ITEA LVC Special Session on VV&A

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MDA M&S Verification, Validation, and Accreditation Program

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### MDA M&S Verification, Validation, and Accreditation Program

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VV&A Special Session Purpose

- Leverage existing Government and Industry VV&A knowledge to improve MDA VV&A for T&E M&S

- Topics for Today’s Session:
  - (1) The Referent; building the body of knowledge about the system under study to increase confidence in the validity of the M&S
  - (2) Acceptability Criteria; formulating the comparison points and M&S accuracy requirements
  - (3) Documentation; rolling up the right amount of historical and newly formulated information

- Additional discussion topic, time permitting: Validation Process Maturity Model (VPMM)
MDA Referent Challenges

• Testing of the BMDS is costly and highly constrained
  - Catch 22: not enough test data drives need for M&S
  - Not enough test data inhibits extensive validation
• How to leverage Ground Testing to the fullest extent to provide referent data
  - Ground tests are valuable analysis venues making it difficult to align configurations for M&S validation
  - Ground Tests are also expensive, requiring HWIL, planners, operators, etc.
Acceptability Criteria Issues

- Building appropriate acceptability criteria requires extensive knowledge about the system
  - Another Catch 22: lack of confidence in system M&S makes sensitivity analysis unreliable
Documentation Issues

- Documenting is time consuming, not in development critical path
  - Tends to be the first item cut with budget cuts
- Too much documentation, not focused on critical information, inhibits the amount of knowledge that can be conveyed
- Inconsistent document formats limits the ability to easily archive and retrieve historical knowledge
Establish MDA Validation Evaluation Framework
Like the Validation Process Maturity Model (VPMM)

1. Subjective Validation
   - Initial (Level 0)
   - Goal of M&S

2. Objective Requirements Derivation
   - Subjective (Level 1)
   - Exploration
   - Wargame

3. Objective Results Sampling
   - Complete (Level 2)
   - Exercise
   - Ground Tests

4. Objective Referent Derivation
   - Accurate (Level 3)
   - Exercise
   - Ground Tests

5. Automated Validation Process
   - Confident (Level 4)
   - Ground Tests

6. Represents System
   - Automated (Level 5)

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