



preview

International Council On Systems Engineering UK Chapter Newsletter

Autumn assembly and 10th anniversary dinner

The theme of this event is Risking It All as we have a special session on Risk Management as requested by attendees at a previous event. The programme also includes major presentations on Requirements, SE Trends, Business Improvements, Competency, System Definition, Integrated Architectural framework and a V&V Case study on the West Coast Rail project. There should be something for every one!

Our tenth anniversary will be celebrated with dinner at the unique GWR STEAM museum with its award winning historic displays of Isambard Kingdom Brunel and the story of the men and women who built and operated the Great Western Railway. Enter through the displays of GWR as it was, take your pre-dinner drinks on a platform and buffet car straight from the 1930's while being entertained by a band playing music from the era. Be amazed at the world renowned collection of famous Great Western locomotives, carriages, rolling stock, posters, archive photographs and railway memorabilia.

To include another major area of our Systems Engineering community we are pleased to have the renowned author and TV personality Mr Stephen Bungay delivering our after dinner presentation.

We have also invited past presidents and the founding Systems Engineers from 1994 to join us so it will be nostalgic all round.

Space however will be limited so please reserve your place now if you do not wish to be disappointed. If you do not have full event details and booking form please visit www.incose.org.uk or email John.Mead9@ntlworld.com



STEAM tells the remarkable story of the men and women who built, operated and travelled on 'God's Wonderful Railway'.

STEAM gives you the chance to experience the sights and sounds of the GWR works at Swindon - famous as the place where many of the best steam locomotives in the world were built - and to hear the stories of the men and women who worked there.

STEAM also brings to life the exploits of Isambard Kingdom Brunel - the flamboyant engineer, and acknowledged

October 2004

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Editor's note

Firstly I would like to start with an apology regarding the format of the last edition. We have changed supply of printing and experiencing a few teething troubles. However, this does not excuse the typo regarding the events calend(a)r.

You may also have noticed the rather thin look to the newsletter. I don't believe that this is a reflection that nothing is going on in the world of systems engineering but more to do with enough pens being put to paper. So please help me to increase the thick ness of Pre-

view by sending in your news articles, items of interest and comments.

This edition has a number of plugs for the Autumn Assembly being held in Swindon and the 10th Anniversary Dinner hosted at the Great Western Steam museum in Swindon. So don't forget to book up early and I hope to see you all there!

Doug Cowper
Editor, Preview

Please email your news and views to d.cowper@ucl.ac.uk
www.incose.org.uk

In profile - Allen Fairbairn, Secretary - INCOSE UK

Unfortunately this item has been postponed until a later edition of Preview.

In profile next time, Simon Hutton, Chairman of the CMC, INCOSE UK

Systems engineering and synthetic environments national advisory committees workshop

A workshop was held at the Defence Academy site at Shrivenham on 7th June to discuss the relationship between Systems Engineering and Synthetic Environments. The workshop was hosted by Prof. Phil Johns Systems Engineering Centre, and included representatives from both the Systems Engineering and Synthetic Environments National Advisory Councils (NAC).

The two National Advisory Councils are part of a number set-up as a result of the Foresight report to provide advice to the UK Government on key technology issues.

The workshop began with presentations from the two NAC chairmen. Bill Bardo (Systems Engineering) presented the NAC role in the evolution of Systems Engineering thinking, including strong links to INCOSE. Peter Jackson (Synthetic Environments) presented the more active role of his NAC, which represents most of the players in the small Synthetic Environments community.

The workshop format provided a lively discussion between the two communities. Once the difficult problem of who owns the initials SE had been covered (both communities finally agreed that Software Engineering had gotten there first!) a number of basic definitions and issues were identified. These are briefly summarised below.

Systems Engineering can be defined as a process discipline for dealing with complex interacting system elements, at varying levels of detail. While Systems Engineering may have been traditionally associated with the creation of identifiable system products it is increasingly being seen as a through life discipline, exemplified by the ISO standard 15288 Systems Engineering Lifecycle Processes. In particular, we need a Systems Engineering approach to the early stages of system acquisition (sometimes referred to as System Discov-

ery); and to the integration and operation of Systems of Systems in the real world. To support this Systems Engineering processes, methods and tools need to evolve to be more responsive and flexible; and to deal with System of Systems issues.

Synthetic Environments can be defined as a tool for system exploration ranging from early experimentation; option trade-off and selection; training, integration and mission rehearsal. Within the Synthetic Environments community two types of tool are considered. "Small SE" refers to simulation environments created to support detailed evaluation of specific products. "Big SE" refers to more domain wide environments, which can be used for System of Systems experimentation. The two main focuses of effort in Synthetic Environments are the creation of facilities and contracting arrangements to allow these "Big SE" to be supported; and ensuring that all system acquisition projects create and deliver suitable "Small SE" to be used within them. Supporting all of this is the need to exploit commercial research into IT and simulation technologies.

From the above discussion, it became clear that both disciplines had a large amount of common ground and that greater cooperation was needed to face future challenges. In discussing the relationships between the two disciplines, the following was identified: Both have a traditional home in the creation of system products. A better use of simulation technologies can be made in this domain. In particular in the trade-off and selection of system options. Synthetic Environments are themselves complex integrated systems. We need to ensure that Synthetic Environments satisfy relevant stakeholder needs and constraints; that they have an architecture which supports interoperability and future evolution; and that we

understand the issues of verification and validation. The application of Systems Engineering process to the creation of Synthetic Environments can help to achieve this.

Synthetic Environments are already being used in the process of Discovery and in the integration and use of System of Systems. This use implies that some kind of Systems Engineering process is being applied. A more formal application of Systems Engineering to these aspects of the system lifecycle could benefit both disciplines.

All three of the above can be expected to change our understanding and application of both Systems Engineering and Synthetic Environments. In the third case in particular, we can expect Systems Engineering to be transformed through the use of Synthetic Environments to be more incremental, flexible, and able to deal with a wider range of real world issues. It was suggested that this transformation process is of direct interest to INCOSE.

The final part of the workshop was an identification of the practical steps that the two NAC need to take to follow up on the above issues. An initial agenda for future activities was defined, with work in the following areas: Raising the awareness of the above issues at a senior level, particularly within the MOD. General education and awareness for Systems Engineering and Synthetic Environments practitioners.

Understanding the processes used in the creation and use of Synthetic Environments. Understanding the Discovery process.

A second meeting was organised for September to take these practical initiatives forward. We look forward to reporting on this work further at future INCOSE events.

Rick Adcock
Cranfield University
Centre for Systems Engineering

Founders award

The Founders Award is a highly prestigious award presented annually to one distinguished member of INCOSE who has made a major contribution to INCOSE. The award recognizes outstanding individual contributions to INCOSE, be they a single event or a lifetime of significant efforts. These contributions are of a highly significant nature and contribute positively to the advancement of INCOSE or an INCOSE Chapter. Examples of such contributions include extending INCOSE's international growth, developing new Chapters, significantly advancing INCOSE's profes-

sional status and making significant personal commitments to INCOSE such as long-term service in a leadership role.

John Mead
UK Administrator

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John Mead on 01344 422325
or
email: john.mead9@ntlworld.com

President's corner



As readers of this Newsletter and members of INCOSE, it is, I sincerely hope, reasonable to presume that you need no convincing that Systems Engineering is a crucially important discipline in helping to tackle the challenges of the increasingly joined-up and "systems" world in which we live and work. Like me, you no doubt see the increasing number and range of organisations that are seeking to develop and improve their systems engineering capabilities in order to achieve the right outcomes in technical and busi-

ness terms (time, cost and quality). It is a central objective of INCOSE to help our members to improve their systems engineering knowledge and practices so that they can both develop their own (highly marketable) skills and help their organisations to be successful in this environment. As the systems challenges faced by organisations become more complex, and with stakeholder expectations becoming ever more demanding, "systems engineering" must ensure that, as a discipline, it keeps up with demand. This means that as systems engineers we must ensure that the discipline is appropriate to meet modern challenges and stakeholder demands. In previous "President's Corners" I have emphasised the extensive opportunities that are available to you, as INCOSE members, to influence and contribute to the future agenda and direction for systems engineering and it is in this spirit that I encourage you to access the Members Area of the INCOSE website (see www.incose.org/membersonly.htm) and look at Draft 1.0 of the

"Technical Vision 2020". This is the result of discussions held across INCOSE over the past two years and focuses on the more technical aspects of the discipline. The intention is that, when it is sufficiently mature, it will guide the INCOSE strategic planning process. It addresses the Future Systems Engineering Environment, Systems Architecting, Systems Development, Systems Management, Systems Engineering Standards and Systems Engineering Education and Research and I strongly encourage you to read it as an excellent assessment of our systems world, the challenges that we must meet and how systems engineering must evolve to do so. As members, you are encouraged to submit comments on the Draft Technical Vision and so have an excellent opportunity to ensure that the future agenda set for INCOSE incorporates the issues that you see are important. The final version of the Technical Vision 2020 will be published by the 2005 International Workshop in January.

I have also mentioned previously that this year is the 10th Anni-

versary of the formation of our Chapter. We shall be marking the occasion at our Autumn Assembly in November and I hope very much that you will be able to be there. It is fitting that, as we seek to meet the systems challenges of the future, we remind ourselves of the great systems achievements of the past and we shall be doing this in two ways at the Assembly / Anniversary Dinner. Firstly, it will be held in the extremely interesting and atmospheric venue of the Great Western Railway Museum in Swindon, thus surrounding us with "systems" from the golden age of Brunel; secondly, we are extremely pleased that our after-dinner speaker will be Stephen Bungay, the renowned author and television presenter, who will provide a fascinating insight into the systems dimensions of the Battle of Britain. We are guaranteed a very enjoyable and memorable occasion. Please look out for further information on the event ... I hope to see you there.

Prof Phil John
President of the UK Chapter

Around the regions

Scotland

INCOSE Scotland is holding a workshop on "Visualisation and Innovation" at the Digital Design Studio (DDS), Glasgow School of Art (in the House for An Art Lover, Bellahouston Park) on the afternoon of 11th November, to include a demonstration of replacement reality facilities. If you would like to attend, please contact Brian Sherwood Jones at: brian@sherwoodjones.plus.com Process Contracting Limited Human Factors and System

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Events calendar

OCTOBER

18th - 21st October 2004

IEMC 2004, Singapore.
www.iemc2004.org

28th - 31st October 2004

Business Essentials for Engineers,
Wyboston Lakes, St Neots, Bedfordshire.
http://conferences.iee.org/business_essentials/

NOVEMBER

8th - 9th November 2004

UK Autumn Assembly

11th November 2004

INCOSE Scotland - workshop on "Visualisation and Innovation" at the Digital Design Studio (DDS), Glasgow School of Art

Mid Nov 2004

Local London Group
"Systems Engineering Management Plan Workshop" venue TBC

2005

January

28th January - 3rd February 2005

INCOSE International Workshop 2005

March

23rd - 25th March 2005

Conference on Systems Engineering Research

July

10th - 15th July 2005

INCOSE 2005, 15th International Symposium, Rochester, USA

If you have an event you would like published in Preview then please contact:

d.cowper@ucl.ac.uk

CDs for SEs

All of the Systems Engineering Information that you probably require –or even more!

We have a number of CDROM gathering dust and are keen for you to take advantage of this.

INCOSE 1999 Ninth International Symposium

–SYSTEMS ENGINEERING –SHARING THE FUTURE!

Also available

INCOSE UK Spring Symposium 2001

DEVELOPING THE ART AND SCIENCE TO FACE NEW CHALLENGES

INCOSE UK Spring Symposium 2002

SAFE AND SECURE SYSTEMS ENGINEERING

INCOSE UK Spring Symposium 2003

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