NATIONAL COUNCIL ON SYSTEMS ENGINEERING

INSIGHT

Winter 1993 - 1994

A Quarterly Publication of the
National Council on Systems Engineering
333 Cobalt Way, Suite 107, Sunnyvale, CA 94086

HIGHLIGHTS FROM THE PRESIDENT'S KEYNOTE ADDRESS

We are at a crucial juncture in our young history. The miracles of our 15-fold increase since Chattanooga and our exceptionally well-accepted conferences are balanced by external challenges of tight budgets and internal challenges of managing our dynamic growth.

I am firmly convinced that if we stress QUALITY, then QUANTITY will come. Therefore, I am establishing these five elements as the NCOSE Quality Strategy:

- Launch a superior NCOSE Journal.
- Establish a professional ladder of membership grades.
- Provide professional reviews of Systems Engineering standards, such as DoD's 499B and IEEE's P1220.
- Develop mutually constructive alliances with other organizations.
- Apply Higher-Order Systems Engineering (HOSE) to our management as well as our technical activities.

As this Newsletter summarizes, the first four elements received a vigorous kick-off during our January meeting. The application of HOSE, however, is less well defined and I'd like to share with you the first step of HOSE: the establishment of a set of requirements for Systems Engineering (SE).

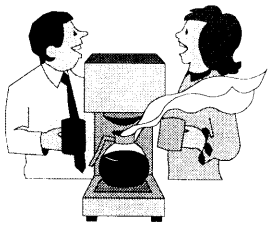
As we construct our process descriptions, standards and handbooks covering dozens to hundreds of pages, we agree that Systems Engineering must have certain fundamental goals and attributes which include:

- SE must be Comprehensive: all requirements satisfied and testable, all program phases represented and all technologies in balance.
- SE must be Coherent: all terminology fully understood across disciplines, all criteria at all levels consistent.
- SE must be Convergent: all baselines and initial design points permit the iterative design process to be stable and asymptotic to optimum solutions.
- SE must be based on Competent supporting disciplines: systems engineers should be far more than shallow generalists.
- SE must be Catalytic: tiny investments of SE returning enormous benefits to the program in terms of management efficiency and technical effectiveness.
- SE must be Traceable: all key decisions, criteria and configurations recorded and communicated.
- SE must be Tailorable: processes and methodologies adaptable to program size and complexity.
- SE must be Modelable: mathematical simulations, computer aided tools used to aid in the management of complex, multi-dimensional designs, decision, and predictions of performance.
- SE must be Measurable: insightful, unambiguous metrics to determine the quality, capability and maturity of the SE process.
- SE must be Global: be transferable across all disciplines, business areas and program phases to be an acceptable activity.

If you feel I have left fundamental gaps in the SE Requirements list, I invite you to suggest other items.

My vision is that we will develop a general theory of Systems Engineering that is to our present SE practices as chemistry

is to alchemy. In rising to this challenge, our members will advance professionally, their programs and companies will prosper, our nation will re-attain global competitiveness and eventually all of humanity will benefit.



NOMINATIONS

The nomination committee for 1994 is:
Chair: Brian W. Mar
Phone(206) 543-7941- Fax (206) 685-9185
Members:
Julian Holtzman
Phone (913) 864-7759 - Fax (913) 864-7789
Brian McCay
Phone (617) 271-5727 - Fax (617) 271-5509

Nomination Process:

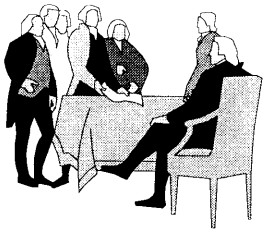
Feb. 1, 1994	Call for nomination
May 1, 1994	Close of nominations
Aug 10, 1994	Submittal of nomination to Board for approval
October 1, 1994	Mailing of Ballots
Nov. 1, 1994	Deadline for Ballots
Nov. 15, 1994	Notification of results to Candidates

Positions open for 1994:
OFFICERS
President-Elect (1 year term, then will be next president)
Secretary (2 year term)
DIRECTORS (all are 2 year terms)
Region I (NW) Industrial Representative
Region II (SW) Government/Academic Representative
Region III (Central) Industrial Representative
Region IV (NE) Government/Academic Representative
Region V (SE) Government/Academic Representative At - Large

HOW TO NOMINATE:

While nominations can be made by individual members, or individual members can apply, it would help the committee if individuals worked with their local chapters, and local chapters worked with their regional directors to collate the nominations from a region. Before a nomination is made, it is important to establish that the individual is interested and qualified for the position and will run if selected by the nomination committee to be on the ballot. Individuals nominated for any position should be a member of NCOSE and have extensive experience at the local, regional or national level of NCOSE activities.

THE NCOSE Corporate Advisory Board (CAB)



The NCOSE Corporate Advisory Board (CAB) is comprised of the working SE process owners from companies that wish to participate as the 'Voice of the Customer' for NCOSE.

The first meeting of the CAB was held in Los Angeles in August 1992, following the NCOSE Symposium held in Seattle in July of 1992. Four companies participated: Northrop, Hughes, IBM and Ascent Logic. These charter members developed an operational concept and roles and responsibilities for the Corporate Board.

As the Voice of the Customer for NCOSE, the CAB members provided:

1) Advice and direction for Symposia and Committee activities;
2) Guidance and overall direction, focus and priorities;
3) A conduit between NCOSE and the sponsoring corporation for the information exchange, key corporate SE related issues, best practices and lessons learned, and access to Corporate Executive Management for NCOSE leadership and speaker support;
4) An interface to academia for improvements in SE Education; and ,

5) An emphasis on selling SE as a good business practice.

The product to NCOSE as a result of that meeting was recommendations to the '93 Symposium Committee for Symposium improvements.

By the January '93 meeting in Melbourne -- Motorola, Grumman, Martin Marietta, MITRE and Aerospace Corporation had joined the CAB. We brainstormed our companies biggest problems relating to Systems Engineering and produced a Priority Needs list for products from the NCOSE Working Groups.

Lockheed and GTE were the next to join the CAB and at the July '93 meeting we prepared a review of the Symposia and a status report of NCOSE progress against our needs list. By January '94, Rockwell, Boeing and TRW joined the CAB.

We decided a closer relationship was needed between the working groups and the CAB. Thus CAB points of contact were established for each items on the Priority Needs list.

The NCOSE Corporate Advisory Board (CAB) met during the January meeting to select Ginny Lentz as the CAB appointed NCOSE Director at large and to update their list of Priority Needs from the NCOSE Working Groups. The needs of the member companies are the same as the needs of many of the members. Our Priority Needs list include:

1. Understand how commercial compa-niesbuild complex products;
2. SE maturity models;
3. Metrics, a clear and concise statement of the essential elements of SE, a benchmarking template, and best practices; and
4. A clear and concise characterization of the essential element of SE; and,
5. Material to support communications with program managers regarding the value of Systems Engineering and the pitfalls of insufficient systems engineering.

This list is the same as our original list in Jan 93, this year we targeted specific working groups and identified CAB members to be the liaison with the working groups. We also presented the list to the Technical Board and took their advice to provide some acceptance criteria for each of the needs!

NCOSE OFFICERS

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Grumman Corp. (407) 951-5912

Treasurer: Barney Roberts
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Director - Region I: NW (Industry)
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Frank Fogle, NASA (205) 544-2344
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The NCOSE Newsletter is compiled and edited by the Huntsville Regional Chapter as a service to all NCOSE members.
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BUDGET AND FINANCE

Mr. Barney Roberts, from the Houston Chapter, was elected NCOSE Treasure. He was sworn in 12 January 1994 and will serve for two years.

As of 11 January 1994, NCOSE registered member numbered 1751 and has over 1400 active dues paying members. In December, NCOSE began collecting membership renewal dues again. Please remit your dues when you receive your first renewal notice in order to reduce the cost of additional notices. Our dues and new membership should support our approved 1994 Budget and planned cash flow.

Mr. Barney Morais was approved to serve as the First Executive Director of NCOSE by the Board of Directors plus maintain the NCOSE library and official membership list as part of his duties. Please contact him with any questions on current membership status or questions on NCOSE.

REMINDER: WE HAVE COPIES OF THE 1993 SYMPOSIUM PROCEEDINGS AVAILABLE FOR $50.00 PLUS $10.00 SHIPPING AND HANDLING. PLEASE CONTACT BARNEY MORAIS AT (408) 773-8701.

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CASH CORNER

Notes from your Treasurer

At the winter business meeting, the following budget for the year 1994 was approved by the Board of Directors:

INCOME:	
Membership Fees	$131,000
Symposium	12,000
Proceedings Sales	30,000
Savings Interest	2,000
Carryover Reserves	14,800
Total	**$189,800**
EXPENSES:	
Administrative Support	$91,000
Committees	60,800
Symposium	25,000
Business Meetings	13,000
Total	**$189,800**

In the previous years, informal planning and budgeting processes were appropriate. However, we have grown to the point where our financial affairs and technical activities require more formal practices. In order to accomplish this objective, the Texas Gulf Coast Chapter has agreed to work with me in the development of the planning and budgeting processes that we need.

On behalf of the Board and much to my relief, I want to thank the Gulf Coast Chapter for their assistance.

TECHNICAL COMMITTEE AND WORKING GROUP REPORTS

Tools and Automation Technical Committee (TATC) Meets and Escapes Before the Shake.

The Tools and Automation Technical Committee has divided into three separate WGs based on interest and growth from the '93 Symposium. This past year, the SE Tools survey was completed and tallied. Initial results suggest that requirements traceability is of wide interest to the NCOSE constituency. The results of the survey shall be presented at the open plenary session of the '94 Symposium. Individual descriptions of the Technical Committee WGs follow:

The winter meeting in Los Angeles provided an opportunity for the leadership of the Tools and Automation Technical Committee to review progress since our summer get together in Washington DC. These results were very encouraging. Action items previously assigned have for the most part been closed.

The goal for the winter meeting in the TATC was to move the committee from the planning stage to the producing stage. This goal was facilitated by the chairman (Brian McCay) preconditioning the Winter Business Meeting attendees with a draft action plan. This action was worked during the meeting and new tasks assigned.

TATC SE Tool Survey

The initial analysis of the SE tool survey was discussed by the committee. About 1000 surveys were distributed to NCOSE members and 26 vendors. A total of 99 responses were received from NCOSE members and 7 responses from tool vendors. The results were presented to the committee in the form of means and variances.

The purpose of the SE tool survey was to find out what is most important to NCOSE membership, determine what the vendors are developing, and focus the TATC WG efforts. The survey is also being used to determine the type of data needed in the tools database and to gather initial data to populate the database.

Using a ranking scheme from 0 (don't care) to 5 (critical attribute), the ranges were:

- Highest Mean : 4.43
- Lowest Mean: 2.56
- Highest Variance: 2.91
- Lowest Variance: 0.58

The interests of the responders were:

Highest interest (mean/variance)

- Multi-User: Database Protection (4.43/0.97)
- Methods: Requirements Traceability (4.43/0.80)
- Life Cycle Support: Demonstration and validation (4.24/0.82)

Lowest interest (mean/variance)

- Methods: Project Management Info (3.00/3.00)
- Life Cycle Support: I/F w/Scheduling Programs (2.93/1.98)
- Life Cycle Support: I/F w/VHDL (2.56/2.34)

Tools Integration and Interoperability Working Group

The Tools Integration and Interoperability WG has identified the characteristics of integration and interoperability for the TATC database. This WG is continuing to define integration and interoperability terminology. A white paper is being written for the '94 Symposium to identify new ways to promote SE COTS tools interoperability. This Working Group is investigating the benefits and challenges of vendor tool integration.

Tools Database Working Group

The Database WG developed an initial set of requirements for an accessible tools database. The WG will extend these definitions and incorporate the results of the other WG's activities. It is planned to have the working definition sufficiently mature by the '94 Symposium to have a prototype demonstration.

Emerging Applications Technical Committee and Working Group

How is systems engineering applied for the development of automobiles, bridges, medical equipment, commercial airliners, cellular telephones, National Health Care, and all other types of complex systems outside of the Department of Defense? The Emerging Applications Working Group of NCOSE is working to identify and disseminate information and guidance on the application of systems engineering to the development and management of commercial and civil systems and issues. During our recent meetings in Los Angeles, we committed to fully supporting the upcoming 1994 International Symposium with discussions on the current "state of the practice" in various industry segments. The method for these discussions will be the review and endorsement of a white paper on the subject. Future activities include identification of industry needs, symposia, workshops, detailed industry segment studies, and the transfer of "best of practice" in emerging applications to the rest of NCOSE. We always need fresh ideas and insights and encourage any and all interested members to participate. Contact Rich Mintz at (206) 394-4820 or E-mail: 72134.2573@compuserve.com to get on our mailing list.

Tools Taxonomy and Information Model Working Group

A small sub-group met at the Winter Business Meeting to formulate a work plan for the next six months. The major product identified was a white paper documenting the SE process described in terms of behavior and an information model, independent of views and syntax that is planned for presentation at the '94 Symposium. This paper will include a taxonomy mapping to the SE process/methods and associations among tool classes. Activities at the winter meeting included drafting a taxonomy (structure for a database) populated with tool classes.

Systems Architecture Working Group (SAWG)

The SAWG was formed under the guidance of Dr. Larry Pohlman at a side meeting during the 1993 NCOSE International Symposium in Washington, DC. At that meeting approximately twenty-five people expressed interest in the area of systems architecture.

During the period between the 1993 symposium and the January 1994 NCOSE Mid-Year Business Meeting, Dr. Pohlman set the organization of the SAWG and appointed three co-chairman. These co-chairman are: Kent Johnson, Software Productivity Consortium; Bob Olson, Naval Air Weapons Center; and Tim Smith, E-Systems. At the mid-year business meeting Dr. Chander Ramchandani, Computer

Sciences Corporation, was added the list of co-chairman. Dr. Pohlman has been elected to the NCOSE Board of Directors and will continue to act as an advisor to the SAWG.

The initial activities of the SAWG were directed toward developing working definitions for the systems architecture domain and further defining the goals and aspirations of the working group.

Progress toward these goals was achieved and culminated in the development of a SAWG charter and an action plan for the working group with emphasis on the period between now and the 1994 NCOSE International Symposium at San Jose, California.

Best Practices Working Group

The Best Practices Working Group was formed in 1992 under the guidance of Eric Honour and was reconstituted and revitalized in 1993, with an informal meeting at the Melbourne business session in January and two meetings during the July 1993 Symposium.

The 1994 business meeting in Los Angeles was chaired by Phil Altomare of the Department of Energy, Washington D.C. after Eric Honour was named Chair of the Technical Advisory Board. Co-chairs are Bruce Pittman and Jim Ray.

The BPWG is organized to:

- Collect and report on successful and innovative Systems Engineering practices for the benefit of NCOSE members
- Provide near-term help to organizations to define and improve the practice of Systems Engineering
- Create an impetus for research and reporting in Best Practices

The objectives are to establish a process for identification and collection of Systems Engineering "Best Practices" and to established a process for accessing and dissemination of Best Practice information.

Accomplishments to date include:

- Applied Systems Engineering in Working Group to define the "Best practices" functions and requirements
- Developed Mission Statement using Mission Analysis
- Expanded draft Best Practices submittal format and database elements
- Started development of Best Practices evaluation criteria
- Established points-of-contact for Key Working Groups and committees

499B Handbook Working Group

The Handbook draft was finalized for review in December, 1993. This draft is being distributed to all NCOSE Working Group chairs and co-chairs for review. It is NOT done, but the initial handbook development team has expended lots of energy and enthusiasm over the past year and a half since we started. Now we need the help of more folks from NCOSE to complete this handbook.

The review was coordinated through other NCOSE Working Groups, and facilitated by the Standards Working Group. Redline, rewrites and new text were due February 28, 1994.

The Technical Board has agreed to finalize the Handbook release decision process by March 15, 1994. Once final NCOSE approval is received, the material will go to two different places. First, it will be published by the Communications Committee as an NCOSE handbook (the first). Second, it will be submitted to the EIA, who will revise it as they see fit, and then submit it through CODSIA to the Department of Defense for inclusion in MIL-STD 499B Handbook 2 on Systems Engineering Process.

The Handbook Working Group has put a lot of effort and careful thought into this document. We would very much like to see it be useful to the systems engineering community, as well as being input as possible material for MIL-STD 499B Handbook 2. We certainly would appreciate your help in completing the first release of this first NCOSE Handbook.

Concurrent Engineering Working Group

The CEWG was formed to take a systems engineering perspective in the study, development and use of concurrent engineering methodologies.

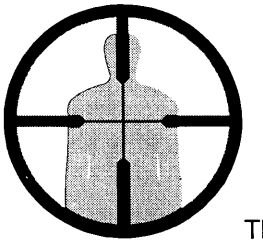
Its objectives are:

1. Determine the role of Systems Engineering (SE) in the Concurrent Engineering (CE) environment.
2. Define how SE and CE interact, especially at the front end.
3. Determine system engineers' role in a cross-functional team. This includes deciding at what point should the system engineer lead the team and when should the system engineer relinquish leadership.
4. Develop a list of what really works and what does not work in implementing CE with SE involvement. This requires an experimental, pragmatic approach rather than a theoretical, hands-off one.

The CE working group began in early 1993. Several people responded to a newsletter announcement for interest in such a working group. Group members, via telephone interaction, developed a mission statement. Within the group, a core team developed and guided group effort. The first "face-to-face" meeting occurred at the '93 summer symposium.

The working group is currently developing a position paper for the '94 summer symposium. This paper will address definition of concurrent engineering in a systems engineering environment, interaction among members of multidisciplinary team, role of systems engineering on multidisciplinary team, and lessons learned from implementing concurrent engineering in a systems engineering environment.

Risk Management Working Group



The Risk Management Working Group completed 100 pages for the System Engineering Process Handbook during 1993. For 1994, this group has identified 13 tasks that will provide in-depth understanding of the elements of risk management and identification of advanced techniques. Task leaders and supporting members have volunteered to support these efforts. Active members will be apprised of the task accomplished via a periodic newsletter.

We plan to hold our working sessions on Thursday, Friday, and Saturday (August 11, 12, and 13) during the 1994 National Symposium in San Jose.

1994 NCOSE SYMPOSIUM

"System Engineering: A Competitive Edge in a Changing World"

Be sure to mark your calendar on August 10-12, 1994 and plan to attend the 1994 NCOSE Symposium in San Jose, California. The San Francisco Bay Area Chapter has planned another outstanding symposium, with an expanded technical program, interesting exhibitors, stimulating speakers, and a variety of social activities.

Highlights include 5 full technical tracks, several optional tutorials including a "train-the -trainer" session, and an "all-star" lineup of recognized industry and NCOSE experts. Another first for 1994 is a CD-ROM containing the symposium proceedings for the three previous years, in addition to the 1994 proceedings. This will be included in addition to a hardcopy of the proceedings for 1994.

Many excellent draft papers have been screened by review teams from the Technical Committee/Working Groups. The resulting 145 presentation papers and 25 poster papers will be allocated to 5 simultaneous technical tracks.

The site of the symposium is the Fairmont Hotel in downtown San Jose, in the heart of Silicon Valley. The Fairmont is an outstanding facility, located close to a wide variety of restaurants, cultural activities, and nightlife.

The evening social event on August 11 will be a winetasting and dinner at a local winery.

Registration brochures will be mailed in March. The early (discount) regis-

tration deadline is 1 July. We hope to see you in San Jose in August!

Internet Links for Better NCOSE Communication

The Communications Committee (Comm2) is collecting member's Internet addresses for distribution within NCOSE. Our objective is to improve the communications between NCOSE members and making better use of Internet appears to be a good start. As the Internet network for NCOSE becomes established, we will survey you for special interests and link you with others who have similar interests. This should allow many of you to participate in national working groups, focus help requests to specific groups, or just talk together. The NCOSE Internet system supplements the NCOSE Bulletin Boards; it does not replace them.

If you have an Internet address and would like your name and addresses included in the data base, please send an Internet message to one of the following Comm2 members with your name, fax, phone number, and membership number to one of the following:

Bill Schoening
schoening @mdafltsim.mdc.com
Fax 314-777-1139
Tel 314-234-9651

or

David Altman
altman@sun.rest.tasc.com
Fax 703-318-7900
Tel 703-834-5000

Don't forget your membership number in case there is more than one Zeke Kriwski in NCOSE.

If it is all right with you to include your name and these addresses in the Internet address list sent out to all NCOSE Internet users, please state so explicitly in you message. If Bill or Dave does not respond via Internet within 14 days, please send one of them a Fax with your name, telephone number, Fax number, and your Internet address so they can try solving the problem from their end.

Some of you do not have access to Internet. There are commercially available services such as America On Line and CompuServe that provide access to Internet. Comm2 is looking into the possibility of using one of these services to expand NCOSE services to members and help make others outside NCOSE more aware of our organization. You will find an additional note on this in the Huntsville Chapter report. More on this topic in later issues of the Newsletter.

Questions, suggestions, and comments should be directed to Bill or Dave at the addresses above. This is one Superhighway with a speed limit higher than 65 mph. Pedal to the metal, guys. (Sounds better than fingers to the keyboard.)

FEEDBACK
Letters to Editor

NCOSE members are invited to sound off about any NCOSE activities that concern them. We will print all inputs but reserve the right to edit for sake of brevity.

Five Tiers of Membership

We are concerned about the proposal for NCOSE to provide five tiers of membership including student, associate, regular, senior, and fellow. We believe this comes from an organizational model that is outdated and counterproductive to many of the goals of NCOSE and thus disapprove of the tiers.

In an era when institutions are flattening organizational structures does it make sense to create a 5-tier professional organization? Also, since NCOSE is still rapidly evolving; does it make sense to stabilize advancement within NCOSE according to criteria which may become obsolete? Would establishment of seniority levels discourage participation of experienced non-traditional practitioners, from whom the traditional practitioners of systems engineering have much to learn?

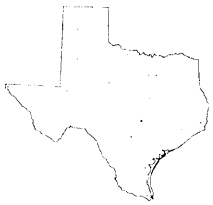
We are concerned that the contributions of some of our young members may be demeaned on the basis of their lower membership status. Or that one day a

senior membership level will be required to chair a working group, for example. NCOSE may make suboptimum use of the talents and energies of its members if it complicates choices by adding whatever criteria are required to attain various tiers to the natural criteria of energy and wisdom.

Like George Friedman, we are very happy with NCOSE, in part because it has such a good mix of the experience and wisdom that come with age and the enthusiasm and energy that come with youth. We would like to keep NCOSE a single tier organization (or at most two tiers, including membership for full-time students at a reduced price) in order to best honor the potential all members have to contribute.

With apologies to Groucho Marx, we would never want to belong to a group that would admit us as senior members. From: Sarah Sheard, Mike Dick, Bob Coyne, M. Elliot Margolis, and Joe DeFoe.

LOCAL CHAPTER REPORTS



North Texas

The North Texas Chapter of NCOSE first met in October of 1992 at SMU in Dallas, Texas. Under the guidance of Jim Lacy, NCOSE Regional Director, chapter formation recognition was signed by thirty-two NCOSE members.

The following officers were elected and installed at a dinner meeting in late April 1993: President: Tim Smith, E-Systems Inc.; Executive VP: John Grimm, Texas Instruments; Treasurer: Dick Folkert, Loral Vought Systems; Secretary: Dan Mori, Loral Vought Systems; VP for Technical Development: Bill Sorsby, Texas Instruments; VP for Chapter Development: Bill McMullen, Texas Instruments; Directors at Large: Jim Stehn, E-Systems and Ray Shojai, Texas Instruments.

The North Texas Chapter was formally recognized by NCOSE in July 1993. We have continued to grow and our current membership is sixty-seven with the majority living and working in the Dallas/Fort Worth area.

Liberty (NY-NJ-PA)

The Liberty Chapter has had a busy year since its founding a year ago. Programs in 1993 included: Jerry Lake on "World Class Systems Engineering," Katherine Hutchinson on "Deploying Systems Engineering Tools," Don Crocker on "Capability Assessment," and a program hosted by AT&T which included a tour of the AT&T Network Operations Center and a talk on Multimedia Products. During a workshop meeting, three local working groups were formed on Requirements Management, Tools, and the Systems Engineering Process.

Liberty Chapter members are active participants in national affairs. They serve on most national administrative and technical committees and participate actively in annual symposia and business meetings.

Liberty starts 1994 with a full roster of elected officers, headed by President Nancy Rundlet, with membership standing at 70 and growing. The first program planned for the new year is on Taguchi Methods.

Huntsville

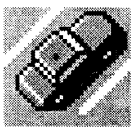
We are preparing our chapter for these difficult times of demolition of the traditional functional organizations due to Concurrent Engineering, Integrated Teams, and Design Build Teams.

It is our firm belief that good systems engineering technology, practices and processes are the paramount foundations of concurrent engineering implementation. Training and publications on principles of systems engineering are more important than ever before because they have to be implemented by all engineers. Because of that, we must start practicing concurrent engineering. Therefore, to best serve our members, we are in the process of organizing our technical committees into a single Technical Board.

To line up with the National organization, individual board members will represent the Huntsville Chapter in the many national functional subsets.

The activities in Huntsville are summarized as follows:

Objective: to keep on track and have a clear destination!



We will support the National Tools and Automation Technical Working Group in their pursuit of an information data base about Computer Aided Engineering (CAE). However, because we have identified a major cost problem with CAE tools implementation, we will drive for the full development of an User Interface Standard. We plan to start to make presentations to government agencies, to computer clubs, and to industry within the month. We expect to present a summary of this activity at the NCOSE symposium later this year.

We are identifying specific tasks of good practices, methods and processes that can be developed as a subset of the overall process, therefore no longer being dependent on the definition of the process big picture. After all, Systems Engineering 01 provides us with sufficient guidance already. This way perhaps we will no longer just ride-around in circles.

Midwest Gateway

The Midwest Gateway Chapter, based in St. Louis, is now under the leadership of the second Chapter Board. The first Board established and organized the Chapter, launched our Chapter activities, and promoted our initial growth. The new Board continues to sponsor local activities and is actively involved in supporting national activities.

A primary, on going local activity of the Chapter is the sponsorship of open meetings presenting interesting, timely systems engineering topics and information. Recent meetings included a tour of the Ford Aerostar Assembly Line and presentation by a senior manufacturing process engineer, and a presentation by the President of Sunset Fireworks, Ltd., a national pyrotechnic company.

The Chapter will sponsor a new activity this Spring. A one day seminar on System Engineering is being prepared and will be conducted by Chapter members.

We are proud to announce that the 1995 NCOSE Annual Symposium will be sponsored by our Chapter and held in St. Louis on July 21-27, 1995. If you're filling in your calendar in advance, mark this down! We're excited about it already... preparations are being made...you'll hear more about this in the future...!!!

FROM THE EDITOR

We had a problem collecting input via Internet with an appendix. Some attachments to the E-Mail were lost. Some local facilities do not support viewing or acquisition of the attachments. Until we develop a method of uploading and downloading files in a service data base, such as America on Line, we require that all input to the News Letter to be either 100% text (NO ATTACHMENTS) on the E-Mail or via remittance of a diskette (3.5 or 5.25) with MS Word or Word Perfect for the PC or Word for Macintosh to Huntsville Chapter NCOSE, P.O. Box 9225, Huntsville, AL 35812. As a last resort, we will take a faxed or a snail mail text input. You may fax your input to 205/430-3081. If you are the chairperson or president of one of the organizations shown on the last page of the newsletter, please review the listing and make corrections as needed in your area. And a special request to those chapters that publish newsletters; please send a copy to us at the above address. We may reprint some of your articles and we can consolidate useful ideas and distribute to all chapters.

NCOSE TECHNICAL BOARD, COMMITTEES, and WORKING GROUPS

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	Emerging Applications	Richard Mintz	Scitor Corp.	206/394-4820
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	Requirements Management	James Martin	AT&T Bell Labs	201/386-4485
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	Tools Database	Roger Cook	Hughes Aircraft Co.	714/441-9620
	Tools Integration & Interoperability	Carolyn Buford	Computer Sciences Corp.	301/572-8475
	Tools Taxonomy & Information Model	Dave Oliver	GE-CRD	518/387-6458

NCOSE NATIONAL CHAPTERS

State	Region	Chapter	City	President	Phone Number
Washington	I	Seattle Metro	Seattle	A. Morrison	206/657-2539
	I	*Tri-Cities*	*Richland*	*M. Simpson (POC)*	*509/375-4539*
California	II	San Franciso Bay	San Francisco	T. Robertson	415/851-7680
	II	Inland Empire	San Bernardino	R. Williams	909/382-7400
	II	San Diego	San Diego	S. Bertic	619/536-7655
	II	*San Gabiel Valley*	*Downey/Fullerton*	*B. Snyder (POC)*	*310/922-0685*
Texas	III	Texas Gulf Coast	Houston	C. Graves	713/483-9073
	III	North Texas	Dallas/Ft. Worth	T. Smith	214/205-4209
Arizona	III	Southern AZ	Tuscon	W. Wymore	602/299-6663
Missouri	III	Midwest Gateway	St. Louis	W. Wittig	314/453-5713
Michigan	*III*	*Tri State*	*Detroit*	*J. Pedocs (POC)*	*810/825-5431*
Colorado	*III*	*Colorado*	*Colorado Springs*	*P. Griffith (POC)*	*719/527-2477*
NY, NJ and Penn	IV	Liberty	Rockaway, NJ	N. Rundlet	210/989-2934
Massachusetts	IV	New England	Boston	B. McCay	617/271-5727
District of Columbia	IV	Washington Metropolitan	Washington	D. Rhoads	703/416-3597
Maryland	IV	Chesapeake	Baltimore	N. League	410/628-3076
Alabama	V	Huntsville	Huntsville	H. Sacs	205/461-3994
Florida	V	Space Coast	Melbourne	E. Honour	4007/242-5192

NCOSE INTERNATIONAL CHAPTERS

Country	Chapter	President	Phone Number
Australia		*Dr. Ross Sidney*	*714/921-9019 (US)*
Canada	*Winnipeg*	*Captain S. Fejes*	*204/833-5597 (US)*
	Ottawa	*H. Ghandan*	*613/783-4742 (US)*
England		*Prof. D. K. Hutchins*	*0793-785225*

Italics Indicate Emerging Chapters

N C O S E

National Council on Systems Engineering

Fourth Annual International Symposium

August 10-12, 1994 • San Jose, California

Sponsored by the NCOSE San Francisco Bay Area Chapter

Look for your complete brochure in April!

ABOUT NCOSE

NCOSE began in August 1990 at a meeting attended by 35 senior technical managers from industry, government, and academia. At that first meeting, the need for a national systems engineering forum was recognized; a charter was written and adopted; officers were appointed; and standing committees were formed and staffed.

Since then there have been three National Council on Systems Engineering Symposiums. The first symposium, held in Chattanooga, Tennessee in October 1991, was attended by over 100 professionals from over 50 different organizations in industry, government and academia. The second international symposium was held in July 1992 in Seattle, Washington, and was attended by over 400 system engineering professionals. The third symposium was held in Arlington, Virginia in July 1993 with an attendance of over 600. The 1994 symposium is scheduled to be held in San Jose, California.

In late 1991, NCOSE incorporated in the State of California and membership applications were solicited. Local chapters have been established in major cities across the United States and chapters in other countries are forming. Additionally, 14 major corporations have become Corporate Advisory Board members and are active in working with NCOSE leadership to better the practice and understanding of systems engineering.

NCOSE was conceived as a result of a recognized need for World Class Systems Engineering. We encourage you to participate in its formative years.

INSTRUCTIONS FOR APPLICANTS

1. Check the membership type for which you are applying. Memberships are for 12 months, with renewal in your anniversary month.

2. Type or print your name, home address, employer, position, business address, phone and fax numbers, and e-mail address. Type or print in the spaces provided your educational record, degrees attained, academic major(s), the name of the college or university attended, and the year of graduation.

3. Applicants who hold a Professional Engineering license(s), or who have passed the Engineering-in-Training examination, should enter such information in the spaces provided.

4. List the names of professional societies of which you are a member.

5. Please list the names and addresses of two (2) individuals who, based upon personal knowledge, can comment on your professional system engineering work. At least one of these references should be a NCOSE member. References are not required for student member applications.

6. Sign and date your application and mail with your check payable to NCOSE in the amount of $60.00 ($10.00 for student member) to:

NCOSE
Suite 107
333 Cobalt Way
Sunnyvale, CA 94086
(408) 773-8701

PLEASE LIST THE TOP THREE ISSUES OR ACTIVITIES YOU WANT NCOSE TO ADDRESS:

1. _____

_____

2. _____

_____

3. _____

_____

NCOSE NATIONAL COUNCIL ON SYSTEMS ENGINEERING

Individual Membership Application

(see reverse for instructions)

1. Membership Type (please check the membership type for which you are applying)

- ❑ **MEMBER** (individual practicing, teaching or managing system engineering)
  Annual dues: $60.00
- ❑ **STUDENT MEMBER** (individual enrolled at least 3/4 time in engineering or related fields interested in the development and application of system engineering)
  Annual dues: $10.00

Mail Preference

❑ Home ❑ Work

❑ Check ONLY if you *DO NOT* want your address & phone listed in the Membership Directory

2. Personal Information

Name

Home Address | Home Telephone

City | State | Zip | Country

Employer | Position

Address | Mail Stop

City | State | Zip | Country

Telephone | Fax | E-mail

Degrees Obtained | Major | College or University | Year

3. U.S. Professional Registration

EIT: State License No. Date of Issue

PE: State License No. Date of Issue

4. Professional Engineering Memberships

Society Name | Years of Membership

5. NCOSE Member or Other Professional References (2 required)

Name | Title | Phone ( ) | Fax ( )

6. Signature _____ Date _____

***** Information Below for Administrative Use Only *****

Membership No. _____ First Date Joined _____ Date Dropped _____ Date Reinstated _____

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