



Technology and Obsolescence Sustainment for Integrated Systems

by Tom Herald, Ph.D.

As a part of Orlando Chapter INCOSE Outreach, yesterday Tom Herald gave a Monthly Meeting briefing to the North Texas Chapter. Included here is an abstract of that briefing. If you'd like to hear more of Tom's thoughts on this topic catch him at one of the monthly meetings or [e-mail](#) him.

As Systems Engineers we spend our energies understanding our customer needs, converting them into requirements, documenting scenarios that represent the likely utilization of our systems. The extent that we do this well determines if our system is a success or failure. Technology and Obsolescence Sustainment extends this system design focus to be a customer mission-centric perspective. How do we design a 30-year or more mission solution for our customer? This shift toward mission solutions carries with it a significant shift in our design focus from a point-solution baseline to a life cycle evolving baseline to sustain the mission effectiveness. The two major shifts are:

1. Include the necessary enabling systems that ensure mission success into the primary system design (i.e. right into your requirements database, testing and validation plan and customer operational needs)
2. Develop a system architecture that is evolvable and adaptive to both Required Changes (i.e. baseline part obsolescence) and Desired Changes (new functionality or interoperability). The true challenge is system evolution for an affordable cost.

The urgency of this re-focus becomes more imperative as industry takes on the challenge of supporting their own systems on firm fixed price contracts for extended multi-year periods. Performance-based Logistics (PBL) and Contractor Logistics Support (CLS) contracts are becoming the norm for DoD system support. This turns the tables such that the benefits for an affordably evolvable system solution are not for 'some customer' but indeed for ourselves as the support agent.

This briefing covered the breadth of technology management concepts, and specifically described an example method for the Forecasting of technologies through an operational life cycle (see -Fly Fisher) and a Product Surveillance and Assessment methodology.

Job Board Support Requested

Our website has a Jobs Board with some useful announcements and jobs listed. We would really appreciate someone who could take a real interest and responsibility to add/update that one page of our website. It could provide critical info to our members and others who are unemployed currently or may be in the future. Please check with [Ed Smith](#) if you are interested.

UPCOMING CHAPTER EVENTS

December 17: Chapter Meeting
Holiday Social

January 21: Chapter Meeting
Dr. William Limm
Applicability of Knowledge Management to Systems Engineering

February 18: Chapter Meeting
Eric Honour
Measuring Systems Engineering ROI

March 18: Chapter Meeting
Cate Richards
"IBM's Smarter Planet" and Systems Engineering

Check the [INCOSE Orlando](#) web site often for the latest news on upcoming events.

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Member News

Current active membership in the Orlando Chapter stands at 117 as of month-end November 2009. If you haven't renewed your membership yet or you're interested in becoming a member, visit the [INCOSE Membership page](#) or contact [Jerry Gordon](#). Please join us in welcoming the following new members.

New Members (October)

Frank Travassos, United Space Alliance, LLC

New Members (November)

Deb Stephenson

If you'd like to share some info about yourself, please send your write-up to [Penny Beierschmitt](#).

The Value and Curse of Lessons Learned

by Mike Goodman

Whenever a new or difficult effort or project is undertaken, it is a common desire of leadership to capture the key "good" and "bad" issues experienced along the way. These good and bad issues are commonly referred to as "Lessons Learned." The intent is to retain the goodness of processes and procedures that yielded positive outcomes so that they can be leveraged (and possibly repeated) in future efforts. In addition, it is typically very desirable to retain and document the not-so-good (i.e., bad) processes and actions that resulted in undesirable outcomes — so that these processes and actions will not be repeated in subsequent undertakings.

Although there are various definitions and expectations of exactly what a repository of "Lessons Learned" would include, there does seem to be a commonly held desire from across a broad spectrum of communities — to include governmental, military, and civilian sectors to capture them.

The value gleaned from reviewing and studying lessons learned — in advance of subsequent undertakings — cannot be underestimated. The "curse" associated with not accomplishing a review of the appropriate repository of lessons learned for an event or effort you are about to engage in may have serious ramifications.

As a case in point of being "bitten" by the "curse" of lessons learned, I'll relate a personal experience. A few years ago, I had the opportunity to lead a Human Systems Engineering and Operational Utility Assessment team during a medium-scale live flying event. Aircrews from around the nation and around the world came together to fly in support of the event's objectives. The over-arching and individual mission sorties were planned, flown and debriefed in great detail. From the very beginning of this week of live flying, things were not going well — and progressively got

worse. During the detailed and often brutal debriefings that occurred after all crews were back on the ground, problems across a broad spectrum were identified. These problems spanned the scale from lack of understanding the event's, even basic, objectives to not knowing and following basic aircrew procedures. Unfortunately, after a very difficult and frustrating number of days of flying — and the expenditure of significant sums of money in supplies and labor — it was determined that those participating in this event had failed to accomplish the prerequisite activity of reviewing the lessons learned from the previous series of similar events.

Fortunately, it was the senior event leadership that finally recognized this fact, and realized, too late in the game, that a small and perishable window of opportunity to accomplish good things had been lost as a result of the leadership's and collective group's unpreparedness to "hit the ground running." The leadership faced the brutal reality that had they simply reviewed and heeded the documented lessons learned from the past events — that they would have avoided this significant waste of time and material — and the loss of the opportunity to meet the objectives of the event — and have a positive influence on both the current group of participants and those to follow.

In conclusion, this experience was a blatant example to me of the powerful value of capturing, documenting and actively utilizing any available repository of lessons learned in order to avoid past mistakes and leverage from the positive actions of those before you. Life is too short — and funds are too limited to waste continually reinventing things that have already been attempted and accomplished before.

Chapter Meeting Highlights

Human Systems Integration

At the November chapter meeting we hosted Dr. Jen Narkevicius from Jenius LLC, who shared her experience working in Human System Integration (HSI). She educated us on what HSI is and how it can be employed across various other engineering disciplines. Dr. Narkevicius provided several examples of organizations that practice HSI, such as DoD, Department of Transportation, and Department of Homeland Security. She discussed how she applied HSI to railroad applications,

citing how the original design of the railroad cars did not effectively consider humans, how that design induced errors and created an unsafe work environment. By identifying the issues within the design and being aware of human abilities/limitations she was able to suggest and then implement changes to improve the training of crews and incorporate human considerations in the design to improve operations.

- contributed by Ryan Leitch

Project Engineering Responsibility & Applications

For our October chapter meeting, Programs Chair, Caroline Lazar gave a presentation on the multitude of responsibilities that a project engineer assumes as part of their normal duties. She took us through each phase of the systems engineering lifecycle, highlighting the tasks and deliverables for each phase.

Caroline pointed out that what she knows as the Project Engineer role, others may know as Chief Engineer,

Engineering Project Manager, and perhaps other names.

Many members of the audience participated in discussion, sharing their experiences and asking for advice on how to perform successfully as a project engineer.

To view these and other presentations visit the [INCOSE Orlando website](#) and look for the LINK on each chapter meeting notice.

A Day on the Links

CPAG (Combined Professional Associations Group) is sponsoring a series of golf tournaments over the next several months. If you'd like to know more about any of the tournaments, visit the [CPAG Calendar](#) or contact [Fred Eisele](#).

AFCEA in conjunction with TechNet Orlando	01/20/2010
NDIA in conjunction with President's Day	02/15/2010
AUSA	03/19/2010
Central Florida Marines Annual Tournament	TBD
NCS Yearly Scholarship Tournament	TBD
Quad A in conjunction with Army Birthday Ball	06/12/2010
WID	09/24/2010

It took me 17 years to get 3,000 hits, but I did it in one afternoon on the golf course. -- Hank Aaron

Another Successful HSI Tutorial

The second Orlando INCOSE-sponsored "Human Systems Integration" tutorial for 2009 was held at the GDC4S-Orlando offices on Friday, 20 Nov 09. Twenty-three people attended, including 10 from the U.S. Navy's NAWCTSD, 4 from the U.S Marines' MARCORSSYSCOM PM Training Systems, as well as several from UCF and Industry.

Two excellent and thought-provoking presentations by Waldemar Karwowski and Jeff Bryson preceded Dr. Narkevicius' tutorial entitled "Systems Engineering & Human Systems Integration (HSI) Tools Working Together". A very special thanks to Jennifer Narkevicius, Waldemar Karwowski, and Jeff Bryson for their superb contributions to this successful HSI Tutorial day.

I am certain that all in attendance would agree that this was a very educational and academically stimulating tutorial day — that was directly pertinent to everyone's current scope of work.

We would also like to extend a big thanks to Ed Smith and Becky Matz for all that they continually do to ensure that these events are so successful.

- contributed by Mike Goodman, General Dynamics C4 Systems

Embry-Riddle Announces New Location for Orlando Metro Campus

On December 22nd Embry-Riddle Aeronautical University's [Orlando Metro Campus](#) will close its current location on South Park Circle in Orlando and move to a new location:

Cranes Roost / Uptown Altamonte
240 East Central Parkway, Suite 4000
Altamonte Springs, Florida 32701

Join campus representatives at the new location for a
GRAND OPENING / CAREER FAIR / OPEN HOUSE

Wednesday, 6th January 2010 @ 15:00 (3PM)

*Wishing everyone a safe and happy
holiday season.*

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