Test and Evaluation (T&E) Thrust Area Overview

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Modeling & Simulation / Battlespace

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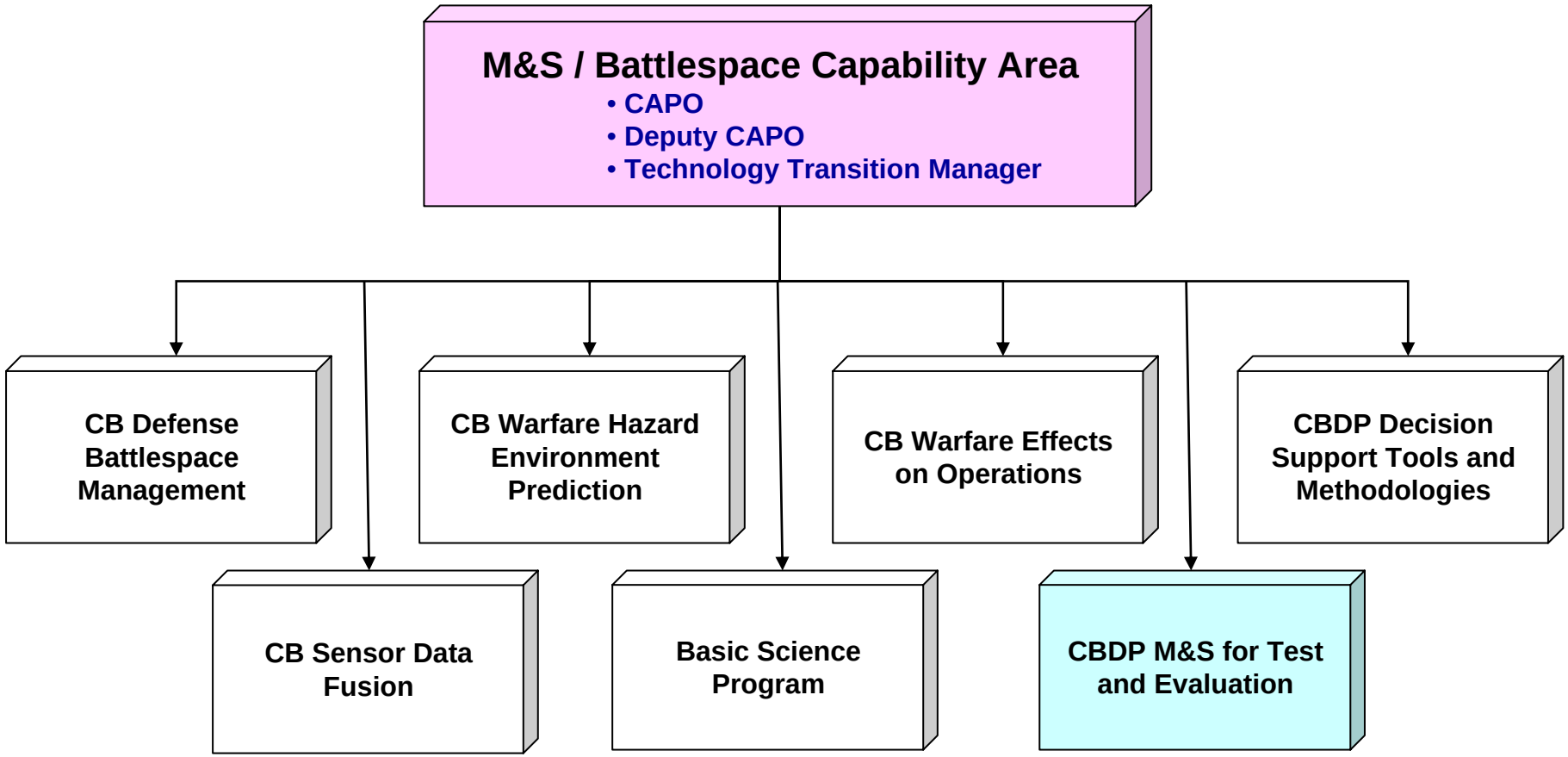
Outline

- Challenges
- Strategy
- Objectives
- T&E Focus Areas

Modeling & Simulation / Battlespace 2006 Taxonomy



Making the World Safer

Challenges Facing T&E Community

- Lack of state-of-the-art test equipment
- Limited methodologies
- Lack of standard procedures for T&E of CBD programs
  - Service and comm. labs and test agencies have developed mostly independent test processes. Comparison of data from individual test agencies and contractor labs is very difficult.
- No integrated approach to establishing evaluation scopes and needs
  - Program delays and cost overruns due to req. of unexpected resources and inability to establish early strategies for investment or program planning purposes.

JSTO – CBDP T&E Strategy

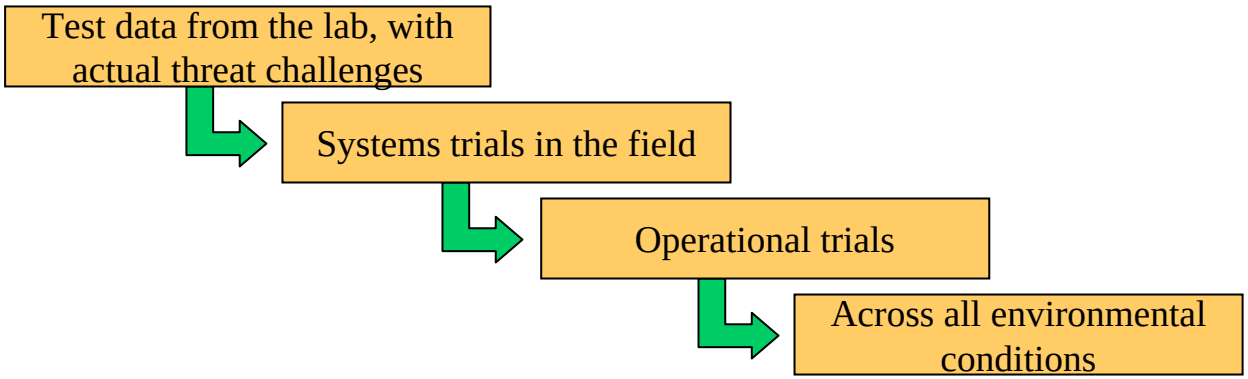
- Recognize the need for community involvement…
- Determine which efforts to fund and begin development of:
  - T&E technologies and capabilities
  - Specific program strategies, working closely with the Program Managers and the T&E community – at every step
  - Ultimately, standardized Joint Test Operating Procedures
- Develop overarching strategies for T&E in each commodity area…

T&E Objectives

- Implement a common set of processes for planning and executing the testing of CB defense equipment that have CB community agreement
- Enable Program Managers and evaluators to plan for a standard set of tests to evaluate equipment performance and operational impact within specified confidence limits
- Instill in evaluators the confidence that test data will be consistent from one location and one test/trial to another
- Allow the CB community to focus their limited test infrastructure resources on obtaining the appropriate test capabilities (methodologies, instrumentation, and facilities)
- Enable the user community to establish realistic criteria against which CB defense equipment can be tested and evaluated

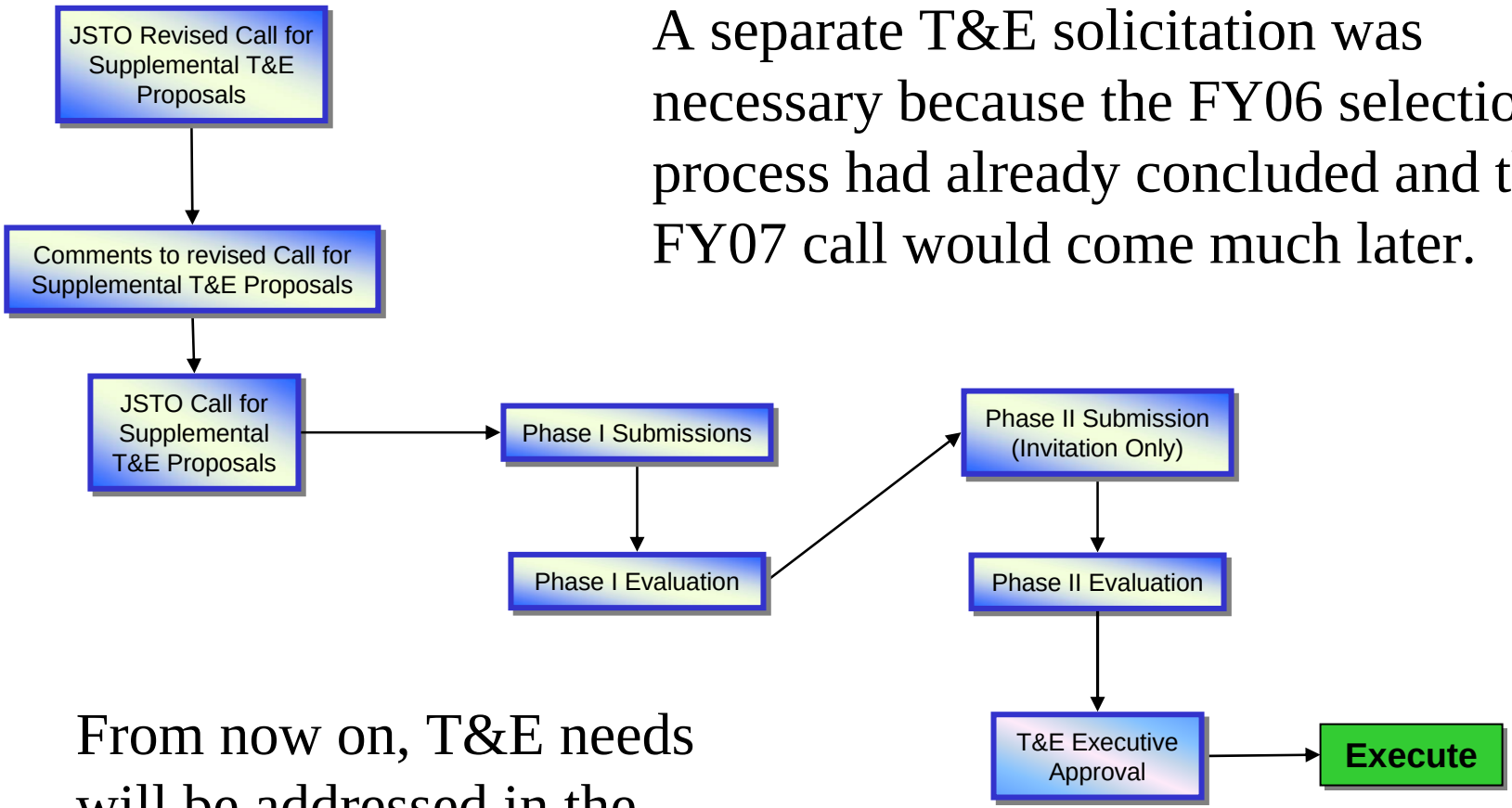
M&S T&E Objectives

- Each commodity area requires a generic model that can be used to relate



- Ensure technical accuracy and precision
- Ensure model generates the data required to answer the question being asked

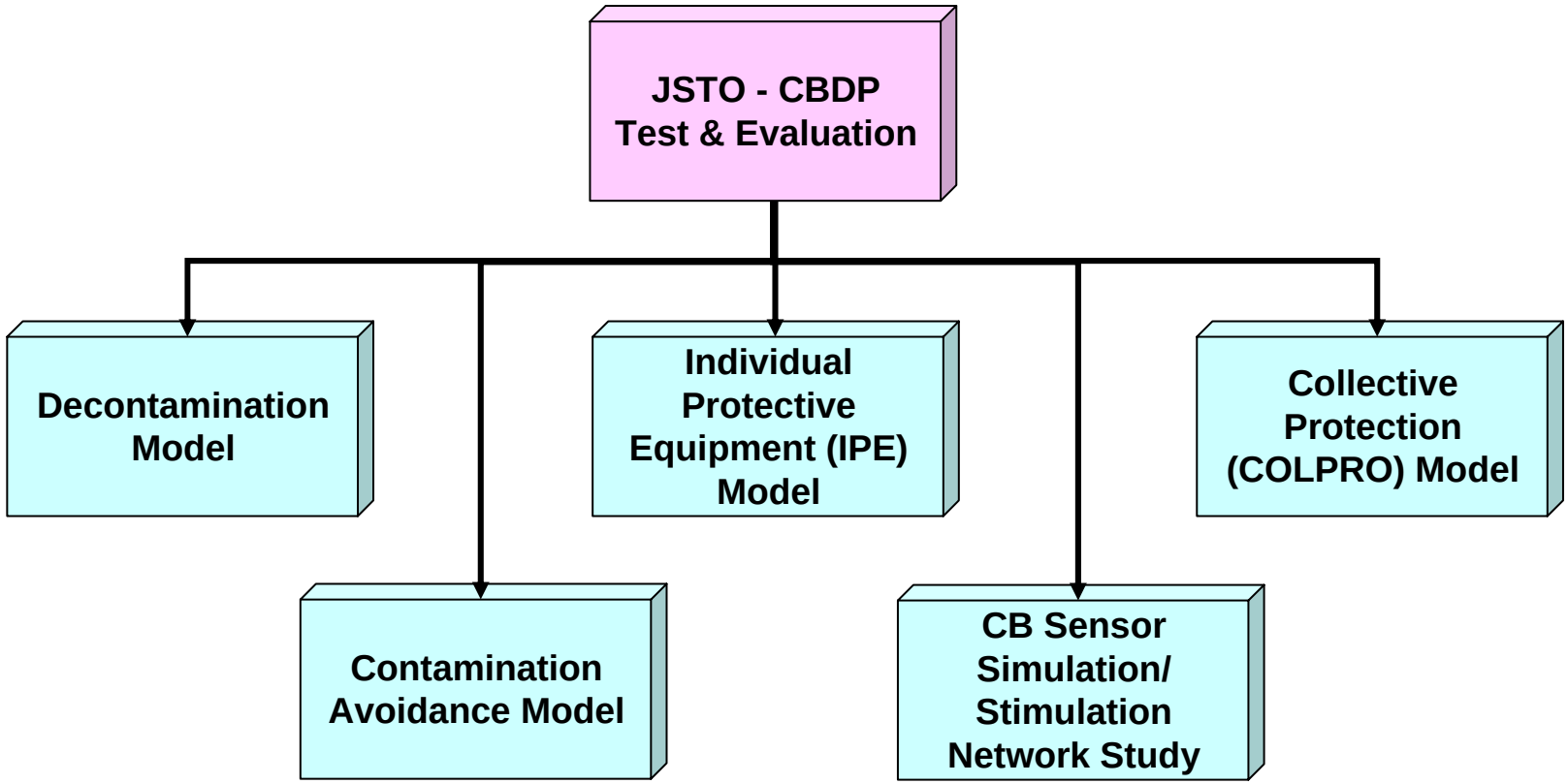
Project Selection Process



A separate T&E solicitation was necessary because the FY06 selection process had already concluded and the FY07 call would come much later.

From now on, T&E needs will be addressed in the general solicitation.

JSTO - CBDP Test and Evaluation



Overarching Decontamination Model

- Addresses, contact hazards, environmental conditions, residual hazards, system degradation, and realistic threat challenges
- Enables parametric sensitivity analysis
- Performs across world-wide conditions
- Accommodates insertion of empirical data for validation
- V&V by 4Q FY08

Overarching Individual Protective Equipment (IPE) Model

- Addresses conditions to include weather, residual hazards, D-4 system degradation, realistic threat challenges, characterization of the performance envelope with respect to change over time, system load test, agent/simulant correlation, toxicity, residual life indicators
- Sensitivity analysis
- Develop analysis methods within the model to relate current test data to the toxicological endpoints (e.g. Grotte-Yang values chart)
- V&V by 4Q FY08

Overarching Collective Protection (COLPRO) Model

- Addresses weather conditions, residual hazards, system degradation, air flow and other key parameters, trade-off evaluations, realistic threat challenges, characterization of the performance envelope with respect to change over time, operational validity, system load test, toxicity, residual life indicators, novel barrier materials, new technology filtration systems and sensitivity assessment
- Develop analysis methods within the model to relate current test data to the toxicological endpoints
- Address values for challenge materials not found in existing databases
- V&V by 2Q FY08

Contamination Avoidance Model

- Integrates Contamination Avoidance capabilities into exercise detection components/systems to predict the lab-to-field performance envelope under world-wide conditions commensurate with the system operational scenarios
- Identify the critical performance areas for focusing the T&E assessment in developmental and operational tests.
- Incorporates data injects
- Includes the capability to link the newly developed T&E network environment to JFCOM exercise and experimentation environments, as well as other stakeholders (i.e., JPM-IS, Dugway, Edgewood, AFRL, NSWC, etc.)
- V&V by 4Q FY08

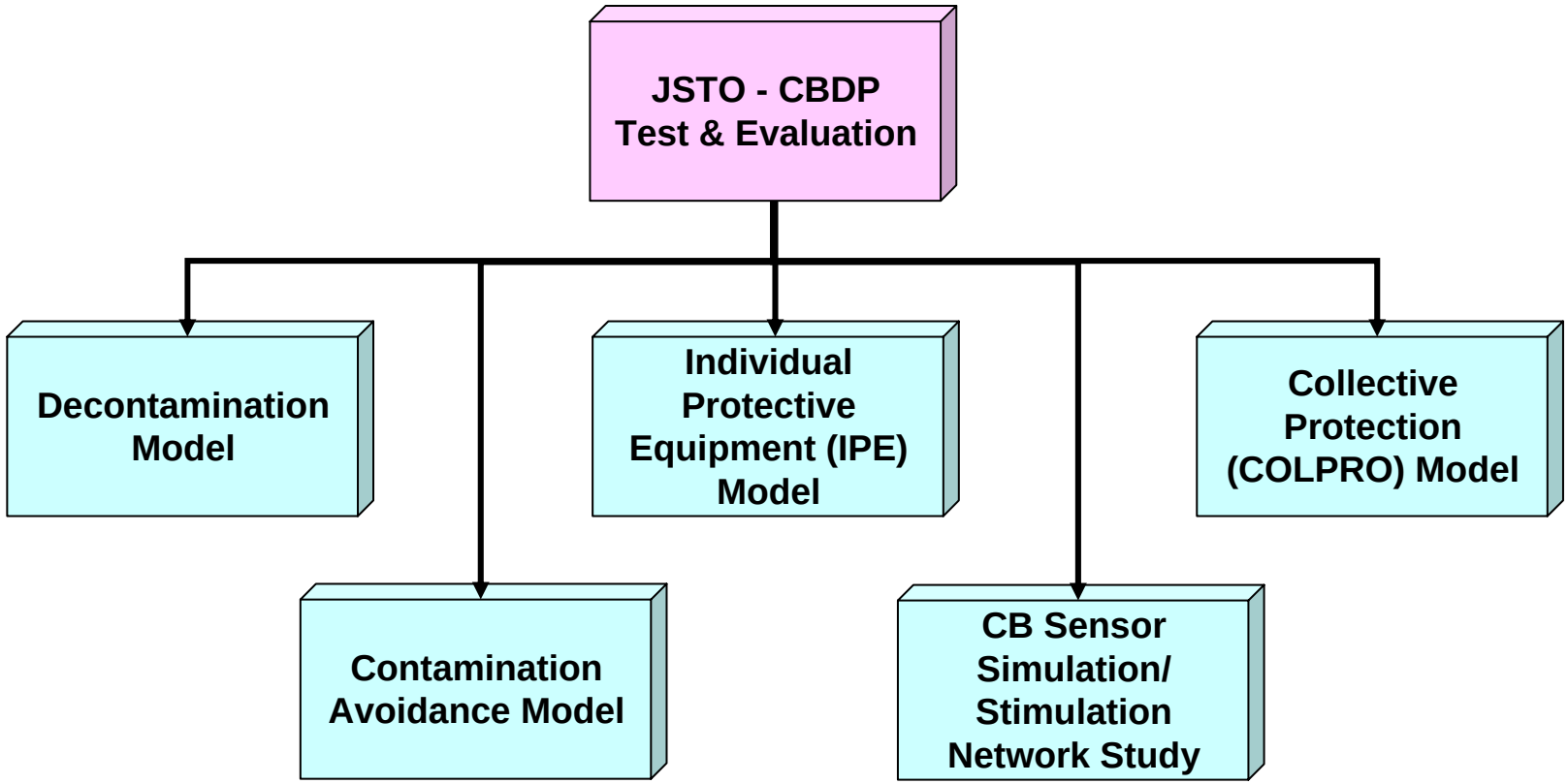
CB Sensor Simulation/ Stimulation Network Study

- Determine the requirements, interfaces, and develop a plan for building a capability for CB sensor simulators and stimulators to facilitate hardware-in-the-loop T&E in a field environment. This study will identify and characterize the planned network and tool sets, which should be linkable to other DoD labs, ranges, and selected experimentation sites (e.g., JFCOM)
- Complete by 3Q FY06

POTENTIAL FY06 Program

- Community Involvement in FY06
  - Dugway Proving Grounds, Edgewood Chemical Biological Center, Lawrence Berkeley National Laboratory, Naval Surface Warfare Center Dahlgren Division, Air Force Research Laboratory, Institute of Atmospheric Sciences
  - ITT Industries; Geo-Centers, Inc.
  - UK's Defence Science and Technology Laboratory
- Active Focus Areas vs. Gap(s)

JSTO - CBDP Test and Evaluation



Summary

- Tasked to find, fund, and manage projects to develop M&S products to assist the T&E community
- Developing strategies to move forward
- Need guidance

- A DIFFICULT TASK! – WE NEED YOUR HELP!!

Questions? Suggestions?

POC:

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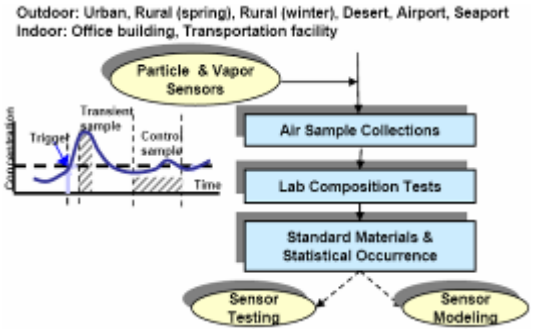
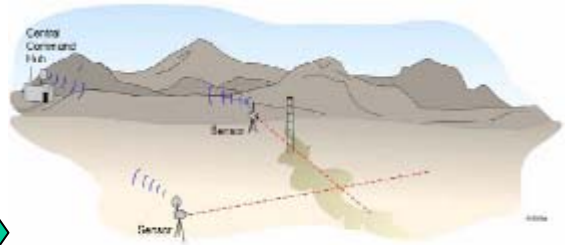
Backup

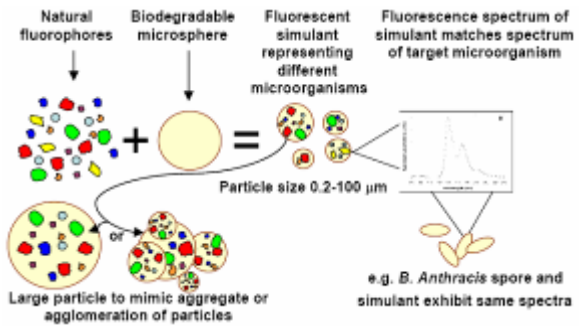
T&E technology development toward a test range capability …



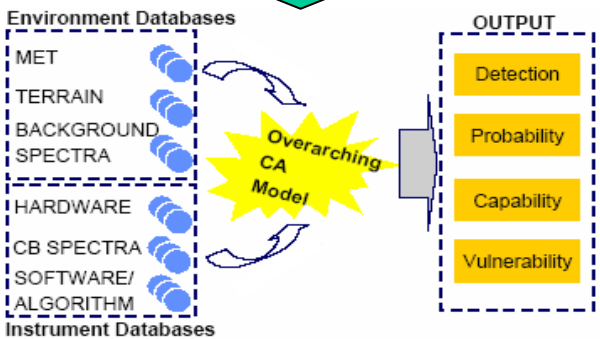
DET – Measurement of Natural Interferent Transients



DET – Range Test Validation System



TAS – Simulating Fluorescence Characteristics Using Biodegradable Microspheres



MSB - Contamination Avoidance (CA) Overarching Model

Test Range Capability

Development of simulants, test methods, and overarching models will transition to a test range capability that relates to relevant field conditions

Information Systems Investment Strategy

SHAPE

	FY06	FY07	FY08	FY09	FY10	FY11
CA7 (DPG)	Lab Equipment $3250K Control System Upgrades Lab Management Software	Test Facilities Improvement TBD	TBD	TBD	Support Software/IT Equipment TBD	TBD
6.3 JSTO	Science, Methodology and Modeling Efforts $8415K	$10170K	$6095K Overarching CA Model Overarching IPE Model Overarching ColPro Model Overarching Decon Model	TBD	TBD	TBD
6.4 JPEO	Advanced and System Development $6000K	$6000K	$16500K	$4770K	$20000K	$1000K
	Stimulant/Stimulator Development Soft and Sim/Stim Design	Hardware Build	Validate			
	Test Grid & Safari Instrumentation Grid Design	Equipment Purchase	Purchase & Install	Purchase & Install	Install	Validate
Total	$17665K	$16170K+	$22595K+	$4770K+	$20000K+	$1000K+

T&E Capability

20% 30% 40% 75% 100% 100% 100%