Please remember to renew your 2007 INCOSE membership this month.

INCOSE
International Council on Systems Engineering

The Transformation of INCOSE Towards the Outer Ring

Scott Jackson

In the early days of INCOSE in the 90's systems engineering was considered to be the purview of military and aerospace (often called "mil-aero") applications. The term engineering was considered to be the technical application of scientific principles to the building of physical products. MIL-STD-499B, Systems Engineering, was our bible, even though it was never officially released.

Almost immediately the potential for application in other areas was recognized. A working group was formed called the Emerging [that is, non-mil-aero] Applications WG. The idea was to address applications, such as commercial (now called "market driven"), environmental systems, agriculture, and a host of other non-mil-aero applications.

This working group eventually was eventually replaced with the SE Applications Technical Committee (SEATC) under which the Commercial and Public Interest WG existed. During this era many papers were presented at INCOSE symposia and panels on such subjects as automobiles. An SE Applications Profiles (SEAP) document was produced. Finally, under the leadership of our immediate past president, Heinz Stoewer, a new committee was formed called Commercial Outreach.
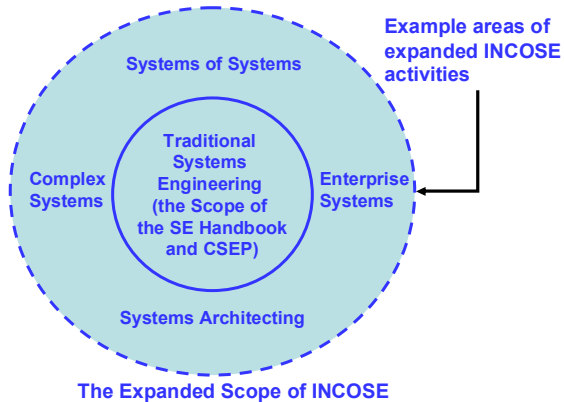
Concurrent with the above developments SE standards began to change. MIL-STD-499B was permanently cancelled and other non-mil-aero standards began to appear. These include the IEEE 1220: Standard for the Management and Practice of the Systems Engineering Process, EIA/ANSI 632: Processes for the Engineering of a System and ISO/IEC 15288: Systems Engineering – Systems Life Cycle Processes, all produced by organizations outside the mil-aero domain although much of their content is derived from MIL-STD-499B. These standards are intended to be domain-independent, that is, they apply to both mil-aero and non-mil-aero applications.

It must be emphasized that the mil-aero interest in SE did not diminish during this time. The Air Force Institute of Technology (AFIT), for example, established its Center for Systems Engineering. There are many other examples. So, INCOSE is not neglecting the mil-aero domain.

The transformation of INCOSE was further enhanced by another initiative, now called the Systems Engineering Vision, or SE Vision, for short, under the leadership of INCOSE Fellow Harry Crisp. Another fact that illustrates INCOSE's transformation is

the invitation to other societies, such as the IEEE, the SAE, the AIAA, and others to participate in the creation of the SE Vision.

The figure illustrates a few of the subjects addressed in the SE

The Expanded Scope of INCOSE

Systems of Systems

Example areas of expanded INCOSE activities

Complex Systems

Traditional Systems Engineering (the Scope of the SE Handbook and CSEP)

Enterprise Systems

Systems Architecting

Vision and are the subject of the transformed INCOSE.

First, I assume that everyone knows what is meant by the term "traditional systems engineering" in the figure. This is the so-called "reductionist" view of SE, namely, that a system can be defined by clearly identifying its requirements, flowing those requirements down through the layers of the product breakdown structure, and then verifying those requirements. This is "V" model systems engineering. This is the model described in the INCOSE Handbook and used as the basis for the Certified Systems Engineering Professional (CSEP) exam.

The outer ring of the figure gives some examples of areas of interest to INCOSE that go beyond the traditional SE model. You may remember our recent speaker, Mark Hamill from Raytheon, who urged us to get rid of the "V" model and think about the "white spaces between the processes." He was talking about the outer ring. Some INCOSE members would say that the outer ring is "outside SE." Perhaps, but I am not going to address that question. All I can say is that they are inside INCOSE's field of interest.

One of the outer-ring processes is systems architecting (SA). One of the pioneers of SA was INCOSE founder, Eberhardt Rechtin, now deceased. Dr. Rechtin founded the Systems Architecting and Engineering program at USC and wrote the book *Systems Architecting*. The premise of SA is that some aspects of system definition are not amenable to the traditional SE approach and must employ "heuristics" instead. One of the other experts in this field is Dr. Mark Maier who has given tutorials to the LA chapter on this subject.

Another area in the outer ring is complexity. Complexity is more than complicated. Complexity implies that a system may contain characteristics beyond those contained in the individual components. INCOSE Fellow, Sarah Sheard, who also gave a tutorial to the LA chapter, is an INCOSE leader in this area.

One of the features of complexity is emergence. Emergence is any unexpected or unpredicted characteristic of a system. Emergence is an important consideration in my own area of interest, system resilience, which focuses on the avoidance of catastrophes and recovery from disruptions. System resilience even con-

siders the cultural factors in these events, which is about as far from traditional engineering as you can get.

One outer-ring area of immediate interest is enterprise systems. This will be the theme of the entire INCOSE symposium in San Diego on June 24-28. Another INCOSE Fellow, Jack Ring, is an exponent of the study of enterprise systems. The premise of enterprise systems is that enterprises are fundamentally human-intensive systems that must be treated in special ways. The idea that humans are components of systems has been in SE standards from the beginning, but the idea is only beginning to be treated seriously in recent years.

The final example of an outer-ring topic is systems of systems (SoS). A system of systems is a combination of systems that perform an integrated role. A SoS may have multiple owners, but they must still work together. One type of SoS is called a net-centric system. Net-centric systems are primarily communications systems that have many nodes and, as a SoS, must work together. Some universities, such as USC, offer courses in net-centric systems.

Finally, let's talk about the INCOSE's Public Interest Sector. Under the new INCOSE organization, application areas are divided into sectors. The Public Interest Sector is one that is almost completely devoted to outer-ring activities. The Public Interest Sector seeks solutions associated with natural and human-made disasters, anti-terrorism, the environment, law, education, and any other area of national or international concern.

The Anti-Terrorism International Working Group (ATIWG), for example, under INCOSE Fellows Committee Chair, Bill Mackey, applies the systems approach to solutions to the terrorist threats. There will be a panel on this subject in San Diego in June.

Another working group is the Global Earth Observation System of Systems (GEOSS) WG. This group is part of a world-wide effort to create an integrated system of data gathering and analysis of information on earthquakes, tsunamis, weather, and other subject. The GEOSS WG was founded by INCOSE Fellow James Martin who has also given tutorials to the LA chapter.

The final group within the Public Interest Sector is my own, the Resilient Systems WG (RSWG). The RSWG is a node of the Resilience Engineering Network (www.resilience-engineering.org), an international network of universities and other organizations like INCOSE who are studying the issues of avoiding and surviving catastrophes, discussed above. The RSWG will also be meeting in San Diego.

For information on any of these activities, go to the INCOSE web site (www.incose.org), click on the Technical Activities link, and then view the list of working groups on the right side of the screen. The highlighted working groups are the ones with their own web pages. Whether you are interested in the outer ring or the inner ring, I hope you will find something there to get involved in.

This little essay has attempted to summarize where INCOSE has been and where it is going. I would only add that the view of INCOSE as the voice of the systems approach in all domains, both mil-aero and non-mil-aero, is a good one.

Author: Scott Jackson is an Adjunct Associate Professor of Systems Engineering at USC, an INCOSE Fellow, Assistant Director for the Public Interest Sector, and chair of the Resilient Systems Working Group.

This article represents the personal view of the author and not the views of INCOSE or the University of Southern California.

CSER 2008 Preparations Underway

Dr. Malina Hills, CSER 2008 Conference Management Chair

The sixth annual Conference on Systems Engineering Research 2008 (CSER 08) will be held in Los Angeles on April 4-5, 2008. CSER 08 will be presented by the University of Southern California and the Stevens Institute of Technology, and cosponsored by the Los Angeles Chapter of INCOSE. Dr. George Friedman of USC is serving as the General Chairman, and Dr. Azad Madni of Intelligent Systems Technology, Inc. is the Technical Chairman.

CSER 08 follows the most recent West Coast conference, CSER 06, which attracted approximately 200 attendees representing a broad array of industries, professional societies and major universities dedicated to systems engineering. CSER 08 will follow a similar format with two plenary sessions, five concurrent tracks, and a banquet with keynote speaker. The conference will focus on the contributions of research to the vigor and future growth of the systems engineering discipline. Topics will range from Agile Systems Engineering to Collaborative Engineering. The conference will conclude with an Industry Panel moderated by Dr. Elliot Axelband of The Rand Corporation, which will discuss current challenges in systems engineering practice.

CSER 08 will provide access to cutting edge systems engineering research as well as perspectives from senior industry representatives. INCOSE LA is offering organizations opportunities to sponsor CSER 08 including tiered sponsorship levels and sponsorship of individual events. If your organization is interested in sponsorship, please contact our CSER Corporate Liaison, Mr. Frank Alvidrez, at Frank.Alvidrez@verizon.net. Volunteer opportunities are also available; please contact the author at malina.hills@incose.org. If you are considering attending the conference, then please submit your contact info to the conference registrar at john.boyd@incose.org. As important information is released, you will receive updates including when registration is available".

The Los Angeles Chapter of INCOSE welcomes your participation in CSER 08!

INCOSE-LA Officer Announcement

Anna Warner, the recently elected Secretary of INCOSE-LA, has submitted her resignation due to business reasons. In her place, the INCOSE-LA Board of Directors is pleased to an-nounce the appointment of Lee-Ann Seeling to the position.

Lee-Ann Seeling currently holds the position of Director of Intelligent Transportation Systems for Trichord. Her professional experience as a systems engineer began with Rockwell International's Strategic Systems, in the Nuclear and Directed Energy Effects group working on what most folks just called "Star Wars" during the Reagan years. A transfer into the Advanced Systems Engineering group lead to assignments in system engineering analysis and program management.

In the mid-90's, she took advantage of the opportunity to move to a brand new industry, that of Intelligent Transportation Systems or ITS, where the challenge with applying system engineering techniques and sound program management practices was something new to the Transportation industry. The diversity of assignments encompass systems engineering a 148 mile expansion to metropolitan Detroit's existing freeway operations center with a hybrid communication network, helping develop the National ITS Architecture Team for Federal Highway (FHWA), and creating early deployment plans in Florida and Michigan. As a Program Manager for Iteris (formerly Odetics) in charge of day to day operations of the National ITS Architecture Team, Lee-Ann lead an extensive outreach program to transportation professionals across the nation in developing both regional and project architectures while updating the national architecture to reflect more integration opportunities.

She expanded her breadth of systems experience at the birth of another industry - the mobile Internet - as a Senior Project/ Product Development Engineer for Connexion by Boeing before rejoining the ITS world as Director of the west coast office of Trichord. Lee-Ann has a Bachelor of Science in Electrical Engineering and a Master's in Business Administration from UCLA. Her involvement with INCOSE includes serving as the Exhibits Co-Chair for the 2007 International Symposium and she also plays a key role for the INCOSE-LA newsletter.

INCOSE-LA Membership Corner

2006 James E. Ballinger Engineer of the Year

David Boyd, Chapter Vice President

On February 17, 2007, our own INCOSE Los Angeles Chapter member, Dr. John C. Hsu, received the prestigious 2006 James E. Ballinger Engineer of the Year Award by the OCEC (Orange County Engineering Ckhglihouncil). John was nominated by his manager at The Boeing Company. His nomination was submitted to the OCEC for review and competition with candidates from other organizations. OCEC consists of members from industry and academia. Each year the outstanding engineers, scientists, educators and engineering leaders are awarded in key categories:

- James E. Ballinger Engineer of the Year
- Outstanding Engineer Merit Awards
- Engineering Project Achievement Awards
- Outstanding Service Awards
- Distinguished Engineering Educator Award
- Young Engineer Awards
- Outstanding Student Awards
- OCEC President Award

Engineer of the Year is the highest honor. It is a big win for systems engineers this year. The recipients of Engineering Project Achievement Awards and Young Engineer Awards are all systems engineers.

As part of the celebration for 2007 Annual National Engineers Week, which the INCOSE Los Angeles Chapter has sponsored and participated, an Award Banquet was held on 17 February 2007, at the Wyndham Hotel in Costa Mesa, Orange County.

John Hsu served as our INCOSE Los Angeles Chapter President in 2004. Congratulations John and a job well done!

INCOSE-LA Board of Directors (BoD) Corner

Speaker Meetings and Webcasts

David Boyd, Chapter Vice President

The year is in full swing for our INCOSE Chapter and so is the Chapter's new webcasting capability. As President Jim Manson III shared with our readers in last month's newsletter, the Chapter was working toward the establishment of webcasting of our monthly speaker meetings. This capability could support our members who are not able to participate due to geographic and time constraints.

After several successful pilot attempts under the leadership of 2005 President Dennis Schwarz, the Chapter began to work on the framework of the webcast capability under the leadership of 2006 President Gina Kostelecky-Shankle. The Chapter proudly debuted this webcast capability at the February 27th Speaker Meeting. The webcasts continued with the March 25th and April 24th meetings. Plans are in place to support the webcasts for the upcoming May 15th and June 12th speaker meetings.

After much discussion on whether or not the webcast should be implemented on a "per seat" or "per site" basis, the BoD chose to focus on the establishment of key remote sites by which members could congregate, network while enjoying refreshments, and then view the webcast. The option of key remote sites was based on member feedback and software constraints. Prior surveys indicated that the ability to network was important to members. The remote sites are adhering to the basic speaker meeting format which is comprised of an hour of networking, the presentation and Q/A.

As with most volunteer efforts, progress requires time and it is incremental. Thus far, members and non-members can partici-

pate at each site, but most of the sites are limited to employees only – note that employees from any location can participate at a employee-only site. JPL is currently the only site that can support the participation of non-JPL employees.

The regular remote sites include Boeing (Long Beach), JPL (Pasadena), St. Jude Medical (Sylmar), Lockheed Martin (Palmdale) and NGC (Woodland Hills). The team is working toward identifying sites in Irvine, the Inland Empire, and Ventura Co.

Registration for monthly speaker meetings is available through the Chapter Website (www.incose-la.org). An alternative method is to follow the RSVP instructions that are distributed via the Chapter E-mail Reflector and the monthly newsletter. If you would like to receive the E-mail Reflector, then send a request to our E-Mail Reflector Manager, Susan Ruth, susan.c.ruth@aero.org.

Many people have helped with the deployment of the webcast capability. The BoD would like to extend "a very special thank you" to our Remote Site Leaders and to their organizations: Ben Luong (Boeing), Susan Ruth (Aerospace), David Boyd (SAIC), Chris Delp (JPL), Ross Jones (JPL), Jennifer Jeffries (NGC), Katy Kuey (LMCO), Mike Wallace (NGC), Steve Swanson (SJM), Robert Smith (SJM), Shirley Tseng (Morgan-Franklin), Michelle Knowlden (Boeing), Ameer Alam (Boeing), Paul Cudney (LMCO), Paul Su (Aerospace), Cynthia Sabarudin (Aerospace - IT), Ron Williamson (Aerospace) and Jack Elson (Nat'l Univ).

Any interested members who would like to volunteer at an existing site or who would like to establish a new remote site should contact our Webcast Event Chair, Ben Luong at Benjamin.Q.Luong@boeing.com.

Do you have an idea for a speaker meeting topic that would pique the interest of the Systems Engineering community? Contact our Programs Chair, Jack Elson, at programs@incose-la.org.

Tuesday, May 15 Speaker Meeting

The Development and Uses of Enterprise Architecture in Governmental and Commercial Sector

Beryl Bellman, PhD
Academic Director of the FEAC Institute

National University
Los Angeles, CA   90045

Networking 5:30 pm
Speaker 6:30 pm

Members Free
Guests $10.00

ABSTRACT: I will discuss the practitioner based and emerging

academic discipline of Enterprise Architecture. I describe how Enterprise architectures are 'blueprints' for systematically defining an organization's current (baseline) and desired (target) environments. Enterprise architectures are essential for evolving information systems and developing new systems that optimize their mission value. This is accomplished in logical or business terms (e.g., mission, business functions, information flows, and systems environments) and technical terms (e.g., software, hardware, communications), and includes a sequencing plan for transitioning from the baseline environment to the targeted environment. I discuss types of Enterprise Architectures used in the federal government as mandated by Congress for both civilian agencies. I describe the development of EA since the Zachman Framework and compare and contrast the Federal Enterprise Architecture Framework (FEAF), the FEA Reference Models of the OMB, the Department of Defense Architecture Framework (DoDAF), The Open Group Architecture Framework and various commercial iterations of Zachman. Finally, I will discuss the relationship of SOA to EA and highlight the differences between IT Architecture and Enterprise Architecture

BIOGRAPHY: **Dr. Beryl Bellman Bellman** is the Academic Director of the FEAC Institute and is also a tenured full Professor of Communication Studies at California State University at Los Angeles. He has been deeply involved in teaching, research, publishing, consulting and administrating in the field of Enterprise Architecture and Organizational Communications related topics and Distributed Learning for over thirty-five years. He has held faculty positions at the University of California at San Diego, SUNY Stonybrook and California Institute of the Arts, as was the research director of the Western Behavioral Sciences Institute. In addition to his academic positions he has over twenty years consulting experience in both government and the private sector, and has been a Principal Consultant and Project Manager with two major Enterprise Architecture consulting and tool vendor organizations. He specializes in the fields of Organizational Communications and Culture, Enterprise Architecture and Knowledge Management, and has a major reputation in both the academic and IT sectors in Distributed e-Learning. He has consulted in Enterprise Architecture for the Depts. of Agriculture, Energy, INS and the Executive Office of the President at the White House, as well as was a contract consultant for NCR, AT&T, ASK, RAND and Digital Equipment Corporation - working for both their internal and external customers. He has published several books and over eighty articles. He received his doctorate at the University of California Irvine in 1971

RESERVATIONS: You MUST RSVP to attend, NO EXCEPTIONS. RSVP via website (at the bottom of the event web page) at (www.incose-la.org) or to Paul Su, registration@incose-la.org, 310-336-2602) by Friday, May 11

DIRECTIONS TO NATIONAL UNIVERSITY

From the North: Take 405 South to exit 44. Turn right on La Cienega. Turn left on Pacific Concourse Drive. Go past the construction and the Court House. Turn right in to parking area. Enter through back entrance. Take elevators to third floor.

From the South. Take 405 North to exit 44. Turn left onto El Segundo Blvd. Turn right on La Cienega. Turn left on Pacific Concourse Drive. Go past the construction and the Court House. Turn right in to parking area. Enter through back entrance. Take elevators to third floor.

From the East. Take 105 to exit 2A. Turn right onto Imperial Highway. Turn right onto La Cienega. Turn right onto Pacific Concourse Drive. Go past the construction and the Court House. Turn right in to parking area. Enter through back entrance. Take elevators to third floor.

Parking is free after 5pm. You may have to take a ticket if you come early, but you won't have to pay.

2007 INCOSE International Symposium

"Systems Engineering: Key to Intelligent Enterprises"

Town and Country Resort
San Diego, California, USA

June 24-28, 2007

The seventeenth International Symposium of the International Council on Systems Engineering will be held 24-28 June 2007 at the Town and Country Resort in San Diego, California, USA. The 2007 theme *Systems Engineering: Key to Intelligent Enterprises* highlights the dramatic expansion of opportunities available to those who learn to see and treat enterprises as systems and systems as enterprises.

This symposium will explore the value of systems engineering with respect to:

● Evolving from integrated product and process development to integrated product, process and enterprise development, the key to sustainable enterprises.

● Adding sufficient adaptation and alignment loops to make an enterprise aware of its situation and able to pursue its goals even in environments of unpredictable change.

● Leveraging the unique capabilities of individuals to increase their rate of innovation and co-learning.

● Making systems engineering an intelligent enterprise.

Professionals from other societies and a variety of champions and stakeholders are invited to co-learn with INCOSE members.

For more information, please visit www.incose.org/symp2007/.

INCOSE-LA March 27 Dinner Meeting Report

Ricardo Arteaga's presentation of "Political Factors Impacting the Space Shuttle Columbia Accident" was well received by the members of INCOSE-LA at The Aerospace Corporation. The lessons learned of the space shuttle disasters serve to reemphasize the importance of the human factor and the complex social interactions of the workplace in all that we do.

Membership Renewal Time

Look for your renewal reminder - it was mailed to current members at their newsletter address towards the end of April. The window envelope features the new INCOSE logo return address.

Starting June 1st, lapsed members may also renew online ($105) at the INCOSE website (**www.incose.org**) using your membership number and a major credit card. Senior members 64 years of age by June 1st with five consecutive years prior membership pay only $55. Email Paul Cudney for assistance.

Join INCOSE for $130. This covers the 15-month membership period from March 2007 through May 2008. If you join at a Los Angeles Chapter meeting, or show your new member confirmation message, we will waive the $10 non-member speaker meeting fee. You also receive a reduced member's rate for our Tutorials and Mini-Conferences.

Member Updates: Please verify your postal address, phone numbers, and email addresses on INCOSE Connect. Please update your information on-line. Email Paul Cudney for help.

To be placed on the mailing list, or for other questions or information about INCOSE LA, please see our ""Contact Us " page for our email address and other contact information.

Ricardo Arteaga and his wife Ellie

Jack Elson, Programs/Speaker Chair, presenting Ricardo Arteaga with a token of appreciation.

The Board and Officers wish to welcome the following new members in the Los Angeles Chapter of INCOSE:

Note: The information listed below is pulled 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
Rick Armijo	Sr. Systems Engineer Manager	Raytheon Space and Airborne Systems
Wilfredo Cortez	Systems Engineer Manager R&D	Department of Defense (DoD)
Dr. Robert Davies	Advisory Technical Business Analyst	Tectura Corporation
Frank Irving	Member of Technical Staff	The Aerospace Corporation
Yakov Kaplun	Engineer	The Boeing Company
DeWitt Latimer	PhD Student	University of Southern California
Colette Lohr	Staff Member	Jet Propulsion Laboratory
Grant Matthews	Systems Engineer	Northrop Grumman Corporation
George Ranney	Principal Engineer GN&C	The Boeing Company, IDS
Mark Stelling	Risk Manager	Raytheon

USC

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ENGINEERING

December 21, 2006

Office of the Dean

Yannis C. Yortsos
Z.A. Kaprielian
Chair in Engineering

Chester Dolley Professor

Gina Kostelecky-Shankle
President, Los Angeles Chapter
International Council on Systems Engineers
3661 Alvarado Circle
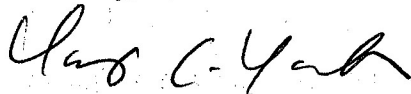Corona, California 92882

Dear Ms. Kostelecky-Shankle:

I am writing to thank you for INCOSE's recent gift of $5,000 to the USC Systems Architecture and Engineering Discretionary Fund in recognition of our successful collaboration in hosting the 2006 Conference on Systems Engineering Research. On behalf of Professor Jim Moore, Chair and the entire Daniel J. Epstein Department of Industrial and Systems Engineering let me say that we were glad that you found this arrangement useful.

As we embark upon our second century of world-class research and instruction it is important for us to gratefully acknowledge the impact of generous gifts such as yours. They make it possible to attract the best faculty, conduct outstanding research, and produce the fine engineers of the future.

Thank you again for your gift to the USC Viterbi School of Engineering, and your confidence in our systems engineering faculty, staff and students. I look forward to possible future collaborations with your group.

Sincerely,

Yannis C. Yortsos
Dean

University of
Southern California
Los Angeles,
California 90089-1450
Tel: 213 740 0617
Fax: 213 740 8493
engrdean@usc.edu
http://viterbi.usc.edu

Return Address:

PO Box 490341
Los Angeles, CA   90049

The International Council on Systems Engineering (INCOSE) is an organization formed for the purpose of advancing the art and science of systems engineering in various areas of the public and private sectors. The Los Angeles Chapter meets several times per year for dinner meetings, and additionally sponsors tutorials and other activities of interest to those in the systems engineering field or related fields. L. A. Chapter Officers are as follows:

2007 Officers and Board

President:	James Manson III	james.a.manson-iii@boeing.com or	president@incose-la.org
Vice-President:	John "David" Boyd	john.boyd@incose.org or	vicepresident@incose-la.org
Past President:	Gina Kostelecky-Shankle	Gina.Kostelecky-Shankle@ngc.com or	pastpresident@incose-la.org
Treasurer:	Marsha Weiskopf	marsha.weiskopf@aero.org or	treasurer@incose-la.org
Secretary:	Lee-Ann Seeling	lsseeling@trichord.com or	secretary@incose-la.org
Membership:	Paul Cudney	paul.cudney@incose.org or	membership@incose-la.org
Programs/Speakers:	Jack Elson	jelson@nu.edu	programs@incose-la.org
Ways and Means:	Sherry Pietras	sherry.l.pietras@boeing.com or	waysandmeans@incose-la.org
Tutorials/Education:	TBD	or	setraining@incose-la.org
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Industrial Relations Chair:	Malina Hills	malina.m.hills@aero.org	
Technical Society Liaison:	Edmund Conrow	info@risk-services.com	
Chapter Recognition Chair:	Dana Pugh	Dana.N.Pugh@boeing.com	
Webcast Event Chair:	Benjamin Luong	Benjamin.Q.Luong@boeing.com	
CSER 2008 Conf. Mgmt Chair:	Malina Hills	malina.m.hills@aero.org	
CSER 2008 Conf. Cont. Chair:	Scott Jackson	jackessone@cox.net	

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