

The Integrator

INCOSE North Star Chapter



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North Star Newsletter

INCOSE North Star Newsletter Communication

This year's newsletter features a series of articles on INCOSE Working Groups. The October article is on Model Based Systems Engineering (MMSE). Eileen Arnold, Editor BAE Systems

"Nothing in this world can take the place of persistence. Talent will not; nothing is more common than unsuccessful people with talent. Genius will not; unrewarded genius is almost a proverb. Education will not; the world is full of educated derelicts. Persistence and determination alone are omnipotent. The slogan "press on" has solved and always will solve the problems of the human race" -- Calvin Coolidge

Systems Engineering at its Best!
INCOSE's MBSE WG

Model-based Systems Engineering (MBSE) provides improved value in the practice of systems engineering through:

- **Better understanding** of the system from enhanced knowledge capture, better requirements visibility, thus yielding shorter learning curves.
- **Improved communications** among the system's stakeholders (e.g. the customer, other engineers, as well as stakeholders in other domains).
- **Increased ability to manage system complexity** by enabling a system model to be viewed from multiple perspectives, identifying coupling and relationships, providing navigation & traceability, and analyzing the impact of changes.
- **Improved quality in products and processes** by providing an unambiguous and precise model of the system that can be

Chapter President's Corner

Elliot Abrons, BAE Systems

2007 has been an excellent year for providing useful programs for our members and colleagues. We 1) had an introduction to SE at Eaton and a tour of their labs, 2) got our first introduction to nanotechnology, 3) saw evidence of Moore's Law in action, 4) got an introduction to the evolving concept of organizational cultures in risk management, 5) had a preview of INCOSE 2007 Symposium papers written by North Star Chapter Members, 6) were introduced to the concept of complexity in systems of systems, 7) had a presentation on the path forward in SE standards, 9) saw Medtronic's efforts to do requirements/model-driven development, and 10) had a presentation on the process for gaining Systems Engineering Certification. We plan on finishing the program off with a presentation on Configuration Management for Embedded Systems in November.

We had an excellent tutorial in April on System Analysis, Design, and Development. Our November tutorial, Measurable Systems Engineering, will be presented by a recognized expert and former INCOSE International President, Eric Honour, on Saturday 11/10/07. It should provide us with a lot of take-home knowledge.

This year, our North Star Chapter was awarded the INCOSE Silver Award for chapter achievements. To remain this successful, we need more members to become involved in INCOSE, at both the chapter and international levels. Currently, member Eileen Arnold is the Technical Head of Events for the Technical Leadership Team (TLT) and also a member of the Certification Advisory Group (CAG). Member Dave Walden is the Program Manager for Certification Advisory Group (CAG), and a former lead of the Corporate Advisory Board. We will truly have a successful year when more of our members join Eileen and Dave to steer the course of our profession in the years to come.

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- evaluated for consistency, correctness, and completeness, yielding shorter time to market.
- **Improved product and technical execution** through reapplication of knowledge by capturing information in more standardized ways and leveraging built-in abstraction mechanisms inherent in model driven approaches. This may facilitate earlier verification & validation, test execution, and provide better decision support.
- **Improved ability to teach and learn systems engineering fundamentals** by providing a clear and unambiguous representation of the concepts.

INCOSE's MBSE Working Group meets twice a year, at INCOSE's International Workshop and at the International Symposiums. Invited experts from around the world meet for a day or two before the International Workshop to define the approach to MBSE most applicable to the technical world. The follow-on Working Groups help define the proposed implementation.

They:

1. Define essential characteristics of System Models (incl. Fidelity, Validity)
2. Relate Models to System Architecture/ Systems of Systems (SoS)/ Hierarchy & Usage (Life-cycle)
3. Relate MBSE practice to Organization "Capability to Perform" (eg – CMMI level)
4. Expand and integrate MBSE practice with "Specialty Engineering" discipline models
5. Identify special / unique properties of MBSE process & practice vs. traditional engineering

The MBSE Working Group has been developing a Vision. Excerpts from that vision included the 2007 tasks of

1. Clarifying MBSE vs. other models
2. Forming Community of Purposeful Practices (COOP)
3. Assessing the current talent pool and exemplars
4. Targeting initial domains for MBSE

The 2008 tasks include:

1. Celebrating the Successes
2. Developing 12 Examples of Successful Application of MBSE
3. Collaborative Partner Development
4. Identification of INCOSE Working Group Representatives

In 2009 the tasks that are presently laid out are:

1. Updating an Understanding of Inhibitors / Enablers of Capabilities
2. Updating the Roadmap
3. Addressing domain challenges with MBSE

By 2010, Tools and Technology Enhancements are desired such that MBSE has a comprehensive collaborative integrated development toolset that would

support distributed large scale systems and SoS development.

Along with the tools, Standards development is part of the roadmap with an emphasis on initiating domain specific MBSE ontologies, replacing risk management with integrity assurance, leveraging existing work from the Object Management Group (OMG) and others.

For more information on this Working Group, contact Regina Griego griegor@sandia.gov.

WELCOME, NORTH STAR NEW MEMBERS!

Name	Company	Title
John Applegate	Boston Sci.	Principal SE
James Baumann	Jacobs Eng	Engr Process Director
John Jones	IBM Corp	Project Manager
Angela Robinson	Boston Sci.	Principal SE
Van Snyder	Medtronic	Prin SE
George Walley	Ford Motor	Hybrid Vehicle Cntl SE

You are invited to attend [Optimize Your Prospects](#), a FREE information session sponsored by the University of Minnesota's Industrial and Systems Engineering Graduate Program. See attached.

Please join us on

Thursday, November 15th from 4:00 – 6:00 p.m.
at the University's Mechanical Engineering Building,
room 4125.

Register for this FREE program by November 9 by contacting John Gardner at jgardner@me.umn.edu or 612-625-2009.

North Star Chapter Website

<http://www.incose.org/northstar>

2007 Meeting Calendar

8 November	Configuration Management	Timber Lodge Steak House
13 December	Member Holiday Party + Guest	Timber Lodge Steak House