Vol. 7, Issue No. 3   **April 2009**

NEWSLETTER

INCOSE
International Council on Systems Engineering

GOLD CIRCLE AWARD · SILVER CIRCLE AWARD

2002, 2004-07   2003

UPCOMING EVENTS

April Speaker Meeting

**"Systems Engineering Revitalization at
Space and Missile Systems Center"***
Speaker: Douglas L. Loverro
Executive Director, SMC, Air Force Space Command
Los Angeles Air Force Base
April 13, 2009
5:30 p.m. to 8:00 p.m.
The Aerospace Corporation
2350 E. El Segundo Boulevard,El Segundo, California 90245
Reservations Required
see page 2 for more details
*Note: Briefing topic is subject to change.

Professional Networking Event

April 28, 2009
5:00 p.m. to 8:00 p.m.
McCormick & Schmick's Seafood Restaurant
2101 Rosecrans Avenue, El Segundo
see page 4 for more details

Save the date

May Speaker Meeting

"Top Technology Challenges in Human Systems Integration"
Speaker: Elaine M. Thorpe
May 12, 2009
more details next month

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

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Changes To The Newsletter
By Jorg Largent, co-editor

Changes are coming to the Newsletter. The Los Angeles Chapter of INCOSE is caught in the budget crunch like everyone else and your Board of Directors has decided to meet the challenge by making two changes to the Newsletter. One of the benefits of making these changes is to hold down expenses, thereby enabling our chapter to continue hosting speaker meetings and tutorials for our members at a reasonable cost and while maintaining the same high quality presentations and functions that are characteristic of our meetings.

The first change is to the architecture of the Newsletter. We are changing to black and white rather than color and plan on limiting the Newsletter to six pages. This will allow us to use a less-expensive process and lighter paper. Lighter paper and fewer pages will reduce our mailing costs as well.

The second change is to accept advertising. Other professional publications accept advertising of interest to their members, so the concept is not a radical departure from our traditional practice. More information is on the back page and additional details will be published as they become available.

California State Science Fair
California Science Center near USC
Judges Needed—Can You Help?
May 19, 2009 7:00 a.m.
By Jorg Largent, co-editor

Junior high school and senior high school science students from throughout the state compete every year in the California State Science Fair. These youngsters put in a lot of hard work and study to prepare for the competition. Those who qualify travel to Los Angeles for the ultimate judging — all they need now are volunteer judges.

The hard parts: One hard part is preparation that involves dusting off concepts you might not have seen since you were in engineering school and learning some new ones. The other hard part is picking the winners. As a rule, all of the entries are well done and the students are knowledgeable, bright, eager, and enthusiastic, all of which makes choosing amongst them a daunting task.

Time required: a long morning plus the time to study up on the projects.

Compensation: the satisfaction of helping the scientists and engineers of tomorrow. Also breakfast and lunch.

Interested?: contact the fair organizers at the address:
http://cssf.usc.edu/JudgeReg/JudgeReg/

April Speaker Meeting
Systems Engineering Revitalization at Space and Missile Systems Center*
Presented by Mr. Douglas L. Loverro

Particulars

Monday, April 13, 5:30 p.m. to 8:00 p.m.
5:30 p.m.: Registration, Networking
6:20 p.m.:Welcome & Announcements
6:30 p.m. Presentation followed by Q&A

The Aerospace Corporation
2350 E. El Segundo Blvd.
El Segundo, CA 90245
Remote sites to be available

Cost: INCOSE Members: FREE;
Non-members: $10.00
(covers cost of food/beverages at host site)

Abstract: As the effort continues to refine and optimize the way we acquire complex space systems, the government is continuing to promote sound systems engineering practices as a key enabler to more effectively manage program risks and ensure mission success.

Space systems developers face an increasing array of systems engineering and systems engineering management challenges. Current military space systems provide for surveillance of both potential enemies and the meteorological conditions in the operational theater as well as communications and navigation. New systems are either being planned or under development to extend these capabilities. The cost to build and launch satellites drives the need to exploit them to the greatest extent practical by all land, sea, and air forces. As a result, many of the space programs are joint programs to provide capability used in joint operations by all Department of Defense (DoD) forces. The user equipment for such systems can become deployed on a wide range of platforms and therefore rival or exceed the cost of the satellites and launch vehicles.

The systems engineering task of balancing effectiveness and cost can be still more demanding. A primary example is the Global Positioning System (GPS) that provides navigation data via user equipment carried directly by military personnel and on most of the thousands of land, naval, and air platforms operated by the Department of Defense.

This presentation will explore fundamental systems engineering concepts and techniques and the Space and Missiles Systems Center (SMC) Systems Engineering Revitalization (SER) initiatives which have influenced many changes as they apply to space, launch, and ground control systems and the SMC environment. Project officers, systems engineers of all levels of experience, and engineers in other disciplines that must perform Systems Engineering functions will all benefit from this discussion. Additional topics will include recommended systems engineering practices and pitfalls to avoid.

*Please note that the briefing topic is subject to change.

Biography: Mr. Douglas L. Loverro, a member of the Defense Intelligence Senior Executive Service, is the Executive Director, Space and Missile Systems Center, Air Force Space Command, at the Los Angeles Air Force Base. He is the senior civilian executive and principal assistant to the commander. His responsibilities include Air Force research, design, development, and acquisition of space launch, command and control, and satellite systems.

Mr. Loverro began his Air Force career in 1976 after graduating from the U.S. Air Force Academy with a Bachelor of Science degree in chemistry. During his career he served in the full range of assignments within the Air Force's and the Department of Defense's developmental sectors including multiple Air Force laboratories, the Electronic Systems and Space and Missile Systems development centers, the Office of the Secretary of Defense, and the National Reconnaissance Office.

Mr. Loverro is credited with a wide-ranging list of accomplishments including the invention of the supersonic chemical oxygen-iodine laser, now the heart of the Air Force's Airborne Laser; the initiation of the Air Force's Global Broadcast Service; and establishing the foundation for all Global Position System modernization. In November 2002, Mr. Loverro was selected by the Under Secretary of the Air Force to lead the Future Imagery Architecture Program, the nation's largest-ever space system development. He retired from active duty in February 2006 upon selection as a member of the Defense Intelligence Senior Executive Service. He assumed his current role in January 2008.

Reservations: You must RSVP to attend at The Aerospace Corporation. NO EXCEPTIONS. Registration deadlines: April 6 for foreign nationals and April 11 for U.S. citizens/resident aliens. RSVP online at www.incose-la.org or by email to registration@incose-la.org (please include "INCOSE-LA April Mtg" in subject line)

♦ Provide the following information: name, affiliation, citizenship, email address, and phone number
♦ U.S. Citizens bring a picture I.D. (Driver's License)
♦ Resident Aliens bring your Valid Resident Alien I.D. (Green) Card

Directions to The Aerospace Corporation:
http://www.aero.org/corporation/locations/elsegundo.html
Enter through the South Lobby (east of the large building ahead on the left as you enter the gate). We meet in Dining Rooms A&B. **Site contact:** Susan Ruth, phone 310-336-6765, email susan.c.ruth@aero.org

Remote sites:
♦ Antelope Valley/Palmdale held at the Antelope Valley College; no RSVP required
♦ Boeing Anaheim - RSVP one day prior to meeting. Refer to Boeing Southern California LTS internal website or contact Bob Gorby at robert.c.gorby@boeing.com.
♦ Boeing Huntington Beach - RSVP one day prior to meeting. Refer to Boeing Southern California LTS internal website or contact Denise Nelson at denise.j.nelson@boeing.com.

Southern California Software Process Improvement Network Meeting
data gathered by Jorg Largent

On March 4 John O. Clark, a Chief Engineer in the Information Systems Sector of Northrop Grumman made a presentation to the Southern California Software Process Improvement Network (SPIN). Mr. Clark's presentation was entitled "System of Systems Engineering and Family of Systems Engineering From a Standards, V-Model, and Dual-V Model Perspective."

The abstract for Mr. Clark's presentation explained that System of Systems Engineering (SoSE) and Family of Systems Engineering (FoSE) continue to be two of the least well-understood systems engineering disciplines. Knowledge of the systems engineering standards, the V-Model, and particularly the 3-dimensional Dual-V Model, significantly aids this understanding, including the relationship between systems engineering, SoSE, and FoSE. The goals of this presentation were to:

1. define SoS, SoSE, and FoSE from a systems engineering standards perspective;
2. describe the original V-Model and the Dual-V Model;
3. show how to apply the SE standards, V-Model, and Dual-V Model to a system, to SoSs, and to FoSs; and
4. encourage and challenge the participants to understand, select, tailor, and apply the SE standards, V-Model, and Dual-V model to complex SoSs and FoSs.

Individuals may have an understanding of portions of SE, SoSE, and FoSE based on other sources. The SE standards, the V-Model, and the Dual-V Model, provide a more complete and common understanding.

Mr. Clark is located at the Warfare Systems Engineering Department in Virginia Beach, VA. He currently supports the Information Systems Sector Directors of Process Management and Human Resources. He led the development of and is the lead instructor for the INCOSE Certified Systems Engineering Professional (CSEP) course, and is both an INCOSE CSEP and qualified to be a Certification Application Reviewer (CAR). John has over 42 years experience applying systems engineering and software engineering to the acquisition, development, verification, testing, operations, and support of military command, control, communications, computer, intelligence, radar, sonar, electronic warfare, identification, weapon, network, scientific, and information systems. He is an active member of several Northrop Grumman Corporate Systems Engineering Advisory Group (SEAG) Working Groups and Communities of Practice; the Director of Education and Training of the INCOSE Hampton Roads Area Chapter. Mr. Clark is a member of the review team for the INCOSE Systems Engineering Handbook. John received a BS in Electrical Engineering from the Pennsylvania State University and an MS in Electrical Engineering from the State University of New York. He is an adjunct instructor in the MSSE curriculum at Old Dominion University and will be an instructor in SE at Rutgers University in 2009.

Does Systems Engineering Stifle Creativity?
compiled by Jorg Largent

The prejudices of the author: "Classical" systems engineering is unfairly maligned and the pell-mell rush to change the process to meet the needs of future systems lacks the discipline of a root cause analysis, lacks the rigor of a true lessons learned application, and confuses glamorous new tools with improvements to the process. Indeed the term "classical" systems engineering is misunderstood and besmirched by the mimicry of activities that have many of the attributes of systems engineering but which fail nonetheless.

Creativity versus Systems Engineering

The Manhattan Project is an example of a project that involved a high degree of creativity. It is also a source of illustrations of the tension between creativity and the systems engineering process.

Some insight into the challenges faced by the systems engineering profession can be illustrated by starting with a quote attributed to Dr. Richard Feynman: "Science is like sex: sometimes something useful comes out, but that is not the reason we are doing it." Systems engineering is a counterpoint to Dr. Feynman's tongue-in-cheek, but pithy, remark. Systems engineering is the discipline that limits scientific projects to those activities most likely to produce something useful.

It should be noted that, according to the at-least anecdotal history of the Manhattan Project, there was, on that project, one, if not more, illustrative instance of limiting activities to those most likely to produce the desired product. It was Dr. Robert Oppenheimer's lot to confront a challenge, and, thereby, to apply an element of the systems engineering process in that esoteric scientific endeavor. Dr. William Teller, a creative genius in his own right, wanted to develop a hydrogen bomb rather than the atomic bomb. To quote Dr. Teller's obituary in the *New York Times*, "His (Dr. Teller's) hope to design a hydrogen bomb, or "super" [bomb], led to early friction with Dr. Oppenheimer, the laboratory's director, who insisted that they concentrate on the atomic bomb, which, in any case, would be needed to ignite the hydrogen bomb."

It is technically correct that in 1944 the systems engineering process had not yet been codified, but the history above is illustrative of the proper application of at least a portion of the process, codified or not. The systems engineering process is architected to provide that needed concentration of scientific activities, albeit very ethereal, on the task at hand.

It should be noted that the systems engineering process, by virtue of its distillation in the crucible of academia, is of equal virtue in more mundane projects.

And yet the tension remains between the pursuit of science and creativity on the one hand and the need for rigor on the other, and rightfully so.

During the panel discussion at the INCOSE-LA mini-

conference on February 7, 2009, a reference was made to a quote attributed to Picasso with a further comment regarding what our education system is doing to creativity.

Some surfing to find the Picasso quote led to an organization called "TED." "TED" stands for "Technology, Entertainment, Design" and the organization is owned by the Sapling Foundation. A TED website has a speech by Sir Ken Robinson. Sir Robinson paraphrased Picasso ("Every child is an artist. The problem is how to remain an artist once he grows up.") and elaborated: "We are educating people out of their creative capacities." *February 2006 Talent Development Resources conference in Monterrey, California.*

(See web site for a video: http://www.ted.com/index.php/talks/ken_robinson_says_schools_kill_creativity.html) .

Sir Robinson's speech deserves some remark to lend utility and value to the points made regarding creativity. The speech is delightful and presents a challenging perspective as to the adverse effects of our "modern" education system on creativity, noting that "creative" classes such as dance are subordinated to classes in mathematics and languages.

There is, of course, some controversy to be had regarding the adverse effects of our "modern" education system on mathematics and language skills as well. Be all that as it may, the entire speech and the mission of the Sapling Foundation are fair game for criticism for, among other things, failing to create a logical sequence of associations from data to conclusion. Regardless, Sir Robinson does making some compelling points with respect to creativity and, by inference, the structure and hierarchy (dare the term "architecture" be used?) of education.

Interestingly enough, Sir Robinson makes a cheeky remark about "senior academics" in a discothèque, "dancing off the beat." It is the beat that provides discipline for the activity of dancing, if for no other reason than to keep from stepping upon the feet of one's partner.

In the same vein, poetry is oft' cited as a product that demonstrates creativity. Without the discipline of the rules of the "language arts," the most creative poem in the word is reduced to meaningless yammering, or, at best, to an "eye of the beholder" argument (consider some of the "beat poetry" of the 1950's in need of psychedelic chemical assistance).

There is no such thing as empirically pure creativity. All creative pursuits (discounting the argument that there is no such thing as an original thought) contribute to the human enterprise only if they conform to the discipline and rigor of the medium. Systems engineering is the discipline and rigor to successfully and deliberately convert an idea into a useful product that meets the needs of a customer.

The history of creativity is independent of so-called modern education, from Euclidian geometry to nano-technology. The most notable changes in the arts have been wrought from technology. Petroglyphs required a certain technology, and changes in technology facilitated the paintings of the masters and now facilitate the computer-generated images of virtual reality. Music, too, has changed courtesy of changes in technology: the differences between the music in Solomon's temple and the music of Mozart, John Newton, Hank Williams,

Johnny Cash, the Beatles and Ashwin Batish are summed up in technology, not the waxing and waning of creativity at the mercy of industrialism or other such bugaboos.

The history of change shows us that the time for a new system to come into existence is becoming dizzyingly shorter and shorter. Many of the products that will exit in fifty years, and the jobs to produce them, do not exist today. Our colleagues who live in the ether and listen to the music of the spheres may well invent a body force generator that can transport us to and point Φ, Θ, r and t in the time-space continuum given that we can define the origin and assuming, in the definition of the continuum, that t is the correct independent variable.

Creativity is not threatened by any of the technological changes the have occurred nor is it threatened by the tsunami of change that seems to be rushing at us. The durability and vitality of creativity can be documented by data available in Scriptures, the explanations given to traffic officers writing a ticket, and in the explanations of cost and schedule overruns in project reviews.

So given that creativity is alive and well, what is the issue? Comments and counterpoint are welcome.

to be continued...

First Quarterly
Professional Networking Event
Tuesday, April 28

INCOSE-LA, will be holding its first quarterly Professional Networking Event on Tuesday, April 28, 2009 from 5:00 to 8:00 pm at the McCormick & Schmick's Seafood Restaurant located at 2101 Rosecrans Avenue in El Segundo.

The purpose of the event is to not only welcome new members but to also create opportunities for members to participate, contribute, give feedback, and encourage different ideas. Chapter President Eric Belle will address the attendees with a welcoming message.

The chapter will host light appetizers, however alcohol will not be included. Your support and attendance at this event will be greatly appreciated.

RSVP online at www.incose-la.org or email registration@incose-la.org (please include "INCOSE-LA April Networking Event" in subject line) or email Nehal_P1_Patel@raytheon.com.

NOT A MEMBER? JOIN INCOSE!
Learn more about becoming a member by clicking on:
http://www.incose.org/membership/valueofmembership.aspx

Proposed May Speaker Meeting
Top Technology Challenges in Human Systems Integration
Presented by Elaine M. Thorpe

Details of the May 12 speaker meeting are in work. More information will provided in the next issue of the Newsletter.

| 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
Meredithe Brown	President	Meredithe Brown Consulting
Vijender Mididaddi	Managing Principal	Intueor Consulting, Inc.
DeAnna Regalbuto	Engineer	Northrop Grumman
Douglas Cummings	Systems Engineering Manager	L-3 Communications
Terry Rector	Project Manager	Northrop Grumman
Richard Messenger	Systems Engineer	Northrop Grumman
Ian Telfer	Principal Communications Engineer	Cinergy Innovations, Inc.
Donald Adams	Senior Software Architect	Northrop Grumman

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 skill. In addition, the chapter sponsors tutorials, conferences and other activities of interest to those in the systems engineering filed or related fields. Chapter officers are as follows:

2009 Board of Directors and Appointed Positions

Elected Officers

President:	Eric Belle	eric_c_belle@raytheon.com	or	president@incose-la.org
Vice-President:	Rosalind Lewis	rosalind.lewis@aero.org	or	vicepresident@incose-la.org
Past President:	John David Boyd	john.boyd@incose.org	or	pastpresident@incose-la.com
Secretary:	Beth O'Donnell	elizabeth.l.o'donnell@boeing.com	or	secretary@incose-la.org
Treasurer:	Marsha Weiskopf	Marsha.V.Weiskopf@aero.com	or	treasurer@incose-la.org

Elected-At-Large Directors

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:	Dana Pugh	dana.pugh@incose.org	or	waysandmeans@incose-la.org
Communications:	Edie Ung	edie@raytheon.com	or	communications@incose-la.org

Appointed Positions

Newsletter Co-editors:	Edie Ung, Jorg Largent	ma1teez@yahoo.com	or	jorg.largent@incose.com
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Technical Society Liaison:	Edmund Conrow	ehcrisk@yahoo.com		
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Website Content Manager:	Lee-Ann Seeling	LSSeeling@aol.com		
Website Technical Manager:	Benjamin Luong	Benjamin.Q.Luong@boeing.com		
2009 Mini-conference Chairman:	Shah Selbe	shah.selbe@boeing.com		
2009 Mini-conference Technical Program Chair	Dick Emerson	remerson9@gmail.com		
Venue Chair	Shah Shelbe	shah.selbe@boeing.com		
Representative to San Fernando Valley Engineers' Council	Stephen Guine	Stephen.Guine@ngc.com		

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

Return Address:

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

Forwarding Address Requested