Challenges

The typical challenges related to supply chains that would justify the Enterprise Supply Chain Modeling and Simulation solution includes:

**An existing supply chain is complex with many suppliers.** As the complexity of the supply chain increases, the ability to manage that supply chain diminishes, and the expected performance becomes more uncertain. What is the expected Total Ownership Cost (TOC)? What is the expected schedule? What is the level of expected performance?

**Need to understand the capacity of the supply chain for changes in demand.** When a supply chain is being formed, the ability to design that supply chain for a specific purpose needs to be determined. This may include the ability for the supply chain to surge and sag in demand. Can the suppliers meet the expected increase in demand? What impact will sag have on the health of the suppliers? How does inventory play a role in the demand equation?

**Need to identify risks in the supply chain.** In a world with many uncertainties, the need to proactively identify risks is critical and the impact of those risks needs to be better understood. What action should be taken based on various risk scenarios?

The Solution

**Enterprise Supply Chain Modeling and Simulation.** This solution begins with a definition of the end-to-end view of all supply chain entities, interfaces, processes and practices currently in place. Once the current “as-is” supply chain is defined, an analysis is performed, employing proven supply chain mapping and analysis techniques, to evaluate and support the improvement of total supply chain performance.
Solution Benefits

This solution has the following benefits:

**Provides a comprehensive analysis of performance metrics**

Metrics like lead time, inventory level and supply chain management costs can be identified. Once the analysis is complete, a comprehensive model of the supply chain can be developed and employed for a multitude of scenarios.

**Risk Reduction**

The impact of various risks can be mitigated with the use of war gaming.

**Cost Reduction**

The model provides the “optimal” supply chain configuration that will minimize cost.

Implementation

The Professional Services required for this solution are as follows:

- **Phase 1 – Assessment**
  Determine the “as-is” supply chain, key areas of focus and the targeted supply chains for discovery. This establishes the scope of the effort.

- **Phase 2 – Discovery**
  Based on the assessment, perform the needed discovery to gather the information for the assessment. This includes meetings with targeted suppliers and departments internally to gather the needed information.

- **Phase 3 – Design**
  Based on the data gathered and the complexity of the scope, a variety of modeling tools will be deployed. In most cases, a functional specification is created prior to creating the software model.

- **Phase 4 – Development**
  The software model is created using an interactive process, keeping the client engaged on a frequent basis.

- **Phase 5 – Implementation and Training**
  In most cases, the client assumes ownership of the model and is trained on how to optimize the investment. For consulting only engagements, a findings report is prepared with recommendations.

This solution requires the use of software for capturing and modeling the supply chain, such as ProModel (www.promodel.com) and requires the purchase of a runtime license.

About the Electro-Optics Center

The Electro-Optics Center (EOC), a proud part of The Pennsylvania State University, is a hybrid between the best components of a university and those of private industry. This relationship allows us access to the university’s researchers and scientists, its state-of-the-art facilities and leading edge research.

Our staff, comprised primarily of former industry and DoD personnel, brings experience in exceeding sponsor and corporate expectations. Through the application of this hybrid model, the EOC is able to provide its sponsors with solutions that combine leading edge research with on-time and on-budget deliveries. Learn more at www.eoc.psu.edu.