[X] New [ ] 3 Yrs Plus [ ] Revised [ ] Deleted [ ] Completed [ ] No Change

IV.SP.2000.02 Warrior Systems Modeling Technology

This joint STO will develop the essential analytic tools to evaluate and quantify the military worth of next generation Warrior Systems and future Lightweight Soldier initiatives. This is a key enabler of Simulation and Modeling for Acquisition, Requirements and Training (SMART). The tools will capture the demanding level of human performance representation required in the RDA domain while additionally furnishing the Requirements and Training domains with improved warrior representation. By the end of FY00, develop required scenario vignettes that will appropriately exercise warrior systems and components. By the end of FY01, provide algorithms, data model and vignettes to include both battlefield and restricted terrain, e.g. rooms, hallways, tunnels, trenches, etc., and other environmental features, e.g. lighting levels and dynamic weather to improve the range and accuracy of combat assessments. By the end of FY02, implement improvedclose combat/MOUT algorithms that have been validated with ground truth data provided by the Human Systems/Modeling & Analysis for Warrior Systems Program. By the end of FY03, demonstrate a 1st generation modeling capability to evaluate the combat worth of Warrior Systems in a close combat/MOUT environment. Validate Operational Requirement-based Casualty Assessment (ORCA) non-lethal sub-models and model extensions. By the end of FY04 demonstrate a verified and validated, High Level Architecture (HLA) compliant, modeling capability to evaluate the combat worth of Warrior Systems in approved critical Infantry squad battle drills and rifle platoon collective tasks. The model will additionally provide the capability to reduce program risk by 50% in the areas of prototype development, system down selection, concepts of deployment, and identified operations and support costs.

SUPPORTS: Lightweight Soldier Future Warrior System; DBBL, Infantry School, Training Research & Development

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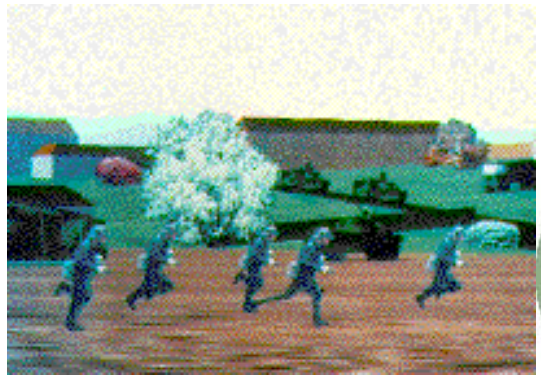
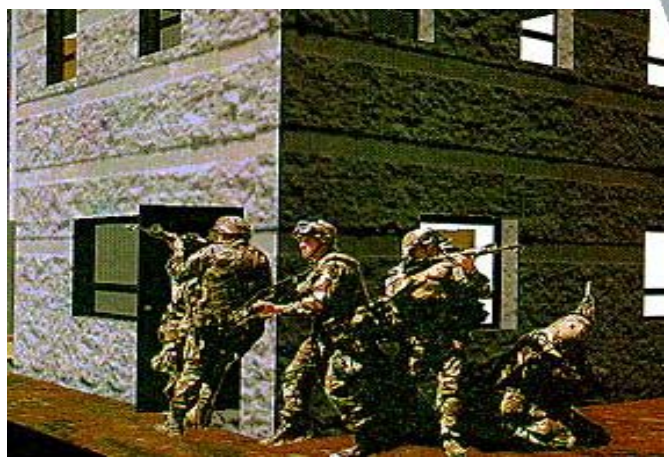
IV.SP.2000.02 - Warrior Systems Modeling Technology

Enables "SMART" Development of Improved Warrior Systems, Enhancement of Tactics, Techniques and Procedures, and Mission Planning

- Allows for Quantification of Warrior Systems, Components and Technologies
- Incorporates Human Dynamics into Computer Generated Forces
- Reduces Program Risks by 50% by Allowing Evaluation / Testing in the Virtual World
- Supports Lightweight Soldier Initiatives by Quantifying Implication of Weight vs. Performance





Integrated Tools Lead to Quantification of Soldier and Small Unit Effectiveness

IV.SP.2000.02 Warrior Systems Modeling Technology

1. Problem

- Incomplete Warrior Modeling & Simulation (M&S) tools to quantitatively assess combat worth of Land Warrior and follow-on soldier systems tools needed to answer the "so what" question.

2. Barriers

Lack of highly discriminating Warrior performance/behavior computer representation, detailed close combat/MOUT algorithms, and Verified & Validated (V&V'd) databases and algorithms.

3. Overcoming the Barriers

- Conduct controlled experiments/field trials through the Human Systems Modeling and Analysis effort to obtain ground truth data for model Verification & Validation (V&V).
- Leverage Army/USMC MOUT experiments.
- Model-test-model Land Warrior capabilities.

4. Capabilities

- Models for assessing the combat worth of Warrior Systems to reduce program risk. Provide milestone analytics.
- Land Warrior Simulation Support Plan.
- FOC's, e.g. DBS 97-020, IN 97-200, TR 97-057

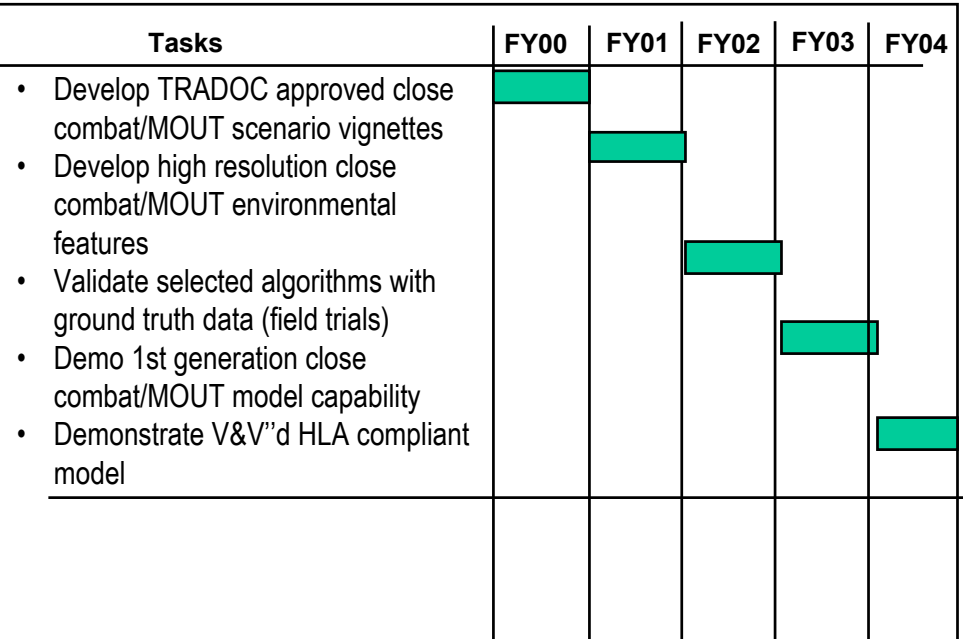
5. Products

- High Level Architecture (HLA) compliant model to include required V&V'd algorithms, databases, scenarios and executable code.

6. Quantitative Metrics

- Current achievable capability - basic force-on-force model with terrain, threat, weather, etc. (30% capability).
- Minimum acceptable capability - rudimentary behavioral representation; situation awareness (50% capability).
- Goal - 75% capability to model physiological and behavioral aspects of the Warrior in all environments, reducing program development risk by 50%.

WHAT IS THE SCHEDULE?



7. Warfighter Payoff

- Speed acquisition cycle to get better end items into the hands of the individual Warrior faster and cheaper.
- Tradeoff analyses of technologies of systems concepts based on V&V'd analytic methods.
- Focussed more cost effective testing.

8. Transition Milestones:

- HLA Compliant Warrior Systems' Model transitions to the Army and DoD M&S community in FY04.

9. Endorsements:

- COL Stone, DCD, USAIC

10. Non-Army Funding:

- CRADA with Multigen Paradigm Inc. to develop terrain database conversion software extension for COTS products. Developed tools will support Warrior Systems M&S.