INCOSE
International Council on Systems Engineering

CROSSROADS OF AMERICA CHAPTER

Chapter Meeting

6:00 PM, Tuesday April 9, 2019 www.incose-coa.org

Program:

Implications for Future SE Practice as a Discipline: Three Elements of a Science of Systems

The traditional engineering disciplines are supported by companion physical sciences, but Systems Engineering had a different kind of origin in the mid twentieth century. Instead of a phenomenon, its focus was process and procedure for improved technical integration of the traditional engineering disciplines with each other and with stakeholder value. More recently, INCOSE Vision 2025 calls for a strengthened scientific foundation for SE, even as it becomes more subject system model-based. A number of paths toward such science have been pursued or proposed. How might we judge the value of what has been identified so far?

Following millennia of slower progress, in only 300 years the ("other") physical sciences and engineering disciplines they support have transformed the quality, nature, and possibilities of human life on Earth (and beyond). That global demonstration of the practical impact of science and engineering provides us with a benchmark against which we may judge the practical value of candidate system sciences. We should demand no less if we claim scientific equivalence.

This talk will briefly point out three key components of proposed scientific foundations for systems, and note areas of their practical impacts on future SE practice as a discipline:

1. The System Phenomenon: Each of the traditional physical sciences is based on a specific physical phenomenon (mechanical, electrical, chemical, etc.) and related mathematical formulation of physical laws and first principles. What is the equivalent "hard science" phenomenon for systems, where is its mathematics, and what are the impacts on future SE practice?

2. The Value Phenomenon: Engineers know that value is essential to their practice, but its "soft" or subjective nature seems challenging to connect to hard science and engineering phenomena. What is the bridge effectively connecting these, where is the related mathematics, and what are the impacts on future SE practice?

3. The Trust Phenomenon: The physical sciences accelerated progress in the last three centuries as they demonstrated means for not just the discovery of Nature's patterns, but also the managed awarding of trust in them. What is the scientific basis of such group learning, and how does it impact the future practice of SE?

Attendee Q&A and discussion time will be provided.

Speaker: Bill Schindel, President of ICTT System Sciences

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Meeting Location / Host Site (see included directions and map to host site and parking)

IUPUI, Room SL 165
723 W. Michigan Street
Indianapolis, IN 46202

Parking: Gateway Garage (on your own)

Satellite Site

No satellite site this month

Remote Access: If you cannot attend at the host location, join us remotely:

Web access: https://incose.pgimeet.com/GlobalmeetTwo (join as a GUEST)

Audio: (719) 457-1414

Guest Passcode: 514-684-9877

Meeting RSVP

To assure we have a (complementary) meal and seat reserved for you, please email your plan to attend to Chris Hoffman at diesel_chris@me.com. You do not need to be an INCOSE member to attend!

ALL are asked to complete this survey to help inform our future Technical Programs:
https://www.surveymonkey.com/r/C9NJ2DN

Event Schedule

6:00 – 6:10	Arrival, Security Check In
6:10 – 6:30	Light Meal, Informal Networking
6:30 – 7:00	Business Meeting
7:00 – 8:00	Program
8:00 PM	Adjourn

Business Meeting:

- Call to Order
- Approve/update minutes from previous Chapter meeting. (Attached)
- Announcements
- Treasurer's Report
- Old Business
- New Business

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Speaker Biographical Sketch:

Bill Schindel is president of ICTT System Sciences. His engineering career began in mil/aero systems with IBM Federal Systems, included faculty service at Rose-Hulman Institute of Technology, and founding of three systems enterprises. An INCOSE Fellow, Bill co-led a project on Systems of Innovation in the INCOSE System Science Working Group, chairs the INCOSE Patterns Working Group, and is a member of the lead team of the INCOSE Agile Systems Engineering Life Cycle Model Discovery Project. Bill is a past president of the INCOSE Crossroads of America Chapter and an INCOSE CSEP. He is an active member of the ASME standards committee generating guidelines and standards for establishing trust in virtual models, a founding member of the V4 Institute, and has authored papers and book chapters for SAE, ASEE, INCOSE, IEEE, AIAA, and SAMPE.

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Directions to Host Meeting Site: (Indianapolis)

IUPUI, Room SL 165 at 723 W. Michigan Street, Indianapolis, IN 46202: This is within central Indianapolis on the campus of Indiana University – Purdue University of Indianapolis.