

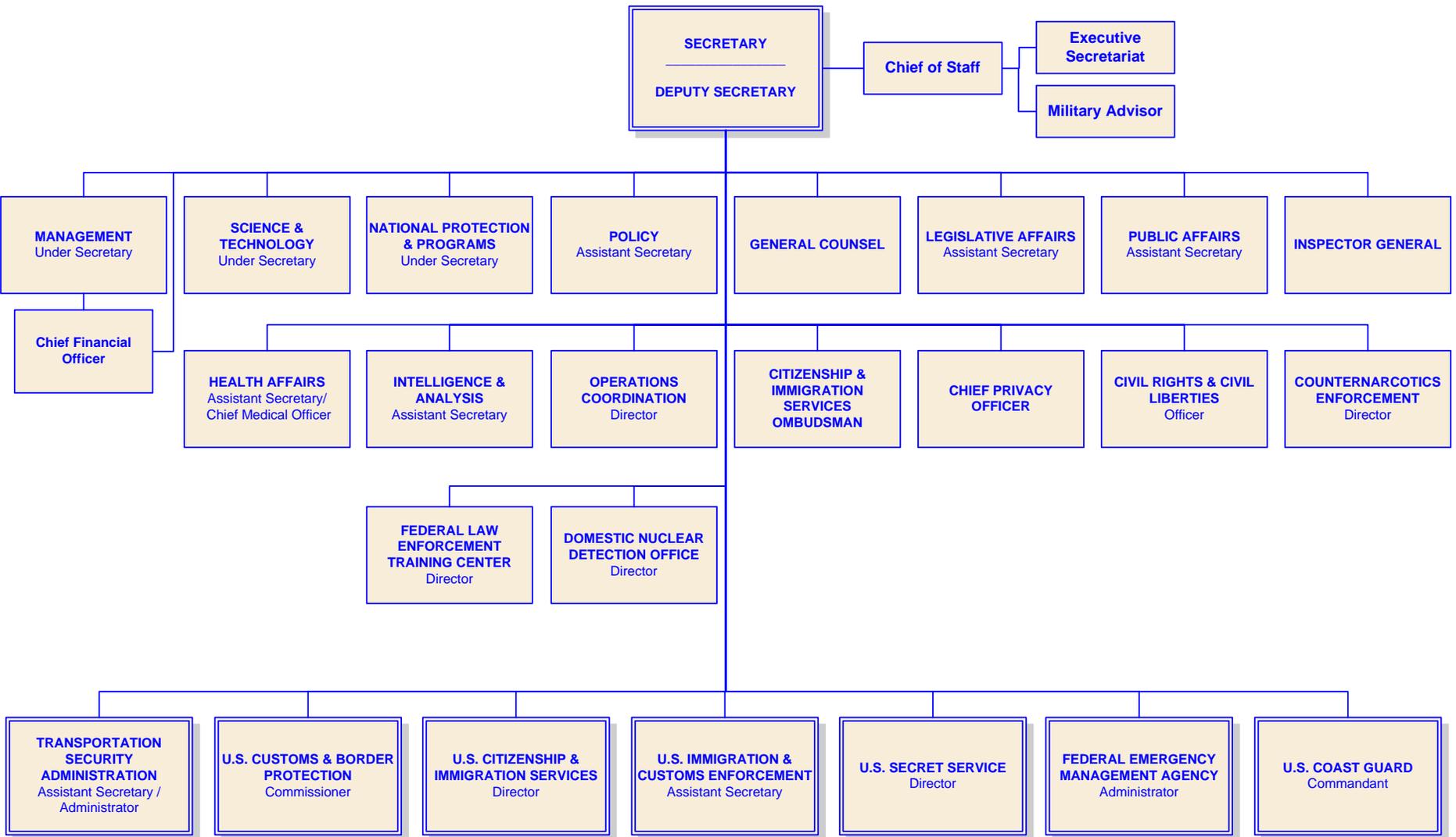
Federal Collaboration For First Responder Safety

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Science & Technology Directorate



**Homeland
Security**

U.S. DEPARTMENT OF HOMELAND SECURITY



Homeland Security



Homeland Security

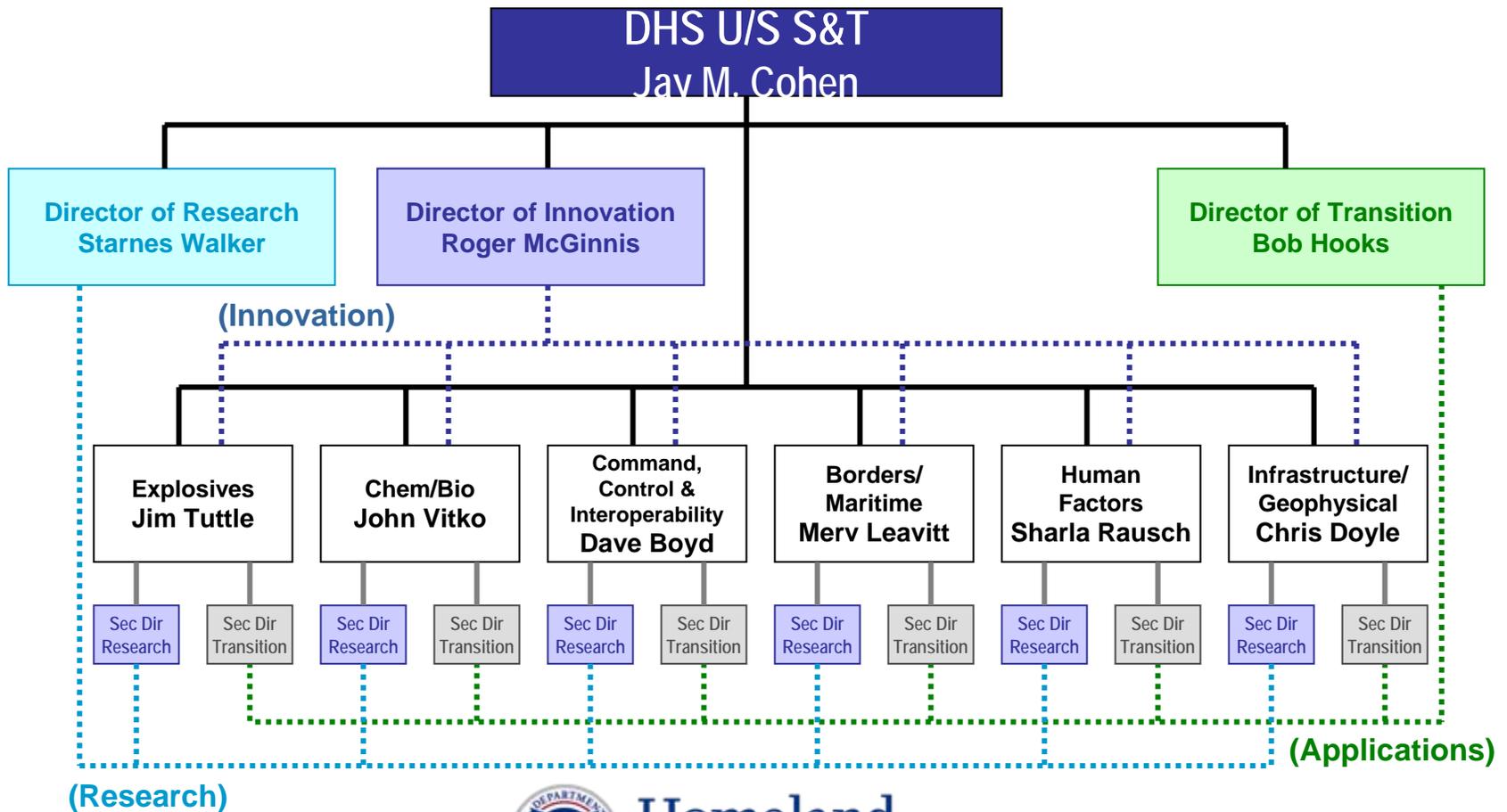
-The Science and Technology (S&T) division serves as the primary research and development arm of the Department.

-Utilizing our nation's scientific and technological resources to provide federal, state, tribal, and local officials with the technology and capabilities to protect the homeland



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New S&T Organization



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Infrastructure/Geophysical Division (IGD)

Mission Statement: Increase the Nation's preparedness for and response to natural and man-made threats through superior situational awareness, enhanced emergency responder capabilities, and critical infrastructure protection

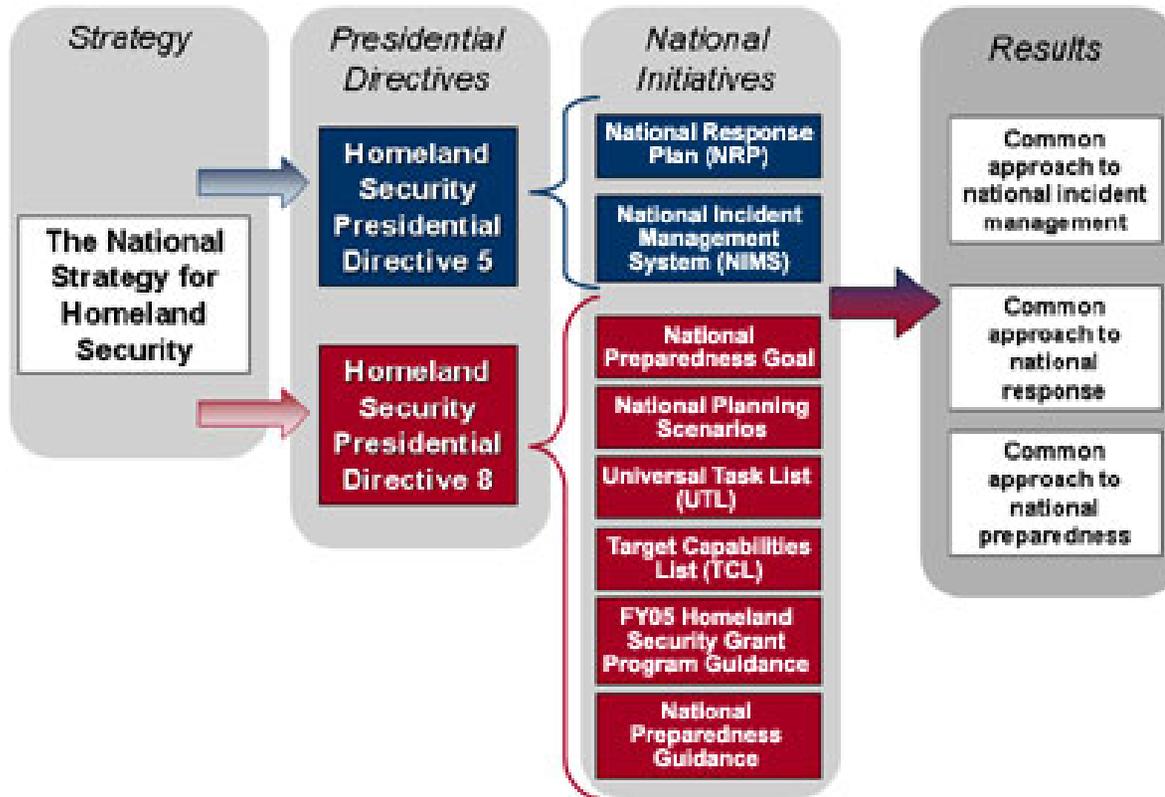
Thrust Areas:

- Preparedness and Response (P&R)
- Critical Infrastructure Protection
- Geophysical R&D



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Overview



Secretary Chertoff DHS Priority Goal #10: Ensure that Americans and their governments at all levels are ready for catastrophic incidents (man-made and natural) and are capable of responding to and recovering effectively. DHS will comprehensively strengthen and exercise its preparedness and emergency management capabilities and will assist our Federal, State, local, and private sector partners in doing the same



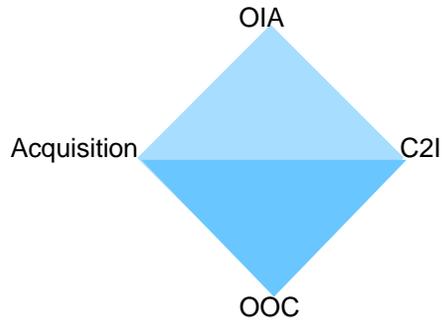
Integrated Product Teams (IPT)

- **Centerpiece of the S&T Directorate's product transition portfolio are Capstone Integrated Product Teams (IPT)**
- **Function in mission-critical areas to identify our customers' needs and enable and transition near-term capabilities for addressing them**
- **S&T Directorate engages directly with the responder community to identify operational issues where technology might enhance their performance: more quickly, effectively and safely**

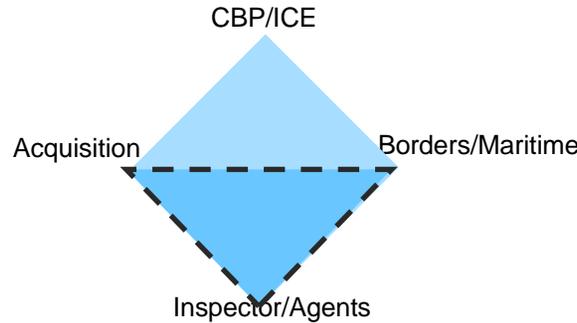
DHS Requirements/Capability Capstone IPTs

DHS S&T Product – “Enabling Homeland Capabilities” (EHCs)

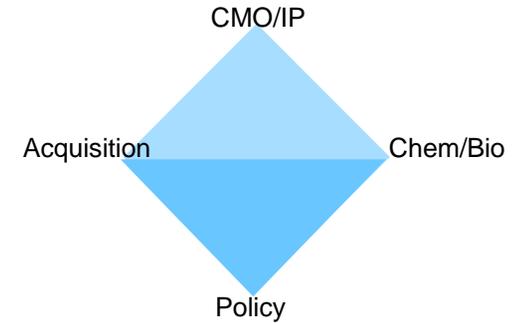
Information Sharing/Mgmt



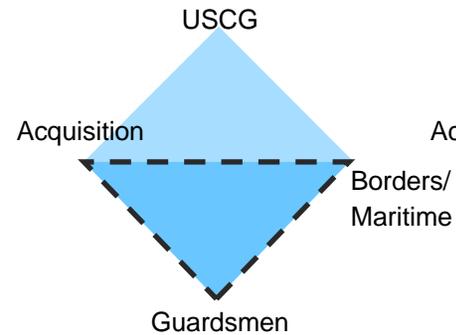
Border Security



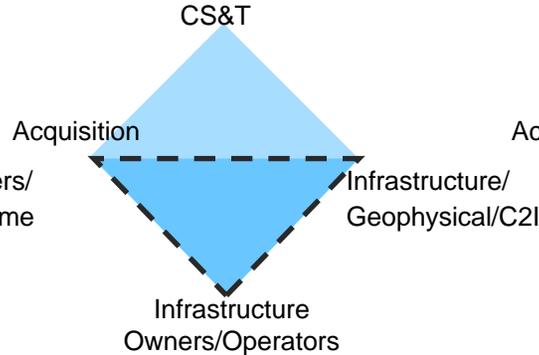
Chem/Bio Defense



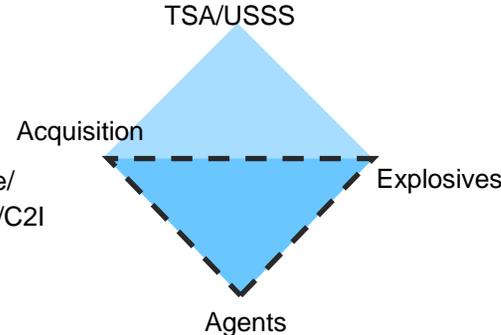
Maritime Security



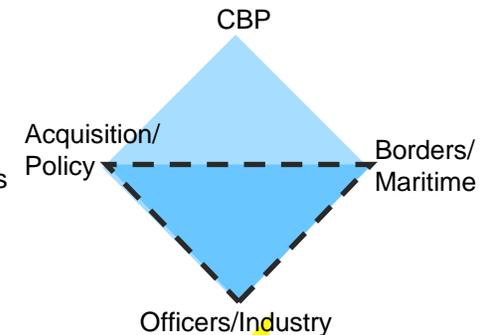
Cyber Security



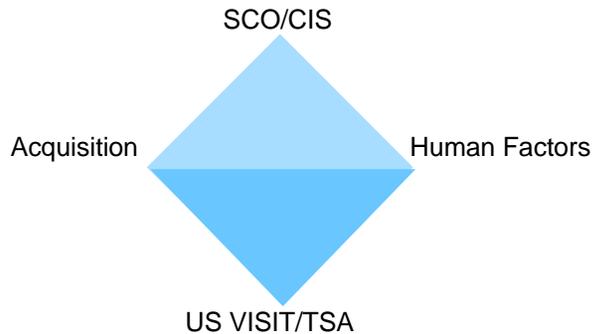
Explosive Prevention



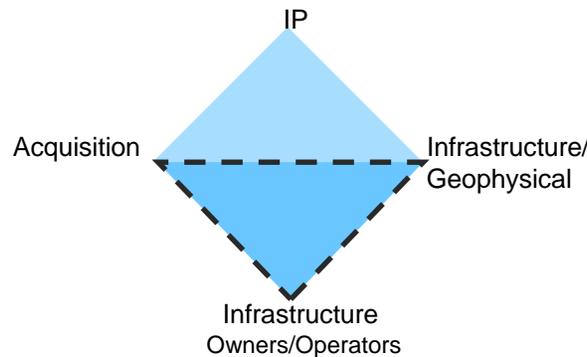
Cargo Security



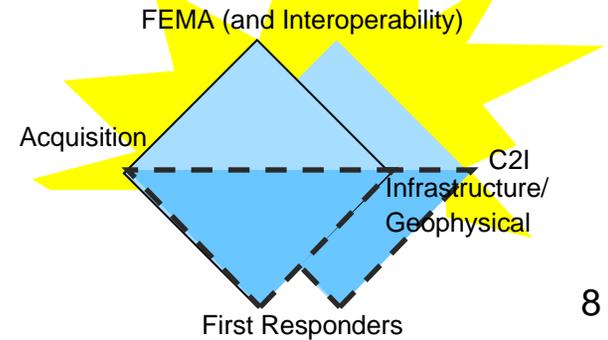
People Screening



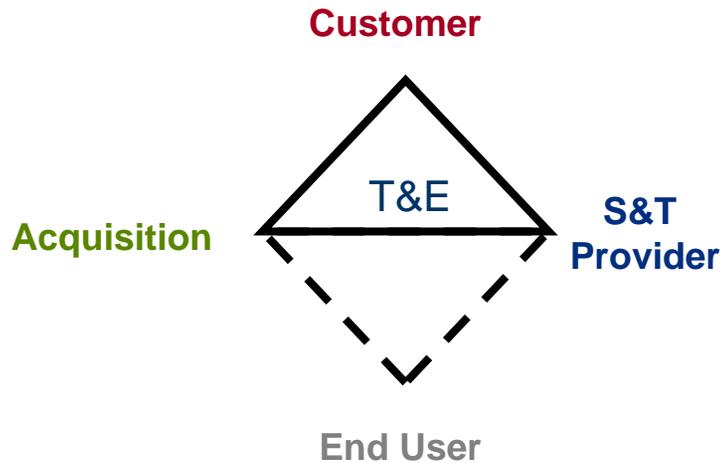
Infrastructure Protection



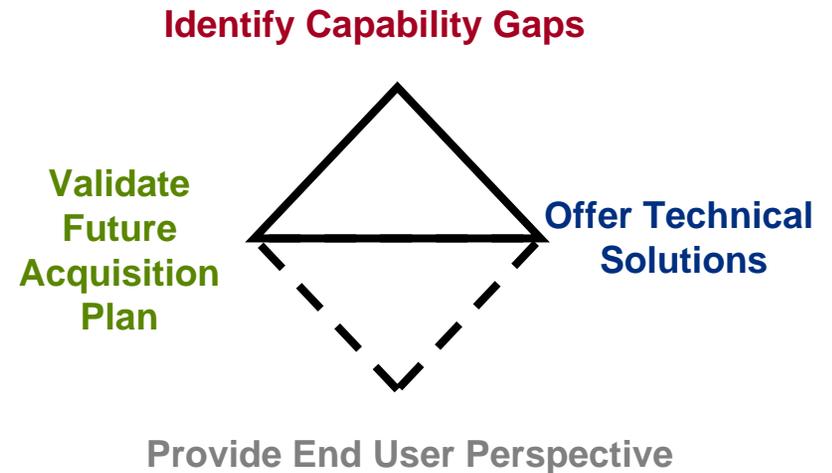
Incident Management



S&T Transition IPT Members & Function



Industry Board of Directors Model



Consensus Process



What is P&R?

Objectives

- Enhance the Nation's capability to prepare for, respond to and recover from all-hazards emergencies through development and deployment of enabling technologies

Major R&D

Investments

- Regional Technology Integration
- Incident Management and Decision Support
- Emergency Response and Recovery
- Advance Development and Special Studies

Customers

- Federal Emergency Management Agency (FEMA)
- Office of Infrastructure Protection

End-Users

- 44,000 Emergency Response Organizations
- 18,000 Law Enforcement Agencies
- 30,000 Fire Departments
- 83,000 Local Governments
- Over 1 million responders



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Big Picture

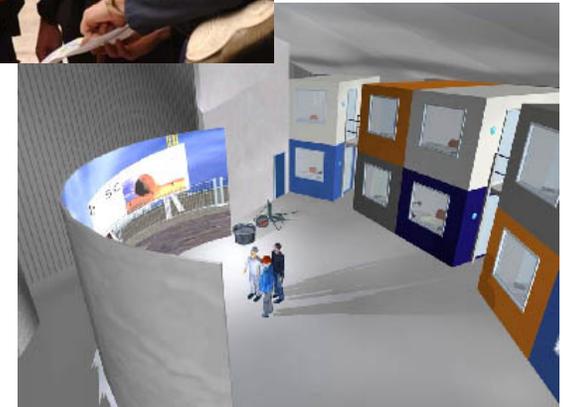
- Enhanced Situational Awareness and Preparedness to Improve Response and Recovery
 - Common Architectural framework for new and existing technologies
 - Training and decision analysis for emergency response community
 - Tracking and Locating first responders on scene
 - Single Federal modeling and assessment capability
 - Technology integration, testing, and evaluation
 - Next-Gen equipment and tools for first responders



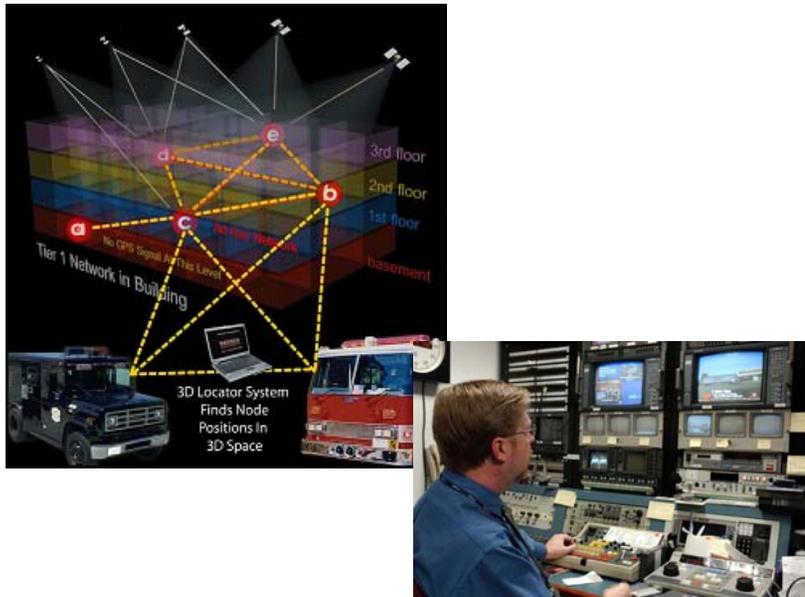
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P&R Programs

- **Unified Incident Command and Decision Support (UICDS)**
 - Open-architecture Framework
 - Gather and share mission critical information
 - Manage resources and seamlessly communicate
 - Scale from local incidents to incidents of national significance
- **Training, Exercise and Lessons Learned (TELL)**
 - Simulation driven virtual/live/constructive emergency response exercise
 - Decision making, consequences, and causes and effects analysis



P&R Programs



• Regional Technology Integration (RTI)

- Deploy innovative technologies across the nation
- Test and evaluate integrated technologies (sensors, info sharing, training, etc.) in multi-county/multi state large urban areas
- Validate and prove they can be transitioned to other small/large jurisdictions

• Advanced 3-D Locator System

- 3-D location, tracking, and monitoring inside and outside of structures

• Resource Awareness Data Portal

- Interconnected knowledge base for emergency responders communities in urban areas



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P&R Programs

- Personal Protection Equipment
 - Multi-functional/multi-threat protective materials and material systems
 - Multi-hazard environments resulting from natural and man made events (CBRN)
- Monitoring Health and Stability of Structures
 - Identifies/Notification of structural collapse in real-time at a distance



Looking to the Future

- Incident Management Enterprise
 - ✓ Situational awareness through Common Operating Picture
- Responder Tracking and Monitoring
 - ✓ Knowing where they are and how they are
- Integrated Modeling, Mapping and Simulation
 - ✓ Holistic approach to planning and operational functions

Potential DHS S&T Resources

- Private Sector
- Academia
- National Labs
- Section 1401
- Federal Partners



What We Need:

Critical Infrastructure Protection

- Real-time data collection
- Advanced surveillance
- Automatic response/repair
- Rapid reconstruction
- Strong economic and systems modeling
- Critical infrastructure sector requirements

Incident Management

- Insight into internal R&D Programs
- Systems in difficult environments
- Plug & Play, interoperable, distributed modeling & simulation
- Innovative System integration framework/platform
- Integrated First Responder protection systems

Natural Hazards

- Hurricane Mitigation
- Storm surge defeat
- Long-term solutions, sustainable
- Early warning for all hazards
- Affordable protection
- Flood proofing – e.g. hospitals
- New directions from basic research
- Full spectrum of hazards



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