Enterprise Logistics Modeling

Integrated Supply and Repair Chains for Total Life Cycle Cost Analysis

Highlights

Why is Enterprise Logistics Modeling important?

- Defines the global enterprise operational and support environment
- Integrates supply, repair, manufacturing, and transportation processes for worldwide support
- Calculates equipment and support system performance and cost metrics
- Predicts long-term performance outcomes at any level in the enterprise
- Supports critical business decisions for enterprise-scale problems

What are the objectives for developing this capability?

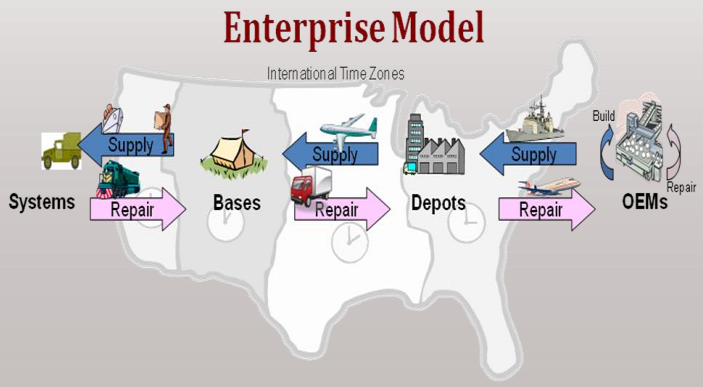
- Characterize lifecycle sustainment of a platform and its support structure
- Identify interdependencies of various enterprise components
- Assess the responsiveness of an enterprise sustainment structure
- Identify lifecycle cost drivers
- Assess lifecycle performance of a global enterprise
- Evaluate infrastructure design and business rules

Enterprise Logistics Modeling Overview

Enterprise logistics modeling enables the exploration of long-term performance for a global sustainment infrastructure. Analysts are motivated to model the enterprise to better understand anticipated lifecycle costs, evaluate sustainment requirements, and perform a variety of sustainment-related trade studies. This capability can be used for a wide range of design and operational analyses, requirements validation, trade studies, and analysis of alternatives to provide decision support for long-term enterprise planning.

What are the research areas?

- Development of high-fidelity simulation tools that are computationally efficient
- Specialized data structures and distributed computing techniques
- Multi-echelon inventory management
- Capturing the impacts of diverse funding sources on enterprise-level operations

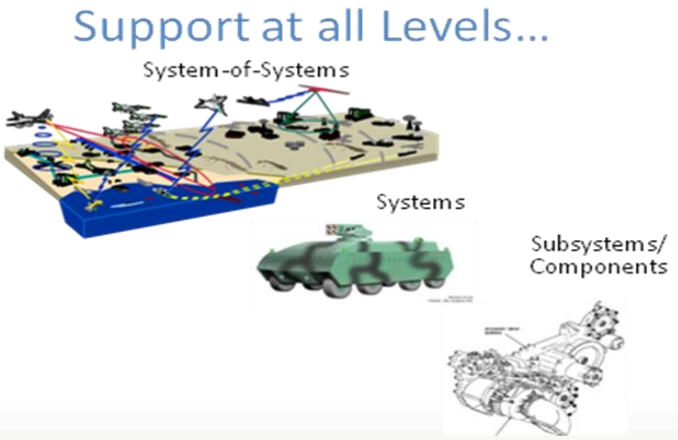


Enterprise Logistics Modeling

Key Features

Software Tools

- Support Enterprise Model (SEM) –A toolset with the capability to help characterize sustainment system performance including supply, repair, and manufacturing activities over the entire life of the enterprise
- System of Systems Analysis Toolset Enterprise (SoSAT Enterprise) – A toolset with the capability to perform SoS analysis with integrated enterprise level components for assessing lifecycle operational and support sustainment



Current Capabilities

- Global operations with arbitrary multi-echelon support structure
- Integrated supply, repair, manufacturing, and transportation processes
- Dynamic changes throughout the lifecycle

Example Applications

- Lifecycle/total ownership cost component analysis
- Sustainment assessment
- Resource management and planning
- Inventory management and planning
- Acquisition programs evaluation

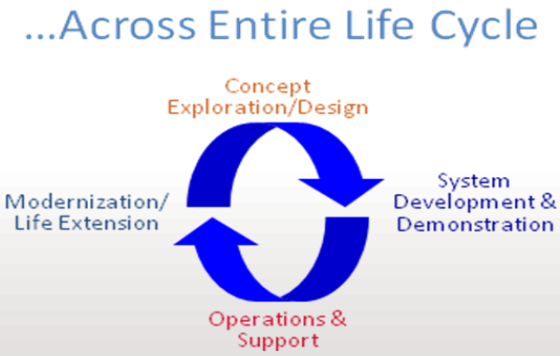
Key Benefits

Program Evaluation

- Evaluate total program (enterprise) costs and identify cost drivers
- Characterize the impact of enterprise architecture, processes and business rules, equipment reliability and maintainability characteristics, and equipment usage
- Provide strategic planning support for resource management and program risk mitigation

In-Depth Understanding

- Evaluating the model will help identify strengths and weaknesses of resource and inventory management, as well as the stability of the support structure
- Sensitivity analysis of the model input will help determine the effect on model output uncertainty



Defensible Decisions

- Provides defendable results to support critical business decisions for enterprise scale problems
- Offers insights into the uncertainty of enterprise requirements and operations
- Identifies hidden dependencies that may otherwise have been overlooked
- Allows historical models to verify and validate current logistics modeling

Contact Us

Bruce Thompson
CSR Program Lead, Manager
Tel: (505) 284-4949
bmthomp@sandia.gov

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