



INFORMATION SYSTEMS

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Advanced Planning Briefing to Industry

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Outline

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



S&T Overview: DTRA RD-CB / CBDDP JSTO Information & Analysis Division

- **Mission:** Provide and use information and analysis capabilities to enable and support operational & programmatic decision-making.
- **Portfolio Areas:**
 - **Hazard Prediction & Mitigation:** *The “What?” and “What Do I Do Now?”*
 - Enable prediction of initial hazards, exposures, casualties, and infections
 - Enable timely and accurate warnings and recommended actions
 - **Operational Effects & Mitigation:** *The “So What?” & “What Can I Do to Fix it?”*
 - Enable Assessment & Mitigation of Impacts at the Person, System, Tactical, Operational, and Strategic Levels
 - **Data:** *The “What Data Tells Us That?”*
 - Enable Discovery, Access, & Usability of CBRN Data Per DoD Data Policies
- **User focus:** *CBRN Defense, C-WMD Operations, & WMD Analysis*
 - DoD Core Super-Users: DTRA RD-IS, IDA, AFRL, ECBC, & NSWC
 - DoD General-Users Conducting Military & Civil Support Operations
 - Non-DoD: DHS & UK as Super-Users; Other Allies as General-Users



FITS and SEEDS

Focused Innovative Technology (FIT) Programs

- \$3-\$10M / yearly, over a 3-5 year duration
- Pursue a significant new capability or area of knowledge
- Team approach in complementary areas (Multidisciplinary)

Strategic Exploratory and Emerging Discoveries (SEEDs)

- \$50-\$500K 1 year
- 'Explore' concepts for new programs



“Fruits” of the process are the new capabilities or technologies





End-to-End CBRN Capabilities



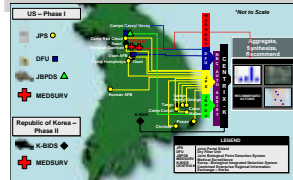
Providing CBRN data and services to stakeholders across all levels of command, optimizing decision support, and shared situational awareness across DoD and HD.



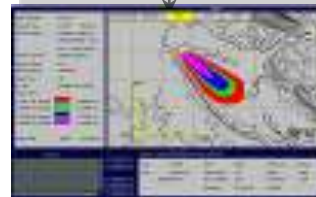
Sensors and Systems



Warning, Reporting, and Dissemination of CBRN Information



Hazard Analysis and Predictions



Decision Support/Incident Management



Enterprise Standards, Protocols, Information Assurance, Architecture

Enterprise solutions supporting collection, analysis, and dissemination of actionable CBRN information.



JSTO Near Term (FY12-FY13) Plans

Hazard Prediction & Mitigation

- Rapid Source Term Estimation
- Validated Source Determination and Hazard Refinement
- Initial High Altitude Modeling
- Waterborne T&D
- Interior modeling
- JEM S&T Prototype
- Urban Dispersion
- Missile Intercept
- Improved Atmospheric Boundary Layer Modeling
- Updated Land-use and Climatology
- DTRA Integrated WMD Tool Set (IWMDT) Program
- DTRA Reachback Program

Operational Effects & Mitigation

- Expanded agents for contagious disease and NTA modeling
- Leverage Military Protective Action Distances (MPAD) and advances in JCID-on-a-Chip development/integration
- Operations & Planning Needs (CBOSS Reconstituted = Gen-1)
- Analysis Support Program

Data

- System Performance Needs (e.g., Gen-1 T&E Simulations)
- Chemical Biological Warfare Agent Effects Manual Number 1 (CB-1 Gen-1)
- Analysis Support Program



JSTO Mid Term (FY14-15) Plans

Hazard Prediction & Mitigation

- Initial Release Source
- Source Term Models (NTA Source, Missile Intercept)
- Atmospheric Transport & Dispersion
- Urban Dispersion
- Waterborne Transport & Dispersion
- Agent Fate of CWAs and NTAs, Atmospheric Chemistry
- DTRA Integrated WMD Tool Set (IWMDT) Program
- DTRA Reachback Program

Operational Effects & Mitigation

- Material Behavior
- Demonstrate that JCID-on-a-Chip can be embedded in TAC-BIO and used to make a detection, can be successfully integrated with the Joint Tactical Radio System (JTRS), and can be used to communicate with JWARN to provide warning downwind of the hazard
- Operations & Planning Needs (CBOSS Gen-2)
- Analysis Support Program

Data

- System Performance Needs (e.g., Gen-2 T&E Simulations)
- Chemical Biological Warfare Agent Effects Manual Number 1 (CB-1 Gen-2)
- Analysis Support Program



JSTO Far Term (FY16+) Plans

Hazard Prediction & Mitigation

- DTRA Integrated WMD Tool Set (IWMDT) Program
- DTRA Reachback Program

Operational Effects & Mitigation

- Analysis Support Program

Data

- Analysis Support Program

Cross-Portfolio Area Plans

JEM & JWARN - Spiral Development of S&T as Advancements in Data, Modeling, Simulation, and Technology Become Available



JWARN Warfighter Needs

- **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 GCCS-J/A/M/AF, JTCW/C2PC**
- **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**



JEM Warfighter Needs

- **A single, accredited source for CBRN Hazard Modeling**
- **Model Urban Effects**
- **Model in Coastal & Littoral Environments**
- **Source Term Estimation**
- **Model High Altitude Missile Intercept Effects**
- **Improve accuracy of Nuclear Detonation models**
- **Improve Transport and Dispersion Methodologies**
- **Model Waterborne Hazards**
- **Model Contagious Diseases**
- **Model Complex Structures and Building Interiors**
- **Model Human Performance Degradation**
- **Interior Modeling**



Information and Analysis S&T Challenges

<i>Challenge</i>	<i>Focus</i>
CBRN hazards on complex environments and scenarios	JEM
Rapid assimilation and processing of CBRN-related data to support advanced tactical and T&E applications	JWARN, T&E, Other types of analysis
Developing engineering level models of CBRN defense equipment and major DoD systems in CBRN hazard environments	T&E and other types of analysis
Building a CBRN relevant data architecture to support M&S, analysis, and IT development that facilitates decision superiority	ALL
Integrating CBRN-related IT with other emerging technology initiatives	
Operational effects methodologies	Operational Effects Requirements



Program Technical Challenges

JWARN

- **Integration of multiple Chemical and Biological Sensor interfaces (Legacy and Developmental)**
- **Compatibility with multiple Service-specific implementations of C2 systems**
- **Evolving C2 system architecture(s)**
- **Web Enablement**
- **Integration with Major Defense Acquisition Programs (MDAPs)**
- **Wireless connectivity incorporating Information Assurance (IA) Requirements**
- **Bi-Directional Cross Domain Solution (CDS)**
- **Coordination with sensor community on best methods of implementing CCSI**
- **Coordination with sensor community on utilizing JoaC capabilities (embedded or external) to support data transmission to network and supporting Service CONOPS**



Program Technical Challenges

JEM

- **Incorporation of S&T to meet Inc. 2 requirements and facilitate rapid transition of S&T modeling components**
 - Use of Common CBRN Model Interface (CCMI)
- **Clustering configurations using JEM Web Service on various Joint and Service C4I systems**
- **Use on various Operating Systems (XP, Vista, Win7)**
- **Integration with Joint and Service-specific needs**
 - Weather Interfaces (MDS, JWIS, IMETS, AFWA, METGM, GRIB)
 - Mapping Tools (JMTK, C/JMTK, Falcon View, ARCIMS, Google Maps, Google Earth, NASA World Wind)
 - Hardware Configurations (Networks and CPU Power)



Program Technical Challenges

Software Support Activity (SSA)

- **Net-Centric Policy Implementation**
 - Transition to programs composed of modular web services
 - Implementation of CBRN Data Model
 - Continued implementation of CCSI
- **Support Interface/Interoperability Standards**
 - Harmonize CBRN Data Model with other communities
 - Harmonize CCSI with other communities
 - Propose other standards for CBRN based on community needs
- **Management Of Enterprise Common Components**
 - Approve and manage proposed common components
 - Support reuse of common components as “building blocks” for future capability
- **Information Assurance In SOA Environments**



Information and Analysis S&T Capability Development Strategy

- **Adapt S&T development strategy to new JSTO FIT/SEED paradigm**
- **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 Applied Research (6.2 & 6.3)**
 - **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 T&E methodologies**



Program Acquisition Strategy

JWARN

- **2 Increments of development followed by Pre-Planned Product Improvement (P3I)**
- **Increment 1 (FY06 – Present)**
 - Late addition of requirements forced continuation of development
 - Milestone C / Low Rate Initial Production – MAY 2008
 - Multi-Service Operational Test & Evaluation (S/W) – AUG 2008
 - Operational Demonstration (S/W) – OCT 2009
 - Full Deployment Decision (S/W) – SEP 2010
 - Modernization efforts supporting migration to web services supporting US Army C2 Architecture (S/W) – AUG/SEP 2011
- **Increment 2 (FY12 – FY16)**
 - Evolve JWARN Architecture into Web Services (SOA) to accommodate evolving Service C2 strategies and decrease dependence on their architecture
 - Sensor data fusion to support source term estimation
 - Optimal Sensor Placement
 - False Alarm Reduction
 - Interoperability with Medical Surveillance Systems
 - Emerging and original Increment 2 requirements based on ORD
 - AoA will assess evolving Service needs and determine final capability requirements for JCID capabilities



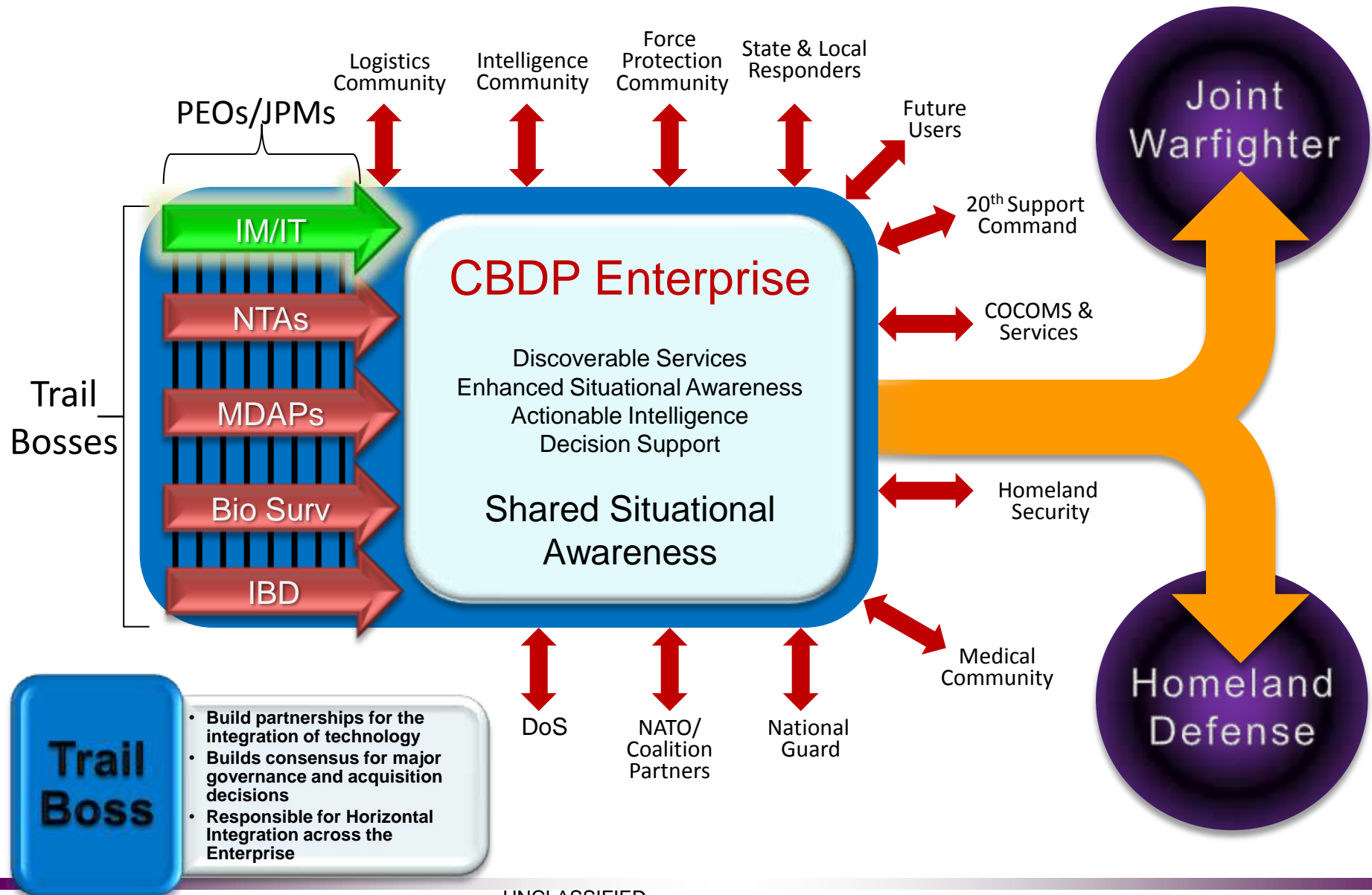
Program Acquisition Strategy

JEM

- **Increment 1 (present-FY15)**
 - Maintain JEM Baseline for various C4I systems (Updates/IA/Security)
- **Increment 2 (FY10-FY16)**
 - MDD: 4QFY09
 - AoA (limited): 1QFY11
 - MS A: 2QFY11
 - AoA (update): 3Q-4QFY11
 - Multiple sources for required technologies (Government, industry, international)
 - Collaboration with the JSTO
 - JEM Increment 2 integration (single JEM POR and S&T integrator)
 - Common CBRN Modeling Interface (CCMI) implementation
 - CCMI compliant JEM Science & Technology Prototype (JSTP)
 - Software development and system integration contracts



JPEO-CBD Enterprise Management





Information Systems S&T Funding

\$(K)	FY12	FY13	FY14	FY15	FY16	TOTAL
6.2	22,481	24,332	19,753	16,830	21,789	126,974
6.3	9,632	12,184	10,437	10,877	8,908	60,946
TOTAL	32,113	36,516	30,190	27,707	30,697	187,920



Upcoming Business Opportunities - S&T

<u>Solicitation/Opportunity</u>	<u>Time Period</u>
<p>Focused Innovative Technologies (FITs) and Strategic Exploratory and Emerging Discoveries (SEED) investments</p> <p>FIT: Focused investments into critical mass programs (\$MM/3-7Yrs)</p> <p>SEED: Used to prime FIT programs and create core knowledge foundation (\$100K-500K)</p>	<p>OPEN</p>
<p>Small Business Innovation Research (SBIR) program</p> <p>Opportunity for Small Business engagement in S&T program</p> <p>Lead to contract and grant awards</p> <ul style="list-style-type: none"> • http://www.dodsbir.net/solicitation/default.htm 	<p>November 2011</p>
<p>Directed Research in DTRA CB Directorate</p>	<p>As Needed</p>
<p>DTRA R&D Innovation Office – Science and Technology New Initiatives BAA (HDTRA1-07-RDINO-BAA)</p>	<p>OPEN</p>
<p>DTRA Fundamental Research to Counter Weapons of Mass Destruction BAA (HDTRA1-09-14-FRCWMD-BAA)</p>	<p>OPEN</p>

Relevant Websites: <http://www.dtra.mil> ; <http://www.fbo.gov>; <http://www.grants.gov>



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JPM IS Program Funding

\$(K)	FY11	FY12	FY13	FY14	FY15	FY16	FY17	TOTAL
RDT&E	26,886	16,754	31,237	38,030	31,745	18,520	18,521	181,693
PROC	10,385	3,880	2,613	1,548	6,607	7,319	8,018	40,370
TOTAL	37,271	20,634	33,850	39,578	38,352	25,839	26,539	222,063



Upcoming Business Opportunities – JPM IS

<u>Solicitation/Opportunity</u>	<u>Time Period</u>
JPM IS SSA <ul style="list-style-type: none"> • Seaport Support IDIQ Multiple Award Contract 	FY11 and Beyond
JWARN Increment 1 – Software update, modernization and maintenance <ul style="list-style-type: none"> • SPAWAR HQ Seaport -E 	FY13 and Beyond <ul style="list-style-type: none"> • RFP 1QFY13
JWARN Increment 2 -Development, Integration <ul style="list-style-type: none"> • SPAWAR HQ Seaport- E 	FY 13 and Beyond <ul style="list-style-type: none"> • RFP 1QFY13
JEM Increment 1 – Software update, sustainment, and maintenance (includes FMS) <ul style="list-style-type: none"> • SPAWAR HQ Seaport-E • RFP (GFI Technical Package included) 	FY12 and Beyond <ul style="list-style-type: none"> • RFP 1QFY12 • Award 2QFY12
JEM Increment 2 – Development, Integration, & Competitive Prototyping (includes JSTP) <ul style="list-style-type: none"> • SPAWAR HQ Seaport-E • RFP (GFI Technical Package included) 	FY13 and Beyond <ul style="list-style-type: none"> • RFP 2QFY12 • Award 1QFY13



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