



The U.S. Joint Forces Command

*Modeling and Simulation
and the
Warfighter - a CINCs' View*



U.S. Joint Forces Command Mission

M&S and the Warfighter - a CINC's View

*USJFCOM maximizes America's present and future military capabilities through joint **training**, total force **integration**, and **providing** ready CONUS-based forces to support other CINCs, the Atlantic Theater, and domestic requirements.*



New, Increased Responsibilities

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Unified Command Plan 99 . . .

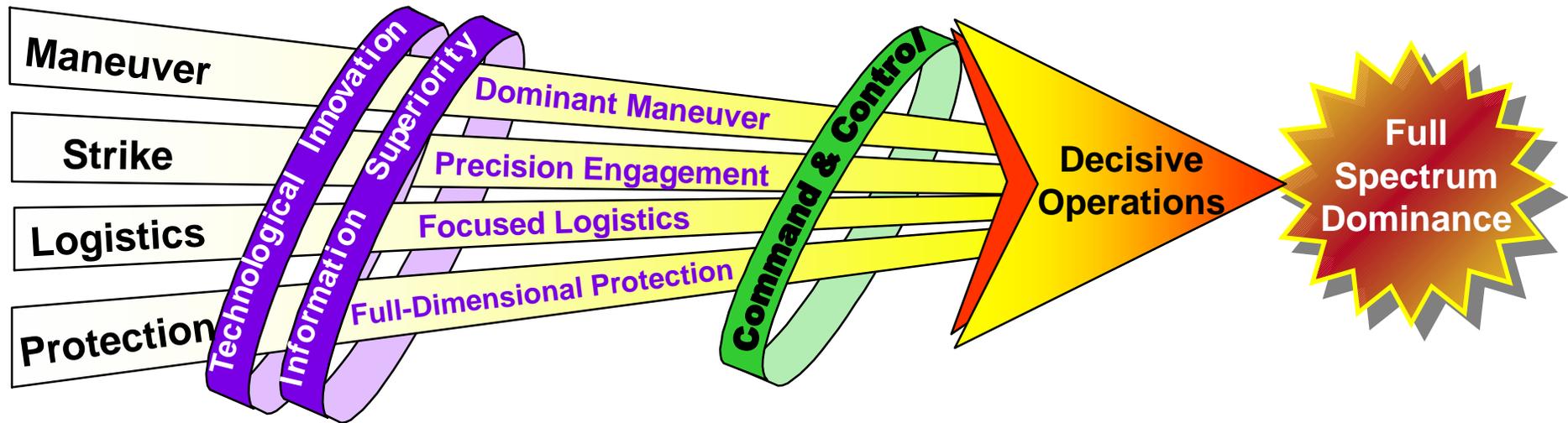
- **Redesignates USCINACOM, USCINCFCOM**
 - **Emphasizing role as the chief advocate of jointness**
 - **Highlighting importance placed on enhancing levels of jointness and interoperability throughout DoD**
- **Assigns new and increased functional responsibilities to reflect his role in transforming U.S. military forces to meet the security challenges of the 21st century**



Joint Experimentation Definition

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Joint Experimentation is an *iterative process* of collecting, developing and exploring *concepts* to identify and recommend the *better value-added solutions* for changes to DOTMLP required to achieve *significant advances* in future joint operational capabilities.





M&S – Future Joint Simulations

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- **Joint Warfare System (JWARS) as central to future joint warfare analysis efforts as JSIMS is to future joint training**
 - **Balanced representation of joint warfare**
 - **Theater context for Joint Experimentation**
 - **Joint Campaign and Course of Action Analyses in Crisis Action Planning**

- **Joint Simulation System (JSIMS)**
 - **It's our future, we need it badly**
 - **Significant investment to support testing and IOC**
 - **Non-combat areas (e.g., logistics, intelligence, information operations)**



M&S Future Challenges

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- **Jointness**
- **Multi-level resolution**
- **Multi-level security**
- **Increased permanent network infrastructure**
- **Rapid database building**
- **Integrated w/current & future C4I systems**
- **Improved individual and group behavior**
- **Balanced Warfare Representation and associated V,V&A cost to user**
- **Course of action analysis & mission rehearsal**



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Jointness

- ***Jointness*** is the art of combining capabilities from the different Military Services to create an effect that is greater than the sum of the parts.
- **Need to model *jointness*** as more than the sum of the individually modeled piece-parts in order to get at the synergistic effects inherent in Joint Force and coalition operations.



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Multi-Level Resolution

- **Single simulation environment configurable as fast running constructive or real-time HITL virtual with scenario sharing across resolutions and federations.**
- **Aggregation/disaggregation on the fly.**
- **Detailed urban terrain - realistic, not necessarily ground truth.**
- **Integrate simulators into operational and strategic models to support more realistic multi-echelon training.**



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Multi-Level Security

- **Integrate MLS capabilities into the models from several aspects:**
 - **Database/model classification**
 - **Output/dissemination classification**
- **External MLS devices are not always available, and do not address all of the current interface issues.**
- **Coalition operations and training will be the rule vs exception.**



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Increased Permanent Network Infrastructure

- **Current exercise/experiment distribution relies heavily on leased commercial lines.**
- **Significant drawbacks:**
 - **Cost**
 - **Lead time required for establishment**
- **Prohibits on-demand simulation testing or execution.**
- **Critical component of collaborative and reachback capability solutions.**



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Rapid Database Build

- **Currently manpower intensive and produces a non-standard product (databases cannot be easily shared across models).**
- **Prohibits meeting on-demand modeling requirements, particularly operational rehearsal and wargaming of real-world contingencies.**
- **Need easy and flexible scenario generation; rapid, numerous changes to parameters, doctrine, forces, organizations; and scenario sharing across the resolutions.**

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Integrated With Current & Future C4I Systems

- **Organizational C4I Systems are the training audience interface with the simulations.**
- **Currently many simulations do not interface directly with component C4I systems.**
- **For those that do, often this interface has to be modified on the fly in order to facilitate changes made to the C4I systems.**
- **Future model outputs must conform to DoD C4I standards.**



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Improved Individual and Group Behavior Representation

- **Current simulations inadequately represent the dynamics of human behavior.**
- **Future simulations must be capable of replicating human behavior including civilian groups and vehicular traffic based on regional demographics.**
- **Behaviors should be represented as data rather than code.**



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Balanced Warfare Representation and Associated V,V&A Cost to User

- **Non-kinetic technology representation.**
- **MOOTW, humanitarian assistance, and NGO modeling.**
- **Infrastructure nodes/networks, centers of gravity, national will/will to fight.**
- **User burden often cost prohibitive to point of insufficiency of V,V & A.**



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Course of Action Analysis and Mission Rehearsal

- **Critical field where M&S can “make money.”**
- **Currently too time consuming.**
- **Partner to collaborative analysis and reachback to M&S/other “capabilities.”**
- **Requires rapid and flexible database build, robust and accurate modeling, and dedicated, high bandwidth networks.**



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Questions?

Please Hold for the Panel Discussion.

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USJFCOM Command Presentation