A Pragmatic Approach to System Modeling for Hazard Identification and Risk Management

Document-Intensive Systems Engineering (DISE) is being replacement by Model-Based Systems Engineering (MBSE). Modeling principles, usually using a modeling language such as the System Model Language (SysML), are being applied to ensure that critical information about a system's behavior, structure, requirements, and parametrics are woven into a coherent, readily accessible repository of technical truth.

However, these new practices are often limited to large, complex system development efforts. They are equally applicable to non-traditional applications. For example, a set of business processes can be modeled and gaps/inconsistencies may be easily detected. Improved consistency and rigor is an automatic outcome of good modeling practice.

This presentation will focus on ways to harness the power of system modeling to address challenges faced by ESOH professionals, including identification of hazards, risk management, and mitigation planning.

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Michael has presented at numerous regional and national conferences and symposia (notably those of INCOSE, the National Defense Industrial Association, and the American Society for Engineering Education). He contributed chapters to *Industrial Applications of X-ray Diffraction*, *Taguchi's Quality Engineering Handbook*, and *Case Studies in System of Systems, Enterprise Systems, and Complex Systems Engineering* and a case study to the Systems Engineering Body of Knowledge (SEBoK). *MBSE Craftsmanship*, co-authored with Tim Weilkiens, will be published in 2018. He has won numerous awards, including the 2017 Cameo Award for Modeling, Simulation, and Analysis Excellence for his thought leadership in MBSE and the 2017 ASEE Best Paper Award (Systems Engineering Division).

Michael is a licensed Professional Engineer (Michigan) and holds INCOSE ESEP-Acq, OCSMP:Model Builder – Advanced, ASQ Certified Quality Engineer, and ASQ Certified Reliability Engineer certifications. He is a Fellow of the Engineering Society of Detroit and is the President and Founder of Sigma Theta Mu, the systems honor society. His YouTube channel, Systems Architecture Guild, freely shares systems architecture, engineering, and modeling best practices with a worldwide audience.