



2012

INCOSE Annual Report



ABOUT INCOSE

The International Council on Systems Engineering – INCOSE – is a professional membership organization founded to develop and disseminate the interdisciplinary principles and practices that enable the realization of successful systems. Visionaries from industry, academia and government recognized the need for more engineers who possessed systems thinking capability able to deliver project results on-time, within budget and performance requirements.

An immediate and continuing benefit to members is a collaborative environment in which colleagues can share best practices, not only of systems engineering, but also of professional development. 2012 marked our twenty-second year and, in that time, INCOSE has grown to over nine thousand members (as of 1 June 2013) representing a broad spectrum from student to senior practitioner; from technical specialist to corporate senior manager; from scientist and engineer to business development professional in commerce and industry; from educators and researchers in academic institutions to those serving their countries through the military and in government agencies. INCOSE is truly a community of members working together to advance their technical knowledge, exchange ideas, and promote the value of systems engineering.

INCOSE MISSION AND VISION

INCOSE's mission statement commits its members to share, promote and advance the best of systems engineering from across the globe for the benefit of humanity and the planet.

The INCOSE Vision provides the focus to be recognized as the world's authority on Systems Engineering.

INCOSE GOALS

- Provide a focal point for dissemination of systems engineering knowledge;
- Promote international collaboration in systems engineering practice, education and research;
- Assure the establishment of competitive, scalable professional standards in the practice of systems engineering;
- Improve the professional status of all persons engaged in the practice of systems engineering;
- Encourage governmental and industrial support for research and educational programs that will improve the systems engineering process and its practice.

INCOSE's organization, operations and initiatives all exist to serve these overarching goals.



INCOSE Important Statistics

3 Geographic Sectors

64 Fellows

44 International working groups

65 Chapters

88 Corporate and Academic Advisory Board members

123 Book contributions from INCOSE Fellows

1400 Certified Systems Engineering professionals

8344 Individual members

TABLE OF CONTENTS

About INCOSE

INCOSE Mission and Vision	2
INCOSE Goals	2

Message From the President

4

INCOSE Financials

Financial Report	5
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The Year In Review

Certification	6
Technical Operations	7
IT Infrastructure	7
Academic Matters	8
INCOSE Fellows	8
Strategy	8

The Year In Review (continued)

Industry Outreach	9
International Outreach	9
Corporate Advisory Board	9
Communication/Publications/Social Media	10

INCOSE Events Calendar – 2012

INCOSE Global Events – 2012	11
-----------------------------	----

Awards – 2012

Chapter Awards	12
----------------	----

Board of Directors – 2012

Administrative Office	13
-----------------------	----

INCOSE Corporate Advisory Board Companies

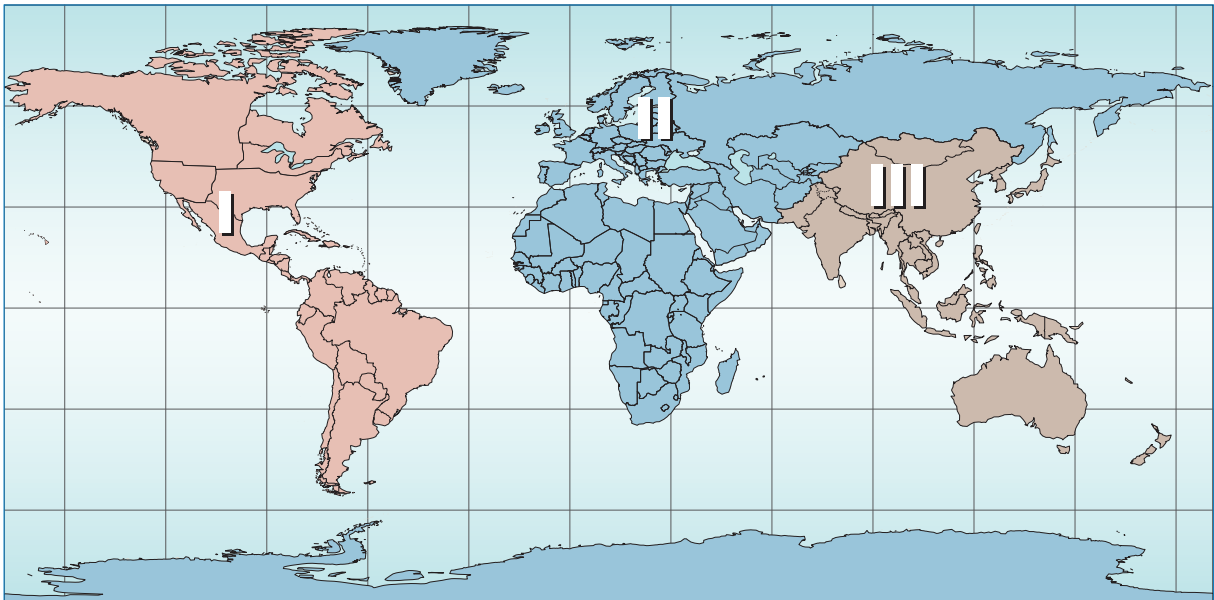
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INCOSE Geographic Sectors

SECTOR I: Americas

SECTOR II: Africa, Europe, Russia, Israel and Turkey

SECTOR III: Asia (excluding, Russia, Israel and Turkey) and Oceania



MESSAGE FROM THE PRESIDENT

I extend to you our members, systems engineering colleagues, and systems community stakeholders, a sincere greeting from the International Council on Systems Engineering. I hope you will find this year's annual report useful and informative.



I believe our annual report stands on its own and feel no need to summarize what you can easily find in these pages. Instead, this note will highlight the focus and priorities that provide the energy behind the results and achievements of this year. There are three key business imperatives for our organization. My focus has been laser sharp on these imperatives, first as our President-Elect, and now as President of INCOSE.

Business Imperative #1: It is in our best interests as an organization serving its members and the world wide community of systems engineers to advocate and promote:

- That a system engineer is a multi-disciplinary leader, professionally trained to deliver system behaviors that provide value to the stakeholder.
- That the systems engineering discipline is a critical tool of the systems engineer. The underpinnings of the discipline include both technical and management functions and can be tailored to a stakeholder's desired risk position.
- That the well trained system engineer is a valuable asset to their organization; an integral part of a powerful leadership team in conjunction with the program manager. This team resolves problems, takes advantage of opportunities, and delivers desired system performance within cost and schedule.

Business Imperative #2: To achieve the INCOSE mission we must increase our organization's influence on worldwide systems issues by deepening our leadership connections and partnerships with sister organizations. INCOSE's relationships with sister organizations should mirror the relationships we have as system engineers. There are too many candidates to share a complete list of such organizations. But a few examples include organizations involved with:

- Program Management

- The Engineering Disciplines: Mechanical, Electrical, Civil, Chemical, Computer Science, Software ...
- Safety, Privacy and Cyber (Information Security) specializations
- Reliability and Human Factors engineering
- Test and Evaluation, Costing, & Acquisition

Business Imperative #3: To achieve the first and second imperatives we require additional resources to implement the thought leadership agenda of our mostly volunteer organization. The breadth of increased resources includes:

- Modernization of our Information Technology to connect our distributed membership base and sister organizations. Technology that is highly reliable to enable distance learning, collaboration, and synthesis of diverse perspectives.
- The addition of professionals to support existing operations and planning activities, help in execution of our strategic agenda, and simultaneously provide staff who can support the expansion of organizational relationships.

Lastly, I'd like to close with a short summary from the executive summit held in Rome during our INCOSE 2012 International Symposium. A 16-page document of the executive summit discussions called "Pathways to Influence" can be found on our INCOSE web site. I urge you to take a moment to download a copy for yourself. Three points from that document are worth emphasizing:

1. The most important ability of a system engineer is the ability to influence decisions.
2. The world's greatest challenges need the power of systems thinking and engineering.
3. INCOSE should work to ensure that demonstrated leadership is recognized as a critical element of the technical track to which so many systems engineers aspire.

John A. Thomas

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INCOSE FINANCIALS

FINANCIAL REPORT



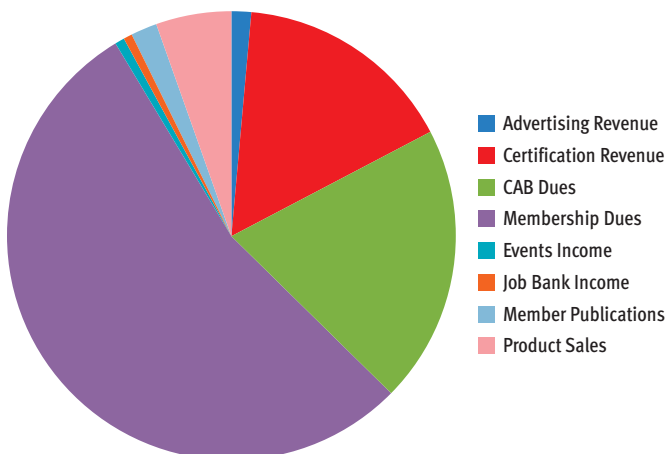
In compliance with INCOSE policy, this is a financial report of the 2012 fiscal year.

Although our world continues to experience financial uncertainty, INCOSE continues to maintain its mission to provide excellent service to members. Increased revenue from individual and CAB membership dues has allowed us to meet our increased responsibilities in several ways. We continue to enable the growth of the systems engineering profession through investments in our certification program, along with supporting our conferences, academic outreach, commercial outreach and support to our chapters and sectors.

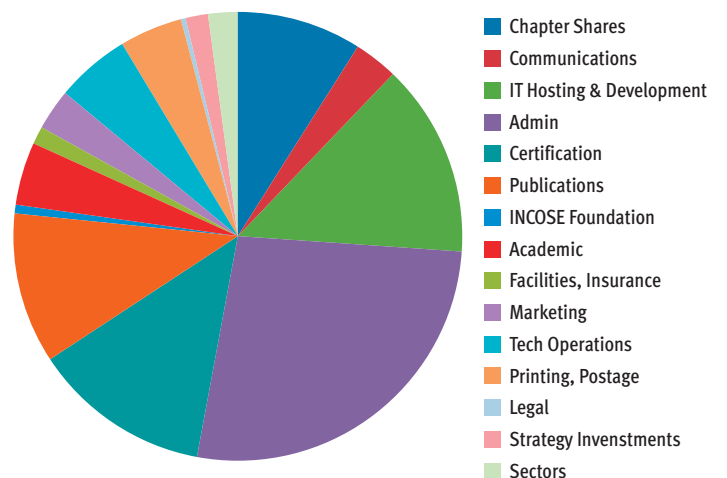
INCOSE's income for 2012 was USD 1,712,000 (112% of plan), while expenses were USD 1,627,000 (101% of plan). This left us with a net surplus of USD 85,000. This income growth over the year was due to increased symposium income, certification application fees, CAB and individual membership dues. Our combined membership dues continue to provide approximately 75% of our operating income. In 2011, we initiated the opportunity to pay dues for 3 and 5 years, at a savings to members. Since then, 462 people have taken advantage of this opportunity. In addition, 287 people take advantage of the Senior member level. The expenses include various items such as sharing dues revenue with chapters, certification expenses, information-technology expenses, publication expenses, marketing, meeting costs to support Technical Operations, and the cost of running the administrative office. The INCOSE Board of Directors plans to continue its efforts over the next few years to enable our organization not only to grow, but to increase our income by supplying valuable products and services to our members and to all systems engineers and associations.



INCOME



EXPENSES



THE YEAR IN REVIEW

CERTIFICATION

INCOSE's Professional Certification Program continued to grow in 2012, both in terms of reputation and numbers of SEPs. "The INCOSE certification program continues to be the worldwide standard for recognizing systems engineering professionals" according to Program Manager Dave Walden, ESEP.

As shown in Figure 1, INCOSE ended 2012 with over 1400 certified professionals, a 32% increase for the year. INCOSE certifications have been awarded in 24 countries. Several organizations have entered formal agreements with INCOSE regarding certification and two organizations now have more than 150 SEPs. INCOSE SEP credentials are being used as part of the process for the promoting and hiring of systems engineers. Each year, more and more organizations are using the INCOSE SEP credentials as a discriminator in their acquisition and supply activities.

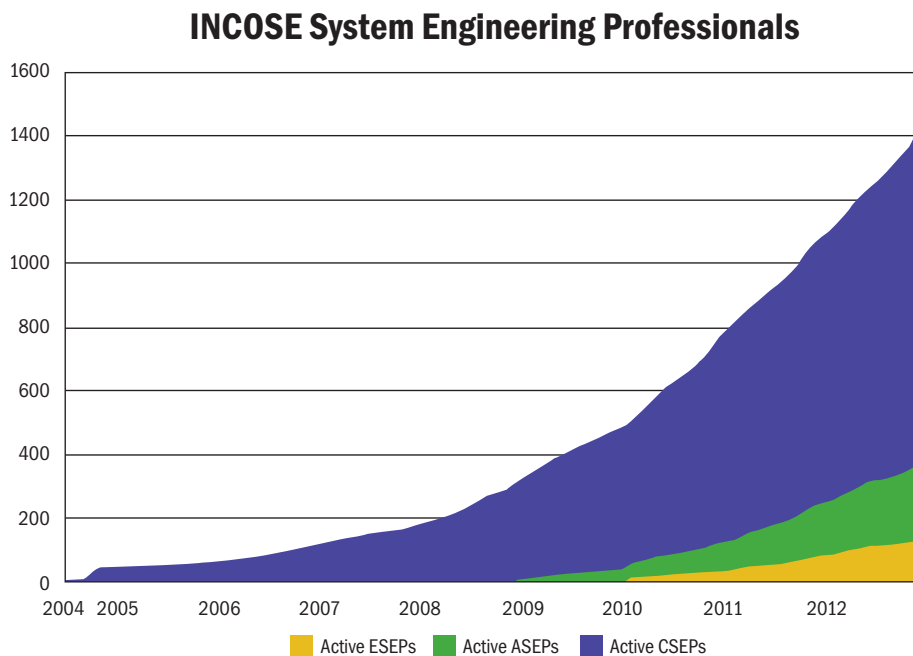


Figure 1. INCOSE Certification Continues to Experience Significant Growth

To position the program for future growth, and after a rigorous application and interview process, INCOSE has selected Courtney Wright, CSEP, as the new Certification Deputy Program Manager. About her new position, Courtney said, "I was grateful to be chosen as the new DPM. I am excited to work with the INCOSE certification team to bring the program even more success." Courtney will assume the role of Certification Program Manager in July of 2013.

Over
13%
of all INCOSE
members are
now SEPs



THE YEAR IN REVIEW *(continued)*

TECHNICAL OPERATIONS

Technical Operations brings value to INCOSE stakeholders by providing information through events, products, working group participation and technical information repositories. Led by Jean-Claude Roussel and Bill Miller, Technical Director and Deputy Technical Director respectively, 2012 saw 44 formally chartered international working groups and two major initiatives: Model Based Systems Engineering (MBSE) and Standards. Technical Operations also provides technical resources to INCOSE projects such as BKCASE and SE Vision 2025.

There were several notable accomplishments in 2012:

- Harmonization of working group activities by mapping group objectives to ISO/IEC 15288 and the INCOSE SE Handbook to assess coverage and gaps
- Creation of four new working groups:
 - Model Based Concept Engineering WG (from a SESA/Australian Chapter initiative)
 - Object Oriented Systems Engineering Method (OOSEM) WG (from Chesapeake Chapter initiative)
 - INCOSE/PMI Alliance WG to reinforce the link between Systems Engineering and Project Management
 - Agile System Engineering WG
 - In addition, an Automotive Special Interest Group was launched at the international symposium
- Issuance of significant Technical Products:
 - Lean Enablers for Managing Engineering Programs (joint MIT-INCOSE-PMI initiative) in May 2012
 - Guide for the Application of Systems Engineering in Large Infrastructure Projects in June 2012
 - Guide for Writing Requirements in June 2012
 - SEBoK (Systems Engineering Body of Knowledge from BKCASE) in September 2012
 - GRCSE (Graduate Reference Curriculum for Systems Engineering from BKCASE) in December 2012

Technical Operations contributed significant efforts to reviewing and finalizing SEBoK and GRCSE throughout 2012. In the second half of the year, work was launched to prepare a new version (V4) of the *SE Handbook*, to align with SEBoK V1.0 and the upcoming release of an updated ISO/IEC 15288.

Finally, 2012 included increased communication and interaction with the CAB to analyze the needs of industry, government and academia and to respond to those needs through products and Webinars.

- *INCOSE Working-Group Awards presented at the 2012 International Workshop*



IT INFRASTRUCTURE

In 2012, INCOSE invested in an IT infrastructure solution that supports the increased IT needs of the organization. When fully launched, this solution will use proven and mature technology to support organizational growth, increase revenue, and realize our goals. INCOSE selected *Appnovation* to develop the new site in 2012. The new website will replace both the public incose.org site and the access-controlled connect.incose.org.

The goal of this new site is to increase the value of INCOSE membership by continuing to support and expand core functions of the current site while providing a common platform for members, chapters, working groups, and other collaboration sites. A common platform will streamline training and support issues while the new tools provided by the IT infrastructure will empower members to establish connections and foster improved collaboration across organizational and geographical boundaries.

THE YEAR IN REVIEW *(continued)*

The new site is built on open source platforms that facilitate modular expansion of new functions for all members. To promote organizational sustainability, the site will enable INCOSE to bring in revenue through a mature storefront that offers the sale of electronic products to non-members such as the *SE Handbook* and individual papers now located within the iPub database. After implementation is complete, the site will leverage integrated analytics to measure effectiveness and continuously improve based on these metrics.

STRATEGY

The natural lifecycle of all organizations includes a time when leaders review and reflect. In 2012 INCOSE began a process to measure itself against its mission. The initial results show progress toward achieving stated goals, a direction to meet emerging new goals and affirmation that the organization remains on track as the leading authority for systems engineering in the world.



In this era of accelerating change INCOSE is committed to producing the Systems Engineering Vision 2025, a collaborative forecast of the anticipated trends and implications on systems engineering theory and practice.

The development of the SE Vision 2025 began in 2012 with a preliminary document of consensus created by engaging with other organizations and institutions having an interest in Systems Engineering. INCOSE anticipates that this will support the future directions, provide guidance to SE stakeholders and partners worldwide and reinforce the position of INCOSE as the Systems Engineering thought leader.

ACADEMIC MATTERS

The value of INCOSE to the academic community continued to grow during 2012. GRCSE, the Graduate Reference Curriculum for Systems Engineering (www.bkcase.org/grcse)—a set of recommendations for master’s programs in systems engineering—was published, along with the Systems Engineering Body of Knowledge (www.sebokwiki.org). INCOSE will jointly manage both products with the IEEE Computer Society and the Systems Engineering Research Center.

Based on recommendations from INCOSE and the Institute of Industrial Engineers, US News and World Report agreed to begin ranking systems engineering graduate programs in the US in a combined industrial/manufacturing/systems engineering category. The first rankings came out in April 2013.

Articles from *Systems Engineering*, INCOSE’s flagship publication, were downloaded more than 37,000 times in 2012—the largest number of downloads ever. At the end of 2012, MIT Professor Oli deWeck was selected as editor-in-chief of *Systems Engineering*, taking over that role from Professor Andy Sage, who retired after more than a decade of dedicated service.

INCOSE continued to sponsor FIRST Robotics and Engineering is Elementary as major components of its Youth Outreach Initiative. Two new student divisions, at USC and LMU, were launched, and 190 new students joined INCOSE.

The Academic Council expanded in number and geographic reach with 19 members representing universities from Europe, Asia, North America, and Australia.

INCOSE FELLOWS

INCOSE Fellows are individuals with significant verifiable contributions to the art and practice of systems engineering in industry, government and academia. A survey conducted in 2012 showed that the INCOSE Fellows have produced over 123 published works in books, chapters and editorial contributions.

The Fellows serve as judges for three INCOSE Awards. One is the International Science and Engineering Fair (ISEF), where the INCOSE Award is given to the best

THE YEAR IN REVIEW *(continued)*

interdisciplinary project that can produce technologically appropriate solutions to meet societal needs. The 2012 recipient was Kelles Diane Gordge of Great Mills High School, Great Mills, Maryland for her project entitled *Direction Detection: A Novel Device For Detecting The Approach of Emergency Vehicles*.

In conjunction with the INCOSE Foundation, Fellows selected the winners of two additional awards. The 2012 Stevens Institute of Technology Doctoral Award was presented to Clement Smartt, CSEP. He is pursuing a Ph.D. degree, with a focus in systems engineering at the University of Texas at Arlington, is a Research Scientist with the Georgia Tech Research Institute (GTRI). His current research interests include architecture, proposal management, modeling and simulation.

The 2012 James E. Long Memorial Post Doctoral Fellowship was presented to Ola Batarseh, a Postdoctoral Fellow at the H. Milton Stewart School of Industrial and Systems Engineering at Georgia Tech. Her research interest is in model-based systems engineering and discrete-event simulation.

Two new Fellows were initiated in 2012: Stephen Cook and Olivier deWeck.

INDUSTRY OUTREACH

The Industry Steering Board, led by Anne O’Neil, Director for Industry Outreach, focuses on how to communicate with and how to increase INCOSE’s relevance to all industry sectors. In the past several years INCOSE has witnessed a growing number of companies and organizations in automotive, ground transportation, biomedical/healthcare, and power/energy sectors evaluate and apply systems engineering in their respective domains.

The steering board’s vision is to position INCOSE as a source of knowledge of SE processes to sectors that have not historically applied systems engineering. As complexity and systems challenges increase, it is critical to understand the underlying business needs and core competencies to know which systems engineering tools and principles will work best in the diverse domains.

INTERNATIONAL OUTREACH

Tat Soon Yeo is the Director for International Outreach. With the help of appointed ambassadors, he develops, implements, and maintains a strategy and plan for reaching out to untapped areas of high-potential membership. The goal is to increase membership and member services at the individual and corporate level on a global scale. The goal is the same in all sectors: expand our reach to companies, organizations and systems engineers who are not aware of INCOSE and foster a willingness to work together and share the best practices of systems engineering. 2012 saw growth in membership numbers in each of the three sectors, with a corresponding increase in certifications.



CORPORATE ADVISORY BOARD

In 2012, the INCOSE Corporate Advisory Board (CAB), under the leadership of Garry Roedler and Max Berthold, continued to influence INCOSE as a key stakeholder group and expanded to almost 90 member organizations (corporate, government, and academic).

The successful webinar series initiated by the CAB transitioned to Technical Operations in 2012.

During 2012, the CAB defined and started implementation of efforts to ensure the CAB’s effectiveness as it continues to grow. The efforts include better integration across the INCOSE entities, interactive exchange on technical program planning, a structured approach to address CAB needs, and a framework to support CAB sponsored projects. The improvements will further enable the CAB role as a key advisory group and “voice of the customer.” The CAB also continued its support for the INCOSE IT infrastructure, including investment in the knowledge/ content management. The improved access to INCOSE products throughout CAB organizations, along with improved collaboration and corporate login environments, are intended to enhance the value of CAB membership and the value of INCOSE.

THE YEAR IN REVIEW (continued)

COMMUNICATION/PUBLICATIONS/SOCIAL MEDIA

In 2012, INCOSE used a variety of media channels to spread the word about its accomplishments, events and other relevant topics. The INCOSE home page still remains the most up-to-date source of news about chapters' events, webinars, and happenings.

INSIGHT offers special features for and about INCOSE members, as well as reporting on the state of the art and emerging practices within the field of systems engineering. It started out as a newsletter and has since evolved to a magazine published four times a year. A new Reader's Choice award was launched this year as an annual way for readers to indicate their opinions about the best issues and individual articles.

The INCOSE journal, Systems Engineering, and The Journal of Enterprise Transformation (JET), are also published quarterly. JET represents collaboration with the Institute of Industrial Engineers, and is designed to provide a forum for original articles on trends, new findings, and ongoing research related to enterprise transformation. These journals are published by Wiley and Taylor & Francis, respectively.

We continue to expand our digital footprint through our presence in the social media. Our Facebook page now boasts over 600 'friends' and our LinkedIn group has grown from just over 2000 members to nearly 9000 members in one year. This online presence supports dissemination of information, while stimulating a healthy exchange of concepts and experiences. The LinkedIn group alone generates nearly 200 comments each month.

This year 25 press releases were generated, an article by Bill Miller was solicited and published in CrossTalk, and Reuters ran an op-ed piece about rebuilding post-Sandy with a systems engineering approach, by INCOSE President John A. Thomas and Dr. Ali Mostashari with contributions from IS2012 keynote Andrew McNaughton.

1 Magazine

2 Journals

25 Press Releases

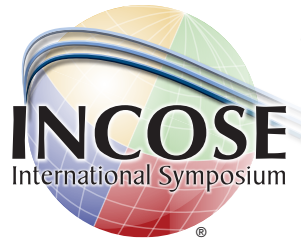
600 Facebook Friends

7000 new LinkedIn members



INCOSE EVENTS CALENDAR – 2012

The International Symposium is the flagship event for INCOSE and Systems Engineers worldwide. Volunteers, who are the nexus of this organization, also gather annually



at the International Workshop. In addition to those two major events, INCOSE events occur worldwide throughout the year.

INCOSE GLOBAL EVENTS – 2012 *(selected list)*

- International Workshop (IW2012)
Jacksonville, Florida
- Ontologies influences in Systems Engineering
Carlos III, Madrid University Spain
- Conference on Systems Engineering Research (CSER)
St. Louis, Missouri
- SETE/APCOSE 2012
Brisbane, Australia
- 1st Annual Systems Engineering in Washington DC
(SEDC 2012) | Washington, DC
- 2012 Industrial and Systems Engineering Research
Conference | Hilton Creek, Orlando Florida
- Kongsberg Systems Engineering Event (KSEE)
Buskerud University College, Kongsberg, Norway
- The Third International Symposium on Engineering
Systems–CESUN 2012 | Delft, The Netherlands
- 22nd Annual International Symposium (IS2012)
Rome, Italy
- INCOSE Systems Science WG sponsor session at
ISSS 2012 | Rome, Italy
- IEEE SOSE 2012
Genoa, Italy
- 16th ANNUAL PSM Users' Group Meetings and
Workshops | Portsmouth, Virginia
- 9th Annual INCOSE South Africa Chapter Conference
Pretoria, South Africa
- MORS Affordability Workshop
Arlington, Virginia
- 6th Annual INCOSE Great Lakes Regional Conference
Schaumburg, Illinois
- ICSSEA 2012 24th International Conference
Telecom ParisTech, Paris, France
- Fourth Annual Medical Device Connectivity Conference
and Exhibition | Joseph B Martin Conference Center at
Harvard Medical School, Boston, Massachusetts
- ASEC2012 – “Building a Better Future”
University of Warwick, Coventry United Kingdom
- 3rd International CSDM
Paris, France

The INCOSE Webinar series is also conducted throughout the year. Selected titles from 2012 include:

- *Foundations of Relational Complexity Theory*
Dr. John J. Kineman
- *IceCube as an Engineering Case Study*
Randall C. Iliff
- *Nine Laws of Effective Systems Engineering*
Zane Scott
- *The Organization Mind-Set: Learning to Think and Act
in Terms of Systems*
Professor Harold “Bud” Lawson
- *Agile Systems and Processes–Necessary and Sufficient
Fundamental Architecture*
Rick Dove

AWARDS – 2012

PIONEER: David Arthur Hall, III (*Posthumous*) (USA)
Jung Euk Seo (Korea)

FOUNDERS: Valerie Gundrum (USA)

OUTSTANDING SERVICE:

Eileen Arnold (USA)
Don Boyer (USA)
Bruce Elliott (USA)
Robert Levin (USA)

WORKING GROUP AWARDS:

Product of the Year | BKCASE/SEBoK & GRCSE
Sustained Performance | Systems Science WG
Sustained Performance | Requirements WG
Sustained Performance | SE for VSME WG
Achieving the SE Vision | UK Chapter
Collaboration | Lean Systems Engineering WG/
Lean Enabler for PM Sub Group
Collaboration | SESA/Australian Chapter

CHAPTER AWARDS

PRESIDENT'S AWARD FOR OUTSTANDING CHAPTER

- South Africa Chapter

DIRECTOR'S AWARD FOR MOST IMPROVED CHAPTER

- Three Rivers Chapter

GOLD CIRCLE AWARD

- AFIS
- Chesapeake
- Enchantment
- Hampton Roads
- Israel
- Los Angeles
- Michigan
- North Star
- Orlando
- South Africa
- Southern Maryland
- Three Rivers

SILVER CIRCLE AWARD

- Atlanta
- Australia
- Chicagoland
- Cleveland–Northern Ohio
- Colorado Front Range
- Finger Lakes
- Midwest Gateway
- San Diego
- San Francisco
- Singapore
- Snake River
- Texas Gulf Coast
- Washington Metro Area

BRONZE CIRCLE AWARD

- Alamo



■ Chapter Award recipients at the 2012 International Workshop
(Photos by Tim Ferris)



BOARD OF DIRECTORS – 2012

PRESIDENT: John Thomas, ESEP, *Booz Allen Hamilton* (retired)

PRESIDENT-ELECT: David Wright, *Lockheed Martin UK* (deceased July 2012)
David Long, *Vitech Corporation* (December 2012)

SECRETARY: Richard Grzybowski, *Corning*

TREASURER: Marsha Weiskopf, *The Aerospace Corporation*

TECHNICAL DIRECTOR: Jean-Claude Roussel, *EADS*

DIRECTOR FOR STRATEGY: Ralf Hartmann, *Astrium Satellites*

DIRECTOR FOR INTERNATIONAL GROWTH: T.S. Yeo, *Temasek Defence Systems Institute*

DIRECTOR FOR COMMERCIAL OUTREACH: Anne O’Neil, *New York City Transit*

DIRECTOR FOR ACADEMIC MATTERS: Arthur Pyster, *Stevens Institute of Technology*

DIRECTOR FOR IT: Ryan Mortimer, *Lockheed Martin Corporation*

DIRECTOR FOR COMMUNICATIONS: Cecilia Haskins, CSEP, *NTNU*

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EMEA SECTOR DIRECTOR: Asmus Pandikow, *Syntell AB*

ASIA-OCEANIA SECTOR DIRECTOR: Horng Leong Lim, *Singapore Ministry of Defense*

BOARD MEMBER: Eric Belle

ADMINISTRATIVE OFFICE

MANAGING EXECUTIVE: Holly Witte

OPERATIONS MANAGER: Christine Kowalski

The INCOSE Annual Report 2012 was produced by INCOSE Administration. Every attempt has been made to be accurate. Please address any comments to: info@incose.org

INCOSE CORPORATE ADVISORY BOARD COMPANIES

Air Force Center for Systems Engineering	Honeywell International	SAIC
Airservices Australia	IBM Corporation	Sandia National Laboratories
Alliant Techsystems	JAXA (Japan Aerospace Exploration Agency)	Scitor Corporation
Analytic Services-Applied Systems Thinking Institute	Jet Propulsion Laboratory	Selex ES, a Finmeccanica Company
Astrium an EADS Company	Johns Hopkins University	Serco-NA
ATKINS	KEIO University	Siemens
BAE Systems	L-3 Communications	Singapore University of Technology and Design
Bechtel	Lockheed Martin Corporation	SRA International
Beihang University School of Reliability & Systems Engineering	Los Alamos National Laboratory	Stevens Institute of Technology
Boeing Commercial Airplane Co.	ManTech International Corporation	Swedish Defence Materiel Administration
Boeing Defense, Space & Security–East	MAP systeme	TASC, Inc.
Boeing Defense, Space & Security	Massachusetts Institute of Technology	Tectura Corporation
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Carnegie Mellon University Software Engineering Institute	Mitsubishi Electric Corporation	The MITRE Corporation
CASSIDIAN	Nanyang Technological University	The SI
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Federal Aviation Administration (U.S.)	Procter & Gamble	US Army TARDEC
Ford Motor Company	Project Performance International	Vitech Corporation
General Dynamics	Raytheon Corporation	Volvo Construction Equipment
General Electric	Rockwell Collins, Inc.	Woodward Inc
George Mason University	Rolls-Royce	Worcester Polytechnic Institute- WPI
	Saab AB	



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