting. The host site is located at Building 17, Room 109, 14900 Bolsa Chica Road, Huntington Beach.

Host site POC: Beth O'Donnell, phone 714-837-6924 or email elizabeth.l.o'donnell@boeing.com.)

The Aerospace Corporation, El Segundo: Please complete R.S.V.P. (U.S. citizens and resident aliens) by Friday, April 9, 2010 (foreign nationals by Tuesday, April 6, 2010). You MUST R.S.V.P. to attend. NO EXCEPTIONS. If you are uncertain whether or not you'll be able to attend, DO make a reservation and indicate that you're uncertain. Please bring your picture identification (driver's license, passport, or green card) to the meeting.

Antelope Valley/Palmdale: open to all. Contact Mike Wallace, phone: 661-540-0290, email: m.wallace@ngc.com.

Pasadena – JPL: open to all. R.S.V.P. by one day prior to meeting. Contact Chris Delp, phone 818-319-3251, email: christopher.l.delp@jpl.nasa.gov

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The Resilience Systems WG has embarked on the development of an on-line guide or "how-to" for the application of resilience principles to the design of systems.

Technical Operations announced an enhancement to the *INCOSE-Connect* site: the capability of adding the entire active membership to a working group site in *INCOSE-Connect*. Most groups will be adding active members with read-only permissions, which will enable INCOSE members who are not members of a particular working group to browse the site to learn from and benefit from the activities of the group. If you would like to have an opportunity to contribute, just inform the chair or associate chair of the working group in which you are interested, and you will be given the added permission.

It is there for you; get involved; do it today.

What are the Attributes of the Systems Engineering Process?

By Jorg Largent

The systems engineering process is widely understood and is defined in a great many textbooks, handbooks, and seminars. However, the attributes of the process have not been discussed as widely; hence the proposed attributes below.

Disciplined. The systems engineering process is disciplined. The words "rigorous" and "methodical" can be used as well. That the process is disciplined is in part axiomatic, as that is the purpose of a process: to provide a disciplined (methodical, rigorous) way of executing a project so that risk is minimized and the probability of a successful conclusion is maximized.

Iterative. The formal systems engineering process was born of the need to manage change. The history of technological advancement is rife with projects in which a needed change was made but the consequences of the change were not percolated through the entire system.

"Disciplined" and "iterative" are two easy-to-identify attributes and can be found in academic definitions (the INCOSE class hosted by Caltech in 1995 is an example), but more overwhelmingly in the grudging experience of most veteran systems engineers.

The on-line INCOSE Systems Engineering Handbook, v. 3.1 definition reads, "Certain keywords emerge from this sampling – interdisciplinary, iterative, sociotechnical (occurs only once, according to a search), and wholeness (occurs only twice, according to a search)." The handbook does discuss "attributes," but it discusses attributes of systems rather than the attributes of the systems engineering *process*.

Interdisciplinary (and intra-disciplinary, as a derived corollary): The point that the process is interdisciplinary is well taken, but it should be noted that the systems engineering process is beneficial in the execution of projects and tasks with (or within) a single discipline.

During the International Workshop in Mesa, Arizona, two discussions of note came up regarding the attributes of the systems engineering process: is the systems engineering process contextual, and is it simple?

Contextual: The "systems engineering is contextual" point was verbalized by Rosalind Lewis, President of the INCOSE-LA Chapter, as a part of a conversation at the International Workshop. The context of the conversation was whether or not systems engineering could be taught as part of a curriculum at the undergraduate level. Penn State has a master's program, and the description on its website gives a succinct summary of the discipline and its contextual nature:

"The Master of Engineering in Systems Engineering is an interdisciplinary degree, and involves the identification, modeling, analysis, architecture, integration, and management of complex systems and processes."

The Penn State description deftly describes what students bring to their program:

"Your fellow students usually have undergraduate degrees in engineering, computer science, physics, mathematics, and IST. *Most are already professional engineers…."*

The information from Penn State paints a "contextual" word picture: it is reasonable to assume that "graduate engineer" is not a prerequisite, but architecting a curriculum around graduate engineers, most of whom "are already professional engineers," certainly simplifies the challenge faced by the academic institution. "Contextual" is an attribute that facilitates education, because without a context, the process does not make sense.

To listen to the many systems engineering experts who have spoken at the Chapter speaker meetings, tutorials, and conferences, it seems axiomatic that the process is contextual. The execution of the systems engineering process for deep space systems, human interface systems, or wildfire suppression systems is different from one project to the other and is effective only to the degree that the process, as executed, meets the needs of the diverse projects.

Tailorable: That the process is tailorable is a necessary corollary to its being contextual. The application of the systems engineering process to the execution of a project needs to be tailored to reflect variations and vagaries of the product and the life cycle model of the project. Further, as noted in the February 2010 edition of the *Newsletter*, one challenge faced by the systems engineering professional is to "language the program." This is critical to reduce the confusion and babble when a project has a multi-part customer (joint programs) and numerous other stakeholders. It is also critical within the contractor community. Words have very precise meanings, and it helps to have a common understanding.

"Contextual" and "tailorable" are essential if the systems engineering process is to be integrated into the execution of a project rather than scabbed on as an aside – and the more diverse the cultures of a project, the more critical the integration. The difficulty of this challenge is compounded for projects that are neophytes to applied systems engineering.

Simple: Academia and common sense help to establish this attribute. One of the tenets of systems engineering, as taught at Caltech, is to keep it simple. Edward Teller wrote a book on the value and importance of simplicity. Albert Einstein is quoted as saying "If you are out to describe the truth, *leave elegance to the tailor*." Sanjeev Kumar Appicharla, during an ITTS Working Group meeting, made a complementing comment: "My point is that the railway domain has suffered from a lack of application of proper engineering thinking rather than a lack of words." Mr. Appicharla's pithy observation is not limited to the railway domain, and it would seem axiomatic that too many words can be an unnecessary source of complication. The systems engineering process itself is the product of attempting to simplify the execution of a project, thereby reducing risk and cost and maximizing the prospect of a timely conclusion. That systems engineering might compound the intrinsic complexity of a project is counterintuitive and counterproductive – it must be simple. If it is not, it is a hindrance rather than a help.

Do you have some "attributes" of your own, or comments on the attributes above? Please send your thoughts and comments to jorg.largent@incose.org .

It is not enough that the title and mission statement, no matter how eloquent, of a proposed solution match the problem; the solution itself must match the problem.

The technical solution to resolve a problem is NOT the lesson-learned to be learned from the problem.

The Board of Directors wishes to welcome the following new members in the Los Angeles Chapter of INCOSE:

Note: The information listed below is from the member directory and is based upon your initial membership application. If the information is not correct or complete, then please access the member directory (at www.incose.org) to update your information.

Name	Title	Company
Richard Cline	Member Technical Staff	The Boeing Company
Javier Diaz	Sr. Systems Engineer	SAS Raytheon
John Caufield		
Kipp Johnson	Satellite Systems Engineer	Scitor Corporation

The International Council on Systems Engineering (INCOSE) is a not-for-profit membership organization founded in 1990. Our mission is to advance the state of the art and practice of systems engineering in industry, academia, and government by promoting interdisciplinary, scalable approaches to produce technologically appropriate solutions that meet societal needs.

The Los Angeles Chapter (INCOSE-LA) meets several times per year for dinner meetings and speaker meetings, affording systems engineering professionals an opportunity to network and to strengthen their skills. In addition, the Chapter sponsors tutorials, conferences, and other activities of interest to those in the systems engineering field or related fields. Chapter officers are as follows:

2010 Board of Directors and Appointed Positions

Elected Officers

Position	Name	Email		Alt Email
President:	Rosalind Lewis	rosalind.lewis@aero.org	or	president@incose-la.org
Vice-President	Beth O'Donnell	elizabeth.l.o'donnell@boeing.com	or	vicepresident@incose-la.org
Past President	Eric Belle	eric_c_belle@raytheon.com	or	pastpresident@incose-la.org
Secretary	Josh Sparber	joshua.sparber@dcma.mil	or	secretary@incose-la.org
Treasurer	Marsha Weiskopf	Marsha.V.Weiskopf@aero.com	or	treasurer@incose-la.org
Membership:	Paul Cudney	paul.cudney@incose.org	or	membership@incose-la.org
Programs/Speakers:	John Silvas	Silvas_john@bah.com	or	programs@incose-la.org
Tutorials/Education:	Shirley Tseng	shirleytseng@earthlink.net	or	setraining@incose-la.org
Ways and Means:	Shah Shelbe	shah.selbe@boeing.com	or	waysandmeans@incose-la.org
Communications:	Edie Ung	ma1teez@yahoo.com	or	communications@incose-la.org

Appointed Positions

Position	Name	Email		Alt Email
Newsletter Co-editors:	Edie Ung, Jorg Largent	ma1teez@yahoo.com	or	jorg.largent@incose.org
Newsletter Production Manager:	Lee-Ann Seeling	Lee-Ann.S.Seeling@raytheon.com		
Reflector Manager:	Susan Ruth	susan.c.ruth@aero.org		
Industrial Relations Manager:	Jose Garcia, Jr.	jose.s.garcia-jr@boeing.com		
Technical Society Liaison:	Edmund Conrow	info@risk-services.com		
Chapter Recognition Manager:	Michael Maar	michael.c.maar@boeing.com		
Lead Site Coordinator	Anna Warner	anna.warner@boeing.com		
Webcast Event Manager	Chris Delp	cldelp@jpl.nasa.gov		
Website Technical Manager	Michael Kim	kim_michael_1@bah.com		
Venue Chair	Shah Shelbe	shah.selbe@boeing.com		
Representative to San Fernando Valley Engineers' Council	Stephen Guine	Stephen.Guine@ngc.com		
Professional Networking Manager	Nehal Patel	Nehal_P1_Patel@raytheon.com		

Those interested in INCOSE membership please contact Paul Cudney at paul.cudney@incose.org. If you wish to be placed on our email distribution, please contact Susan Ruth at susan.c.ruth@aero.org.

Return Address:

800 S. Pacific Coast Hwy. #8-205
Redondo Beach, CA   90277

Forwarding Address Requested

A GREAT AND REWARDING OPPORTUNITY!

Interested in helping your own LA Chapter put on a one day Mini-Conference? The leadership team is nearly complete, and one more volunteer is needed to serve as Operations Chair (solicit and work with exhibitors, and coordinate displays). We also need volunteers to assist all of the conference leadership positions, both in the planning stages and closer to the event. Volunteer opportunities can fit your schedule, the work level is moderate, and the rewards are great, so we welcome all who are interested. This event will also provide an opportunity to present a paper (make a presentation).

Interested in serving?
Please contact Dick Emerson at remerson9@gmail.com.

LOS ANGELES 2010 MINI-CONFERENCE!
October 16, 2010