National Defense Industrial Association
Systems Engineering Division
Modeling and Simulation Committee

Planning for Subcommittee on The Essential Elements of the System Model
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Topics

• Genesis of the Subcommittee

• Background information on the System Model

• Proposed Subcommittee Charter

• Identification of Volunteers

• Next Steps
Genesis of the Subcommittee

• Proposed by the M&S Committee at the NDIA SE Division Strategic Planning Meeting in December 2012:
  - Perform study to determine essential elements of a “System Model” that evolves over the life cycle

• Suggested by NDIA SE Division as a result of USG input:
  - Advanced Modeling: Model Based for “X” (MBx) – how could acquisition strategies be enhanced to use models (RFPs, etc.)

• Resolution:
  - By focusing on the major acquisition activities, and the M&S capabilities that support those activities, performing the study to determine the essential elements of a System Model will provide significant insights into how acquisition strategies can be enhanced to use models.
Problem Statement

**ISSUE:** Current DoD acquisition activities do not develop, or maintain a single, integrated authority/artifact (aka system model) for a TBD subset of program data. Further, relevant data between acquisition activities is not adequately shared.

**VISION:** Use of a single model (aka system model) as an evolving, cohesive representation and unifying instantiation of the program under conceptualization, development, manufacture, and/or support:

- will increase efficiency of DoD system acquisition lifecycle activities, and
- increase confidence in decisions made regarding an acquisition program when the single (system) model (data) for that program is used.

**METHOD:** A system model will be instantiated by using artifacts and processes which already exist, or are already required by DoD acquisition policies, guidance, and best practices.

**OUTCOME:** The system model will be used by anyone performing activities related to the program as it evolves across the acquisition lifecycle, including but not limited to defining requirements, trading design aspects, designing, engineering, cost budgeting, staffing, manufacturing, fielding, training, sustaining, and disposing. The resultant system model will integrate program data into a complete description of the system.
Some Uses of the System Model

- More complete evaluation of trade space
- Improved communications across stakeholders
- Earlier evaluation of manufacturing feasibility

- Rapidly evaluate changing threats and explore solution space
- Design reuse
- Lower costs with complex product families

- Reduced manufacturing related costs and schedule

DAG Ch 4: Benefits of Using Modeling and Simulation throughout the Acquisition Life Cycle
Subcommittee on the Essential Elements of the System Model – Proposed Charter

• Define the essential elements of the System Model as it evolves over the Defense Systems Acquisition Life Cycle

• Using the Identification of Modeling & Simulation Capabilities by Acquisition Life Cycle Phases as a basis:
  - For each major acquisition activity of each phase identify:
    ♦ The data the system model must contain to support initiating that activity
    ♦ The new (or updated) information that can be put in the system model at the conclusion of that activity
  - For each M&S capability that can support the major acquisition activities identify:
    ♦ The data for running that M&S capability that should come from the system model
    ♦ The data from the M&S results that should get put into the system model

• Identify existing standards, if any, for each essential element

• Provide a final report on the findings of the subcommittee
Next Steps

• Schedule an organizing teleconference in approximately two weeks
  - Distribute latest version of the Identification of Modeling & Simulation Capabilities by Acquisition Life Cycle Phases workbook prior to the teleconference

• Recurring bi-weekly teleconferences will be established
  - Using Cisco MeetingPlace

• Occasional face-to-face working meetings
  - In the Greater DC area

• Goal is to complete the study and report by March 2014