



Chesapeake Chapter INCOSE

International Council on Systems Engineering

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September
2010

Feature Article

What Does It Mean?

by George Anderson



Gear Train Backlash &
Contact Pattern Checking

I have a peculiar compulsion. I have to know what is going on with all my complex possessions. I have no favorites- everything within my gaze is included. It doesn't matter if it's my computer, the house wiring, the car's catalytic converter or the measurement of noise levels to convict a neighbor repeatedly evading a barking dog violation. It's all mine and I have to manage it all and keep it operating according to my standards- not that of the power company, the car dealer, the manufacturer's instructions or whatever other experts may be out there.

As you can imagine, my hardest hours are spent in the SE workplace overhearing the all too common laments like:

"I feel so sorry for them, they came home to find their basement flooded because the water heater sprung a leak."

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Our Chapter now has a presence
on



Check it out and join our group so we can together discuss the latest in Systems Engineering news and events.

Mark your Calendars:

Date: 20 October 2010

Presentation: *Human Systems Integration and the Systems Engineer*

Speaker: John Winters, CHFP;
Basic Commerce and Industries, Inc.

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Or: "I used to work on my car and saved a lot of money but now with all the computers and all, a person can't do it unless they are an expert and have all kinds of special diagnostic equipment. I traded in my last car because I could not justify paying for a new engine computer."

Or: "I always buy new because the warranty takes care of all the problems for me and I don't have to worry."

Or the most common of all time: "How can I do anything, I'm not technical?"
I even hear people who are being paid to be technical experts saying this!

Indeed, we live in a complex world that includes a lot of technical equipment. My question would be where is the curiosity? Since we are buying, using and disposing of this stuff throughout our life, wouldn't it be useful to at least find out something about how these things should be managed- forget understanding the technology? I am not talking about adopting any part of my personal compulsion but just trying to attain the Consumer Reports level of knowledge to get started and then move slightly deeper for the big-ticket items.

Now that I have captured your morbid curiosity, let's examine rhetorically how much analysis went into buying your last vehicle? If it was a motorcycle- stop, no need to proceed further. If you are not one who bought a motorcycle, don't think you are out of the questionable judgment farm just yet because I have a few more points to make. What rational thought got put to paper during the selection process? Many of you can make this easy by taking the domestic necessity exit. It goes something like this:" Well, our old car conked out and we stopped by CarMax on the weekend and got a good deal on a Prius. "Its not the van we really needed but the price was tempting and it does save money, so we are happy."

Yes, indeed, we are happy. That is, until somebody tells you that the good deal was \$2500 over blue book for the true condition of the vehicle and that those stains are from that Mississippi flood last year and the battery fire, while it did very little damage, weakened the batteries so that they will need replacement in 3 to four years rather than the guaranteed 8 years. There is also the odor we missed in the trunk that may have come from a hunter leaving a couple of pheasants in there for a week or two and apparently this is a hard odor to remove. The title is creating a problem. Seems as if there was some mix-up over a lien and an Indian reservation in New Mexico has instituted a repossession action and has requested the assistance of local Apache tribal resources to recover the asset.

Do I make too strong a case? I think not. These seemingly complex decisions all probably become non-decisions soon after someone said: " I can't".

Let's examine the laments above and see how simple the solutions could have been.

Water heaters leak. That's what they do. Prudent people who own items that at one time may leak make allowances for this by locating them in places where flooding will not create property damage. Plumbers will tell you this if you ask them before you carpet the basement. Also, remember that "leaks" from water heaters are statistically more likely to be just the thermal relief valve failing to the open position. A \$30 repair and a mop job if you skipped the basement carpeting. Does anybody ask these kinds of questions before remodeling? Why is the preferred place for the water heater in an unoccupied space? There are other reasons to be sure but "I can't" leaves these questions unasked and certainly unanswered.

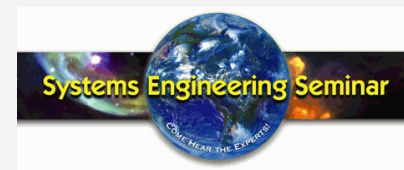
One can scope this out to all leakers in the house. Once upon a time, people turned off their water before going on vacation so that any leaks that occurred during their absence would not have time to fill the house before their return. I know of two otherwise sensible neighbors who didn't think it necessary and both had water running out the front door when they returned. One was a nuclear engineer and the other a jet engine mechanic. The sadder part was they were in the same neighborhood and the first occurrence did not register with the second party to this common misfortune.

Both were caused by a thermal crack in the upstairs toilet reservoir and they were the same make, age and failure.

"My car is so complicated". Look, want to save some big money and not have to learn anything? Buy a \$35 OBDII scan tool. Next time your check engine light comes on, use the tool to either erase the code or locate the fault. This works over 80% of the time so as a money and time saving investment, its

Date: 17 November 2010
Presentation: Panel: Cyber-Security
Speakers: Various

Events in the Area:



NASA's Goddard Space Flight Center

Date: Sept 14, 2010, 1:00 pm
Presentation: Model Based Systems Engineering and the Constellation Program
Speaker:
Jody Fluhr, NASA-JSC, CxP SE&I
PRIMA, Fluhr Engineering, LLC

[More Info Here](#)



IEEE Baltimore Section

Event: Baltimore Communications Society Meeting
Date: Sept 14, 2010, 5:30PM
Location: National Electronics Museum -- Pioneer Hall
Presentation: A Brief Review of the Joint Tactical Radio System (JTRS)
Speaker:
Anna Romaniuk of Booze Allen Hamilton

[More Info Here](#)

Event: National Electronics Museum Lecture Series
Date: Sept 15, 2010, 7:00PM
Location: National Electronics Museum
Cost: \$10 (\$5 Members)

practically a no brainer. The dealer will charge you a C note to do the same thing and keep your car all day. If “you can’t” your 11 year old child will probably do it for a small fee.

Buying a new car is probably one of the fastest ways to reduce your family’s supply of discretionary funds. This has an antidote in the best selling book by Amy Dacyczyn called The Tightwad Gazette. A few evenings with this tome and one will be in an Olympic sprint to beat the neighbors out of those four new auto brake discs some fool threw out down the block. It wasn’t even recycling day.

Bottom line, if you buy everything new, you will not buy very much.

Consider that the typical 3 year-old vehicle sells for less than half the new cost. Forget the Hondas and Toyotas, unless you really plan to keep them for 10 years or more in which case I can rejoice at the glimmer of an SE type of analysis. But, you never have kept a car that long have you? So there is a believability issue not to mention the special counseling needed for the leased BMW crowd.

If anyone at this point wants to quibble about the relationship of the “I can’t” crowd to systems engineering, I must laugh briefly at your isolation from the norm. The sad truth is that I hear this from SE professionals who are managing millions of dollars in customer technology and hold themselves to be knowledgeable and logical decision makers. Now, I understand that we are not all rocket scientists or brain surgeons, but managing a family budget and our possessions using actual calculations, plans, and maybe even a risk analysis or two seems not unreasonable given the returns.

When will our customers begin to wonder if we are saying some form of “I can’t “ on the job? Alternately, I can imagine one of our own SE’s saying at a job interview: “ I only seem to make bad decisions on complex issues outside of the workplace”.

This article may or may not have meaning depending on how recently you, the reader, succumbed to a complex problem that you could not “take the time” to address. Occasionally, even I have these dark moments.

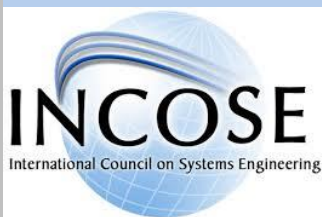
The [Complete Tightwad Gazette](#), Amy Dacyczyn, Villard publisher, Dec 1998, ISBN 0375752254. \$15.61 at Amazon Books.

Presentation: *The Black Bats: CIA Spy Flights Over China from Taiwan 1951-1969*

Speaker:
Chris Pocock

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This article is from 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.

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