NEWSLETTER

Los Angeles Chapter of INCOSE
www.incose-la.org
Vol 2: Issue No. 4 Jun, 2004

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Tutorial
June 5, 2004

Basic Systems Engineering Theory and Practice
Scott Jackson
The Boeing Company

Location
The Boeing Company
Long Beach

Dinner Meeting
Tuesday, July 13, 2004

Contract-Driven Systems Design: UML 2.0-Based Systems Engineering with Rhapsody
Dr. Hans-Peter Hoffmann
I-Logix

Location
JPL
von Karman Auditorium

Time
Networking 5:30 pm

Dinner Meeting
Thursday, September 9, 2004

SysML UML for Systems Engineering

Rick Steiner
Raytheon

Location
The Aerospace Corporation

Time
Networking 5:30 pm

Four Key Questions for Requirements

Bill Schoening

Think about the requirements on your project or a project you are reviewing, and then answer the following four questions.

Four Key Questions for Requirements

–Are the requirements likely to lead to a solution that is technically feasible?

–Are the requirements likely to lead to a solution that has acceptable costs (development, production, operations and support)?

–Are the requirements likely to lead to a solution that has acceptable risks?

–Are the requirements likely to lead to a solution that adequately satisfies stakeholder needs?

If you don't have objective evidence that the answer is YES to all four questions, then your program is almost certainly in trouble. (If you know someone signing up to a fixed-price contract without knowing that the answers to the Four Key Questions for Requirements are all YES, send those people to me because I have a bridge into Brooklyn that I would like to sell them.) If the answers are not known, there is enormous risk that the project will fail.

Projects enter the System Development and Demonstration (SDD) phase with the tacit assumption that the answers to these questions are all YES. Given that requirements promulgated by the government customer at the beginning of SDD are usually a synthesis of those from several competing contractors, this assumption might be false and should be tested. Furthermore, at anytime during SDD new knowledge, could result in one or more of the answers becoming NO. In addition, one of the answers might turn out to be NO for lower level requirements have not been tested against these questions.

The primary purpose of Concept Exploration/Refinement is to develop a set of requirements for which the answer to all four questions is YES, or show that one cannot achieve all YES answers resulting in the program being restructured, implementation of some requirements delayed until a later block upgrade, or even cancelled. John Snoderly and Randy

Zittle of Defense Acquisition University have been teaching this for many years, yet we continue to find people who think a preferred solution is the main product of Concept Exploration.

Recognizing that one of the answers is NO is really a psychological problem for most people, not a technical problem. We are conditioned to believing there must be a solution and find it difficult to accept that there may be no solution with the existing requirements. To find a solution, we must examine alternative sets of requirements to find a set for which the answers to all Four Key Questions for Requirements are YES. As at least one customer has said, "There are no requirements that cannot be changed, just some that we change only as a last resort." Of course, we must develop well-articulated trade studies to demonstrate the need for change to our stakeholders.

The first step toward project success is finding the answers to the Four Key Questions for Requirements. Everyone on the project should know the answers and where the support information is maintained. Do you know the answers for your project?

I would love to hear from you about examples of this issue, or even disagreements with the concept.

Biography:

Bill Schoening has been with Boeing in St. Louis for 37 years as an operations analyst and systems engineer. He is a past president of INCOSE and currently Director for International Growth. In the course of his career he has been the systems engineer on airplane and ground vehicle programs as well as for programs developing radars, embedded software, and highly user interactive software. He is particularly interested in the exploration phases of product development. In addition, Bill is one of the authors of the CMMI.

Bill Schoening
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Tutorial
Saturday - June 5, 2004
Location - The Boeing Company Long Beach

Basic Systems Engineering Theory and Practice
Scott Jackson -The Boeing Company

The theme is that basic systems engineering is based on the premise that systems can be characterized as hierarchical structures that are developed simultaneously as the system progresses through both the layers of this hierarchy and the phases of development. This progression can also be characterized as evolutionary as requirements develop from unverifiable stakeholder needs to detailed component requirements.

He shows how functional analysis fits into the systems engineering process as both the basis for the synthesis of the design architecture and also the foundation of performance requirements. He shows how project management fits into systems engineering by mapping the product hierarchy into both the organizational hierarchy and the planning process. Scott also emphasizes the broader view of the system, that is, the system that also includes humans.

This tutorial is intended both for the new systems engineer who is looking for insight into the process and also for the experienced systems engineer who is interested in examining the basis for the discipline.

BIOGRAPHY: Scott Jackson is an Associate Technical Fellow in Systems Engineering at Boeing in Long Beach, California. He also teaches in the master's program in Systems Engineering at the University of Southern California (USC). His book Systems Engineering for Commercial Aircraft was published by Ashgate Publishing Limited in the UK (1997). He has been an INCOSE member since 1993 holding the position of chair of the Systems Engineering Applications Technical Committee (SEATC). He is also a member of the INCOSE Joint Air Transportation Working Group (JATWG).

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Networking 5:30 pm
Speaker 6:30 pm

Cost
Members Free
Guests $10.00

Contract-Driven Systems Design: UML 2.0-Based Systems Engineering with Rhapsody
Dr. Hans-Peter Hoffmann
I-Logix

BIOGRAPHY: Dr. Peter Hoffmann, Chief Methodologist for System Design at I-Logix, has over twenty years of experience in all phases of aerospace/defense and automotive systems development. A respected specialist in real-time systems design, Dr. Hoffmann is responsible for delivering senior-level consulting, mentoring, and training to embedded systems developers. Clients include Alenia, BAe, Boeing, Daimler Chrysler Aerospace (DASA), Eurocopter, General Dynamics, GIAT, JPL, Lockheed Martin, NASA and SAAB.

Dinner Meeting
Thursday, September 9, 2004

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The Aerospace Corporation

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SysML UML for Systems Engineering
Rick Steiner
Raytheon - Naval & Maritime Integrated Systems

ABSTRACT: The Unified Modeling Language (UML) is now a standard graphical representation for the development of object-oriented software. Employing UML in systems engineering may provide a single common language supporting both systems and software, promising considerable benefits in complex system development. The International Council on Systems Engineering (INCOSE) and the Object Management Group (OMG) have jointly developed a Request for Proposal (RFP) for extending UML version 2.0 to meet systems engineering needs. This presentation will discuss the activities of the SysML Partners consortium in response to this RFP and will highlight several issues in applying UML 2.0 to systems engineering.

BIOGRAPHY: Rick Steiner has been a Systems Engineer with Raytheon (legacy Hughes) for 20 years. His experience has been principally in the area of Naval Command and Control, Maritime System Integration, Sonar, and Naval Combat Systems. Rick is an employee of Integrated Defense Systems (IDS) in San Diego, California, and has been instrumental in applying object-based techniques and tools to systems engineering problems. He facilitates the Raytheon System Engineering Technology Network and acts as Secretary for the San Diego chapter of INCOSE. He is the lead Raytheon representative to the SysML Partners, developing extensions to UML for Systems Engineering. Rick is also a member of the INCOSE Model Driven System Development Working Group (MDSDWG) and has been active in the INCOSE technical review of ISO STEP AP233.

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ADDITIONAL INFORMATION AND DIRECTIONS

SPECIAL NOTE

Do to site Security requirements, RESERVATIONS will be required and multiple forms of identification may be requirements. Please check the website for dates to RSVP by: Foriegn Nationals may also require advanced notifications to attend.

(You must RSVP to attend, NO EXCEPTIONS. RSVP via the INCOSE-LA website (www.incose-la.org) or to Paul Su (paul.k.su@aero.org, 310-336-2602).

The Board and Officers wish to welcome the following new Chapter members:

Richard Acevedo	Boeing North American
M Van Anglim	Department of Defence
Steve Berman	Northrop Grumman Inc
Javier Bustamante	Northrop Grumman
Ebrahim Esmaili	Parsons
David Gooding	Southern California Edison
Beth Green	Northrop Grumman Corporation
Ken Hurst	Jet Propulsion Lab
Ron Ice	R. C. Ice and Associates
Rashmi Kumar	Southern California Edison
Larry Leveille	PacInfo Technologies Inc
Jose Mancera	
Bo Oppenheim	Loyola Marymont University
Seelam Reddy	The Boeing Company
Todd Sebastian	Northrop Grumman
Avtar Takhar	The Boeing Company

INCOSE News

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Return Address:

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Newport Beach, CA
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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:

2004 Officers and Board

President:	John Hsu	john.c.hsu@boeing.com or	president@incose-la.org
Vice-President:	Dennis Schwarz	dennis.c.schwarz@boeing.com or	vicepresident@incose-la.org
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Those interested in INCOSE membership wanting to be placed on our E-mail distribution please contact Susan Ruth - susan.c.ruth@aero.org
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