



# **Joint Warfare System (JWARS)**

## **Update to DMSO Industry Days**

**May 24, 2000**

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JWARS Office**

**Web Site: <http://www.jointmodels.army.mil/>**

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| 6. AUTHOR(S)<br>Metzger, Jim ;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                             |                                                 |                                                                                                                  | 5d. PROJECT NUMBER                                       |                                                                      |
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| 7. PERFORMING ORGANIZATION NAME AND ADDRESS<br>JWARS Office<br>xxxxxx, xxxxxxxx                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |                                                 |                                                                                                                  | 8. PERFORMING ORGANIZATION REPORT<br>NUMBER              |                                                                      |
| 9. SPONSORING/MONITORING AGENCY NAME AND ADDRESS<br>United States Department of Defense<br>Defense Modeling and Simulation Office<br>1901 N. Beauregard St., Suite 500<br>Alexandria, VA22311-1705                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                             |                                                 |                                                                                                                  | 10. SPONSOR/MONITOR'S ACRONYM(S)                         |                                                                      |
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| 14. ABSTRACT<br>Mission: Develop a state-of-the-art, constructive simulation that will: ? Provide a multi-sided and balanced representation of joint theater warfare ? Be able to assess current and future operational concepts to include Joint Vision 2010?s: Dominant Maneuver, Precision Engagement, Focused Logistics, and Full- Dimension Protection ? Use C4 and ISR as the foundation for how entities perceive and interact with one another                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                             |                                                 |                                                                                                                  |                                                          |                                                                      |
| 15. SUBJECT TERMS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                                                 |                                                                                                                  |                                                          |                                                                      |
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# ***Agenda***

- **Background**
- **Management**
- **Technical Overview**
- **Schedule**



# History

Calendar Year

1995

1996

1997

1998

1999

Deputy Secretary of Defense (DepSecDef) initiated Joint Warfare System (JWARS) development as one component of Joint Analytic Model Improvement Program (JAMIP).

DepSecDef designated Joint Data Support (JDS) as primary data support agency for JAMIP.

JWARS Operational Requirements Document (ORD) was approved by Joint Requirements Oversight Council (JROC).

**JWARS Office developed and demonstrated prototype.**

**JWARS Office is developing production version, supported by two development contractors**



# ***Mission***

**Mission:** Develop a state-of-the-art, constructive simulation that will:

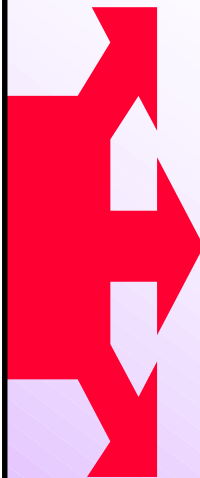
- Provide a multi-sided and balanced representation of joint theater warfare
- Be able to assess current and future operational concepts to include Joint Vision 2010's:

Dominant Maneuver, Precision Engagement, Focused Logistics, and Full-Dimension Protection

- Use C4 and ISR as the foundation for how entities perceive and interact with one another

## **Users**

- Joint Staff
- Services
- CINCs
- OSD
- Joint Task Forces
- Other DoD org's
- Industry



## **Applications**

1. Force assessment
2. Planning and execution
  - Deliberate planning
  - Crisis action planning
3. System effectiveness and trade off analysis
4. Concept and doctrine development and assessment



# ***Requirements - Warfare Functionality***

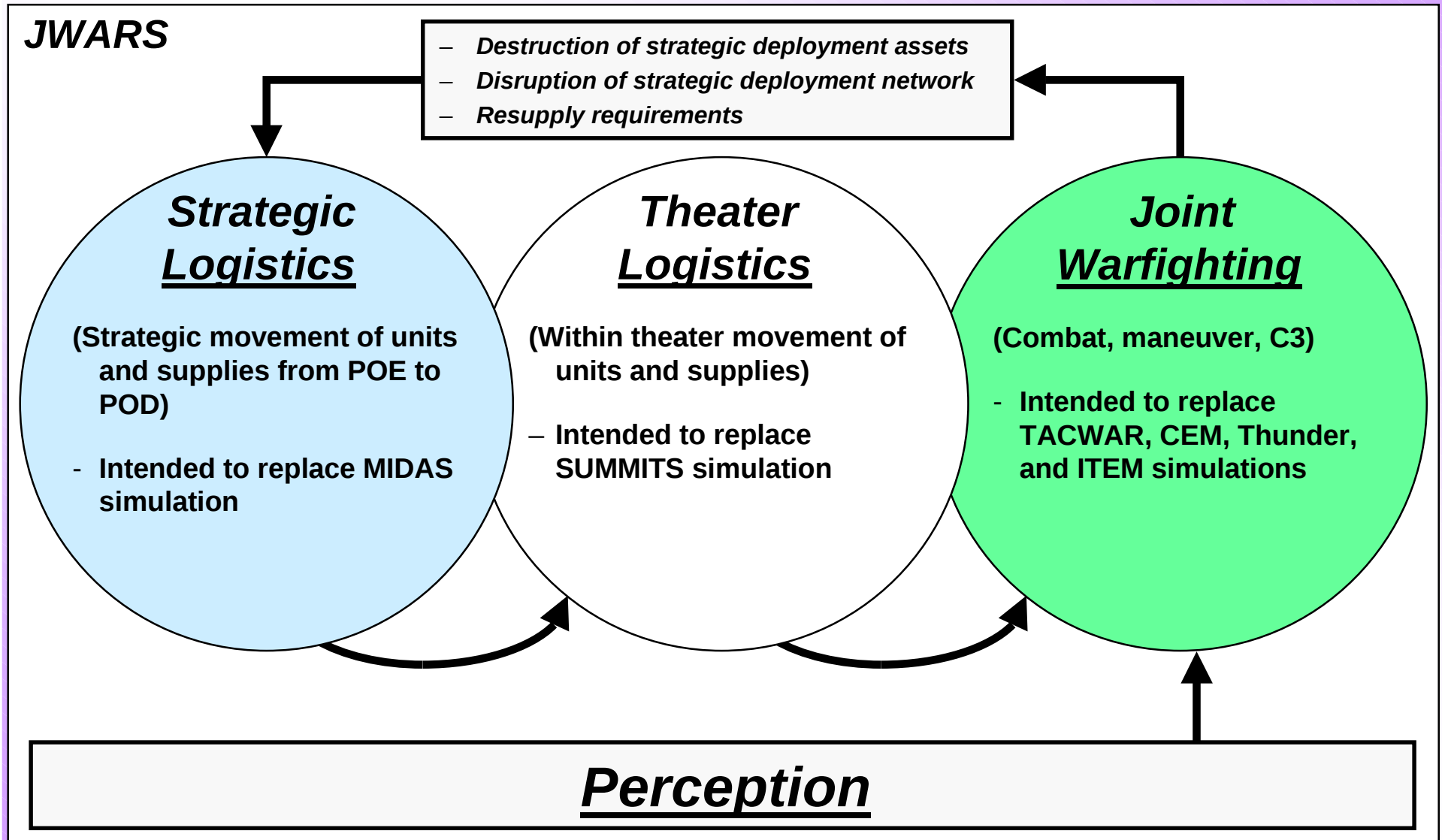
*(slide 1 of 2)*

- **Release 1 (Limited IOC)**
  - Include C4, ISR, logistics, and essential functionality in legacy simulations TACWAR and MIDAS.
  - Be capable of replacing TACWAR for force assessment application.
- **Release 2 (Full IOC)**
  - Provide balanced warfare representation, including C4, ISR, logistics.
  - Be capable of supporting the applications--
    1. Force assessment.
    2. Planning and execution.
  - Be capable of replacing TACWAR and MIDAS.
- **Release 3 (FOC)**
  - Provide balanced warfare representation, including C4, ISR, logistics.
  - Be capable of supporting the applications--
    1. Force assessment.
    2. Planning and execution.
    3. System effectiveness and trade-off analysis.
    4. Concept and doctrine development and assessment.
  - Be capable of replacing legacy simulations CEM, Thunder, ITEM, and SUMMITS.



# Requirements - Warfare Functionality

(slide 2 of 2)



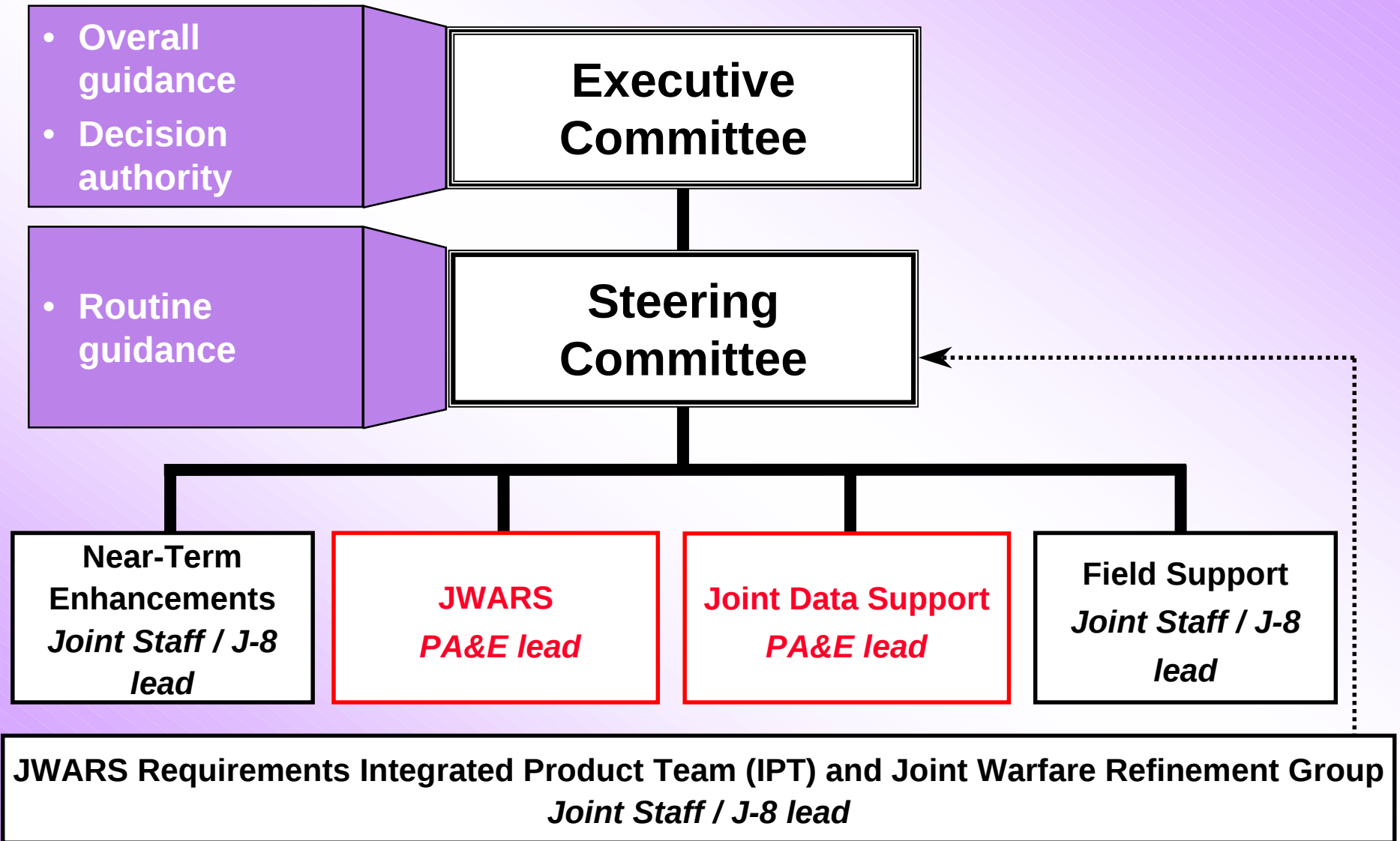


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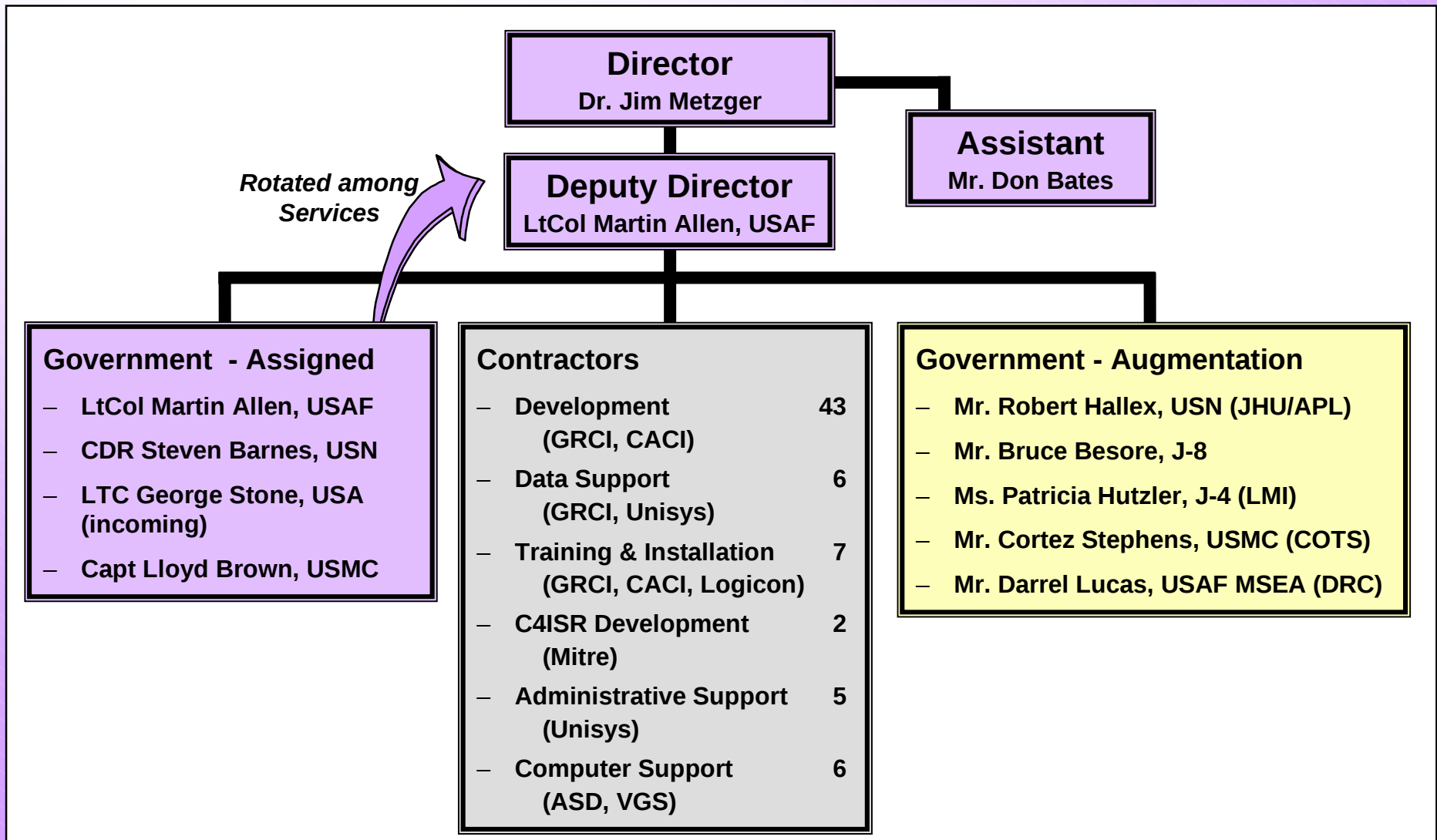
# JAMIP Management





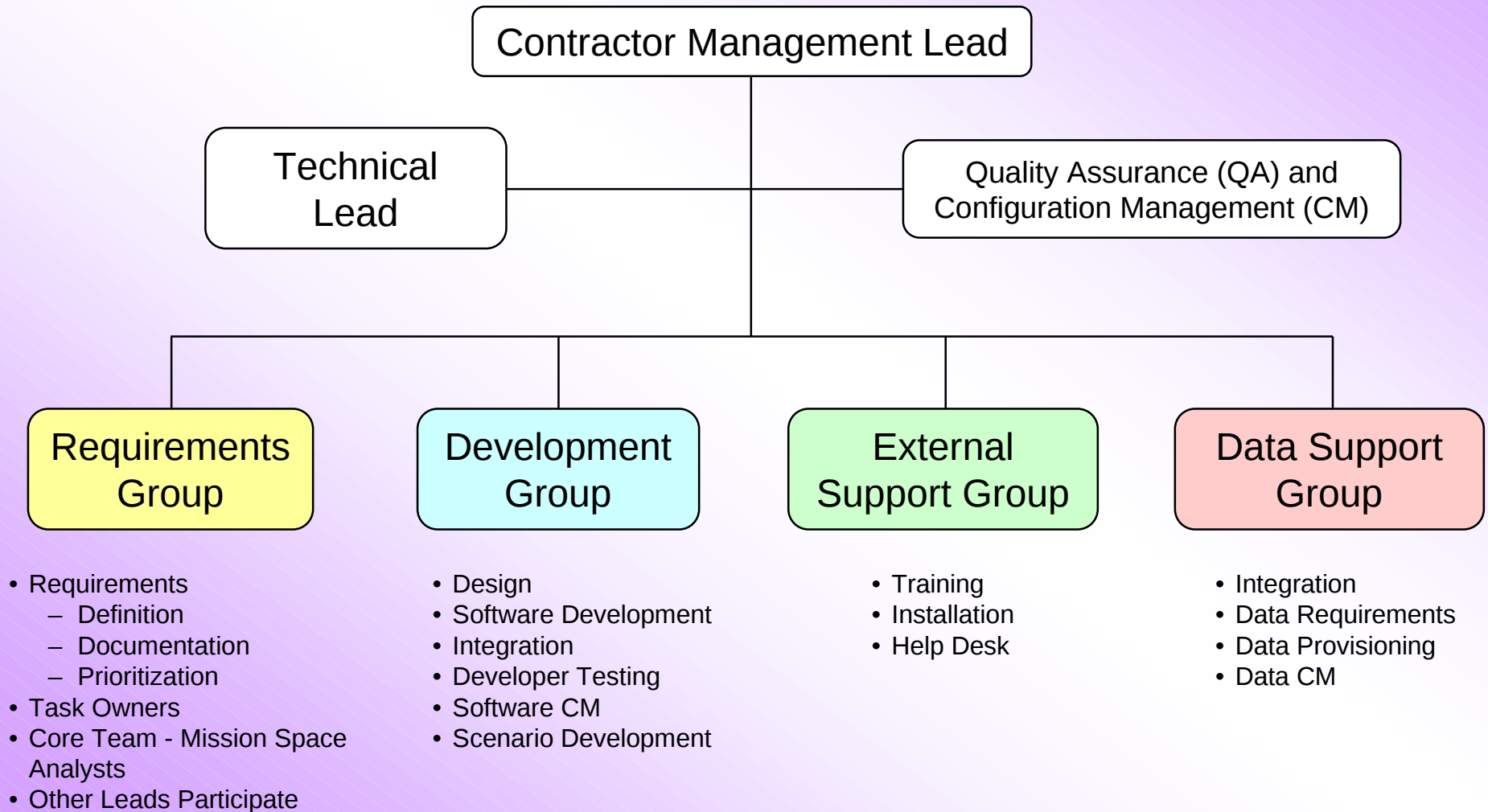
# JWARS Office

## Integrated Government-Contractor Facility (Arlington, VA)





# ***JWARS Development and Data Contractor Team***





# Collaborative Development Process

## • Activities

- Requirements definition and refinement → JS/J-8 (SAMD, WAD)
- Design and implementation
- Data development
- Verification and validation → V&V Agent (Oct 97- Present)
- Test and evaluation → OT&E by ATEC and AFOTEC
  - ATEC is Lead Test Agency
- Training and installation

## • Participants

- JWARS Office
- Joint Data Support (JDS)
- Future users
  - Joint Staff
  - OSD
  - Services
  - CINCS

**JWARS Study Team (JST)**

- Created in 1999
- Group of future users

## ***Joint Data Support (JDS)***

- **Permanent organization, established in 1996**
- **Goals**
  - Support application of legacy simulations
  - Support development of JWARS
  - Will support application of JWARS
- **Approach**
  - Participate in study plan and scenario development
  - Draw and integrate data from appropriate sources
  - Ensure data quality
  - Tailor source data to study
- **Current support to JWARS**
  - Assess model development methodologies and data source environment to ensure:
    - Algorithms being implemented are supportable with available data
    - Appropriate feeder models/preprocessors are available
    - Data development resources are defined
  - Provide data required for development and testing



## ***JWARS Study Team (JST)***

- **Established in 1999**
- **Membership: Analysts from future user organizations**
- **Purpose: Facilitate transition of simulation to operational use**
- **Goals**
  - **Conduct early user testing**
  - **Develop and enhance scenarios**
  - **Determine how to leverage unique JWARS capabilities for force structure analysis**
- **Activities to date**
  - **Participated in extensive JWARS training**
  - **Identified a representative set of output reports**
  - **Conducted assessment of early versions of Release 1, based on**
    - Limited independent testing**
    - Combined testing with JWARS Office**

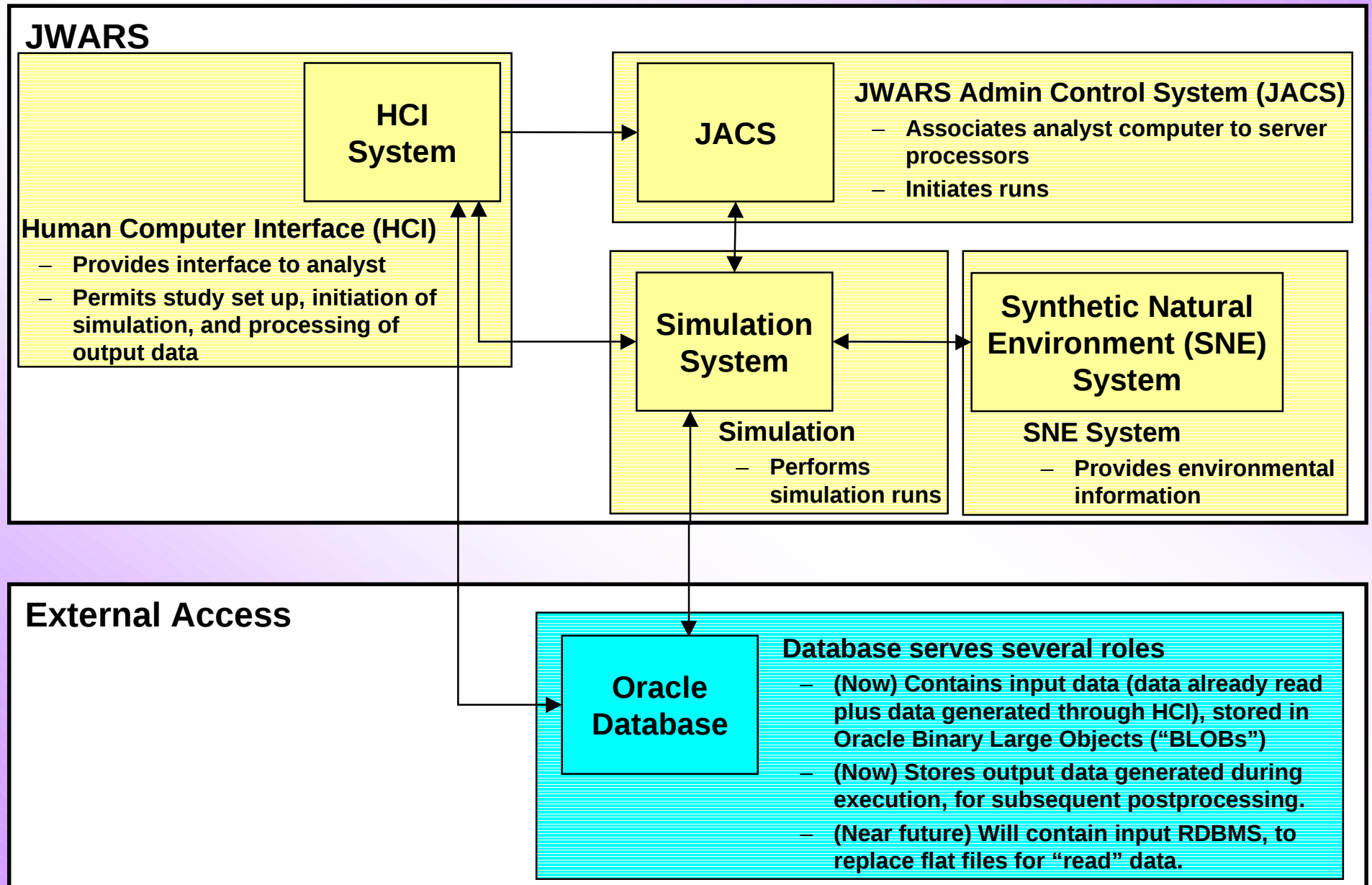


# ***Agenda***

- **Background**
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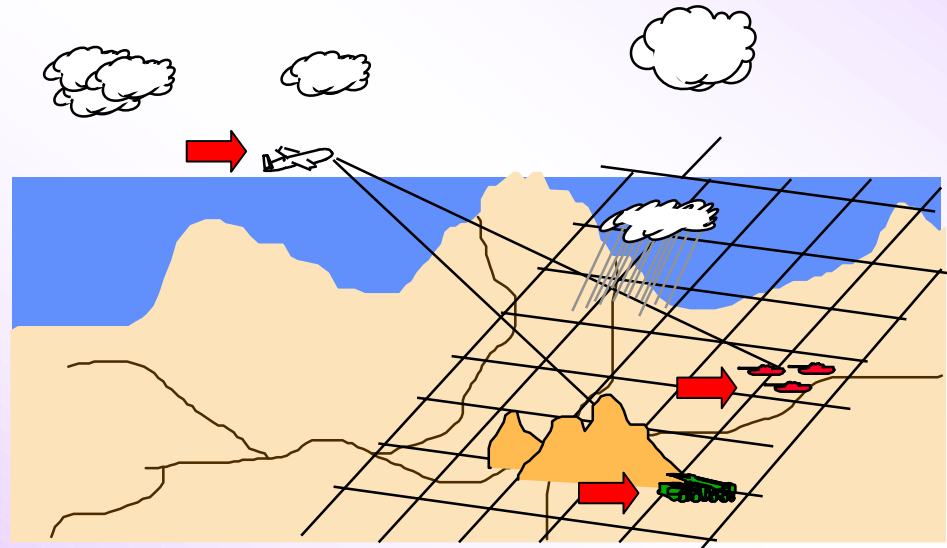
# JWARS Architecture - System View





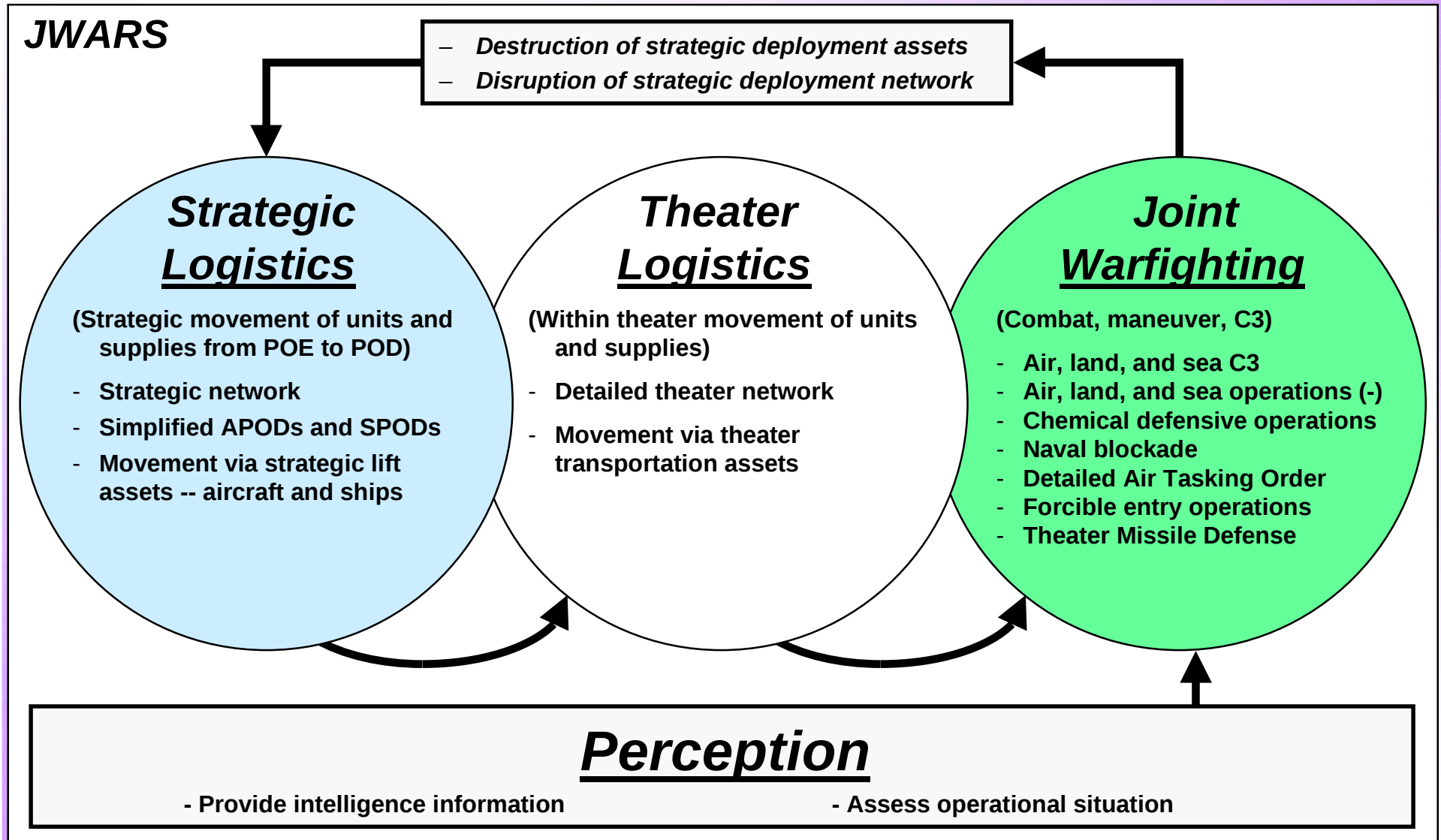
## ***Fundamental Problem Domain Component -- Battle Space Entity (BSE)***

- **BSE -- a friendly unit, enemy unit, or major system operating in the battle space. Examples:**
  - Operational Headquarters
  - Strategic aircraft and ships
  - Airbases and seaports
  - Land: Maneuver Battalion
  - Air: Air Mission Element
  - Space: Sensor Satellite
  - Maritime: Ship, Submarine
- **Represented as a “composite software object” in an object-oriented simulation.**
- **Activities include:**
  - Sense
  - Decide
  - Move
  - Fight





## ***Release 1 (Limited IOC) Warfare Functionality***





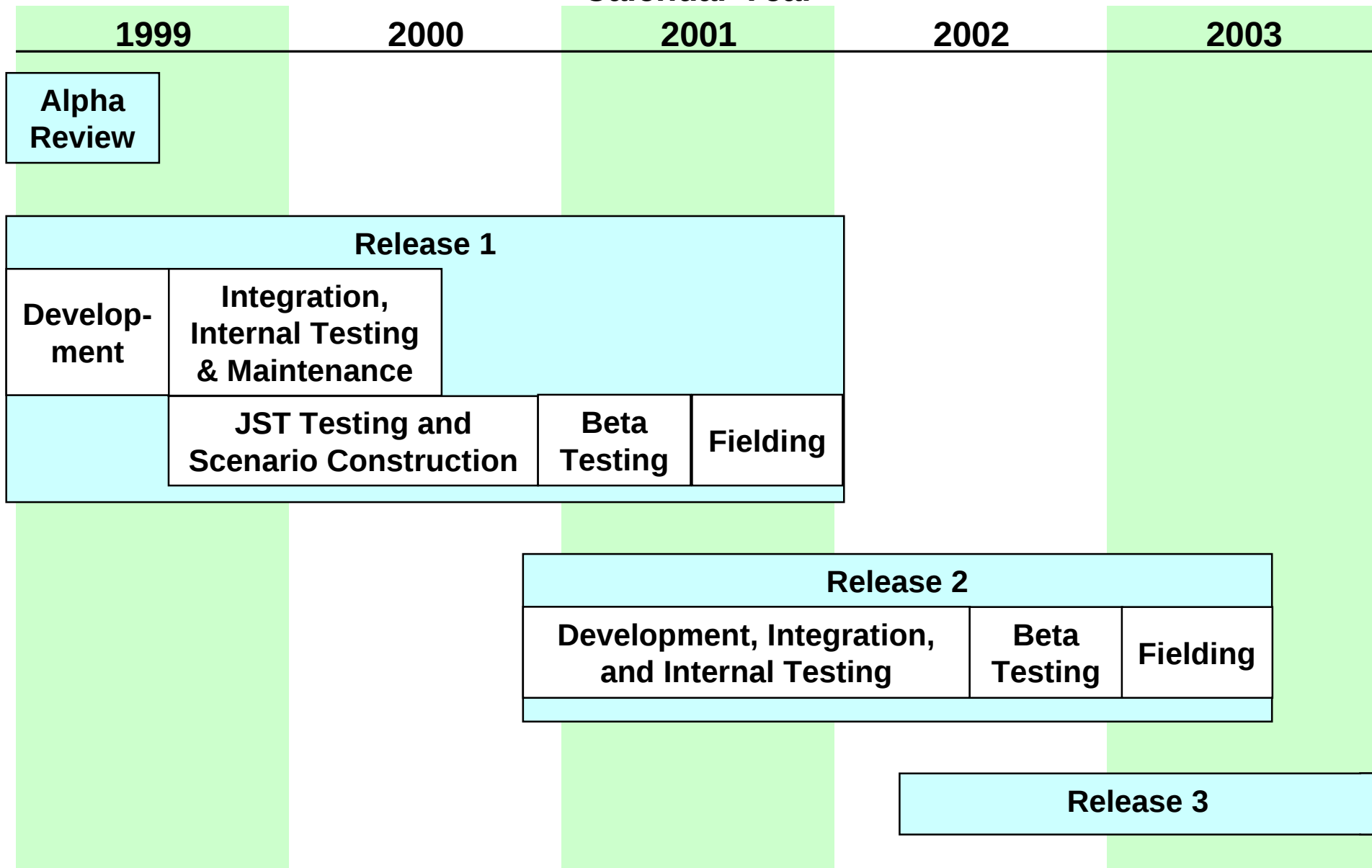
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# Schedule

Calendar Year





## ***JWARS Office's Near Term Emphasis***

### **Near term**

- **Address emergency fixes and high priority change requests**
- **With JST, conduct testing**
- **With JDS and JST, construct and execute study-quality Major Theater War (MTW) scenario**

### **Mid term**

- **Support Beta testing by 12 user sites**