



## President's Point of View

### The challenge for INCOSE in attracting and retaining the next generation of systems engineers



*Dr. William Ewald - INCOSE CC President*  
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When you look around INCOSE (including the Chesapeake Chapter) you are struck by the number of members who are in their fifties, sixties and beyond. In contrast there are relatively fewer individuals who reflect the younger generations. Part of this is a matter of demographics. Engineering was a desired option for many of us when it came to choosing a career, and there were more of us because of the spike in births following World War II. Now there are not only fewer individuals interested in engineering and science, but also fewer in the population due to declining birth rates in the United States as well as in most developed and developing nations. The recent Science, Technology, Engineering, and Mathematics (STEM) initiative is a recognition in the US that attracting

students to embrace engineering and related disciplines is a national strategic imperative. The net result of these factors is a reduced pool of young engineers who will be able and available to replace our current complement of members. It's a succession planning issue. We are already seeing vestiges of this issue in the number of long term tenured members who are recycling through our various leadership positions within INCOSE. There are some notable exceptions, but not enough of a critical mass to provide a pipeline of viable candidates for future leadership positions. Another indicator of the problem is the difficulty in forming and sustaining INCOSE student chapters. We are still trying to crack the code on how to do this. But perhaps the overarching issue may be traced to the differences in the values and culture among and between generations – particularly those born before 1960 and those born after 1960. Cultural differences span most organizations including those that focus on engineering such as INCOSE. A sample of the former values (taken from an overview by avalok) includes:

- Respect for authority, honor and country
- Age = authority – sometimes a love/hate relationship with authority
- Loyalty to the organization
- Dedicated, self- sacrificing work ethic

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This is the monthly newsletter for INCOSE Chesapeake, a local chapter of INCOSE International. We are a not-for-profit organization dedicated to providing a forum for professionals practicing the art and science of Systems Engineering in the Northern & Central Maryland & Southern Pennsylvania area.

**Save the Date: 4th Annual SEP Gala Dinner, August 28 at the Engineer's Club in Baltimore**

- Think of their work as a career
- Competitive/workaholics

A sample of the latter's values (again from avalok) includes:

- Independent and cynical
- Want to be led by competence
- Techno literacy
- Loyalty to individuals not organizations
- Live in the moment, the future is uncertain
- Well educated, collaborative, open minded

One can see from these brief samples the potential for miscommunication, conflict and frustration when interacting within organizations, making decisions, and building teams among others. The different generations tend to talk past each other, have different motivations driving their actions, and rarely have the ability or inclination to translate their ideas into the language and value systems of other generations. For the most part, the INCOSE hierarchy is comprised of those born before 1960; a good portion of the rest of the organization after 1960. The potential for disconnects and logical consequences is disquieting. When members of the younger generations have difficulty within organizations, they leave physically or psychologically. If we were to extrapolate this to INCOSE, one would predict that we might attract the younger engineers, but if disenchanted with the organization, they would leave within a couple of years. Our ability to retain these individuals rests on how well we can bridge the gaps in our cultural preferences. Translation and empathy skills will be a required skill set of leaders regardless of the generation. The more we can retain the more candidates for leadership positions within INCOSE. INCOSE seems to have recognized that translation and empathy skills need to be a part of the INCOSE's leadership tool kit. At the IS, a panel entitled "How to Influence Colleagues and Decision Makers" was convened to explore the very issues outlined in this article. The important message for me was that while we may come together because of our shared technical skills and support of systems engineering, the glue that will bind us over the long run will be the use of skills to build appreciation and empathy across the diverse generations of INCOSE.

*Bill Ewald - INCOSE Chesapeake Chapter President*

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## **Don't Miss next month's Dinner/Lecture 17 July** **[MBSE Current State and Directions](#)**

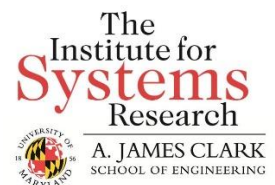
**Presentation:** Model-based systems engineering (MBSE) formalizes the practice of systems engineering through the use of models, and is considered by many to be critical to the advancing the practice beyond traditional document based approaches to SE. This presentation highlights some recent applications of MBSE, emerging standards and other advancements, and general directions. The presentation will provide the participants with a sampling of the broad nature of MBSE and its implications on how SE is likely to change.



The Chesapeake Chapter is always looking for volunteers to speak at our upcoming meetings! Please contact our 2013 Programs Director, [Dr. Alex Pavlak](#), if you would like the opportunity to speak or can recommend someone.

The Chesapeake Chapter of INCOSE is proud to recognize the following organizations for sponsoring our endeavors to expanding the understanding and appreciation of Systems Engineering in the local area:

Booz | Allen | Hamilton





Mr. Sanford Friedenthal

**Bio:** Sanford Friedenthal is an INCOSE Fellow, an industry leader in model-based systems engineering (MBSE) and an independent consultant. At Lockheed Martin, he led the effort to enable Model-Based Systems Development (MBSD) and other advanced practices across the company. His experience includes the application of systems engineering throughout the system life-

cycle – from conceptual design, through development and production on a broad range of systems in aerospace and defense. While a systems engineering department manager, Friedenthal was responsible for providing systems engineering people, process, and tools to the programs. Friedenthal has been a leader of the Industry Standards effort through the Object Management Group (OMG) and INCOSE to develop the Systems Modeling Language (OMG SysML™) that was adopted by the OMG in 2006. He is co-author of *A Practical Guide to SysML™*.

**Location:** [Applied Physics Laboratory, Johns Hopkins University](#); 11100 Johns Hopkins Rd Laurel MD 20723 (Main Entrance – Lobby 1)

[>>Download the Meeting Flyer Here<<](#)

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## Don't Miss next month's Dinner/Lecture 21 August [Laying a Secure Foundation for Mobile Devices](#)



Mr. Stephen Smalley

**Presentation:** Modern mobile devices such as smartphones and tablets have become fully general computing systems with a rich third party application ecosystem and user experience. As such, the same security problems that have long plagued the personal computer (PC) industry are becoming increasingly evident on mobile devices. Addressing these threats effectively requires a secure foundation, including both hardware and software mechanisms. In this talk, Stephen will lay out a vision for secure mobile computing, including a discussion of the roles

that virtualization, trusted computing, and secure operating systems play in an overall security architecture.

**Bio:** Stephen Smalley is a Computer Security Researcher in the Trusted Systems Research organization of the US National Security Agency (NSA). He presently leads the NSA's Security Enhancements (SE) for Android project, which is advancing the state of the art in mobile operating system security. Previously, he led the development and successful technology transfer of Security-Enhanced Linux (SELinux) to mainline Linux and co-developed Flexible Mandatory Access Controls (FMAC) for the OpenSolaris project. He has received the Meritorious Civilian Service Award and the Director of National Intelligence (DNI) Fellows Award




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This Newsletter is to serve our members and is open to all for contributions. Do you have an interesting idea for an article? A review of a new book related to engineering? [Let us know](#). We'd love to hear about. It may wind up in a future issue of our Newsletter.

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[>>Check out the Event Flyer Here<<](#)

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## Did you miss last month's lecture?

### Logistics of Disaster Management



Mr. Chuck Willis

Baltimore Gas and Electric (BGE), an Exelon Utility, distributes electric power from substations to the consumer and distributes natural gas from the City Gate to the consumer. 1999 was a pivotal year for storm and emergency planning at BGE. While Y2K contingency planning was up and running, the 1999 Ice Storm and Hurricane Floyd struck. The Y2K Team continued their work after 2000 becoming the Business Continuity Organization and institutionalizing contingency planning throughout the Company. This lecture explains the BGE Incident

Command System, how it was developed and evolved over the past 13 years. A key part of the system is the Electric Delivery Emergency Response Plan (EDERP) which was first released in 2000 and has evolved over the years in response to lessons learned. This lecture discusses lessons learned from Irene, one of the most severe events in BGE's history, as well as Snowmageddon, the Derecho and Hurricane Sandy.

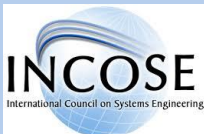
[>>Check out the complete write-up on the event<<](#)

[>>Download Presentation Here<<](#)

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## Upcoming Events

- July 17: MBSE Current State and Directions, *Mr. Sanford Friedenthal*
- August 21: Laying a Secure Foundation for Mobile Devices, *Mr. Stephen Smalley*
- August 28: SEP Gala Dinner



Keep up with the latest news and events. Find out about our new Board of Directors. Explore our extensive library of previous lectures from our Monthly Dinner Meetings. Learn of the Benefits of Joining INCOSE. Check out Systems Engineering education in the local area. All this and more awaits you at our [INCOSE Chesapeake Chapter Website](#).

For any comments or suggestions about this newsletter please e-mail our [President, William Ewald](#) or our [Communications Officer, Oren Eisner](#). We value your feedback.

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