



**Joint Modeling and Simulation System  
Defense Modeling and Simulation Office  
Briefing to Industry**

**Briefer: Ms Cindy Porubcansky  
JMASS Program Manager**

**Date: 4 Jun 99**



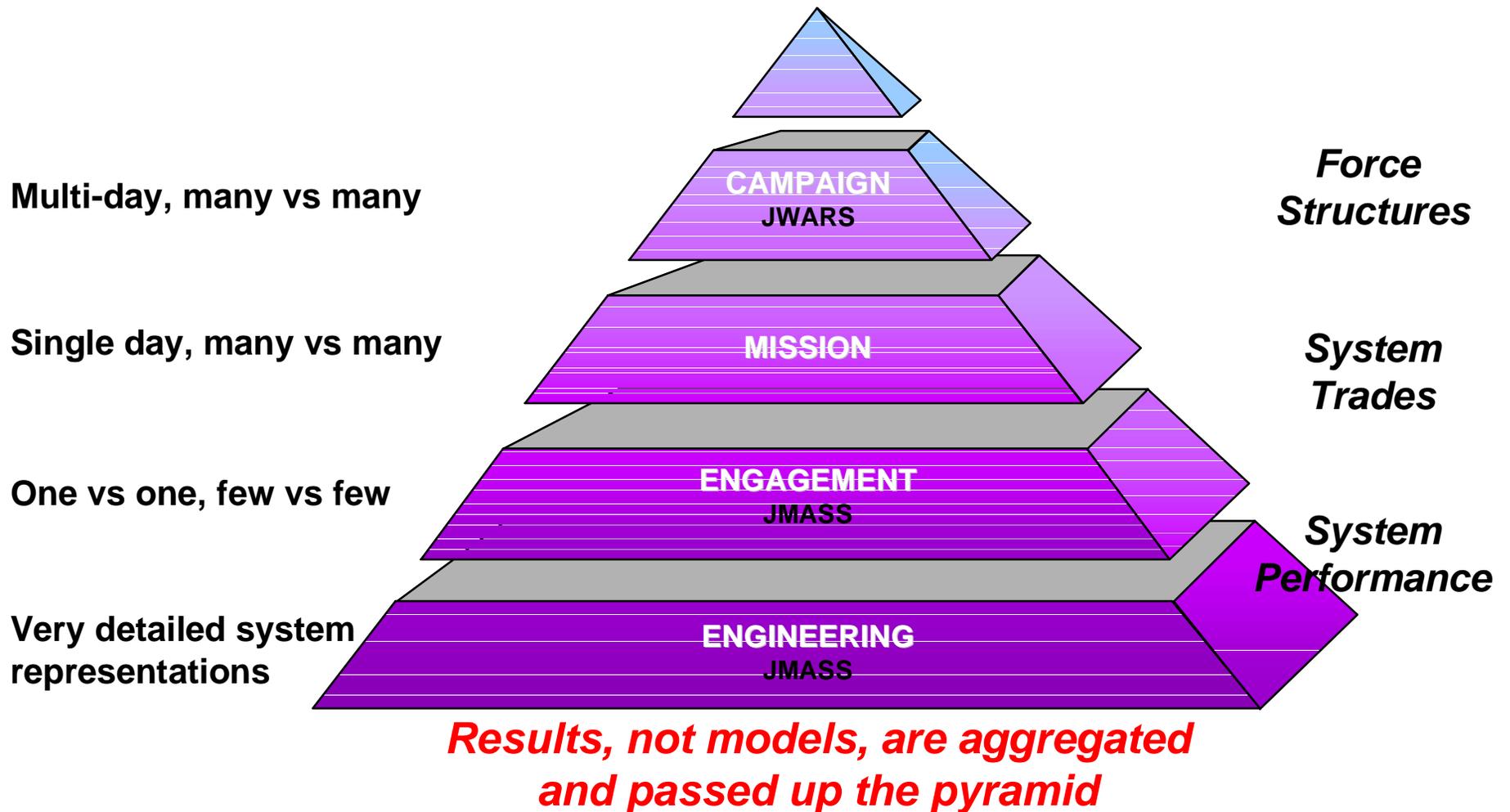
# Overview

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- ➔ **Background**
  - **Program status**
  - **Model development status**
  - **JMASS Master Schedule**
  - **Summary**

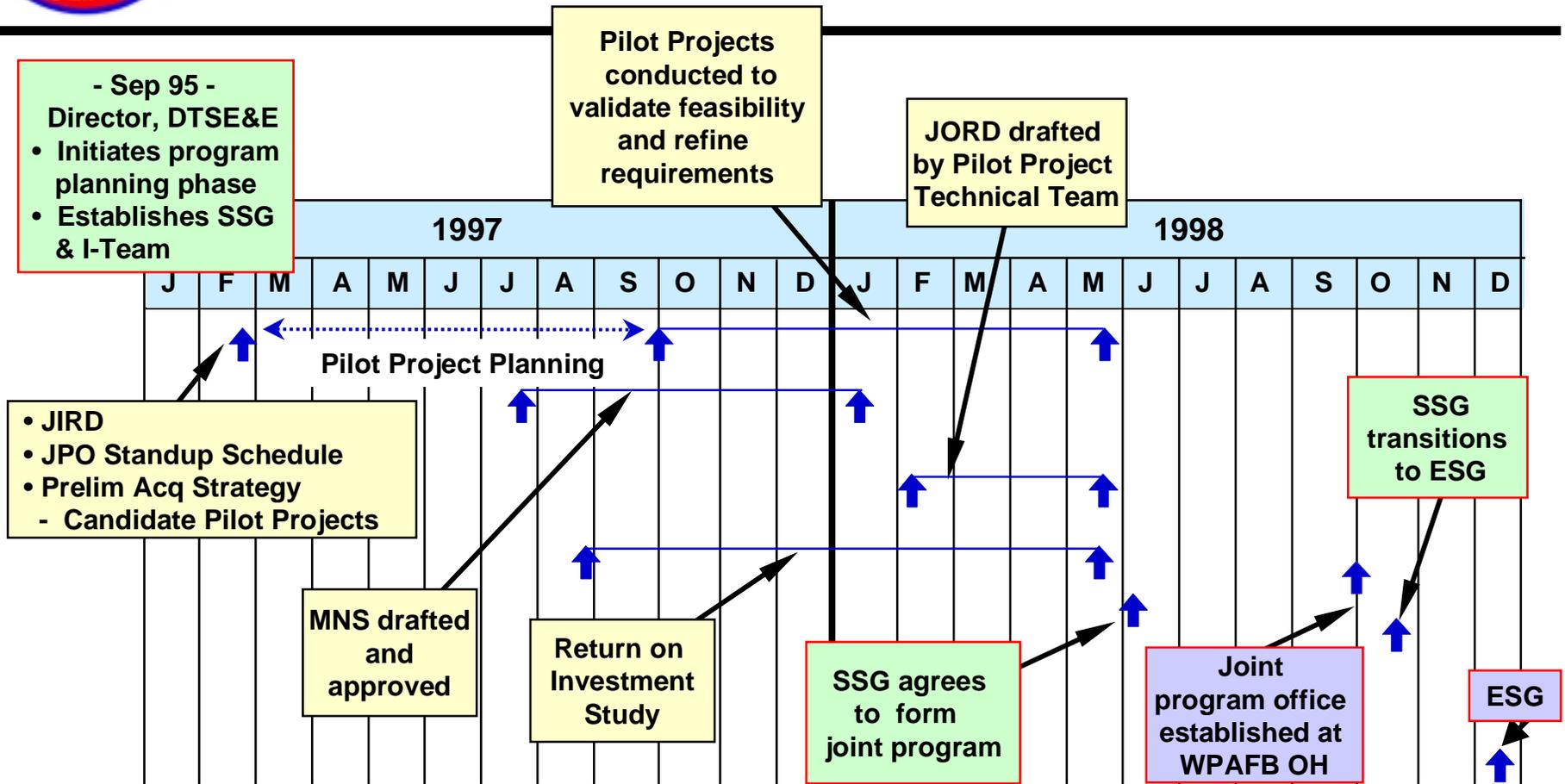


# Levels of Analysis





# Background

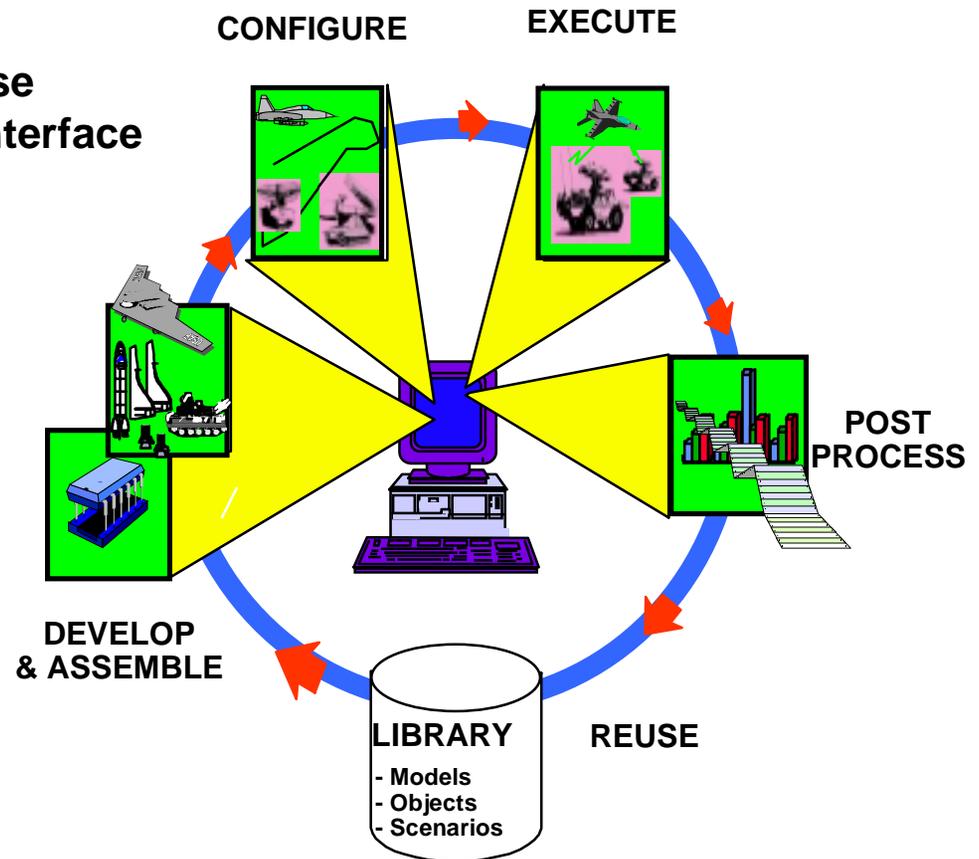


*Dr. Gansler affirmed support for program, 15 Oct 98, "...confident ... JMASS will become a key technology that will enable us to fully integrate modeling and simulation into the Department's acquisition process"*



# System Description

- **Model Standards**
  - Software Structural Model for Reuse
  - Model Application Programming Interface
- **Simulation Support Environment**
  - Simulation Engine
  - Visual Development Tools
  - Analysis Tools
  - COTS & Legacy Tool Interface
- **Model Library & Repository**
  - Local Model and Data Library
  - Modeling and Simulation Resource Repository



*Yield is common, reusable, interoperable models*



# Requirements

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- **Joint Modeling and Simulation System (JMASS) Operational Requirements Document (JORD) -- USAF001-98-III, 31 Aug 98**
  - **Air Force signed, 20 Sep 98**
    - **Lt Gen Marvin Esmond, DCS for Air and Space Operations**
  - **Army signed, 6 Dec 98**
    - **Maj Gen Joseph M. Cosumano, Jr., Ass't DCS for Operations and Plans, Force Development**
  - **Navy signed, 6 May 99**
    - **Vice Admiral Conrad C. Lautenbacher, Deputy Chief of Naval Operations, Resources, Warfare Requirements and Assessments**



# Requirements Synopsis

*(Joint Operational Requirements Document (JORD), dated 31 Aug 98)*

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- **JMASS will provide the acquisition community:**
  - **Systems- level architecture**
    - **Structure for simulations, component models**
  - **Standards, guidelines and tools**
    - **Building JMASS compliant models**
    - **Assembling the models into simulations**
    - **Executing simulations over time**
    - **Analyzing results**
  - **Compliance testing suites**
  - **Comprehensive technical and user documentation**

*Implemented in a streamlined software package*



# Requirements Synopsis

*(Joint Operational Requirements Document (JORD), dated 31 Aug 98)*

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- **Other factors:**
  - **Optimize implementation to support models operating from the engineering through engagement levels**
  - **Initially limit services to those required by weapon system performance modeling community**
  - **Use to develop “pedigreed data”**
    - **Supports aggregated simulation systems**
      - **JSIMS, JWARS**



# JMASS Relationship to SBA

*(from OUSD/DTSE&E white paper, dated 18 Feb 99)*

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- **JMASS is one critical segment in the technical environment portion of the overall SBA strategy:**
  - **Distributed Product Descriptions (DPD)**: JMASS models can be extended to be a performance-based, one-dimensional DPD with the incorporation of DPD-specific features such as user-selectable views
  - **DoD/Industry Resource Repository (DIRR)**: JMASS models will be placed in the DIRR, either individually or as a JMASS library node/pointer
  - **Data Interchange Formats (DIF)**: JMASS will use currently existing DIFs or develop new ones where they don't exist
  - **Collaborative Environments (CE)**: JMASS development environment can serve as a basis for a collaborative environment, targeted to the areas that JMASS will support



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# Program Status

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- **JMASS 98:**
  - Departure point for joint program
  - Developed and supported by Dynetics, Inc., Huntsville, AL
  - Analyst, model developer training available
- **Additional tools:**
  - Scenario Laydown Development Tool, SAIC, Albuquerque, NM
  - Run-time Analyst Tools, Dynetics, Inc., Huntsville AL
  - Analyst Toolkit, BDM, International, McClean, VA
  - Automated Model Conversion Tool (AMCTool), SPARTA, Inc., Laguna Hills CA
- **Joint program risk reduction activities:**
  - Real-time risk reduction effort, Amherst, Buffalo, NY;



# Common Test & Evaluation Investment Program Projects

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- **Common Test & Evaluation Investment Program (CTEIP)  
JMASS projects:**
  - **Investigate JMASS model decomposition and reuse**
    - **Use HLA Run Time Infrastructure to support  
component-to-component communication**
  - **Define and prototype JMASS compliant EO/IR/UV  
environment model**



# Program Status

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- **Program Research and Development Announcement**
  - **Solicitation for COTS, GOTS tools and services to meet JORD requirements**
  - **Contract awards expected NLT 1 Nov 99**



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# Model Development Status

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- **Surface-to-Air threat models developed by Missile and Space Intelligence Center (MSIC)**
  - **Target Acquisition Radars developed by National Air Intelligence Center (NAIC)**
  - **Model deliveries on track**
    - **Sep 99: 3 emulative, 7 analytic models**
    - **Jul 00: 4 analytic models**
- **Air-to-Air threat models developed by NAIC**
  - **Aircraft, radar and missile template models**
  - **8 analytic models on track for Sep 00 delivery**



# Model Development Status

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- **Air Defense Artillery analytic model developed by National Ground Intelligence Center (NGIC)**
  - **On track for Sep 99 delivery**



# JMASS Customers

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- **B-1 Defensive System Upgrade Program (DSUP)**
  - Blue Digital System Model (DSM)
  - Electronic Countermeasures(ECM) system model
  - Threat models
- **F-22**
  - Blue DSM
  - Threat models
- **Joint Strike Fighter (JSF)**
  - Blue DSM
  - Threat Models



# JMASS Customers

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- **Joint Air-to-Surface Strike Missile (JASSM)**
  - Blue DSM
  - Threat Models
  - JMOOSE upgrades
- **F-15**
  - Blue DSM
  - ECM model
- **AFIWC**
  - Chaff Dispenser
  - Flares
  - RWR



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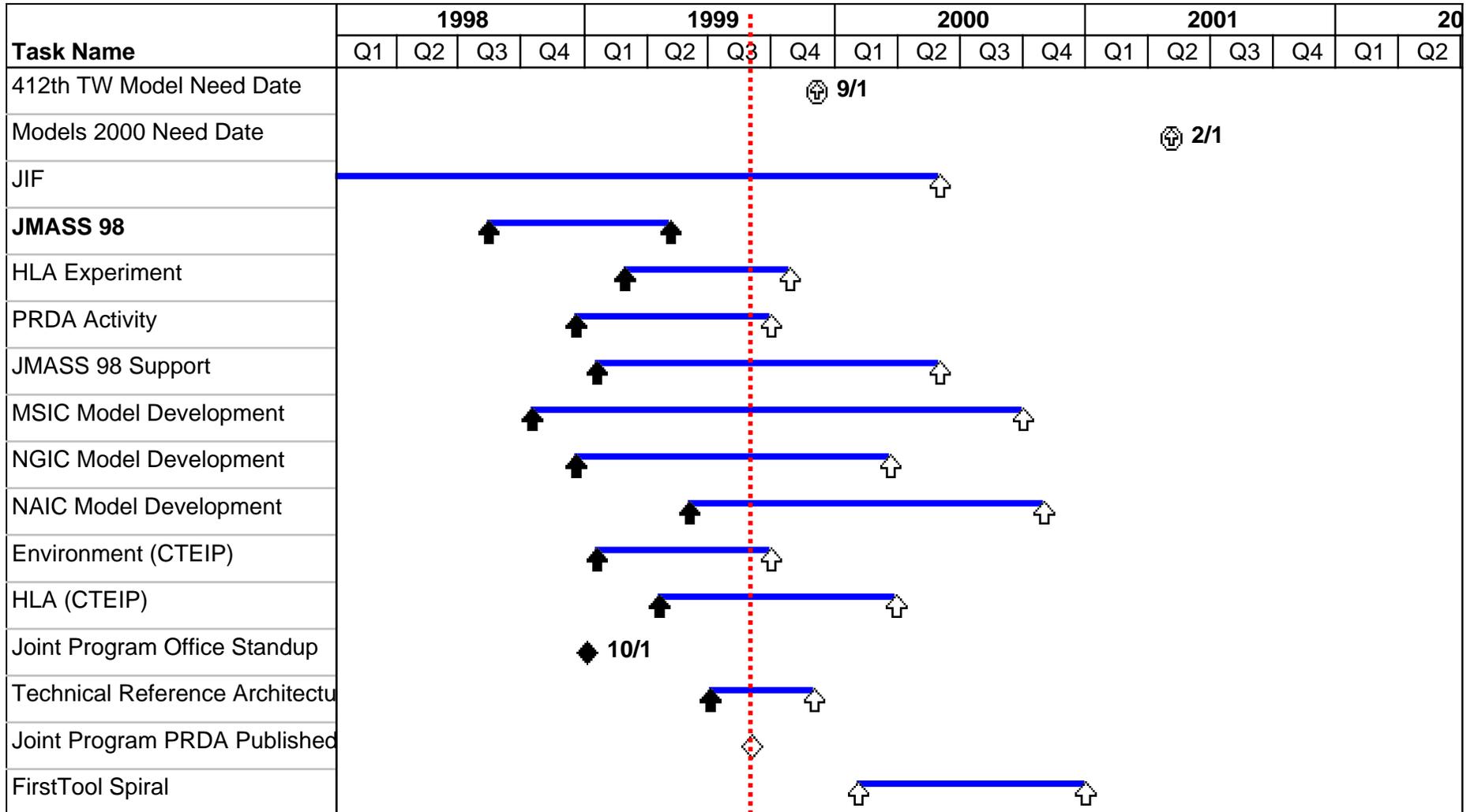
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# JMASS Master Schedule

*Time Now*





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# Summary

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- **JMASS 98 departure point for Joint program**
- **JMASS model population steadily increasing**
- **JMASS-compatible analyst tools increasing**
- **JMASS gaining wider acceptance across the modeling and simulation community**



**To contact JMASS Program Office**

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