



Modern Systems Engineering – A Driving Force for Industrial Competitiveness

What effects on our engineering practices can we expect from the rapid changes in industry? Global industrial networks with distributed operations and worldwide competence centres require different engineering practices when compared to the past. Their requirements call for virtual presence, real-time communication means, and extensive database and tools compatibilities. Global markets and competitive postures will continue to dominate the engineering environments..

What are the needs, requirements, constraints and opportunities for future systems - and software engineers? International environments foster teamwork, multicultural communication and flexible means of R&D, production and distribution of goods. Future engineers need to possess an ever growing set of capabilities beyond traditional engineering skills. Soft skills are in strong demand and determine industrial hiring priorities and training agendas. System engineers, but also software engineers, need to possess more and more of such soft skills to succeed in their job environments.

This talk will highlight developments in the application of modern systems engineering practices as drivers for industrial competitiveness. Systems engineering, once a domain of senior technical generalists, with an ability to bridge several specialist fields to create good "technical" solutions, is developing into a central node within the industrial "skills web". Modern systems engineering has to assimilate market, business and after sales servicing aspects into winning technical concepts with a measurable risks implementation plan. This process requires the integration of soft parameters and hard engineering facts, a demand for which engineers generally are not trained for. Competitive concepts are not measured on the basis of their technical merits, however great, but on how they fare in the market, whether they yield a good return on investment and profitability, and whether they stand up to

operational, maintenance and after sales servicing realities. The environment for systems engineering has thus drastically changed. Competitive advances are the force behind and the challenge for modern systems engineering practices. Some examples, notably from the aerospace and automobile industries, as well as some trends from recent INCOSE studies aimed at identifying future "Engineering Perspectives and Technical Visions" for systems engineering, should exemplify these points throughout this presentation.

Professor Stoewer holds degrees in technical physics, economics and systems management. From 1962 he worked at Bölkow GmbH (today Daimler-Chrysler Aerospace/Astrium) and from 1967 at McDonnell Douglas Astronautics Company/Boeing in the fields of launchers and manned space systems. In 1973 he worked at the ESTEC, as Programme Manager Spacelab; in 1978 he founded ESA's Systems Engineering and Programmatic Department. In 1990 he became Managing Director in the German Space Agency DARA GmbH, then in 1995, after retiring from DARA, he became president of Space Associates GmbH, a consultancy on space matters.

He is a member of a number of international scientific and industrial boards and President-elect of INCOSE. He has authored numerous scientific/technical publications and holds various national and international awards.



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INCOSE Home Page: www.incose.org

Next meeting on Tuesday, Oct. 14

Topic to be announced

<i>Tues, Sep 8:</i>	5:30 p.m. Social Half-Hour and Buffet Dinner 6:00-7:00 Talk followed by Questions. Networking and sidebars to 8 p.m.
<i>Place:</i>	Lockheed Martin Missiles & Space Operations , Sunnyvale, Bldg 157 Conference Room. Third & Mary (take the Mathilda exit of Highway 101) {Map on back. North on Mathilda, past the Blue Cube, and left on Third Ave. to parking lot at corner of Mary Ave. Parking is across the street from Building 157.}
<i>Donation:</i>	Attendance at this meeting is FREE for members; \$4 for non-members
<i>Registration:</i>	RSVP online at http://www.incose.org/sfbac/rsvp.html Lew Lee (Northrop Grumman), 408-531-2811. <i>E-mail</i> lew.lee@pacbell.net

Please Pre-Register to Facilitate Check-In

Note: To expedite entry, please bring a photo ID (Driver's License, etc.).

To expedite entry see next page.

US Citizens (consultants or representatives of foreign governments, see below for additional instructions): Present a photo ID (Driver's License, etc.) at check-in.

Permanent Residents: Present a photo ID (Driver's License, etc.) and I-551 ("Green Card") at check-in.

Non-US Citizens, Representatives and Consultants of Foreign Governments: Submit a Foreign National Visitor form in advance, 12 working days (minimum) prior to the meeting. Contact one of the following:

Tom Jackson, 408-742-2013, t.l.jackson@lmco.com or

Dorothy McKinney, 408-742-8790, dorothy.mckinney@lmco.com

DIRECTIONS:

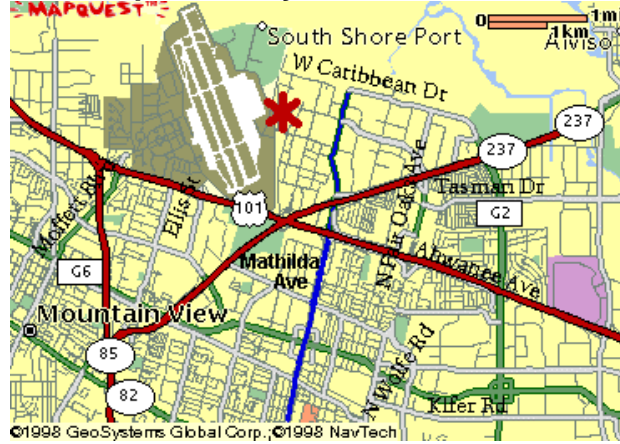
Hwy 101, North - exit at Mathilda. Proceed north on Mathilda to 3rd Ave. Left on 3rd to Mary.

Hwy 101, South - take Highway 237 exit to Mathilda. Follow instructions for Hwy 237 below.

Hwy 237, West or East - exit at Mathilda. Proceed north on Mathilda to 3rd Ave. Left on 3rd to Mary.

Highway 85, North - take Highway 237 exit to Mathilda. Follow instructions for Hwy 237 above.

Area Map to Sunnyvale, California



Bldg 157 is on the corner of 3rd and Mary Streets.

Lockheed Online Map:

http://lmms.external.lmco.com/lmms_images/lmms_facility.pdf

