

U.S. ARMY TEST AND EVALUATION COMMAND (ATEC)

"Mission-Based Test and Evaluation"

**Presentation to 32nd Annual ITEA Symposium
OTA Commanders Panel**

August 19, 2015

U.S. Army Test and Evaluation Command





Mission-Based Test and Evaluation

- We focus on Mission-based T&E
- Define Objectives -
 - How successful outcome is defined
- Role of Design of Experiments and Unit Employment
- Role of OPFOR with Intent to Win

***Set Conditions to Reveal: Effectiveness, Suitability, Survivability
of the Systems Under Test***

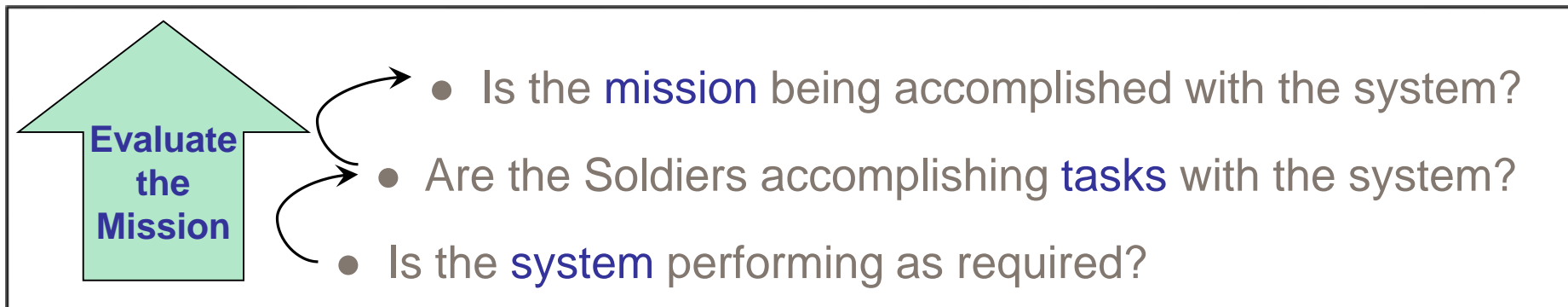


Mission-Based Test and Evaluation

DODD 5000.1 – “The primary objective of Defense acquisition is to acquire quality products that **satisfy user needs with measurable improvements to mission capability**...”¹

Director, Operational Test and Evaluation – “The evaluation of operational effectiveness is linked to **mission accomplishment**.”²

MBT&E evaluates mission accomplishment.



1. Office of the Under Secretary of Defense, Acquisition, Technology and Logistics, Department of Defense Directive Number 5000.1, 12 May 2003
2. Memorandum, OSD DOT&E, subject: Reporting of Operational Test and Evaluation Results, 6 Jan 10.



MBT&E is Enabling...

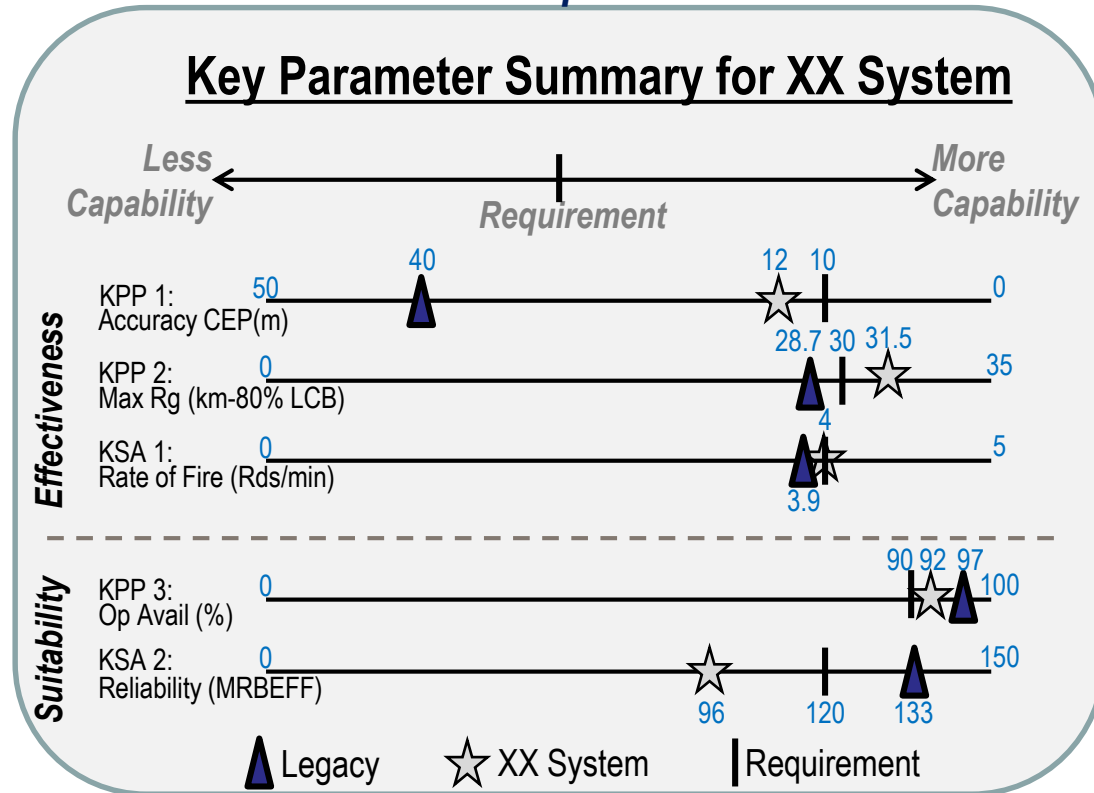
- Defining of objectives at the mission-level.
 - What does a **successful demonstration of capabilities** look like?
- Defining of operational conditions for integrated testing.
 - Integrated **operational test conditions** (i.e. unit employment) into all testing.
 - **OPFOR** capabilities and tactics.
 - Understanding of the **Joint and network enabled system of systems**.
- Defining of data needs for integrated evaluation.
 - Integration of evaluation with **most appropriate data** (DT and OT) at **most appropriate time**.
 - Campaign of **design of experiments**.
 - **Suitability and survivability** impact on operational capability.



Visual Representation of Effectiveness, Suitability, and Survivability

- Intent is to show decision makers how key system parameters compare to the:
 - Requirement,
 - Legacy systems (when required or as needed)
 - Previous configuration/etc.
- Visualization prepared by lead evaluator.
- Typically prepared when overall ESS determinations are made.
- Continuous scales convey greater information than binary met/not met.

Sample



Immediate visual where system exceeds requirement, legacy; and where it does not!



Army Study Effort

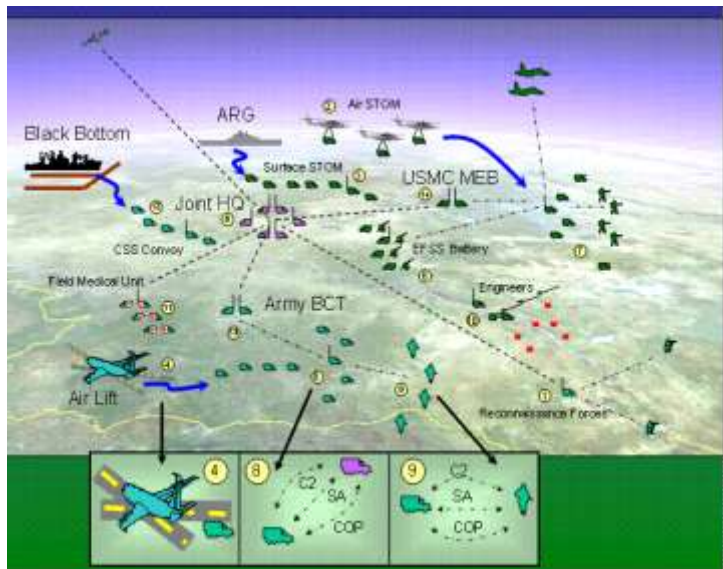
Force-on-Force Modeling with Formal Task Structures and Dynamic Geometry



Objective: demonstrate a form of FoF modeling using both formal tasks and dynamic geometry. The specific application will support:

- combined DT and OT strategy per the mission of ATEC/AEC.
- synchronization across requirements, research, test, training, and analytic activities.

DELIVERABLES



- 1) Mission Threads documented with mapping of JLTV employment to AUTL/UJTL and lower level collective and individual tasks for use in the Advanced Joint Effectiveness Model (AJEM) and OneSAF environments.
- 2) DODAF architecture views depicting requirements for system and FoF level models and simulations and the integration thereof.
- 3) Prototype dynamic model instantiating MMF elements, mission threads and JLTV system data.
- 4) Final Report with description of process applied, lessons learned and detailed assessments of JLTV Mission Variant operational effectiveness based on bottom up assessment of mission thread execution.