

## *Leadership Through Systems Engineering*

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### **Steven Walter, *Rethinking Systems Engineering Process Models***

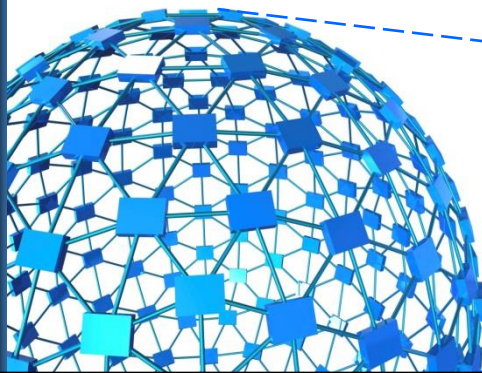
Abstract: There is a need for a new systems engineering process model that is compatible with project management models, addresses technology management, and does a better job of reflecting systems engineering (SE) best practices for system development, system sustainment and SE process management. A central goal of this model should be to provide a shared set of processes and common vocabulary for project managers, systems engineers, discipline-specific engineers and support staff.

The current, de facto INCOSE standard is Systems and software engineering - System life cycle processes, ISO/IEC 15288:2008, which is a life cycle process model. This standard has a number of shortcomings including being incompatible with the PMBOK project management process model; missing key SE concepts such as technology maturity and technology obsolescence; obscuring the fundamental differences between prototyping and manufacturing processes; portraying product development engineering as a sequential set of processes instead of a set of parallel processes; and perhaps most egregiously, refusing to commit to which parts of the life cycle model falls within the systems engineering domain. The PMBOK project management model also has deficiencies such as lacking mature processes for product validation and verification.

A process model that meets these needs is proposed. This model addresses the interrelationship between project management and systems engineering functions. It also fills gaps in existing models including a set of systems engineering processes for post-development that address system engineering support of product manufacturing, sustainment, maintenance and retirement.

Author:

Abstract



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