Waking Up Can Be Hard to Do

Rick Dove, President—

Often I am late to wake up. I woke up late to MBSE. Not because I didn't see value in it. Rather because I didn't see it as an answer to any of the problems that kept me awake at nights—especially the ones swirling around in that semi-conscious state before getting out of bed. Waking up to me means bounding out of bed with a mission and passion to attack something, compelled by ideas that demand pursuit.

MBSE didn't do that for me—until I saw the connection to the holy grail of a systems engineering life cycle platform. A platform with capabilities way beyond modeling tool offerings. A platform that would make systems engineering, and especially agile systems engineering, an embraceable engineering discipline, a compelling natural course of action.

For many years that was just an illusive wish, with no idea how it might be realized.

I use the term platform in a broad sense to mean a core enabling and facilitating engineering-support technology—where technology includes development platforms, knowledge platforms, and cultural platforms. In all cases a core infrastructure that enables and facilitates productive engineering activity.

Software engineering has development platforms, known as Integrated Development Environments (IDEs). Eclipse appears to be the most popular, offering an open source minimal core infrastructure for user-extendable interoperability with a federation of other user-favored tools. Broadly embraced.

Engineering disciplines have knowledge platforms—science, physical laws, and good practice principles that guide and justify design decisions and analysis.

Agile software engineering has a cultural platform—a minimal but encompassing platform of project management values and minimal implementation principles. The Agile Manifesto accomplished this, at the grass roots with software developers who recognized an embraceable solution to the debilitating problems they faced and felt every day. The explosive growth of agile software development methods didn't occur from an upper management strategic mandate.

Recently I woke up, became aware of research initiatives pursuing the development of model centric engineering platforms. These initiatives go by various names: integrated model based engineering, model centric engineering, integrated model centric engineering, digital model based engineering, and others. Notably the SE modeling tool vendors haven't been asleep; beginning to enable interoperable federations of simulation, analysis, and modeling tools—enabled by the OASIS standards work on Open Services for Lifecycle Collaboration (OSLC).

I believe the core objectives and values of MBSE are rework reduction, stakeholder communications, life cycle support from a digital twin, and both SoS (product) and operational (process) agility. Among other things, these core objectives elaborate to decision and trade-off support, and single source of truth throughout the life cycle. Up front, rework reduction appeals to customers, SEs, and engineers of all disciplines—where the value proposition is welcome productivity enhancement, easily assimilated as incremental augmentation to current practice.

MBSE is not about SysML or other modeling languages, nor about the modeling tools for systems engineering; but those offer a foundation for an actionable start. MBSE is a systems engineering concept currently on a journey, barely begun. The end objectives need kept in mind to guide the purpose of each step.

Ask yourself how you can connect MBSE to problems that keep you and your organizational managers up at night. Make the value proposition personal. ∞

CHAPTER HELP NEEDED!

Chapter Social Event Coordinator—Proposes venues and nature of Summer and Winter social events (with suggestions), negotiates venue after Board approval, provides budget info, and coordinates/produces the event.

Chapter Tutorial Coordinator—Not responsible for obtaining tutorial topics and leaders. Is responsible for negotiating Spring and Fall tutorial venues, providing budget info, and coordinating/producing the event after Board approval.

Mentoring and documented methods for both positions.
Contact Anthony Matta: armatta@sandia.gov. ∞

Enchantment Chapter Wins 2017 INCOSE Platinum Award

2017 is the third year that INCOSE offered a Platinum Award, and the third year that the Enchantment Chapter has earned it. Excerpted from March 21st letter sent by the INCOSE Director for Americas Sector:

On behalf of the International Council on Systems Engineering (INCOSE), we are pleased to recognize the Enchantment Chapter as a **Platinum Circle Award Chapter** based upon its contributions and accomplishments in 2017. The Platinum Circle Award recognizes chapters adopting best practices and reaching the highest goals and standards established by our organization.

Chapters organize technical and social programs, communicate key information about our organization and discipline, support technical activities, and enhance the member experience by facilitating an open, inviting environment where members receive valued products and services that enhance their careers. In fulfilling this mission, the Enchantment Chapter leaders and members have committed significant time and energy to further the goals of our organization.

To honor these efforts and achievements, this Platinum Circle Award will be presented during the Wednesday Plenary at the 2018 INCOSE International Symposium in Washington DC. In doing so, INCOSE recognizes and celebrates the contributions and achievements of the Enchantment Chapter, its leaders, and its sponsors. ∞

May 10-11 Tutorial: Model Based Systems Engineering

Mary Compton, Sandia National Labs

Please join us at the Enchantment Chapter's two-day tutorial on Model Based Systems Engineering. The tutorial will be held May 10-11, 2018, 8:00 AM to 5:00 PM in Room 207, at CNM's Workforce Training Center, 600 Eagle Rock Ave. NE Albuquerque, NM 87113. Attendance fees are as follows: INCOSE members: $250; non-members: $350; students: $0.

This two-day tutorial presents an overview of MBSE, its history, goals, and SysML modeling techniques for system engineering activities on a variety of project types and sizes. This will include case studies on best practice, lessons learned, and actual ROI from government and industry organizations.

The tutorial will also have an overview of the Systems Modeling Language (SysML) and Enterprise Modeling. Group exercises will take place after the presentation of each set of concepts to ensure that students understand the concepts.

Attendees will work in small groups to complete a number of worked examples, providing hands-on experience of applying the techniques and re-enforcing the concepts. Presentations and discussion are used to convey concepts, techniques, and notation. Case study exercises allow practical application of the techniques.

The tutorial will be led by Matthew Hause, PTC Engineering Fellow and GTM Technical Specialist, the co-chair of the UPDM group, a member of the OMG Architecture Board, and a member of the OMG SysML specification team.

For more information visit the Tutorial webpage: www.incose.org/ChaptersGroups/Chapters/ChapterSites/enchantment/library-and-resources.

To register via EventBrite go to: www.eventbrite.com/e/model-based-systemsengineering-tutorial-tickets-43493988691.

Questions may be directed to Mary Compton, mlcompt@sandia.gov or Ann

Hodges, alhodge@sandia.gov. Registration closes May 8, 2018. Space is limited so reserve your spot today! ∞

Western States Regional Conference
September 20-22, 2018 – Ogden, Utah

The Enchantment Chapter has signed a Memorandum of Agreement for Participating Chapters and contributed $750 as a Chapter Sponsorship to help get this regional event started. WSRC info follows.

The INCOSE western U.S. chapters cordially invite you to the Western States Regional Conference (WSRC).

Hosted by: INCOSE Wasatch (Utah) Chapter, with participation from western U.S. chapters.
Featuring: Technical presentations, working group activities, panel discussions, workshops, chapter leader meetings, networking events, SEP Beta Exam, and much more.
A Great Opportunity: High quality learning, networking, collaborating--all in the majestic Wasatch Mountains.
Venue: Orbital ATK Conference Center, located in scenic Ogden Canyon.

The WSRC Website is at https://incose-wsrc.eventbrite.com. **Please check back often for the latest news and updates.**

**** Call for Proposals ****

We invite INCOSE members and non-members to submit proposals for presentations, panel discussions, workshops, or tutorials.

Proposals for presentations of half-hour length are sought that will help improve systems engineering. Format for this conference is presentation only, no papers. Proposals for panel discussions are sought on significant or controversial subjects in systems engineering, about which different points of view are held. Proposals for panel discussions should nominate knowledgeable, eloquent, polite members who can forcefully and succinctly advocate different positions on the panel topic. Proposals for workshops or tutorials (half- or full-day) are sought that will teach systems engineering skills, tools, techniques, and knowledge. Proposals for tutorials should include a course outline and specify what will be gained by those attending.

The proposal deadline has been extended to April 14.

Call for Proposals -- Describes suitable topics, submission guidelines, and important WSRC proposal dates.
EasyChair Link -- Used to submit proposals.
INCOSE IP Release Form -- Required of all accepted presenters.

Driving from Albuquerque is about ten hours. If coming by air, Ogden is 40 minutes north of the Salt Lake City Airport.

Questions? Please contact: Paul White, WSRC Chair, at paul.white@kihomac.com; or Michael Leith, WSRC Technical Program Subcommittee Chair, at Michael.Leith@gd-ms.com. ∞

Recent Meetings

Ann Hodges, Sandia National Labs

Presentations and recordings are in the Library at www.incose.org/enchantment.

January 2018—Dr. Barry Horowitz, University of Virginia (UVA), Systems and Information Engineering Department chair 2009-2017, presented *Cybersecurity for Highly Automated Physical Systems—System-Aware Cybersecurity*. Barry showed the results of a Systems Engineering Research Center (SERC) project that develops small, inexpensive hardware agents for embedding in cyber-physical systems to monitor for, evaluate, notify responders, and mitigate a system's anomalous behavior. Sort of like a system's conscience which Barry calls Sentinels.

Barry's talk keyed off a definition of resilience as "the capacity of a system to maintain state awareness (implies a monitoring process) and to proactively maintain a safe level of operational normalcy in response to anomalies (implies a process of system reconfiguration)."

He distinguished attack possibilities for critical physical systems as more contained than for information systems, including: limited access to physical controls, fewer system functions, less distributed, bounded by laws of physics, and less physical states than software states.

Barry provided details on UVA's SERC-sponsored project work on "System-Aware Cybersecurity for Computer-Controlled Physical Systems." Rich details are beyond the scope of this review and need to be heard on the recording for full appreciation.

February 2018—Dr. Ron Carson, Retired Boeing and Seattle Pacific University adjunct professor, presented *MBSE Implementation Across Diverse Domains at the Boeing Company*. Ron shared experiences learned at Boeing in selecting MBSE strategy, processes, and tools. Key points of the Boeing enterprise approach to MBSE implementation included: education, development of usable capability, development of guidance for how to use that capability, a core group that provides support to all programs, and means to capture and share successes and lessons learned.

Two points stressed for legacy programs: apply MBSE to increments and changes, and "come along side" training on the new approach and tools. Two points stressed for new programs: gain adoption during program definition phase, and pro-

vide a fully supported "service-ready solution." Stressed for both types of programs: persistent embedding in the organizational culture.

Ron called out skills needed for programs, noting that the biggest skill challenges are knowing what to model at what level of detail, and knowing what modeled data to analyze and how to analyze it.

March 2018—Troy Peterson, INCOSE Assistant Director for SE Transformation, and VP at System Strategy, presented *INCOSE: Transformation Strategic Objective*. Troy started by showing the World Economic Forum's pronouncement that Systems Engineering is the essence of the next industrial revolution.

He showed INCOSE's Vision 2025 MBSE transformation expectations; discussing details of the strategy, implementation to date, and next steps. An informative presentation sprinkled with entertaining and relevant quotes, such as Peter Deming's "It is not necessary to change. Survival is not mandatory."

More information can be found on page 5 of this Newsletter, with a feature article written by Troy on the Model Based Systems Engineering Transformation Initiative. ∞

Next Meetings   *Ann Hodges, Sandia National Labs*

Apr 11: Is Systems Engineering Really Engineering? Lunch meeting 11:45-13:00, Chapter provides food.
Dr. Steve Jenkins, California Institute of Technology, Jet Propulsion Lab, Principal Engineer in Formulation and SE Division.
Abstract: Engineering is a creative process. The object of engineering is to bring about a desired state of the world, typically through the creation of artifacts that use scientific principles to judge the state of the world in a desired direction. Although engineering disciplines differ in their problem domains and solution techniques, there are fundamental principles that unite them and distinguish engineering from other creative activities such as painting and writing. This talk will explore some of these fundamental principles and consider the degree to which systems engineering does or does not respect them. Finally, it will argue that "Model-Based Systems Engineering" is just a label for a much-needed effort to firmly establish systems engineering as a legitimate application of engineering.

May 9: Creating Decision Guidance for Agile Systems Engineering.
Ron Lyells, Retired Honeywell; Co-chair Agile Systems & Systems Engineering working group.
Abstract: As awareness of agile system principles begins to take hold, and promulgation of agile software techniques continues, systems teams, projects, and organizations are often faced with the question as to whether they should adapt agile systems practices into their programs and processes. In trying to answer that question, teams are faced with other questions that need to be answered as well. These include what is motivating the decision, where should agile principles be applied, and how much agile is necessary. This talk will present work accomplished to date on applying the OODA process, coupled with some simple tools to help teams, projects, and organizations answer those questions.

May 10-11: Tutorial—Model Based Systems Engineering
Matthew Hause, PTC, Engineering Fellow; Chair, OMG SysML v2 Submission team
Abstract: see Newsletter page 2 for details.

Jun 13: Best Practices for Achieving Requirements Efficiency.
Dr. Cheryl Bolstad, Sandia National Laboratories, Human Factors.
Abstract: As requirements engineering and management processes (REMP) for complex hardware systems continue to mature, a major goal is to reduce the long timelines for generating and distributing requirements to system and component engineers. This literature review draws from external sources, such as peer-reviewed journal and conference proceedings, to reveal inefficiencies, challenges, and problems experienced in REMP, and seeks recommendations and solutions for overcoming them and reducing lengthy REMP timelines while ensuring quality in the process. The purpose is to understand where gains in efficiency might be realized. Best practices and lessons learned for general requirements management and for requirements elicitation, specification, analysis, derivation and decomposition, validation and verification, and change control are reviewed. ∞

Not For Women Only

Heidi Hahn, Los Alamos National Lab

Yet another article on why there aren't more women in STEM, this time with a focus on disparities between Western, progressive societies and others.

In a copyrighted article in the Wall Street Journal, Susan Pinker reports on an educational survey of students' skills in science, reading, and math. While girls were generally as strong as boys in science and math, they also had higher scores in reading than did the boys. If students are choosing their careers based on their strengths, based on their broader skills base, girls can choose more widely.

Interestingly, countries with strong protections for women and reliable safety nets had fewer female STEM graduates (about 20%) than more repressive countries (which had about 41%). The hypothesis for this result is that if the environment offers limited opportunities and the best opportunities are in STEM, the women will gravitate there. In a more open society, where the expectation is that a person can support a good lifestyle in many fields, the women will gravitate to what they are good at, which may be STEM but may be other fields as well.

To read the full article, go to: www.wsj.com/articles/why-arent-there-more-women-in-science-and-technology-1519918657   ∞

EWLSE Call for Papers – Diversity in Systems Engineering

Empowering Women as Leaders in Systems Engineering (EWLSE) invites everyone to submit papers focusing on diversity in systems engineering and related systems areas for consideration as INCOSE publications. We invite articles on any topic relevant to diversity, equity, and inclusion in systems related fields across industry, government, and academia.

We are especially interested in papers addressing topics that show the importance and value of diversity in enabling, promoting, and advancing systems engineering and systems approaches to address complex societal and technical challenges for a better world.

Possible topics include, but are not limited to:
- Effective techniques for overcoming the challenges of working across cultural boundaries.
- Global diversity policies, best practices, and lessons learned in creating an inclusive systems engineering enabled workplace.
- How building diverse systems' teams produces optimal systems.
- How diversity drives innovation and competitive advantage.
- The role of diversity, equity, and inclusion in a well-prepared systems engineering workforce.
- Institutional considerations or approaches for creating an open inviting systems focused culture.
- Broad training in knowledge, skills, and ability that includes traditionally underserved groups.
- Case studies demonstrating the importance and value of diversity in systems engineering.
- Embracing diversity of thought or approach for resourceful problem solving.

EWLSE is working with INSIGHT (INCOSE's Practitioner's Magazine published by Wiley) toward a dedicated *Diversity in Systems Engineering* themed volume in 2019. The EWLSE publications committee will also be assessing papers for fit within the SE Journal (state of the art of research in systems engineering).

For an INSIGHT paper, please first send an abstract (up to 500 words) by July 31st, 2018 to receive an invite to submit a paper due by October 30th, 2018. These submissions will also be considered for the SE Journal. Abstracts should be sent to the EWLSE publications committee at ewlsepubs@incose.org.

Topics that fit either publication are welcome. Paper submissions will be peer reviewed and judged on the degree of innovation, intellectual merit, described outcomes or impact, and relevance to diversity, equity and inclusion in systems engineering and related fields.

EWLSE uses double-blind review for papers. Until final papers are uploaded all references to the author(s) and their institution should be redacted in some way. Citations that would identify the author(s) should state, "details withheld for review" in the bibliography. Other formatting and technical guidelines are found Here. ALL authors must review the Style Guide and Citation Quick Guide before submission to be certain to meet all requirements.

For more information, contact the EWLSE Publications Committee: ewlsepubs@incose.org   ∞

Letters to My Younger Self

EWLSE will produce a book titled: *Letters To My Younger Self: How Systems Engineering Changed My Life*, targeted at secondary and higher education students and young professionals with contributions from our global membership and interested parties.

This book will contain an equal number of letters from men and women in systems engineering from around the world—letters written to their younger self about lessons learned from pivotal moments in their systems engineering journey that changed their life and made them the systems engineer they are today.

These pivotal moments could include challenges, events, overcoming obstacles, whatever you are passionate about sharing that had an impact on your systems engineering journey.

Authors will need to provide permission for letters to be published and the book is intended to represent a diverse set of individual viewpoints. Specific criteria for what we would like included in the letter and limits on length and other guidance will be forthcoming.

Please express your interest in writing a letter for the book and/or serving as an associate editor by May 30, 2018 to be considered for Volume 1, by sending your name and a description of your interest to ewlsepubs@incose.org. We will share additional criteria for associate editors and first pass letter due dates to those who express an interest in being authors on, or shortly after, June 5, 2018.

∞

Model Based Systems Engineering Transformation Initiative

Troy Peterson, INCOSE Transformation AD

It has been some time since INCOSE kicked off the Model Based Systems Engineering (MBSE) Initiative. Yet, many of us are still spending endless hours working through documents to prepare for a program review or troubleshoot a design issue rather than leveraging a system model.

So, while complex systems transform the landscape, the Systems Engineering discipline must also undergo a transformation—one to a model based discipline. In alignment with this, one of the INCOSE strategic objectives is to drive and accelerate this transformation. This model based transformation is necessary to advance the discipline and handle the seamless integration of computational algorithms and physical components across domains and traditional system boundaries.

Contextual Drivers for Change

Two primary drivers significantly influencing the discipline of Systems Engineering and our need to accelerate transformation are system complexity and digital transformation. These two interrelated trends cut across all sectors and they are driving profound change all around us.

Systems complexity: Many terms have been created over the years to classify the complexity of the systems we design. These include embedded systems, mechatronic, autonomous, system of systems, collaborating systems and most recently cyber-physical systems. While each of these names have a specialized meaning, they all also have something in common—a significant increase in interactions.

The National Science Foundation (NSF) outlined the challenge nicely in their description of Cyber-Physical Systems which tightly intertwine computational elements with physical entities. They mention that the challenges and opportunities presented by cyber-physical systems are far-reaching and they call for methods to conceptualize and design for the deep interdependencies inherent in these systems—a direct call for Systems Engineering to help solve the pressing challenges these systems present across all of society.

Digital Transformation: The figure shows the Google Trend growth of the term Digital Transformation. This diagram shows a recent and sharp increase in the interest of Digital Transformation. Our efforts within INCOSE to move toward a more digital, model-based approach predates this trend by many years; however, it has not had the level of interest as seen in this larger Digital Transformation.

Many publications promoting Digital Transformation share that the real value comes when an organization transforms the core value creation aspects of their business/mission. These same sources miss the need for a systems approach or focus on the Digital Transformation of engineering or core innovation systems. I believe that digitally transforming Systems Engineering and the application of systems modeling is the essential element to value creation and will be the lynchpin to the revolutionary changes desired as a result of broader Digital Transformation efforts.

Google Trends — Digital Transformation — Jan 1, 2012 — Jan 1, 2016 — Note
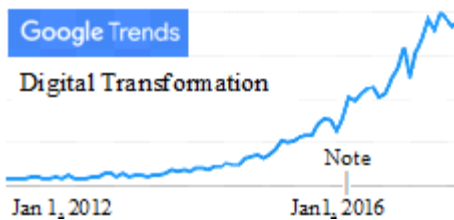
In fact, systems modeling efforts will support and aid the adoption and understanding of several associated major technological shifts highlighted in the World Economic Forum paper "Deep Shift." This paper outlines six megatrends affecting the global economy and our discipline. It points out the convergence of the Internet of Things (IoT), Artificial Intelligence (AI), 3D printing, High-Performance computing, and other megatrends which are truly reshaping industry.

Systems Engineering Transformation

With these trends and technologies moving forward at a dizzying pace we need to help resource Systems Engineers to address the current and coming complexity and associated challenges. INCOSE has several products, efforts, and initiatives related to the Transformation strategic objective that should provide support and guidance as we drive and accelerate the transformation of our discipline. Efforts include partnerships, working group activities, events, products, and more. Here is a summary of references and activities where you can learn more:

- Transformation Website: Public Link
- Transformational Enablers Working Groups: Public Link
- MBSE Initiative / MBSE Wiki: Public Link
- Transformation Webinar: Member Connect Link

Over the last year INCOSE has supported the development of several new efforts including the formation of several Challenge Teams which are focused on new and emerging developments related to modeling and Systems Engineering. They are Production and Logistics Systems Modeling, Digital Artifacts, Augmented Intelligence in Systems Engineering, and Digital Engineering Capabilities Assessment.

At IS18 there will be a half-day session of short talks in a TED-like format that inspire the application and use of Model Based Systems Engineering.

INCOSE is also involved in an effort with the Jet Propulsion Laboratory and Systems Engineering Research Center in the development of Symantec Technologies for Systems Engineering (ST4SE). You can find more details on ST4SE in the proceedings of the 2018 INCOSE IW on the MBSE Wiki.

Other efforts include the development of an MBSE value briefing in collaboration with Corporate Advisory Board companies, and the formation of partnerships to deepen and expand our collaborative efforts with others maturing model based methods. These include partnerships with NAFEMS, ASME, ASSESS and more.

In Conclusion

INCOSE's Vision 2025 calls for a virtual engineering environment with rich, dynamic visualization and analysis to obtain *shared human understanding*.

We have a lot to be excited about—we have entered into the age of systems, a time when Systems Thinking, Systems Engineering, and the ability to innovate and technically lead is essential. We have more computing resources and technologies to share information than ever before. We have maturing languages and methods to help address complexity and to capitalize on new and emerging opportunities.

Above all what we need is the expertise, experience, and passion to manage and lead the transformation required within our respective organizations. We need to share our model-based insights, lessons learned, and best practices to help accelerate this revolutionary change.

Should you desire to help kick off a new transformation effort, participate in an existing one, or just have a question, please visit the provided links or reach out to me at transformation@incose.org or troy.peterson@incose.org. ∞
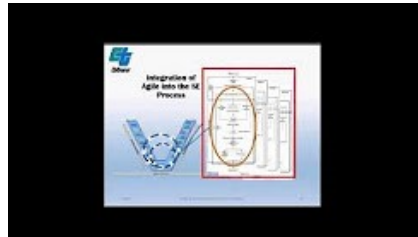
Enchantment Chapter YouTube Channel

Evan Richardson, Sandia National Labs

Did you know that the Chapter has a YouTube channel?

Eleven videos of crisply-edited Chapter meeting presentations have been uploaded for current viewing on the Chapter's YouTube channel, with more to come.

www.youtube.com/channel/UCOEtplxvu12c7LWqlEsFK9w/videos

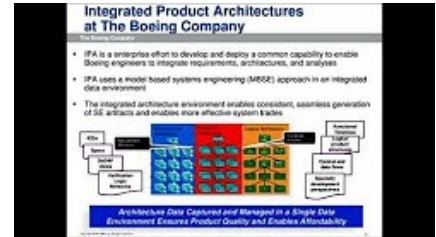14:56 Integration of Agile Principles into the Systems Engineering Lifecycle Model

38:05 Beyond Biomimicry to Systems Mimicry

1:03:31 Enabling and Facilitating Agility

1:01:07 Agile Systems and Processes 106 – Risk Management and Mitigation

35:51 MBSE Implementation Across Diverse Domains

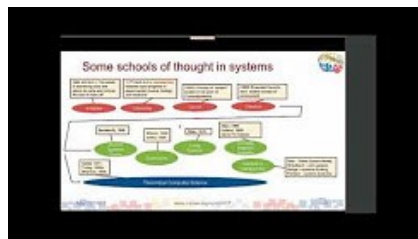41:08 Transforming Systems Engineering through a Holistic Approach to Model-Centric SE

36:33 Developing the Next Generation of Systems Engineering Leaders
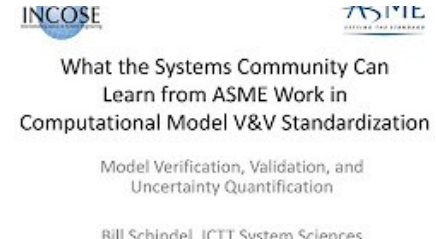
46:56 Cybersecurity for Highly Automated Physical Systems "System Aware Cybersecurity"

56:54 A Mission Assurance Framework for R and D Organizations

52:57 Defining "System" – a Comprehensive Approach

44:47 What the Systems Community Can Learn from ASME Work in Model V&V Standardization   ∞

SOARizona Chapter Workshop

Brian Selvy, President, SOARizona Chapter

The Southern Arizona Chapter invites members of the Enchantment Chapter to a two-day, 9am to 5pm tutorial on Friday and Saturday, April 27-28, at the University of Arizona in Tucson.

Rick Dove, one of your own, will conduct an Agile Risk Management Workshop—Problem Space Analysis and Solution Space Synthesis.

Agile SE Workshop flyer Here, registration Here.
INCOSE member cost is $100 with discount code SE4ME18X.

∞

SEP Training Nearby

SEP Courses by *Certification Training International:*

Course details | Course brochure
Courses Nearby (but many more other places & dates):
2018 May 21-May 15 | Austin, TX
2018 Oct 15-Oct 19 | Albuquerque, NM

Chapter SEP Mentors:
Ann Hodges alhodge@sandia.gov, Heidi Hahn hahn@lanl.gov

Free SEP certification exam at IS18 in Washington DC
on Sunday July 8. Sign up on registration form.

∞

UTEP Annual Industrial, Manufacturing, & Systems Engineering Day

Eric Smith, UTEP Student Division Advisor

The Industrial, Manufacturing & Systems Engineering (IMSE) Department at the University of Texas at El Paso will hold its 5th annual "IMSE Day" on April 26 -- reflecting the integrated nature of the three research fields of the department.

Enchantment Chapter members are welcome to attend.

Members of the Student Division of the Enchantment Chapter and members of the Institute of Industrial Engineering (IIE) student chapter are helping to organize the event, to be held in the El Paso Natural Gas Conference Center.

Topics will include: Engineering, Innovation, Ethics, and Leadership. The gathering will promote the study and application of systems engineering, industrial engineering, and manufacturing engineering in shaping the world of the future.   ∞

IW18 WG Quad Charts Posted

INCOSE Technical Operations has posted the quad charts for 42 working groups collected at IW18. In about six PowerPoint pages these quad charts show for each WG the numbers of "members," basic charter, contacts, and what each working group has done, is doing, and plans to do.

You can look at individual WGs or download a zip file with all quad charts.

There is nothing quad about these charts; but the information is succinct and an excellent way to get a feel for individual WG activity.

The term "members" is used loosely, as this is generally a count of people on the WG email list, and doesn't reflect the number of people actively engaged in WG work.

These quad charts are located on INCOSE Connect at the Organization/Technical Operations tab, in the documents sub-directory called TO Materials for 2018, sub-sub directory called IW2018 Quad Charts.   ∞

SE in Aerospace and Oil & Gas Conference

Sponsored by Texas Gulf Cost Chapter

Thursday, May 3rd, 2018: The 2nd Annual Houston Area Systems Engineering conference will focus on opportunities for collaboration and communication in Systems Engineering in the Aerospace and Oil and Gas communities. Last year's conference had 120 attendees. The conference program addresses needs, capabilities, and best practices for SE in both environments.

The conference will provide insight into the business case for Systems Engineering in Aero and Oil and Gas, especially from the perspectives of Compliance, Cost Savings, Reliability, and Safety.

Go Here for details.   ∞

Resources

From TED, <u>watch</u>: *How great leaders inspire action*. Simon Sinek has a simple but powerful model for inspirational leadership -- starting with a golden circle and the question "Why?" His examples include Apple, Martin Luther King, and the Wright brothers. Fascinated by the leaders who make impact in the world, companies and politicians with the capacity to inspire, Simon Sinek has discovered some remarkable patterns in how they think, act, and communicate.

From LSSC, <u>watch</u>: *Set-based decision making*. Astounding video brings to light things you likely don't know on many fronts, with a practical message. Rework that occurs late in the product life cycle is dramatically more expensive than design work performed early in the cycle. However, shifting traditional design work earlier in the design process so as to avoid rework later is difficult. A number of product development practices that have developed a set of possible designs have proven effective at reducing development rework.

From TED, <u>watch</u>: *Why gender equality is good for everyone – men included*. Yes, we all know it's the right thing to do. But Michael Kimmel makes the surprising, funny, practical case for treating men and women equally in the workplace and at home.

From TED, <u>watch</u>: *The art of doing twice as much in half the time*. Here is what you never knew about Jeff Sutherland, a co-writer of the Agile Manifesto and the co-creator of the Agile Scrum process. He walks you through his remarkable multi-domain, multi-faceted background that led to the development of Scrum and his contribution to the Agile Manifesto.

∞

Chapter Membership   *Jeni Turgeon, Sandia National Labs*

Enchantment Chapter now has 77 full members and 58 student members.

We welcome the following new student members:

Faisal Alajmi	University of Texas El Paso
Nasser Alhadri	University of Texas El Paso
Luis Camacho	University of Texas El Paso
Jose Duran	University of Texas El Paso
Brandon Gonzalez	University of Texas El Paso
Lilia Sanchez	University of Texas El Paso
Edgar Vazquez	University of Texas El Paso

∞

'Culture eats strategy for breakfast' - Peter Drucker
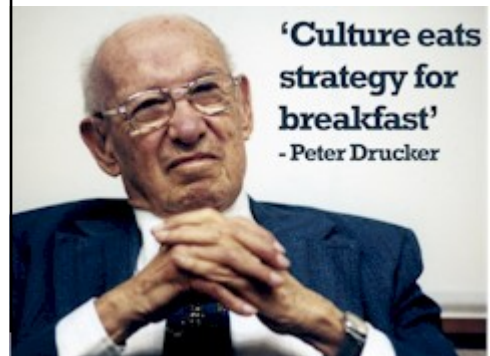
Connect to Your Community of Practice

Chapter meetings with a focus on systems engineering are held monthly on the second Wednesday, except when social events occur, with mingling, dinner, and often a speaker chosen for enjoyment by systems engineers and guests alike.

Monthly meetings feature speakers from out-of-town as well as local subject matter experts on topics of relevance.

On occasion, special facility tours are arranged, sometimes as the monthly meeting, and other times on a separate schedule.

Chapter meetings begin at 4:45 pm.

After chapter news, announcements and introductions, the presentation and discussion lasts until 6:00 pm; and are carried and recorded as a web meeting for anybody to access who can't attend in person.

Tutorials with coverage on topics of interest are arranged approximately twice a year. Delivered by experts in the field, tutorials range from 1/2 day to day+ durations, and generally involve a tuition.

Mix with people who have the same professional interests as you do, but with a diversity of perspective beyond daily

workmates. It comes in handy when you need help or answers to questions outside your accumulated experience, need a connection at another organization, or simply want some mind stretching thought.

Meeting announcements, event notices, and web-meeting links routinely go to all INCOSE members within the Chapter's geographic territory; as well as to names on a special *information* list open to one and all. Sign up for the *information* list with a request to the Chapter secretary listed below.   ∞

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