



# NEWSLETTER



2002, 2004-10



2003



**2008 President's Award for Most Outstanding Chapter**



## UPCOMING EVENTS

### September Strategic Planning Meeting

When: Saturday, September 10, 2011

Where: Booz Allen Hamilton, LAX Office

*See page 1 for more details*

### September Speaker Meeting

Speaker: Mr. Frank Lillehagen, CEO of Advanced Knowledge Modeling AS and at Commitment AS

When: Thursday, September 22, 2011

**NOTE: This is on a Thursday!**

Subject: Active Knowledge Modeling

Where: Booz Allen Hamilton, LAX Office

*See page 2 for more details*

## SAVE THE DATE

Due Date for Draft Papers for the

International Symposium

November 8, 2011

### Conference on Systems Engineering Research 2012

When: March 19-22, 2012

Where: St. Louis, MO

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## Chapter Strategic Planning Meeting

The Board of Directors of INCOSE-LA will be conducting a quarterly strategic planning meeting on September 10, 2011 and would like to invite the members of the Chapter to attend. The meeting will be an opportunity to learn about the plans being considered and implemented by the Board, as well as to provide the Board with some highly-valued inputs. The Board wants the INCOSE-LA Chapter to be responsive to, and of value to, the members of the Chapter, and inputs from the members are keenly appreciated. This is also an excellent opportunity to hear about the variety of volunteer positions available in the chapter, for members who may have an interest in volunteering for an event, a chapter office, or chapter products or processes.

The agenda is in its final stages of development. Topics to be addressed currently include Student Division plans, planning for the 2012 Mini-Conference, and review of potential topics and speakers for future speaker meetings and tutorials. Members who have a topic that they would like to be discussed in the meeting should send the topic to the Chapter President, Beth O'Donnell, at [elizabeth.odonnell@incose.org](mailto:elizabeth.odonnell@incose.org).

Lunch and snacks will be provided. The meeting will be held at the Booz Allan Hamilton facility near LAX on Saturday, September 10, 2011 from 10:00 a.m. to 3:00 p.m.

**R.S.V.P.:** Please R.S.V.P. by Thursday, September 8, 2011.

R.S.V.P. online at:

<http://events.constantcontact.com/register/event?llr=14ihvgeab&oeidk=a07e4on78jsebd5451e>.

**WHERE:** The Booz Allen Hamilton – LAX office, located at 5220 Pacific Concourse Drive. The meeting will be in Building 5220 on the second floor, Suite 200.

#### HOW TO GET THERE:

From the San Diego (405) Freeway traveling SOUTH:

1. Take Exit 46 toward Century Blvd West/LAX Airport.
2. Turn left (South) onto South La Cienega Boulevard.
3. Turn right onto Pacific Concourse Drive.
4. Follow the road until you reach the second stop sign (immediately past the court house parking garage on the right) and turn right. At gate on the far right, press the green button to receive a parking ticket (Admin staff will validate parking).
5. After passing the gate, turn left into the visitor parking lot. Walk past the water fountain, across the rotunda to Building 5220.

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Websites for systems engineering knowledge and activities:

<http://www.incose-la.org/>

<http://www.incose.org/>

# September Speaker Meeting

## Active Knowledge Architecture — What SE Needs to Know

**Presenter:** Mr. Frank Lillehagen, CEO of Advanced Knowledge Modeling AS and at Commitment AS

### PARTICULARS

**When:** Thursday, September 22, 2011, 5:30 — 8:00 p.m.

**Where:** Booz Allen Hamilton — LAX Office  
Building 5220 — 2nd. Floor, Suit 200  
5220 Pacific Concourse Drive

*Remote sites will be available at the Control Point Corporation in Santa Barbara, JPL in Pasadena, the Boeing Company in Huntington Beach, and in the Antelope Valley*

**Cost:** Members-FREE; Non-members-\$10.00

### Meeting Agenda:

5:30 - 6:15 p.m. Registration, networking, refreshments  
6:15 - 6:30 p.m. Welcome and announcements  
6:30 - 7:45 p.m. Presentation followed by questions and answers

Refreshments will be provided at the host site. (Contact remote site contacts for more information regarding parking, refreshments, and other administrivia at their site locations.)

**ABSTRACT:** Systems Engineering does not exploit holistic systems thinking and multiple enterprise perspectives, such as collaborative product design and customer delivery. System design principles and design concepts and methods are not shared and co-engineered. Practical operational contexts cannot be analyzed or made available to assist development, conduct tests and validate solutions. Present systems are not designed to be able to collect operational data and adapt to changing situations. The design concepts, adaptations, trade-offs and work-patterns are not captured and made available to users or people responsible for operational modifications and life-cycle support. The practical workspaces used to calculate, align, and determine data and parameter values cannot be passed on to maintenance and repair engineers.

Systems Engineering needs co-design of functions, modules, and modularized software and hardware components. Current approaches are too rigid, dominated by hardwired composition and configuration, and by standardized interfaces built from formal rules and classified objects. To make architectures emergent, active and more valuable to all stakeholders we must involve stakeholder users in the design of

enterprise architecture and capture their workspaces so that they can be reused for changes, life-cycle modifications or complete redesigns.

Globalization is driving the need for companies to become active partners in multiple collaborative networked enterprises. Each partner performs specific roles and responsibilities in each enterprise. This poses challenging demands on how industrial computing must be developed, adapted and applied.

We believe these challenges demand a new approach to systems design, engineering and management, and to how data, information and knowledge is collected, presented and managed. Active Knowledge Management (AKM) has, over the last 15 years, made a number of innovative discoveries and implementations that validate the benefits of developing an Active Knowledge Architecture. In this approach, adaptive models created and managed by users are replacing traditional framework approaches, structures and application systems. Models and solution architectures are designed and modified with changing customer needs, situations and conditions, and as partners innovate new approaches, methods and solution concepts.

The presentation will give a relevant practical example, cover background, practical use-cases, approaches and methodologies, key concepts, and benefits and challenges.



### BIOGRAPHY:

Frank Lillehagen is senior advisor at Commitment AS [“AS” stands for “Aksjeselskap,” which is the Norwegian term for a stock-based company]. Up to August 2006 he was director of R&B with Troux Technologies AS, and prior to that with Computas Technology AS, Norway.

Frank received his B.Sc. in Electronics at The University of Strathclyde, UK, and a M.Sc. in Computer Graphics at The University of Utah. He was head of CAD/CAM at SINTEF, Oslo. He is co-founder of EUROGRAPHICS and KMCI. From 1982 to 1985 he was technology ambassador for the United Nations. He co-founded ICAN AS, 1978, METIS AS, 1985, and AKM AS, 2006. Frank has contributed to many commercially successful products, from ship design to mobile phones, and initiated many IMS, EU, and industrial innovation projects.

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### 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](http://www.incose.org)) to update your information.

Name	Title	Company
Jacqueline Newton	Systems Engineer Technical Advisor	Scitor Corporation
Symour Ferdman	Sr. Systems Engineer	Northrop Grumman
Shahram Rahmani		

## INCOSE-LA Chapter NEWSLETTER

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(Speaker Meeting continued from page 2)

In 1991 METIS received the Innovative Product of the Year Award from the Norwegian Research Foundation. He has published over 80 papers, and co-authored two books. Frank reported on the foundations of Active Knowledge Modeling (AKM) as early as 1993, and the book was published in 2006.

Frank has leading competence in Enterprise Modeling. Enterprise Architecture, Product and Process Design, Knowledge Management, and Active Knowledge Architecture.

**R.S.V.P. by Friday, September 16:**

**ALL PARTICIPANTS:** Please register online at <http://www.incose-la.org> (this is important so as to help facilitate implementing the meeting). You will be asked to provide your full name, title, company, phone number, and email address. State whether you are a US Citizen, resident alien, or foreign national, and members must include your INCOSE member number. Please indicate the site at which you will be attending. Site dependent requirements, including registration dates, are listed below.

**Booz Allen Hamilton (the host site):** Please bring your picture identification (driver's license, passport or green card) to the meeting.

**Planned Remote Webcast Sites:**

**Antelope Valley/Palmdale:** Held on the campus of the Antelope Valley College in the "BE" (Business Education) building, room 207. Open to all; no R.S.V.P. deadline. POC: Mike Wallace, phone: 661-540-0290, email: [m.wallace@ngc.com](mailto:m.wallace@ngc.com).

**Huntington Beach:** The Boeing Company, 14900 Bolsa Chica Road, Building 17, Conference Room 109. Open to U.S. citizens and resident aliens. *We regret that foreign nationals will not be able to attend at the Boeing Company site.* Visitors will need to bring a government-issued photo identification (driver's license, passport or green card) and check in with Security in the lobby of Building 17 **not later than 6:00 p.m.** POC: Beth O'Donnell, phone: 714-372-2543, email: [elizabeth.l.o'donnell@boeing.com](mailto:elizabeth.l.o'donnell@boeing.com). **Refreshments will be provided at this site.**

**Santa Barbara:** Control Point Corporation, 110 Castilian, Suite 200, Goleta CA. Please register by Friday, August 5, 2011. POC: Scott Grant, [scott.grant@control-pt.com](mailto:scott.grant@control-pt.com). 805-882-1884, x108 for directions or more information.

**Pasadena, JPL** – Please register online by Thursday, August 4, 2011. Contact Chelsea Dutenhoffer at [Chelsea.dutenhoffer@jpl.nasa.gov](mailto:Chelsea.dutenhoffer@jpl.nasa.gov) for specific location and directions.

**HOW TO GET THERE:**

From the San Diego (405) Freeway traveling SOUTH:

1. Take Exit 46 toward Century Blvd West/LAX Airport.
2. Turn left (South) onto South La Cienega Boulevard.
3. Turn right onto Pacific Concourse Drive.
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## REPORT FROM THE AUGUST SPEAKER MEETING

By Mark Stelling

Mr. Stephen Welby, Deputy Assistant Secretary of Defense for Systems Engineering (DASD(SE)), was the speaker at the August 9, 2011 speaker meeting. His presentation was titled "DoD Challenges and Opportunities for Systems Engineering."

Borrowing from a Dr. Edward Teller quote in the June, 2011, edition of the INCOSE-LA *Newsletter*, my goal in reporting on Mr. Stephen Welby's presentation is to "find the simplicity and coherence in the billowing mass of material". Mr. Welby's topic, packaged in 48 charts, involved a vast amount of data and information driven in large part by new legislation (Weapons Systems Acquisition Reform Act (WARSA) of 2009) that he presented in about 45 minutes with questions and answers at the end. Below are some key takeaways that should whet the reader's appetite to review Mr. Welby's presentation in its entirety on the INCOSE LA web site ([http://www.incose-la.org/documents/events/speakers/2011\\_08\\_09\\_INCOSE-LA\\_Chapter-Welby-Final-2.pdf](http://www.incose-la.org/documents/events/speakers/2011_08_09_INCOSE-LA_Chapter-Welby-Final-2.pdf)).

Mr. Welby understood from the outset he needed to put some perspective to his talk. He emphasized it's easy to lose sight of the size and scale of the Department of Defense (DoD), noting that over 3.2 million active duty, guard and reserve and civilian personnel work in the DoD.

The DoD Engineering Enterprise alone includes 93,000 uniform and civilian engineers; and 38,000 Acquisition Corps Certified Systems Engineers (Systems Planning, Research, Development, and Engineering (SPRDE)), making it the world's largest engineering organization.

Give the size and scope of the DoD engineering enterprise, one can understand the reasoning behind the WSARA and the establishment of DASD(SE) as the principal systems engineering advisor to the Secretary of Defense and the Under Secretary of Defense for Acquisition, Technology and Logistics. The law requires Congressional reporting on systems engineering capabilities and major defense acquisition programs achievement of measurable performance criteria. The law is explicit recognition by Congress and the DoD that strong systems engineering is critical to program success.

The DASD(SE) mission is to develop and grow a robust systems engineering capability paying particular attention to policy, people and practice. As such, DASD(SE) plays an integral role implementing a new DoD directive for "Better Buying Power" seeking greater efficiency and productivity in defense spending in five areas:

1. Target affordability and control costs
2. Incentivize productivity and innovation in industry
3. Promote real competition
4. Improve tradecraft in service acquisition
5. Reduce non-productive processes and bureaucracy.

The "Better Buying Power Guidance Roadmap," outlines the objectives in each of the five areas.

Mr. Welby also addressed a number of other selected topics

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## The Next International Symposium

The next International Symposium is not until July 9, 2012, but it is never too early to start planning. Start writing now to have your submission ready in time. Share your latest research or project experience with the larger systems engineering community. The call for papers was issued during IS 2011, but as usual, any theme is accepted. The deadline, November 8, 2011, will not be extended.

Topics of interest for papers include, but are not limited to, general interest topics, systems engineering in the commercial world, systems engineering in government and defense, systems engineering maturity, new frontiers and technologies, engineering future infrastructure, enhancing the systems engineering brand, and applicable methods and processes.

Consider volunteering as a reviewer through your favorite working group. More information about submissions and a call for reviewers will be sent out in October.

**Deadline for draft papers is  
November 8, 2011**

## Future Speaker Meetings

INCOSE-LA members can look forward to a continuing series of speaker meetings addressing issues of interest to systems engineers — topics that are timely and relative. Plans are notional and being worked assiduously behind the scenes. Currently the team is considering a panel discussion of the Certified Systems Engineering Professional for October. The team is working out specifics regarding presenter(s), format, and topic specifics. For November the team is investigating a possible joint meeting with Software and Systems Process Improvement Network and for December the team is considering a Systems and Software mini-symposium. These data are highly notional at press time for this edition, but they illustrate the tenor of the work in progress toward the Chapter's goal of being of maximum value to the systems engineering community in the Los Angeles area.

*(Strategic Planning Meeting, continued from page 1)*

From the San Diego (405) Freeway traveling NORTH:

1. Take the El Segundo Boulevard exit, Exit 44 toward Hawthorne Blvd.
2. Turn left onto West El Segundo Boulevard.
3. Turn right (North) on South La Cienega Boulevard.
4. Proceed on La Cienega until the third stoplight.
5. Turn left onto Pacific Concourse Drive.
6. Follow the road until you reach the second stop sign (immediately past court house parking garage on the right) and turn right. At gate on the far right, press the green button to receive a parking ticket (Admin staff will validate parking).
7. After passing the gate, turn left into the visitor parking lot. Walk past the water fountain, across the rotunda to Building 5220.

## The 2012 Mini-Conference

*By Jorg Largent with inputs from Mark Gallo*

The Los Angeles Chapter has started work on the next mini-conference: the 2012 Mini-Conference. Mike Wallace of the Northrop Grumman Corporation has taken on the role of chairman for the mini-conference. Mike is forming a team and he and the Board of Directors are formulating a theme for the conference.

INCOSE-LA member Mark Gallo has suggested some topics and helped start the thinking as to what the conference could be. Wrote Mark:

Below are some topic suggestions inspired by Mr. Welby's talk on the "DoD Engineering Enterprise" (at the August 2011, speaker meeting). These topics are aligned with current DoD interests and might make the Mini-Con more relevant.

**Early Systems Engineering (ESE).** Required to improve acquisition quality at early milestones (pre MS B). Potential subtopics include development planning (DP); early concept engineering techniques; and systems analysis methods & tools for a wide range of system architecture & design drivers.

**Trusted Systems Strategy.** (inspired by Program Protection Plan). Address full synchronization [slide 32] of the acquisition and security policies at major program milestones [slide 33]. Includes methods & tools for more robust designs using untrusted components.

**Rapid AI&T.** (inspired by Systems 2020). Address engineering tools, technologies and methods for the "rapid conceptualization, design and manufacture of highly resilient, adaptable systems" [slide 46]. Open up the trade space and to facilitate the involvement of non-technical stakeholders [slide 45]. Potential subtopics include platform-based engineering, plus the associated enabling tools and practices (model-based engineering). For Rapid AI&T, consider an "open-source" framework, featuring proven "build-test-build" processes.

**Risk Management** (inspired by ERS). Addresses risk management [slide 43] and strategies to cope with change and uncertainty [slide 44]. Emphasis is on agile (flexible) system design and rapid fielding. Goal is flexible SE processes and methods to ensure adequate and timely SE rigor. Consider capturing agility or responsiveness as design attributes for use in developing system trades.

The discussion above reflects the concept development that has started. These efforts are in keeping a history of mini-conferences dating back to 2005, and, once again, the Board of Directors is looking forward to the a team of Chapter members creating, organizing, and producing another high quality conference drawn from the wide pool of systems engineering talent in the Los Angeles area. Members who have thoughts on topical areas or who would like to contribute to the creation and production of another mini-conference should contact Mike at [m.wallace@ngc.com](mailto:m.wallace@ngc.com).

### **For up-to-the-minute event details:**

- ◆ Check future editions of the Newsletter
- ◆ Watch your email for the Reflector
- ◆ Visit the INCOSE-LA website: <http://www.incose-la.org>

(Speaker Meeting, continued from page 3)

5. After passing the gate, turn left into the visitor parking lot. Walk past the water fountain, across the rotunda to Building 5220.

From the San Diego (405) Freeway traveling NORTH:

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4. Proceed on La Cienega until the third stoplight.
5. Turn left onto Pacific Concourse Drive.
6. Follow the road until you reach the second stop sign (immediately past court house parking garage on the right) and turn right.

7. After passing the gate, turn left into the visitor parking lot. Walk past the water fountain, across the rotunda to Building 5220. Coming from LAX (Los Angeles International Airport)

From either Aviation or Airport streets:

1. Go south until you get to Century Blvd.
2. Turn left (east) on Century Blvd.
3. Turn right (south) on La Cienega Blvd ~ this is right before you get to the 405 freeway, if you pass under the freeway, you went too far.
4. Take La Cienega through several stop lights; eventually you will pass Imperial Blvd and a large building on your right with a glass side.
6. The next light (where you can turn right) is Pacific Concourse Drive.
7. Turn right, follow the road until you reach the second stop sign (immediately past court house parking garage on the right) and turn right. At gate on the far right, press the green button to receive a parking ticket (Admin staff will validate parking).
8. After passing the gate, turn left into the visitor parking lot. Walk past the water fountain, across the rotunda to Building 5220.

From Sepulveda Blvd exit at LAX:

1. Drive south on Sepulveda Blvd, leaving LAX until Imperial (short distance).
2. Turn left (east) onto Imperial and continue straight until reaching Aviation.
3. Turn right onto La Cienega.
4. Turn right at the second light onto Pacific Concourse Drive.
5. Follow the road until you reach the second stop sign (immediately past court house parking garage on the right) and turn right. At gate on the far right, press the green button to receive a parking ticket (Admin staff will validate parking).
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4 out of 3 people have trouble with fractions.  
There are three kinds of people, those who are good at math and those who aren't.  
When it come to binary, there are 10 groups of people; those who understand and those who don't.

August Speaker Meeting (Continued from page 3)  
including:

- Acquisition process engagement
- Workforce development
- Systems engineering plans
- Program protection
- Reliability
- Development planning, and
- Engineering research and development.

Discussing Workforce Development, Mr. Welby showed an Age Demographic chart for SPRDE-SE/PSE that looked like a recent stock market chart showing significant volatility with steep peaks and deep valleys. The chart highlights the talent gap in systems engineering that will require young engineers to step-up sooner with “scar tissue” built up over time. Mr. Welby emphasized the need to create the opportunity to grow future “Engineering Heroes” to ensure future US Defense capabilities dependent on a capable US engineering workforce in and out of government.

Regarding System Engineering Plans (SEP), Mr. Welby noted the SEP serves as a program’s living technical planning and management document. Given the importance of the SEP, DASD(SE) is pursuing a SEP streamlining methodology with “System Engineering Tables” serving as the work products.

Finally, Mr. Welby talked about Engineered Resilient Systems (ERS) addressing the problem statement that “Change happens – we need to design for it.” Among other things he offered three lines of defense against change and uncertainty. He concluded his talk with a brief discussion of a Systems 2020 focus– “make sure we build the right things, and that they’re resilient.”

The question and answer session at the end provoked some insightful questions. In response to a question about certification (INCOSE vs. DoD), Mr. Welby noted that he is not a big fan of certification because it leads to a focus on “credentialism”. A focus on Credentialism apparently becomes an end in of itself, not the means to an end. Concerning a question about emerging themes from Program Assessment Reviews, he said that program “staffing” was the highest correlated factor, but he cautioned “what is the right level?” Two other emerging themes are: adequacy of reviews; and adequacy of technical interfaces.

The slides that Mr. Welby used in his presentation are available, as noted, on the INCOSE-LA website, for those who would be interested in a deeper appreciation of this comprehensive and educational presentation.

## YEAR-END HOLIDAY PARTY

Save a space on your calendar in December for our annual holiday party. This traditional event has always been a crowd pleaser and has been thoroughly enjoyed by all who could attend. Look to future editions of the Newsletter and for Reflector notices for more details.

# INCOSE-LA Chapter NEWSLETTER

Vol. 9: Issue No. 9 September 2011

**Return Address:**

**PO Box 10969  
Westminster, CA 92685-0969**



**Forwarding Address Requested**

The International Council on Systems Engineering (INCOSE) is an organization formed to advance the art and science of systems engineering in both the public and private sectors. INCOSE's mission is to advance the state of the art and practice of systems engineering in industry, academia, and government by promoting interdisciplinary, scalable approaches that produce technologically appropriate solutions that meet societal needs.

The Los Angeles Chapter meets several times per year for speaker meetings, and, in addition, sponsors tutorials, mini-conferences and other activities of interest to those in the systems engineering field or related fields.

**2011 Board of Directors**

<b>Elected Officers</b>			<b>Elected At-large Directors</b>		
President	Beth O'Donnell	elizabeth.l.o'donnell@boeing.com	Membership	Paul Cudney	paul.cudney@incose.org
Vice-President	John Silvas	silvas_john@bah.com	Programs	Michael Kim	michael.kim@hauapl.edu
Past President	Rosalind Lewis	Rosalind.lewis@aero.org	Systems Engineering Education	Shirley Tseng	shirleytseng@earthlink.com
Secretary	Alan Kirschbaum	aik@roadrunner.com	Ways and Means	Michael Marr	michael.c.marr@boeing.com
Treasurer	Harvey Soldan	Harvey.soldan@jpl.nasa.gov	Communications	Edie Ung	ma1teez@yahoo.com
<b>Appointed Positions</b>					
Newsletter Editor	Jorg Largent	largent_atpmd@msn.com	Reflector Manager	Susan Ruth	susan.c.ruth@aero.org
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2012 Mini-Conference Chair	Michael Wallace	m.wallace@ngc.com	Lead Site Coordinator	Anna Warner	aniawarner@gmail.com
Representative to the San Fernando Valley Engineer's Council		Stephen Guine			Stephen.Guine@ngc.com