# System of Systems Engineering Collaborators Information Exchange (SoSECIE)

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**Every Mission-Level or System-Level Trade Study Should Have an Associated Trade Space Map to Facilitate Multi-Discipline Review**

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#### Abstract

System-of-Systems-level trade studies will almost always require knowledge from multiple experts from different disciplines. Given that such trade study models will tend to evolve over time as more knowledge is incorporated and as requirements evolve, it is very common for there to be incompatible assumptions made by the different experts from different disciplines. As a result, such trade studies are notoriously error-prone.

Once all the knowledge has been assembled, bringing back together the group of experts to discuss the results and try to root out any incompatible assumptions can be valuable. However, such efforts tend to be fairly weak at uncovering incompatibilities or other mistakes when the only visual is the resulting trade space.

In this presentation, we show how our Decision Map makes the structural details of the trade space visible to all, and we show how combining that Map with the ability to quickly view different slices through the multi-dimensional trade space allows far more detailed review and far more effective identification of holes in the analysis.

#### Biographies

Brian is an author of the book Success Is Assured and is an INCOSE Certified Systems Engineering Professional (CSEP) who has spent more than 25 years designing complex software systems. He was Chief Architect of i2 Technologies’ Supply Chain Planner and Demand Fulfillment applications, applying Toyota lean manufacturing, Theory of Constraints, and advanced optimization to the planning and scheduling of the larger supply chain, helping to establish a new market space (Supply Chain Management) and generating billions of dollars of value for i2’s customers. Brian was named the first i2 Fellow and holds more than a dozen patents on the inventions that were the basis for those software systems. As co-founder and CTO of Targeted Convergence Corporation, Brian is responsible for the systems engineering of TCC’s Success Assured® software and the associated training, which are both designed for superior systems and mission engineering in the early conceptual stages of development.