INCOSE MICHIGAN

emPOWERING SOLUTIONS

QUARTERLY NEWSLETTER

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this issue

AMBASSADOR PROGRAM

BUILDING BRIDGES

The INCOSE Michigan Chapter is establishing an Ambassador Program to create linkages to Michigan companies, government agencies, academia and other non-profits to better capture the needs and wants of Michigan organizations. It will provide a mechanism to inform non-members of local, regional and international INCOSE events and products.

The details of the program will be complete by the end of April with the first kick-off social event planned for May.

Several individuals have already volunteered to become a part of this important program for our local chapter. If you are interested in participating please contact us at incosemi@gmail.com or contact any one of our board members: http://www.incose.org/michigan/officers.aspx

DAWNING ON AN AMBASSADOR PROGRAM

Ambassador Bridge, Detroit, MI

Advancing Your Systems Engineering Career

Career perspectives from John Thomas - INCOSE President Elect

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

Do you feel your role is relegated to producing documents that nobody reads or cares about? And even though you may be managing large teams, your work activities aren't generating a real 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 program, acquisition, and contract managers feel disempowering to you. So you're demoralized and see no way out.

It does not have to be this way.

These feelings are common to many system engineers. You might even say it's a 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 being relegated to a marginal role, you can use your knowledge and experience to guide the project and the people involved—so that 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 yourself in the role as system engineer in a different light – to actually redefine your perspectives of what you are in that role. You have to be willing to accept that the constraints that have been placed upon you – whether by the program manager or contracts, or by anyone or anything else – are not as real as you might think.

If you're willing to assert your own vision – as well as seeing 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, 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 on your project. Your actual title or position is irrelevant – what's important is that you are demonstrating to your peers and colleagues the value of the content that comes from system engineering activities.

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FORD MOTOR COMPANY ENGAGES INCOSE

Leading & Advancing Systems Engineering

Just this quarter, Ford Motor Company joined INCOSE's Corporate Advisory Board (CAB), which serves as INCOSE's "Voice of the Corporate Customer". As a CAB member, Ford Motor Company will help provide guidance on overall INCOSE direction, focus, and priorities. This relationship also provides a conduit between INCOSE and Ford Motor Company for information exchange, discussion of key corporate systems engineering-related issues, and access to corporate executive management. Ford also gained access to all INCOSE products, even for employees who are not individual INCOSE members. Other ways Ford has engaged INCOSE include George Walley's participation on the Michigan Chapter Board of Directors as the elected Secretary as well as Christopher Davey's presentation on Model Based Systems Engineering at INCOSE's International Workshop in Phoenix, Arizona this year.

We welcome Ford Motor Company to the CAB and our local chapter.

If you are interested in learning more about CAB membership and how it can benefit your organization, please visit this link.

True leadership lies in conveying the vision

System engineers who are leaders have a vision of the overall outcome

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 produces paper and burns labor hours. You must aspire to lead using the power of process to produce technical content, which focuses and drives the implementation of systems resulting in a 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, 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 on process rather than 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 document – not the outcomes the carefully prepared document is driving toward.

Systems engineers who are leaders see process not as an end in itself, but as a tool to focus and leverage the efforts of hundreds or thousands of staff needed to produce a system, as well as provide the objective information needed to support the decision making efforts required to resolve problems, that are technical, cost, schedule, political, …

When difficulties arise, a steward of process does not look beyond the compliance of checklists, delivery of documents, or the existence of review milestones called for in the process. But leaders – leaders of outcomes – recognize that technical difficulties may be rooted in issues of technology, flaws in acquisition strategy or contract structure, insufficient skills sets and manning, or even contradictory and prohibitive policies. *Leaders of outcomes consider it their responsibility, not someone else's, to be part of the broader resolution of the programs' problems.* Leaders are the ones who are seen as driving agents who in fact obliterate those problems. Leaders are empowered individuals who own that 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 system, 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 provide the technical data needed to: 1) assure the correctness of an acquisition strategy; 2) supports the definition and integration of system components; and 3) Supports fact based decision making needed to trade cost/schedule and technical performance while building those components.

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.

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Menlo Innovations March 2011

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 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 they too grasp the vision, and 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 sharing a strong sense of what they're producing, and how it fits along the path of producing a physical system. *We as systems engineers help to develop teams that are taking pride in creating something useful and valuable. A leader conveys not just that vision, but the purpose.*

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 is so limited 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 don't believe the program manager will value what you say, he 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 A. Thomas - Senior VP and Chief System Engineer of Booz Allen Hamilton, President Elect (2012) INCOSE

What members had to say about visit to Menlo Innovations

"...an enlightening event and very encouraging to see that one can change the paradigm on how software development is done and be successful at the same time." - *Tony Lockwood, Ford Motor Company*

"Menlo is a welcome oasis for the innovators among us; and that's all of us! It is as much about organizational development and the spirit of achievement as it is about developing great software." - *John Gill - ESEP, BAE Systems*

INCOSE VISITS MENLO INNOVATIONS

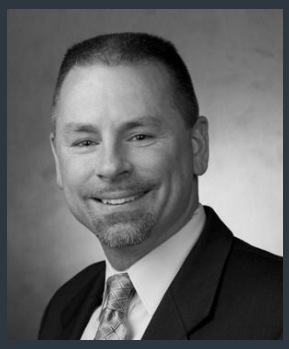
On March 21, 2011, fifteen members and guests of the INCOSE Michigan Chapter visited Menlo Innovations in Ann Arbor, Michigan. The founder and CEO, Richard Sheridan, gave us a tour of the facility and introduced us to the unique software development philosophy that has fueled Menlo's growth and success. This outlook was derived from Extreme Programming and aspects of IDEO's development process.

Menlo focuses on convenience and usability for the user, not the programmer.

Through the use of "High-Tech Anthropologists[R]," Menlo identifies user "stories" that describe desired functionality and interface attributes.

These stories (derived from visits with intended users "in the field") are used to drive requirements for the programming team to execute. The programmers work in pairs, which automatically drives the development of quality, self-documented code. Customers are required to meet with Menlo weekly to review the latest build of their projects and ensure that it is aligned with their expectations.

The efficacy of Menlo's process is demonstrated by the lack of a help desk or support hotline; during our visit, the switchboard did not ring once - a testament to the quality of a decade's worth of installed software.



Message from the President

Michigan has an illustrious heritage of innovation and complex systems development which has earned us nicknames such as the Arsenal of Democracy, the Auto State and the Motor City. This heritage was cited in the recent highly popular Chrysler ad which struck a chord in many of us. It referenced "…a know how that runs generations deep in every last one of us…". It also mentioned people who "...don't know what we are capable of."

My vision for the Systems Engineering Community within Michigan is to become known for what we are capable of - and for what we do.

Our mission as a chapter is to pull together industry, government, academia and other non-profits to create a local Systems Engineering community. This will enable a collective capability, influence the products we produce and shape the future of Systems Engineering.

As a chapter we are committed to empowering you, our membership, with the research, resources and professional network to enable complex system development. Collectively we will further strengthen Michigan's position as a leader in Systems Engineering.

- Troy A. Peterson

Upcoming Events

April

- April 25th - Dinner Meeting: DornerWorks
- April 29 & 30 - SysML and OOSEM Tutorial

May

- May 18th - Systems Thinking Applied to Safety - *Presentation by MIT Prof. Nancy Leveson*
- May 25th - Ambassador Social Event

June

- June 8th - Chapter Networking Event
- June 20-23 INCOSE 2011 IS

Other Key Events

- August 9-11 - Ground Vehicle Systems Engineering Symposium (GVSETS) - Dearborn
- Fall 2011 - INCOSE Great Lakes Regional Conference - Detroit Metro Area

Click Icon to Join INCOSE International Council on Systems Engineering

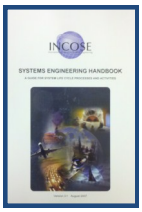
INCOSE Product Highlight

The Requirements Engineering Guide for All (REGAL) was developed by INCOSE's Requirements Working Group (RWG). REGAL is a web-based interactive solution to find helpful best practices for Systems Engineers performing requirements development and management. It is structured in alignment with the INCOSE SE Handbook. Members can access REGAL by clicking the icon above.

SE Handbook Highlight

Characteristics of Good Requirements:

1. Necessary
2. Implementation Independent
3. Clear and Concise
4. Complete
5. Consistent
6. Achievable
7. Traceable
8. Verifiable



INCOSE SE Handbook Section 4.2.2.2

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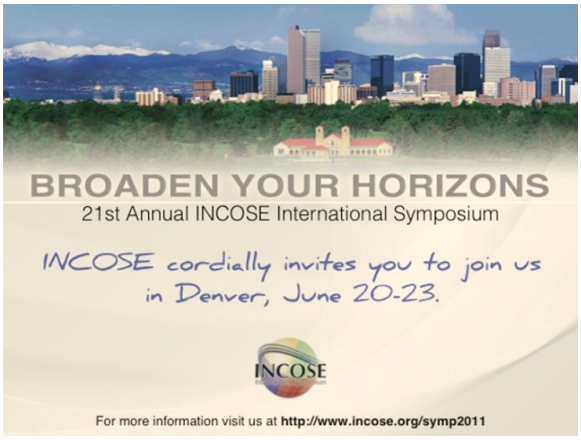
INCOSE's 21st International Symposium

Continue your professional development by being on the cutting edge of Systems Engineering technology. There are 35 paper sessions with 96 papers (including invited papers from SoS experts & IEEE colleagues), 6 panels debating various unresolved issues, 16 practical tutorials and 4 leading keynote speakers and so much more. Come and join us in Denver!



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