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INCOSE Chesapeake Chapter
International Council on Systems Engineering

E-Newsletter

August 2015

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President's Point of View

Mr. George Anderson
INCOSE CC President
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All Glory is Fleeting[1]

A record number of Chesapeake Chapter members attended the INTERNATIONAL Symposium (IS) in Seattle (actually Bellevue) Washington on July 13–16, 2015. We accounted for about 30 of the 885 officially registered attendees and may even have achieved the largest chapter turnout of all. Our members purposely dispersed throughout the six simultaneously operating presentation rooms and made hard choices as to which of approximately 40 papers and panels that they attended each day.

Each morning began with a plenary session that included a keynote speaker. Four speakers in all delivered appropriate and relevant presentations. Included were a college president talking about systems engineering as a management tool, a software engineer from Sweden urging speed to market, a water resources engineer from South Africa who clarified the importance of managing critical infrastructure and a project manager who built an astronomical observatory high in the Andes Mountains. Check with an attendee, as they have access to the video on their smartphones, if you want to see what you missed. The plenary sessions also served as the venue for the annual awards to individuals and chapters.

Steve Sutton, ESEP and former INCOSE-CC President received the Outstanding Service Award on Tuesday, July 14, 2015, for making the new International Web Site a reality. He worked for several years on the Communications Committee and richly deserves this recognition. Congratulations, Steve!

Erik Devito, Chesapeake Chapter President in 2014, accepted the highly coveted President's Award from INTERNATIONAL President, David Long

Figure 1. Steve Sutton

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.

Join INCOSE Today

The Chesapeake Chapter is always looking for volunteers to speak at our upcoming meetings! Please contact our 2015 Programs Director, Glenn Townson, if you would like the opportunity to speak or can recommend someone.

on Wednesday, July 15, 2015. This award is presented annually to the INCOSE Chapter who scores the highest in the Circle Awards evaluation process. The award was earned for the year 2014 and was accompanied by the Gold Circle Award that indicates the highest rating short of the President's Award. The purpose of the award is to recognize chapters who execute the INCOSE mission with the highest success and is based on strict validation criteria.

receiving the Outstanding Achievement Award

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

Figure 2. The President's Award for Chesapeake 2014

If Erik was smiling earlier, 17 of our team were available to celebrate in the Boeing Museum of Flight that evening. After enjoying a meal of steak and prawns, we all posed to remind everyone at home that we are the World's Best Chapter for a year. Our first challenge came earlier from Americas Director, Barklay Brown, who opined during the award presentation ceremony that we would not have won if the United Kingdom Chapter had not been disqualified because they had won last year.
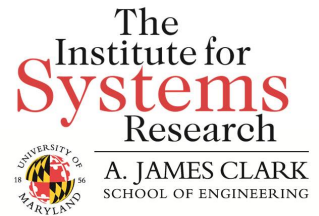
Barkley either did not know or did not care that the point spread was very close between the two chapters during the judging. That we can match a chapter more than twice our size in the quantity and quality of professional achievements should give everyone further reason to be proud.

I know that all this is exciting but I have more:

Figure 3. It was difficult, but we were able to round up 17 of the 31 local area SE's

We had at least two papers presented by Chesapeake members. Mark Walker and Gundars Osvalds gave papers on MBSE and Agile respectively and these were well attended. The extracurricular fun included whale watching, visits to Seattle's Market, scenic tours in the mountains and the incredible Chihuly glass exhibit located beneath the Space Needle. See the obligatory photo collage.

who were supposed to be at this party. An evening to remember for sure!

Please consider attending the IS next year when it will be held in Edinburgh, Scotland. Papers on steam engines will be especially welcomed and some of our wives are already checking out the tour guides to find the castle where the BBC series, Monarch of the Glen[2] , was recorded.

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[1]"For over a thousand years Roman conquerors returning from the wars enjoyed the honor of triumph, a tumultuous parade. In the procession came trumpeters, musicians and strange animals from conquered territories, together with carts laden with treasure and captured armaments. The conquerors rode in a triumphal chariot, the dazed prisoners walking in chains before him. Sometimes his children robed in white stood with him in the chariot or rode the trace horses. A slave stood behind the conqueror holding a golden crown and whispering in his ear a warning: that all glory is fleeting." - George S. Patton Jr.

[2]http://www.bbc.co.uk/scotland/tv/monarch/

George Anderson - INCOSE Chesapeake Chapter President

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Dinner Meeting on 19 August, 2015 (6:00pm - 8:30pm): 2015 INCOSE International Symposium Review Panel

Presentation: Lessons learned will be shared from 2015 INCOSE International Symposium presenters across the globe by a panel of INCOSE-CC ESEPs. The facilitator for this discussion will be Gundars Osvalds (pictured here). There will be 60 minutes of panel presentations and discussions followed by 30 minutes of questions from the floor.

Panelists:
Gundars Osvalds, ESEP — The Future of DoDAF, What are

the DoD and OMG plans?

David Fadeley, ESEP — Practitioners Challenge, "Applying Systems Thinking to Epidemic Response."

Jim Armstrong, ESEP — Education and Training, includes subject "Learning SE by Teaching It."

David Alldredge, ESEP — SEP Certification using "INCOSE SE Handbook" V3.2.2 or V4, "Which version should I use to take my SEP exam?"

Larry Little, ESEP — Agile SE & SW Methodology, Applying Software Agile Methodology to Systems Engineering.

Ellie Gianni, ESEP — The Future of Systems Engineering as presented in "INCOSE SE Vision 2025," To inspire and guide the direction of SE across diverse stakeholder communities.
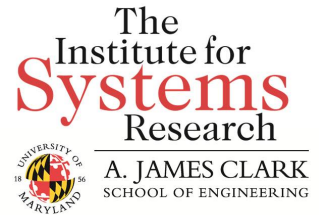
>>Check out the Event Flyer Here<<

Go to **www.incose-cc.org/registration/** to register

Parsons Auditorium, Bldg 1
Johns Hopkins University Applied Physics Laboratory
11100 Johns Hopkins Road
Laurel, MD

Map and Directions

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Wednesday, August 26, 2015

Every year our Chapter puts on a dinner and reception to honor those who recently received a Systems Engineering Professional (SEP) certification from INCOSE. Join us at:

THE ENGINEERS CLUB AT THE GARRETT-JACOBS MANSION
11 West Mount Vernon Place; Baltimore, MD 21201

Speakers and VIP guests include: Robert Gold, Director, Deputy Assistant Secretary of Defense for Systems Engineering DASD(SE); Mike McNamee,

Chief Systems Engineer, NSA/CSS; and Courtney Wright, Program Manager, INCOSE Certification Program

Cost: $45 per person. Pay online with PayPal: Go to our Registration Page where you can pay on line via credit card.

>>Download the Flyer Here<<

Robert A. Gold
Director, DASD(SE)

Courtney Wright
Program Manager,
INCOSE Certification
Program

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Advancing Your System Engineering Career

John A. Thomas, ESEP
INCOSE Past President — 2012 & 2013
Senior Vice President & Chief System Engineer Booz Allen Hamilton
(Retired)

Do you feel dissatisfied in your work as a system engineer?

You feel your role is relegated to producing documents that nobody reads or cares about. And though you may be managing large teams, your work activities aren't generating a system that meets the strategic objectives of your stakeholders.

You want your system engineering work to be part of something larger, but you don't see how that's possible. The demands and constraints of managers — whether program, acquisition or contract — feel disempowering to you. So you're demoralized, and see no way out.

John Thomas

It does not have to be this way.

These feelings are common to many system engineers. You might even say it's the curse of a profession that has refined the use of processes to guide and leverage the work of the hundreds and often thousands of

individuals needed to build large systems.

But it doesn't have to be this way. The work you do as a system engineer can be meaningful and useful. You can be a key player in producing the real-world innovations and systems your stakeholders need to support their missions. And instead of feeling relegated to a marginal role, you can use your knowledge and experience to guide the project and the people involved — so the end result is as much yours as anyone else's.

But you have to reach out for this. It is not going to come to you.

You have to be willing to see your role as system engineer in a different light — to actually redefine your perspective of what you are in that role. You have to be willing to accept that the constraints that you believe have been placed upon you — by the program manager, by contracts, by anyone or anything else — are not as real as you might think.

If you're willing to champion your own vision — and to see yourself operating differently in the role of the system engineer — then these constraints will fall away. But you have to be willing to take action, and to assert yourself and the value of your profession. No one will do it for you. And if you wait, it will never happen.

If you want your work to be meaningful, then you have to step up and be a leader.

A leader not in the sense of having a particular title or position, but in the sense of influencing people — whether they are acquisition, program, contract managers, other engineers, or anyone else associated with your program. Your actual title or position is irrelevant — what's important is you are demonstrating to your peers and colleagues the value of the content that is generated by system engineering activities.

You may be a manager, leading small or large teams. But if your teams are doing little more than producing documents whose content no one reads or cares about, then you are managing a process that simply produces paper and burns labor hours. You must aspire to lead using the power of process to produce technical content that focuses and drives the implementation of systems. The reality of a useful, fielded system is the ROI for your efforts. If you want your work to be useful and have value, then you have to both manage and lead. Managing is important, but without leadership, vision, and influence, how do you know where you're going? What are you managing to achieve?

It's the difference between being a steward of process and a leader of outcomes.

System engineers tend to follow one of two paths. Some, given a problem statement, will focus primarily on process, rather than on both process and outcome. Their metric of success is compliance to process, not whether the project as a whole succeeds. Typically, they and their teams focus on the carefully prepared document — not the outcomes that document drives toward.

System engineers who are leaders see process not as an end in itself, but as a tool to focus the efforts of hundreds and even thousands of staff needed to produce a system. They understand that the integrity of the technical and programmatic data is critical for the decision-making

needed to resolve problems.

When difficulties arise, a steward of process focuses on compliance with checklists, the delivery of documents, or the generation of new review milestones. But leaders — leaders of outcomes — recognize that technical difficulties may be rooted in issues of technology, or flaws in acquisition strategy or contract structure, or in insufficient skills sets and manning, or even in contradictory and prohibitive policies. Leaders of outcomes consider it their responsibility — not someone else's — to be part of the broader resolution of a program's problems — not just the technical problems. Leaders are driving agents who in fact obliterate those problems. Leaders are empowered individuals who know they are key to the success of the program.

It starts with a vision — your vision.

If you feel that you're not a part of something useful or important, then you're probably not asserting your own vision of who you are and how your profession of system engineering fits into producing the larger outcome. Perhaps you don't have a vision — perhaps you're like the bricklayer who never thinks about the building he's making, but simply is focused on the next brick and on the next, and the next.

Or, maybe you do have a vision, but you feel there's no place for it in the program, and that no one will listen or care. Either way, you are leaving the vision to others.

System engineers who are leaders have a vision of the overall outcome. They have clarity of purpose to achieve the manifestation of the physical thing that needs to be produced. They understand how the overall project can be broken down into its constituent parts, and how those parts must work together as a system. They understand that the integrity of system engineering activities provides the data needed to: 1) assure the correctness of an acquisition strategy; 2) support the definition and integration of system components; and 3) support fact-based decision-making needed to trade cost/schedule and technical to achieve an useful system.

Just as important, they recognize that it is up to the system engineer — not the program manager or anyone else — to lay out this vision. This is the system engineer's role. If it is abrogated, the quality of the outcome will inevitably suffer.

True leadership lies in conveying the vision.

Program managers don't want system engineers to be so focused on documents that they fail to see the larger picture. Program managers want — and need — system engineers who have an overall vision and can create the technical content (sometimes found in documents, other times found in models and data bases) that will make that vision a reality.

Conveying this vision to the program manager is only one step. A system engineer who thinks as a leader provides the vision to other system engineers — so that they understand the role they must perform. This notion is the difference between solely managing, and going further and leading. And it is the role of all system engineers — regardless of position, title or authority — to lead. It's every system engineer's job.

And when everyone does his or her job, what emerges is a new dynamic. Instead of isolated system engineers toiling on documents that go nowhere, there's an entire team of engineers and subject-matter experts who share a strong sense of what they're producing and how it creates the larger system. We -as system engineers - help to develop teams that take pride in creating something useful and valuable. A leader conveys not just that vision, but the purpose for arriving at that vision.

Getting there is not as difficult as you might think.

You might be thinking: Well, this is all very nice, but how do I get there? I talk all the time to system engineers — even ones in charge of large teams — who can't see how they might become unstuck from the tar pit they find themselves in.

Some might have a vision, yet are convinced the program manager won't understand or won't care. Others don't have a vision because, well, what's the point? They believe their role has morphed over the years, becoming so limited that their thinking doesn't matter much.

This is not just about a lack of communication skills — it's about a lack of confidence. System engineers who feel stuck typically believe they are constrained by other forces — whether it's their bosses, or program managers, or government regulation. In reality, though, they're usually constrained by their own limited vision of the role of a system engineer.

If you believe you have no important role to play in the ultimate outcome of a project, you probably won't play an important part. If you believe the program manager won't value what you say, he or she probably won't. If you're stuck, it's probably because you're getting what you're expecting.

But as I said earlier, it doesn't have to be this way. You can step out of your current, self-limiting role. Remember, you became a system engineer because you wanted to produce things that are important and useful, and because you have the gifted ability to envision how the parts of a system work together. You know how to create a new reality.

Start with that. Start with your vision. If it's strong and solid enough, you'll find yourself wanting and needing to share it with others. And if it's strong enough and solid enough, they'll look to you as a leader.

John Thomas is the Past President of the International Council on Systems Engineering, an organization for systems engineers and the dissemination of systems engineering practices.

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Annapolis Junction, MD and the Morse Electromagnetic Telegraph's First Public Success, May 4, 1844

George Anderson, ESEP

May 4, 2011

It has been 167 years since Samuel F. B. Morse located in the

then Supreme Court Room in the nation's Capitol received the first public news message from his partner Alfred Vail transmitting in Morse code from an open platform beside the rails at Annapolis Junction, MD. The message announced that the Whig Party candidate for President would be Henry Clay, and his running mate would be Theodore Frelinghuysen. The attendees from the Baltimore Whig convention left Annapolis Junction by train, and arrived in Washington to find the news was already being announced in the city by the local papers. Writing in a letter to the New York Times in 1909, Stephen Vail, Alfred's son relates more intimate details about this event and makes a strong public case for the message being recognized as the first historic use of the line.[3]
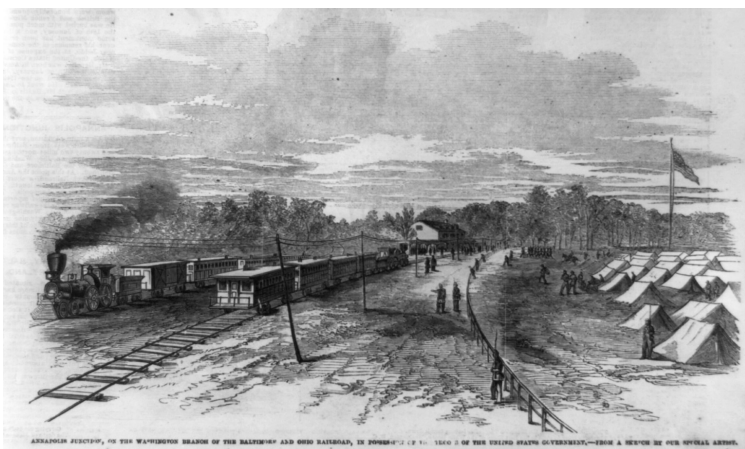

Figure 1: Annapolis Junction circa 1860

Morse had received a commission from Congress on March 3, 1843 to build a demonstration telegraph line from Washington, DC to Baltimore, MD and he was less than a month from completing this task. The geographical significance of Annapolis Junction was that it lay roughly equidistant (20-22 statute miles) from the three principal cities of Washington, Baltimore and Annapolis. It was also the junction of two rail lines. The two lines were the Baltimore and Ohio (B&O) and the Annapolis and Elk Ridge Railroads (A&ER). The B&O ran from Baltimore's Mount Clair Station to the outskirts of Washington DC. The Mount Clare Station today houses the B&O railroad museum. Morse had obtained agreement to use the B&O right of way to erect what would become the nation's first successful long distance communications network. Technically, it was based on regulating the flow of electricity from primary batteries called Grove cells over two conductors strung on poles to a receiving instrument. These cells were the high tech source of on-demand electricity in 1844 and because they emitted poisonous nitrous fumes while current was flowing would not pass muster with the EPA today.

Figure 2: Map showing Annapolis Railroad Junction circa 1878

From various recollections and some study of the earlier Annapolis Junction, one can surmise that Alfred Vail probably set up his telegraph instrument within 100 feet of the point where today the CSX running on the old B&O right of way passes under MD Route 32. Figure 3. Shows a gravel tower that stands at the location of the original rail station and platform. An 1860 directory lists two hotels, a rail station and a post office in Annapolis Junction. Today, the only enduring memory of this original community that I have found is through the verbal reminiscences of persons who ate at Henkels restaurant up until the mid 1990's. Henkel's Restaurant occupied what likely was the structure of one of the original 2 hotels that stood across the rails from the station. The same 1860, record shows that one hotel was called the Parkhurst House, owned by a Mr. George Bell. The only other surviving structure from this era is Grassland, an 1854 plantation house and outbuildings built by William Anderson that one can see on the right side of the road along National Business Parkway.

Figure 3: Alfred Vail most likely transmitted the first telegraph message near where the green

dumpster sits today (2011).

Currently, there is no Maryland Historical Marker (MHM) in Annapolis Junction to commemorate this historic event. The closest MHM relating to the telegraph is on Route 1, in Beltsville, MD fixing a point on the route of the first telegraph line.[4] Perhaps it is time that Annapolis Junction proudly displays its story to remind telecommunications professionals where their profession began. Alfred Vail's son, Stephen, would agree and might even have succeeded in doing this himself had he not died four months after presenting his case in the NY Times 102 years ago.

Thanks to the first public message sent from Annapolis Junction, this disruptive new technology spread rapidly among the commercial enterprises that had the most to gain from it. The railroad, an early partner, was surprisingly slow to recognize its value in dispatching, safety and allowing better resource utilization. In contrast, the securities markets were among the first to develop local area networks using specialized instruments that were universally called tickers to transmit stock and commodity quotes in near real time. The expansion of the telegraph and its eventual consolidation many years later is the life cycle model we perhaps see being repeated with the Internet and its enabling technologies.

Figure 4: Annapolis Junction Station circa 1863

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[3] New York Times January 23, 1909, letter from Stephen Vail. http://query.nytimes.com/mem/archive-free/pdf?res=FA0710F8395D12738DDDAF0A94D9405B808CF1D3

[4] http://commons.wikimedia.org/wiki/File:

MD_Historical_Marker_First_Telegram.jpg

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2014 Holiday Celebration Pictures

At long last, here are the photos from the December 2014 Holiday Celebration, where a good time was had by all. Click on the slide show to browse the photos.

Upcoming Events and Announcements

- **August 19, 2015:** Dinner Meeting — Panel of International Symposium Participants; moderated by Gundars Osvalds
- **August 26, 2015:** Systems Engineering Professionals (SEP) Reception
- **September 16, 2015:** Dinner Meeting — Human Factors Engineering; by Dr. Amy Bayes and other faculty members from Johns Hopkins University
- **September 19, 2015:** Tutorial — A continuation of Dr. Howard Eisner's "Thinking Outside the Box"
- **October 21, 2015:** Combined PMI-INCOSE Dinner Meeting — Study on Improving Integration of Program Management and Systems Engineering
- **November 18, 2015:** Dinner Meeting — Systems Engineering Standards to include the DoD addendums to ISO 15288
- Interested in Jobs Networking? Contact Mark Kaczmarek at mkaczmarekengr@comcast.net

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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, George Anderson or our Communications Director, Pat Williams. We value your feedback.

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