INFORMATION SYSTEMS

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Advanced Planning Briefing to Industry

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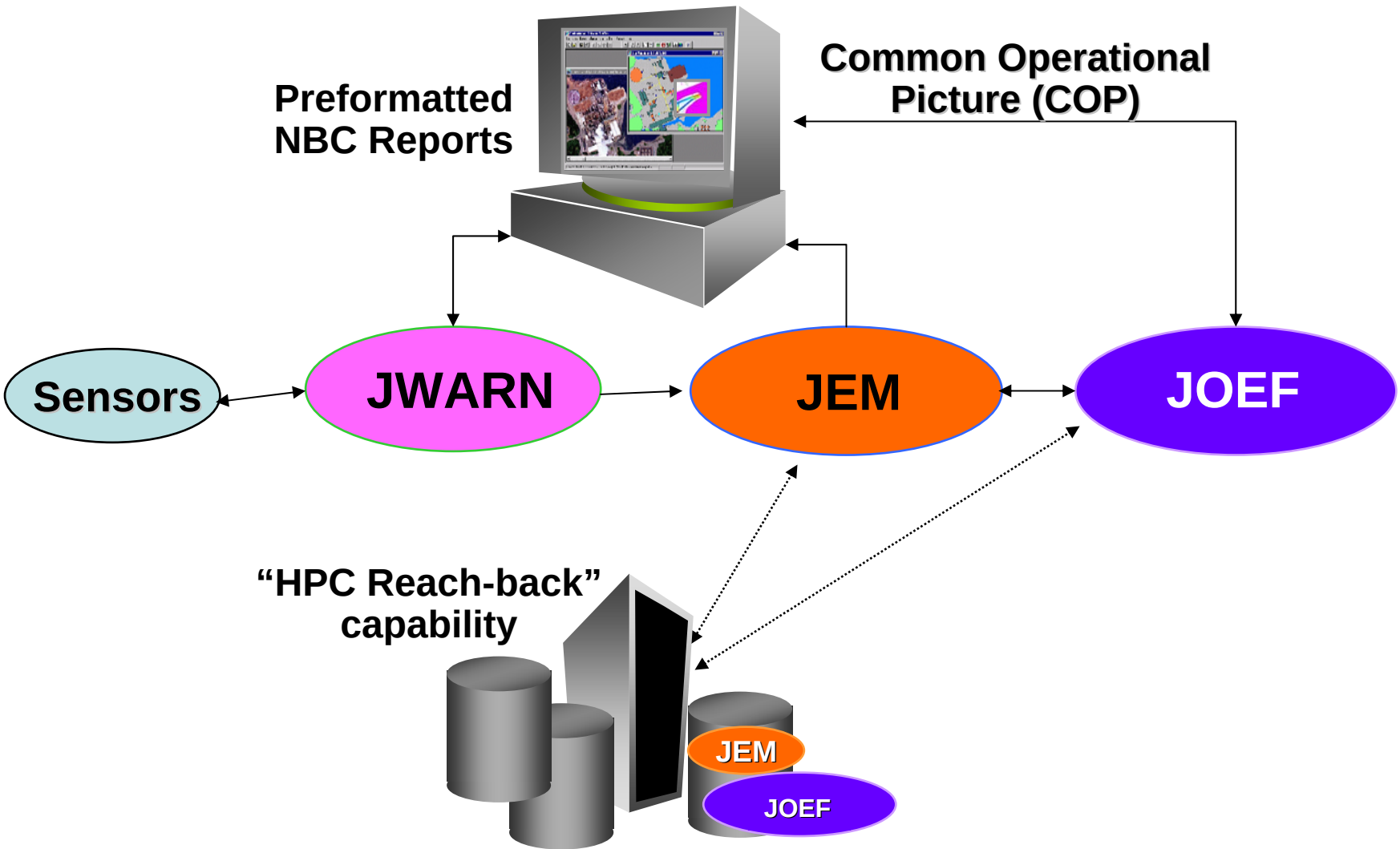
Outline

- Overview
- S&T and Warfighter Needs
- Technical Challenges
- Acquisition Strategy/ Funding/ Schedule
- Upcoming Business Opportunities
- Contacts

Program Overview

End-to-End Capability



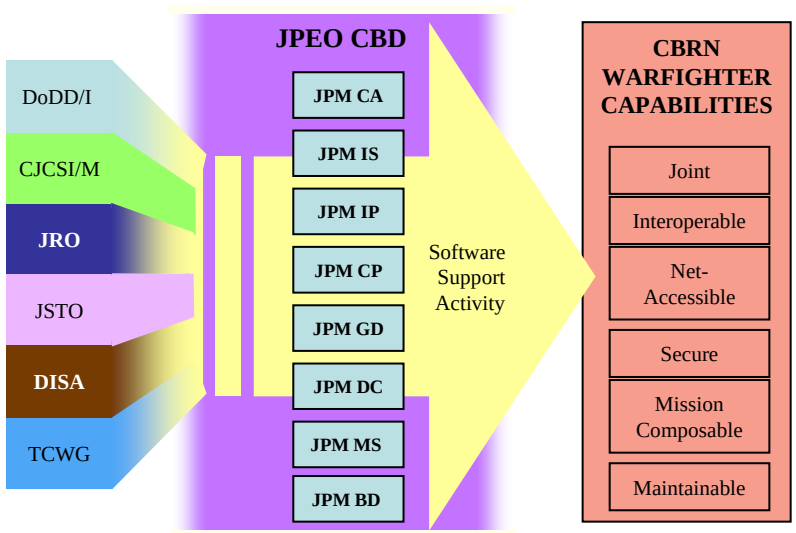
Program Overview

- **Joint Warning and Reporting Network (JWARN), Joint Effects Model (JEM) and Joint Operational Effects Federation (JOEF) are ACAT III Information Systems Applications That Network NBC Sensors, Mission Application Software Tools, and C4ISR Systems**
- **JWARN/JEM/JOEF Builds on Current Manual Capabilities By Fully Integrating with COE-based and Tactical C4ISR Systems**
- **JWARN is an ATP-45 Based Warning and Reporting Network**
- **JEM is the Single DoD Hazard Prediction Model**
- **JOEF is a Deliberate and Crisis Planning Tool Kit**

Program Overview

Software Support Activity

- **Coordinate Support and Development of JPEO CBD Net-Centric Services**
- **Creating and Leveraging Commonality Across the Enterprise**
  - **Identifying Duplication of Effort in Existing Activities**
  - **Making Recommendations to Address Capabilities Gaps**
  - **Directly Develop or Employ Solutions to Fill Those Gaps**
- **Defining and Architecting Common Services and Components**



Program Overview

Information Systems Science & Technology (ISST)

- **Problem:**
  - **Currently There are Limited Algorithms to Accurately Predict and Assess Hazards, Insufficient Focus on Data, Limited Automated Planning Tools and Decision Aids, and Few Accredited T&E Models**
- **Solution:**
  - **ISST Capability Area will Provide Information Superiority with Respect to the CB Environment by Providing Accurate Representation of Capabilities and Events, Rapid Assessment of CB on Operations, and Automated Decision Support for the Warfighter and Acquisition**
- **Objective:**
  - **Overall Objective is to Develop the Science Behind the Acquisition Programs of Record, Namely JWARN, JEM and JOEF**

S&T Needs

- **ISST is Divided into Seven Thrust Areas:**
  - **CB Defense Battlespace Management**
  - **CB Warfare Hazard Environment Prediction**
  - **CB Rapid Assimilation of Sensor Information Research (RASIR)**
  - **CB Warfare Effects on Operations**
  - **CBDP Decision Support Tools & Methodologies**
  - **CB Defense Modeling & Simulation (M&S) for Test & Evaluation (T&E)**
  - **CB Medical Information Systems**

S&T Needs

CB Defense Battlespace Management

- **Objective: Develop the Science Behind Collaborative Information Management Technologies for Insertion Into the JWARN Acquisition Program**
- **Technologies to be Developed Include Configurable Battle Management Modules for:**
  - **Data Acquisition**
  - **Sensor Integration**
  - **Early Warning and Reporting**
  - **Mission Impact**
- **Benefit: Improves Integrated Early Warning and Provides a Common Operational Picture (COP) for Enhanced Decision Making**

S&T Needs

CB Warfare Hazard Environment Prediction

- **Objective: Develop the Science Behind Transport, Dispersion and Deposition Technologies for Insertion Into the JEM Acquisition Program**
- **Technologies Needed are Analysis Tools and Modules for:**
  - **Dispersion at High Altitudes**
  - **Urban Dispersion**
  - **Coastal and Littoral Dispersion**
  - **Waterborne Dispersion**
- **Benefit: Improves Battlespace Analysis by Identifying and Quantifying Environmental Hazards for Bypass or Mitigation by the Decision Maker**

S&T Needs

CB Warfare Effects on Operations

- **Objective: Develop the Science Behind the Modeling and Simulation of Operations in a CB Environment at Fixed Facilities as well as Mobile Operations for Insertion into the JOEF Acquisition Program**
- **Technologies Needed Include the Development of Tools and Modules for Modeling and Rapid Understanding of CBRN Effects on:**
  - **Airfields**
  - **Ports**
  - **Depots**
  - **Combat Units, and**
  - **Support Personnel, e.g. Medical and Logistics**
  - **Entire Theater of Operations**
- **Benefit: Improves Battlespace Management by Providing Tools to Support Decision Makers in Planning and Managing Operations**

S&T Needs

CB Rapid Assimilation of Sensor Information Research (RASIR)

- **Objective: Develop the Science Behind Fusing Disparate Information From Multiple Inputs and Locations as Part of a Technology "Push" Effort for JWARN, JEM and Other Identified Acquisition Programs of Record**
- **Technologies Needed Are the Tools and Modules for:**
  - **Source Term Determination and Location**
  - **Fusion of Local and Regional Weather, Human Inputs and Sensor Data**
- **Benefit: Improves Battlespace Analysis by Identifying Source Location of Environmental Hazards and Fusing All Information into a Well-ordered, Manageable List of Options and Capabilities for Decision Makers**

S&T Needs

CBDP Decision Support Tools & Methodologies

- **Objective: Develop the Science Behind Tools for Decision Making and Human Knowledge Management Across the CB Defense Program. These Tools will be Maintained as Part of JSTO's Full Suite of Capabilities**
- **Technologies Needed Include the Development of the Tools and Modules for:**
  - **Investment/Portfolio Decision Support**
  - **Virtual Prototyping**
  - **Knowledge Management**
  - **Emerging Technology Exploration**
- **Benefit: Improves the Quality of the Products, Technologies and Capabilities Supplied to the Warfighter at a Reasonable Cost**

S&T Needs

CB Defense M&S for Test & Evaluation (TE)

- **Objective: Develop the Science Behind the Modeling and Simulation Tools that Assist the T&E Community in Their Efforts to Evaluate CB Technologies**
- **Technologies Needed Include Tools and Modules for Engineering Level Models for Collective Protection, Individual Protection, Detection and Decontamination Equipment**
- **Benefit: Support Quality Developmental and Operational Testing of JPEO End Items**

S&T Needs

CB Medical Information Systems

- **Objective: Develop the Science Behind Medical Modeling and Simulation Tools to provide JOEF, JEM, and the Medical Community with Algorithms to Warn Against and Predict the Human Effects of Exposure to CB Hazards**
- **Technologies Needed Include Tools and Modules for Syndromic Surveillance, Disease Epidemiology, Casualty Estimation, and Prediction of Human Performance in Hazard Environments**
- **Benefit: Provide Increased Awareness of Medical Impacts on Warfighters to Decision Makers for Informed Planning**

Warfighter Needs

Joint Warning and Reporting Network (JWARN)

- **Collect, Generate, Edit and Disseminate NBC Reports and Plots and Provide a Means of Ensuring all Addressees Have Received a Sent Message**
- **Application Support for C2PC, FBCB2, GCCS-J, GCCS-M, GCCS-A, GCCS- AF, JTCW, and MCS**
- **Allow NBC Reports (NBC-1/NBC-4) to be Formatted and Transmitted Within 2 Minutes and Allow Operator Selection of Automatic, Delayed or On-command Sending of NBC Reports**
- **Provide C2 Interface with Both Legacy and Developmental Sensors**

Warfighter Needs

Joint Effects Model (JEM)

- Integrate VLSTRACK, HPAC, and D2PUFF capabilities
- Model Urban Effects
- Model in Coastal & Littoral Environments
- Source Term Estimation
- Model High Altitude Missile Intercept Effects
- Improve Transport and Diffusion Methodologies
- Model Waterborne Hazards
- Model Contagious Diseases
- Model Complex Structures
- Model Building Interiors
- Model Human Performance Degradation

Warfighter Needs

Joint Operations Effects Federation (JOEF)

- **Predict Operational Effects and Impacts Associated with CBRN and TIM Hazards to Ships, Aircraft, Mobile Forces (Ground) and Fixed Sites and the Associated Personnel, Equipment, Terrain, Casualties, and Facilities**
- **Planning Tools Tailored for Users at the Strategic, Operational, and Tactical Echelons to Evaluate and Compare the Relative Merits of Candidate Courses of Action**
- **Decision-making Support During Consequence Management by Providing Tailored Support for Local Procedures**
- **Access Data (e.g., Force Flow, Intelligence, Logistics, Risk Management) Automatically in Near Real Time to Populate Staff Estimates and Assist Development of Operational Plan Annexes Involving CBRN and TIM Hazards**

S&T Technical Challenges

- **Improve Basic Understanding of Atmospheric Turbulence in the Stable Boundary Layer (SBL)**
- **Improve Source Determination Methods**
- **Improve Hazard Prediction in Complex, Urban Terrain and Fixed Sites**
- **Paucity of Data on the Behavior of Threat Agents in the Operational Environment**
- **Inability to Validate Models that Represent Equipment and CONOPS in a Live Agent Environment**
- **Human Effects, Small Unit Behaviors and Low Level/ Long-term Exposures in CB Environment**
- **Obtaining CB Warfare Relevant Data to Augment M&S and IT Development Facilitating Decision Superiority**

Program Technical Challenges

JWARN

- **Wireless JCID Implementation**
  - **Reducing Size, Weight, Cost & Power Consumption**
  - **JCID on a Chip**
  - **Information Assurance Requirements**
- **Common, Cross-Program Architecture Including Sensor, Vehicle, and JPM IS Programs**
- **Compatibility with Multiple (and Evolving) Service-specific Implementations of C2 Systems and MDAPs**
- **Service Oriented Architecture (SOA) that Complies with Evolving National and Service C2 System Architectures**
- **Integration with JOEF**

Program Technical Challenges

JEM

- Service Oriented Architecture (SOA) that Complies with NCES
- Seamless Integration of JEM with Other JPM IS Products Such as JWARN & JOEF
- Clustering Configurations Using JEM Web Service on Various Joint and Service C4I Systems
- Integration with Joint and Service Specific Needs
  - Weather Interfaces (JWIS, MDS, IMETS, VNE-NCS)
  - Mapping Tools (JMTK, C/JMTK, Falcon View, ARCIMS)
  - Hardware Configurations (Networks and CPU Power)

Program Technical Challenges

JOEF

- **Automation, Optimization and Integration**
  - **Use of Optimization for Rapid, Reliable, Robust CBRND COA Planning, Resource Allocation and Placement**
  - **Task Automation and Artificial Intelligence for CBRN Staff Support**
  - **M&S Federation Automation, Tools to Automatically Negotiate CBRND FOMs**
  - **CBRN Synthetic Environment for Training, Exercises, and Experiments**
  - **Methodology and Tools for Rapid Generation of Operational Execution Checklists and Templates**
  - **Automated Tools to Discover and Predict COA Vulnerabilities**
  - **Integration of CBRN Effects Models with Campaign Warfare Models**
  - **Modeling Tools for Mobile Force CBRND Operational Impacts**
  - **Framework for Integration of CBRND Planning Tools with Incident/Consequence Management**

Program Technical Challenges

JOEF *(Cont'd)*

- **Models and Data**
  - **TIC/TIM Human Effects and Task-time-theater Information**
  - **Radiological and Nuclear Effects Models**
  - **Medical Resource Limitation Effects**
  - **Secondary Infection Models and Bio Threat Characterizations to Assess Contagious Disease Control Plans and Policies**
  - **MOPP Task Degradation Data for "Non-standard" MOPP Conditions and Additional Task Types**

S&T Capability Strategy

- **Balance Between Requirements Pull:**
  - **Align with the Joint Requirements Office (JRO) to Address Capability Needs**
  - **Align with Joint Program Executive Office (JPEO) Programs to Address Technology Gaps**
  - **Answer Critical Science Questions that Support Policy, Doctrine and Requirements Decisions**
- **… and technology push:**
  - **Centralize Investment in Basic Research (6.1)**
  - **Identify and Exploit Technology Opportunities**
  - **Identify and Respond to New and Emerging Threats**
  - **Transition New and Innovative Technologies with JPEO**
  - **Maintain a Robust Technology Base: Knowledge, Research Capabilities, and Test and Evaluation Methodologies**

Program Acquisition Strategy

JWARN

- **Two Increments of Development Followed by Pre-Planned Product Improvement**
- **Increment 1 (FY06 – FY09)**
  - **Late Addition of Requirements Forced Continuation of Development**
    - **Operational Assessment Completed March 07**
    - **Milestone “C” – August 07**
    - **Regression Testing of will precede New Capabilities MOT&E - 2QFY08**
- **Increment 2 (FY08 – FY 12) – Not Currently Funded**
  - **Increment 2 Design and Development FY08 – FY09**
    - **Maintain JWARN Baseline for Various C4ISR Systems**
    - **Accommodate New C4ISR Systems**
    - **Web Enablement**
    - **Full Integration with JEM & JOEF**
    - **IOC FY10, FOC FY12**

Program Acquisition Strategy

JEM

- **Increment 1 (FY06-FY07)**
  - **Overarching Requirement is to Baseline the DOD CBRN Hazard Prediction Technologies**
  - **Transition and Reuse Source Code of S&T Programs HPAC, VLSTRACK, and D2PUFF to JEM**
  - **Spiral Development, SEI CMMI Level 3 Processes**
  - **Flexible and Extendable System Architecture**
  - **Post Deployment Software Support for all Blocks Using the Consolidated CBRN Software Support Activity (SSA)**
- **Increment 2 and Beyond (FY07-FY10)**
  - **Multiple Sources for Required Technologies (Government, Industry, International)**
  - **Software Development and System Integration Contracts**
  - **Maintain JEM Baseline for Various C4I Systems**

Program Acquisition Strategy

JOEF

- **Increment 1 (FY06 – FY08)**
  - **Support Operational and Strategic Levels of War for COE/C2PC C4I Systems**
  - **Spiral Software Development**
    - **Increment 1: 3 Prototypes; 2 Formal Builds**
    - **Science & Technology Transition**
      - **Insertion: Prototypes (3); Build 1 and 2**
  - **Keep Working with Warfighters to Refine Requirements and Enhance the End Product**
    - **Provide Interim Capabilities to Warfighters Through ATDs and Other Demonstrations**
- **Increment 2 and Beyond (FY08 – FY11)**
  - **Utilize BAA for Software Development**
  - **Add Tactical Level of War and Consequence Management for Military, Civilian, and Coalition Forces**
  - **Add Stand-alone Capability**

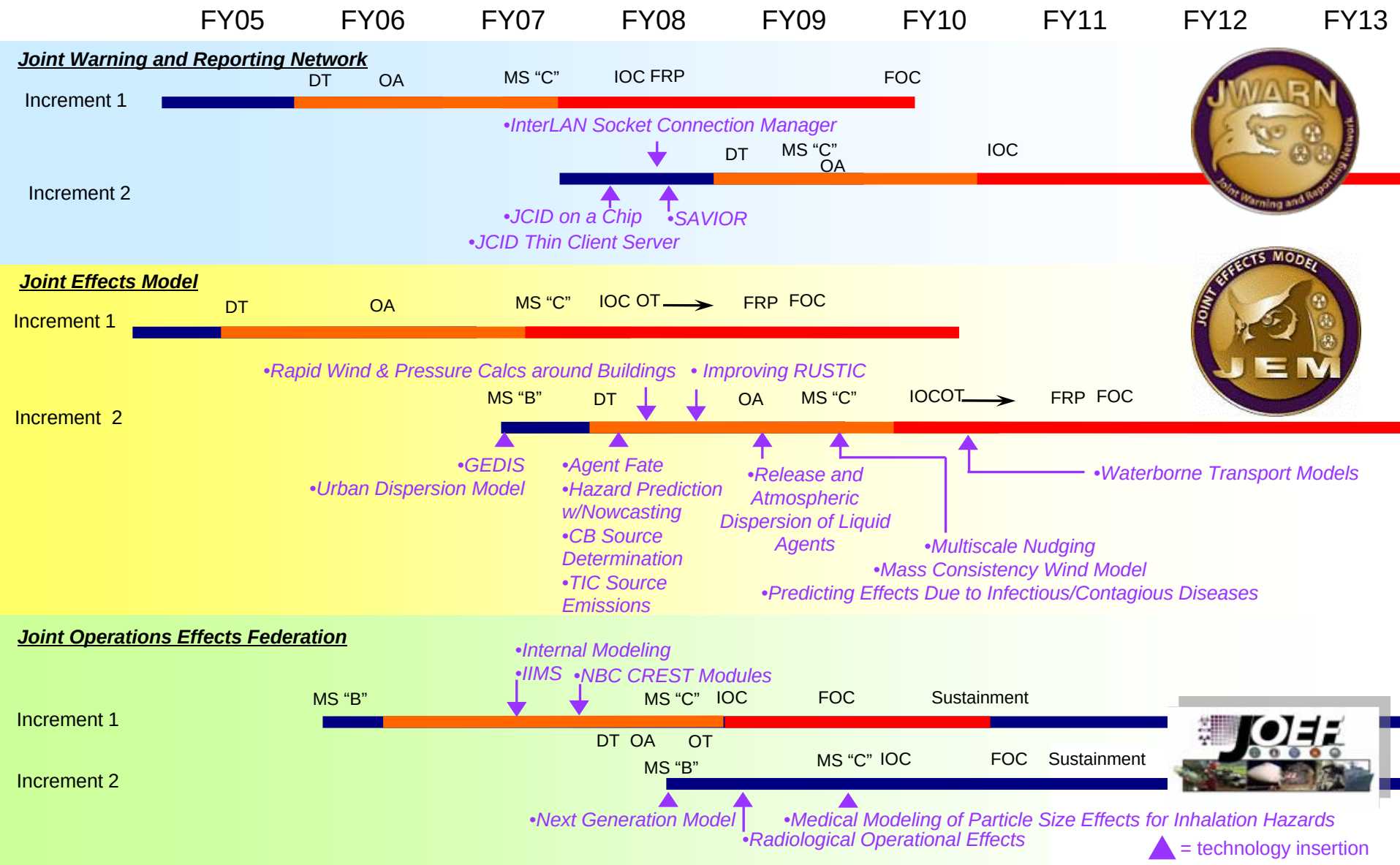
S&T Funding

$(K)	FY07	FY08	FY09	FY10	FY11	FY12	FY13	TOTAL
6.2	25,648	25,545	26,863	21,338	19,008	21,282	23,943	163,627
6.3	10,003	3,816	3,837	3,745	3,581	3,572	3,160	31,714
TOTAL	35,651	29,361	30,700	25,083	22,589	24,854	27,103	195,341

Program Funding

$(K)	FY07	FY08	FY09	FY10	FY11	FY12	FY13	TOTAL
6.5	24,733	47,465	39,453	27,610	17,652	14,893	27,781	199,587
PROC	8,567	13,889	14,666	10,151	7,000	8,200	5,679	68,152
TOTAL	33,300	61,354	54,119	37,761	24,652	23,093	33,460	267,739

Program Schedule



Upcoming Business Opportunities

	Time Period
• Physical Science and Technology Broad Agency Announcement (BAA)	FY07 & FY08
– December Each Year	
– Other BAA Solicitation Occurs Under the CBDIF Program	
• SPAWAR Knowledge Superiority (BAA)	
– JPM IS Technology Challenges/S&T Gaps	Open Indefinitely
• JWARN	
– JCID Production (RFP)	FY08 – FY12
– Block 2 Increment 1 Sustainment	FY08 and Beyond
– Block 2 Increment 2 Design & Development	FY08 – FY09
• JEM	
– Increment 2 BAA – CBRN Modeling Not Covered at JSTO	FY08 – FY09
• JOEF	
– JSTO Technology Insertion Increment 1	FY06 – FY08
– JSTO Technology Insertion Increment 2	FY06 and Beyond
– Software Development Increment 2 and beyond	FY08 and Beyond
• SSA	
– Support IDIQ Multiple Award Contract	FY07 and Beyond

S&T Points of Contact

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- **Thrust Area Managers**
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