

T&E M&S War Game Results

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Game Overview

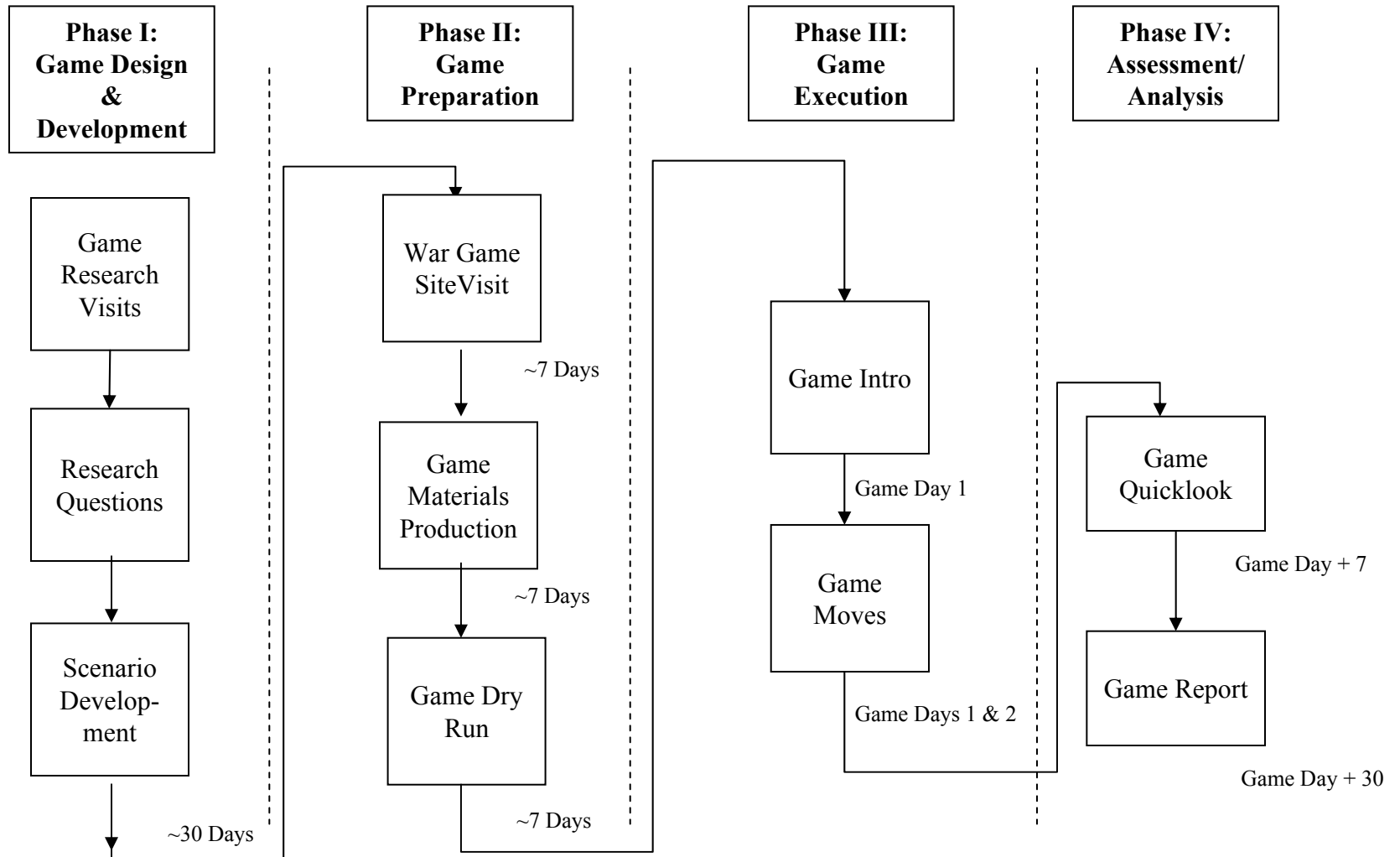
- Purpose:
 - Recent seminar war game for modeling and simulation (M&S) sponsor to identify areas for M&S strategic investments in support of future force developmental and operational test and evaluation (T&E)
- Participation:
 - About 30 players from T&E, M&S, developmental & operational test & evaluation (DT&E /OT&E) and other communities
 - Divided into three interdisciplinary teams
 - Game research, design, facilitation and reporting provided to players
- Game Research:
 - Purpose:
 - Understand the challenges
 - Gather appropriate issues for game discussion
 - Build credible scenarios
 - Identify subject matter experts
 - Generate interest in game
 - About 15 DoD, joint and service commands and organizations visited

Game Scenarios and Moves

- Scenarios (2015 – 2020):
 - Provide participants with a context for discussion – not an operational war game
 - Three representative scenarios (linked to Defense Planning Guidance (DPG) scenarios)*:
 - Urban canyon
 - Triple canopy jungle
 - Rugged terrain
- Four moves (Given a Future Blue Force):
 - Move 1: Red Move – Counter the Blue Force
 - Move 2: Blue Force Evaluation Metrics
 - Move 3: Test the Blue Force – Identify needed T&E capabilities and specific M&S challenges
 - Move 0: Characterize the barriers between present and future state and capture T&E, M&S strategic priorities

* All with Deep Underground (DUG) facilities

Game Approach



Game Move Design

	Move 1	Move 2	Move 3	Move 0
Scenario A	Team A: Red-team Blue force	Team A: Develop Blue force metrics	Team A: ID T&E caps and M&S challenges	Team A: Strategic priorities
Scenario B	Team B: Red-team Blue force	Team B: Develop Blue force metrics	Team B: ID T&E caps and M&S challenges	Team B: Strategic priorities
Scenario C	Team C: Red-team Blue force	Team C: Develop Blue force metrics	Team C: ID T&E caps and M&S challenges	Team C: Strategic priorities

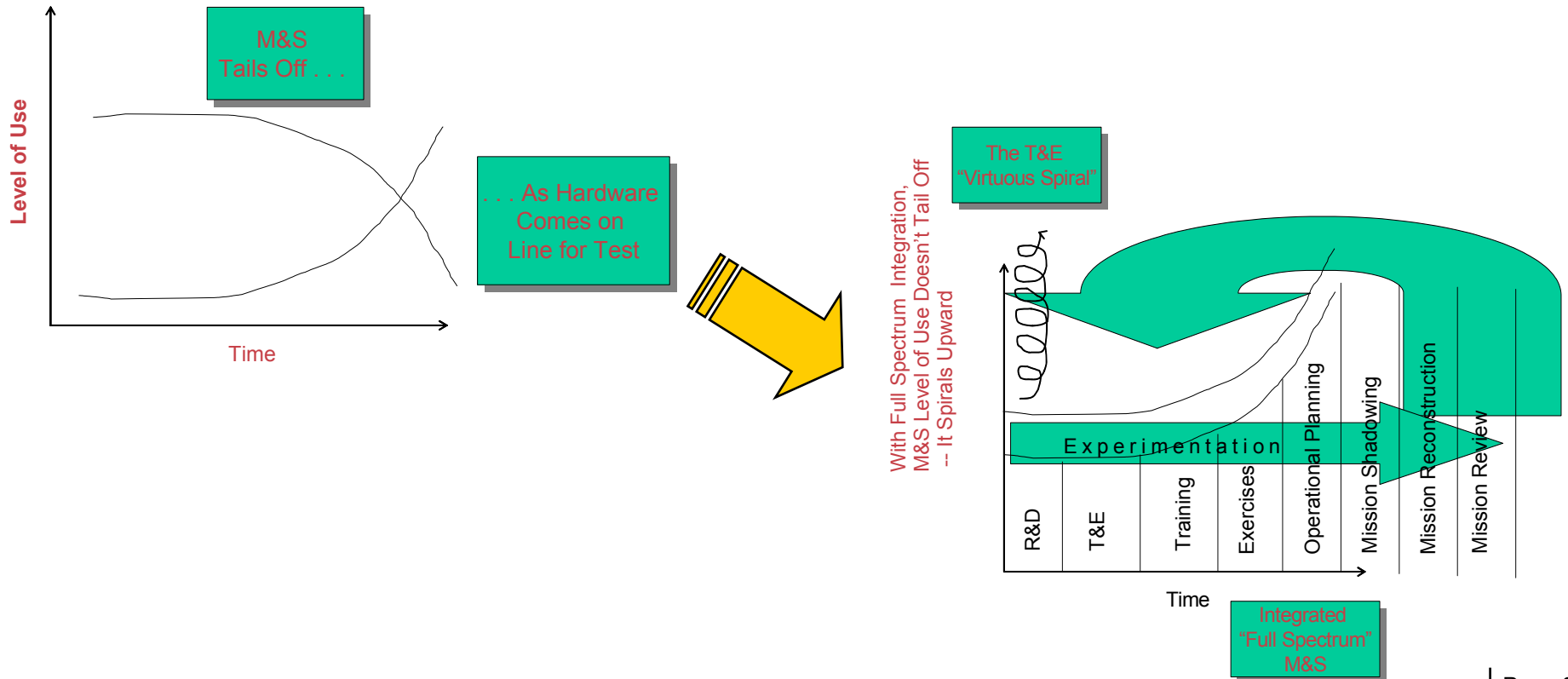

Recommendations & Conclusions



Competing T&E M&S Paradigms

- The current/“old” paradigm of reduced modeling and simulation as hardware comes on line will no longer apply as M&S matures and as T&E integrates with other systemic M&S

The Old Paradigm of Modeling and Simulation vs. Hardware T&E



Recommended Actions (1)

- Develop a mapping of M&S capabilities into T&E requirements
- Develop plans to better integrate M&S into design and T&E of future forces
- Create a DoD T&E and M&S professional society to facilitate T&E and M&S exchange and interactions and to foster development of next generation of T&E and M&S professionals
- Integrate M&S into development and acquisition programs in a value-added manner
- Organize Electronic Attack (EA) T&E/M&S workshops to address how EA and other network disruptions are addressed in programs, T&E and M&S
- Examine how T&E and M&S is being employed by specific programs to address C⁴ISR backbone issues
- Define situational awareness/understanding and sensor fusion representation requirements for developmental and acquisition programs and for T&E and M&S communities

Recommended Actions (2)

- Work with National Geospatial-Intelligence Agency (NGA) to develop common set of terrain requirements and representations to support programs and T&E
- Promote improved collaboration between T&E and M&S community and joint/service Red, intel, and doctrine development (including joint).
- Integrate M&S into development and acquisition programs in a value-added manner to facilitate integrated development and T&E
- Invest in M&S representation of sensor fusion to support system development and T&E
- Examine use of M&S in development of future force with an eye toward integrating it in such a way that it optimally supports system development and T&E (i.e., Improvised Explosive Devices (IEDs))
- Institute DoD M&S/T&E professional organization to support information exchange, coordination, and community replenishment and growth
- Streamline and update DoD testing security protocol to keep current with changing requirements to protect developmental capabilities
- Work with T&E and community to collaborate on various visions, paradigms and versions of future programs

Major Strategic Findings

- Make investments:
 - M&S of system of systems and representation of C⁴ISR fusion
 - Developing joint M&S collaborative environment, infrastructure and common framework
 - Scalable/high-fidelity, composable, transformable architecture;
 - Robust synthetic natural environment
 - i.e., wave propagation and terrain modeling
- Develop capabilities
 - Provide replication of:
 - Equipment and systems
 - Trained personnel
 - Territory
 - Capture secondary, systemic effects of equipment and system changes
 - Experiment with new doctrine and developmental capabilities – e.g., asymmetric warfare