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# ***The Defense Threat Reduction Agency (DTRA) Operational Response for The Fukushima Daiichi Nuclear Power Plant Accident***

***John Hannan, Ph.D.  
DTRA***



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## Agenda Change

- **Dr. Hannan is not able to attend due to a last minute scheduling conflict**
- **Slightly different briefing topic:**
  - **The Defense Threat Reduction Agency's involvement in hazard prediction and source term estimation for atmospheric contaminant releases**

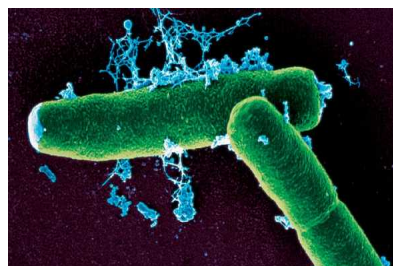


## The DTRA Mission

*To safeguard the US and its Allies from Weapons of Mass Destruction (Chemical, Biological, Radiological, and Nuclear) and High Yield Explosives by providing capabilities to reduce, eliminate and counter the threat and mitigate its effects*



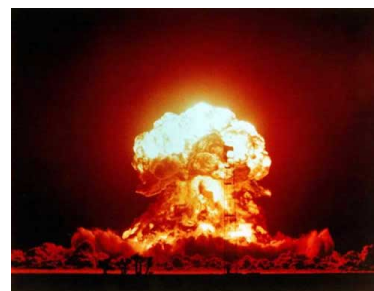
**Chemical**



**Biological**



**Radiological**



**Nuclear**



**High-Yield Explosives**



# What We Do – Nuclear Support



**Maintain an Effective Nuclear Deterrent**

**Protect Essential C4ISR Systems**



**Nuclear Stockpile Accounting and Tracking**

**Independent Nuclear Safety and Security Inspections**



**Nuclear Weapons Training**



**Maintenance and Logistical Support**



**Safety and Security**



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# We Fulfill a Unique and Central Role in the National Effort to Counter WMD



*Nonproliferation*

*Counterproliferation*

*Consequence Management*

***DTRA is a Defense Agency, a Combat Support Agency, and a National Asset for Countering Weapons of Mass Destruction***

Providing expertise & support at strategic (global & national), operational (theater), & tactical (battlefield) levels in collaboration with DoD, interagency and international partners:

- Cooperative threat reduction and international engagement
- Planning, readiness, and operational support
- Research and development
- Technology integration with tactics, techniques, procedures

... To improve nonproliferation, counterproliferation, and consequence management efforts and capabilities

... And support a safe, secure, and effective nuclear deterrent

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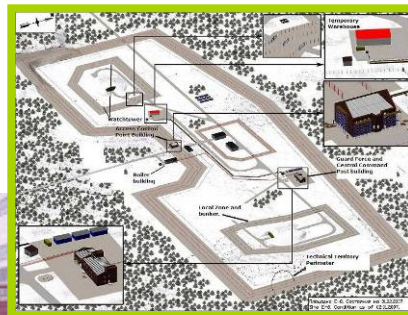
# What We Do...

## Nonproliferation

### Eliminate WMD Delivery Systems



### Lockdown Nuclear Weapons and Materials



### Build Partnerships and Partner Capabilities



### Support Arms Control Negotiations and Treaty Compliance

### Promote Bio Engagement, Security, and Early Warning

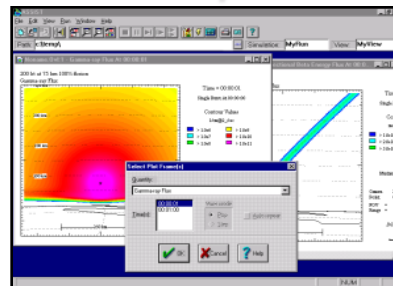
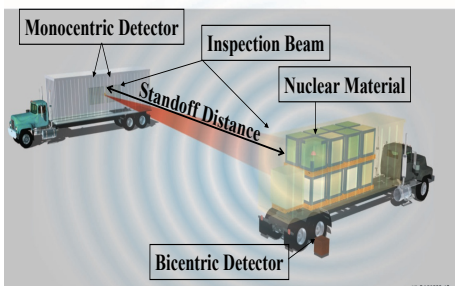
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# What We Do...

# Counterproliferation

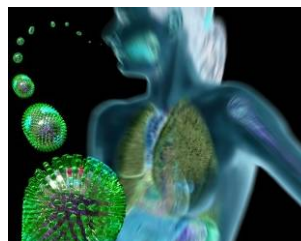
## WMD Defeat Capabilities



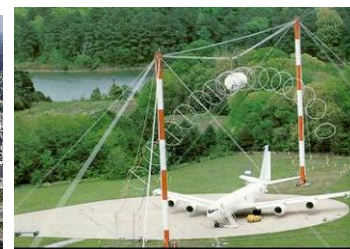
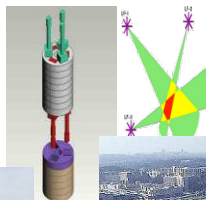
## Capabilities to Detect, Track, and Interdict WMD



## Proliferation Security Initiative



## Hard and Deeply Buried Target Defeat



## Protect People, Systems, and Infrastructure

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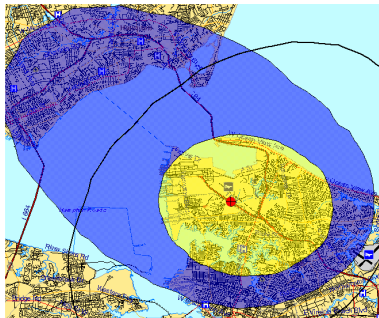


# What We Do...

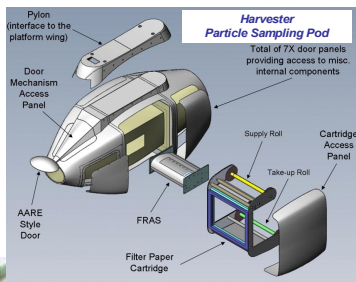
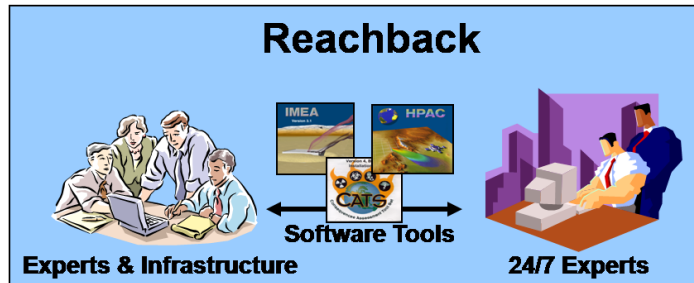
## Consequence Management



**Aid COCOM Support to Civil Authorities**



**WMD Effects Prediction**



**Post-Nuclear Detonation Forensics**



**Support National Guard WMD Civil Support Teams**



**Foreign Consequence Management**

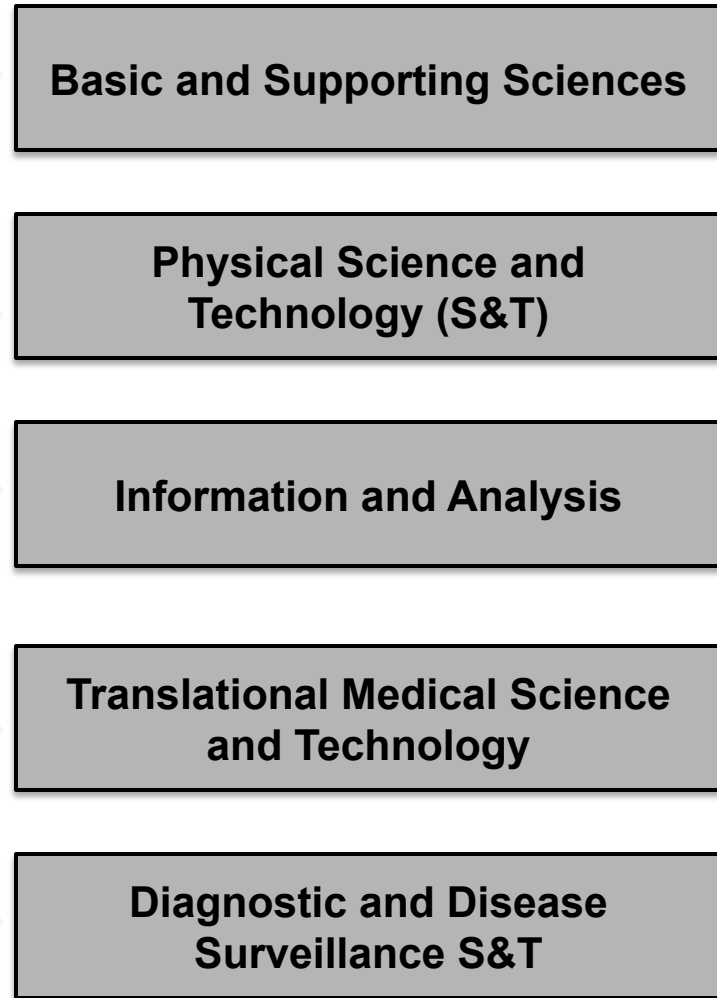


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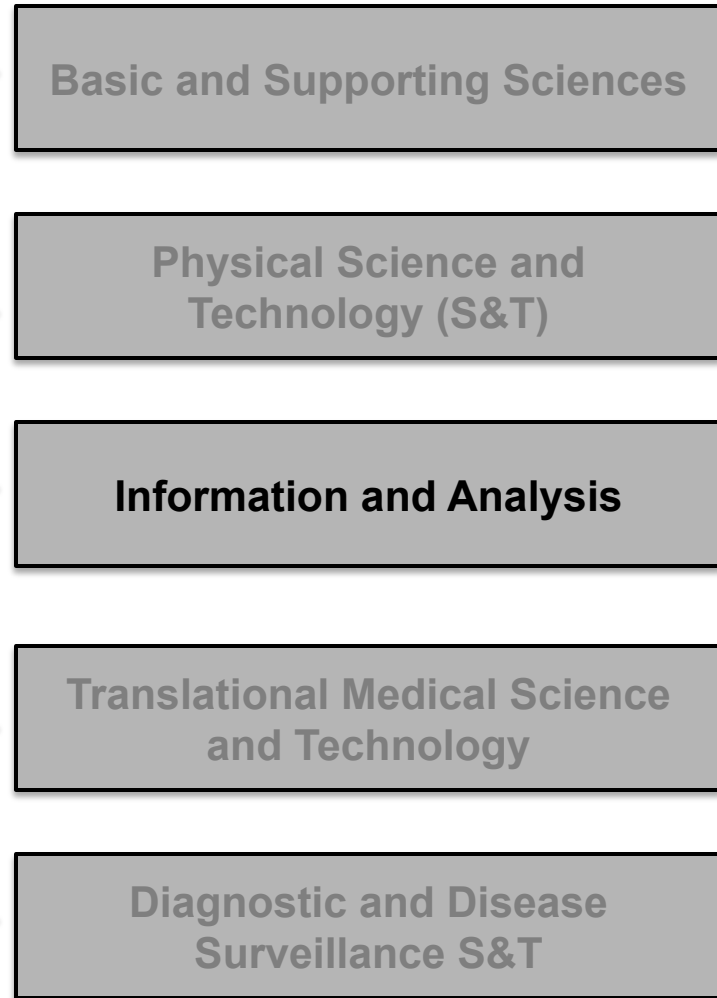
# Chemical and Biological Defense Program



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# Chemical and Biological Defense Program



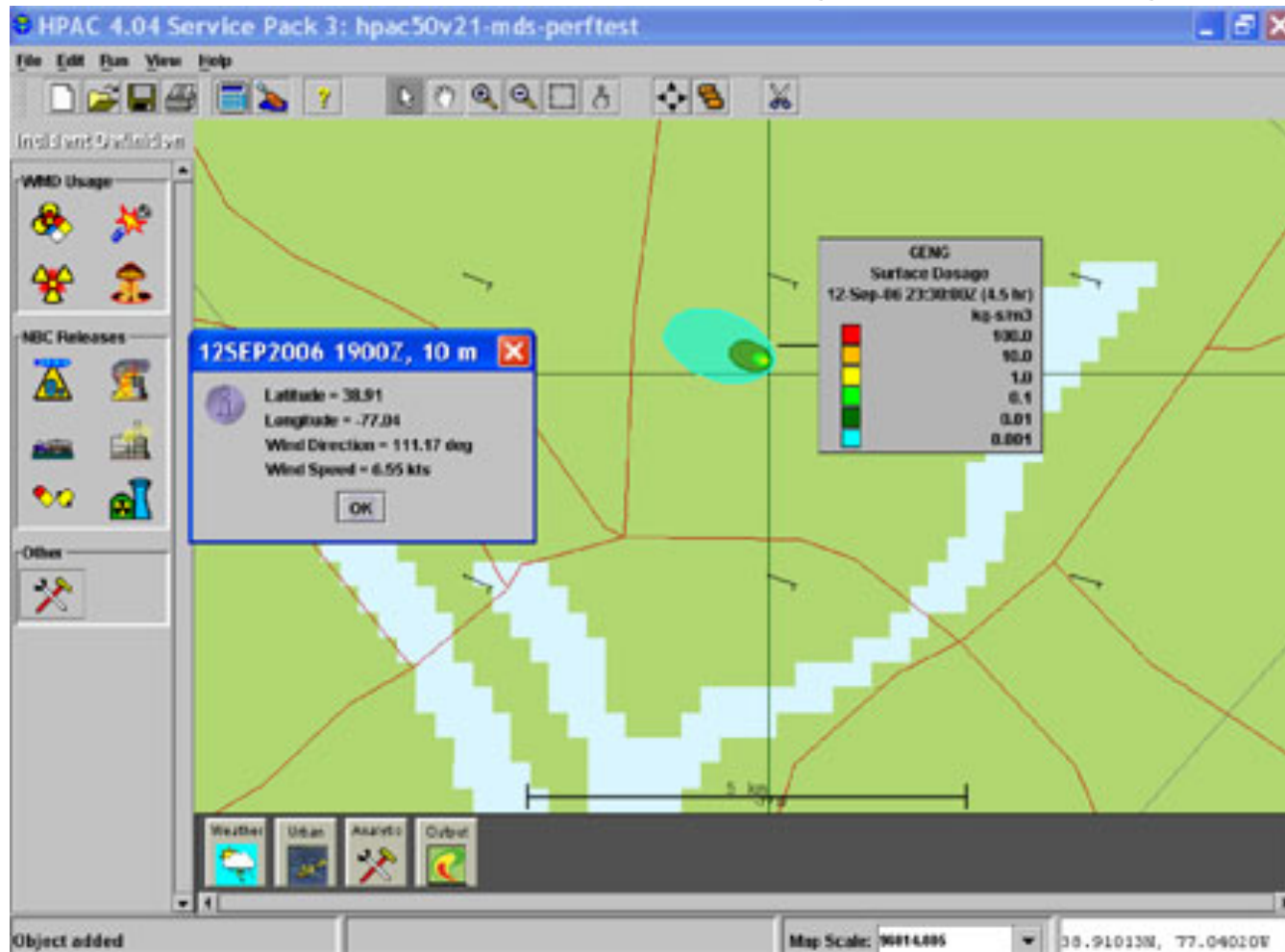
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# DTRA JSTO Atmospheric Dispersion Modeling S&T



## Hazard Prediction and Analysis Capability



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# DTRA JSTO Atmospheric Dispersion Modeling S&T



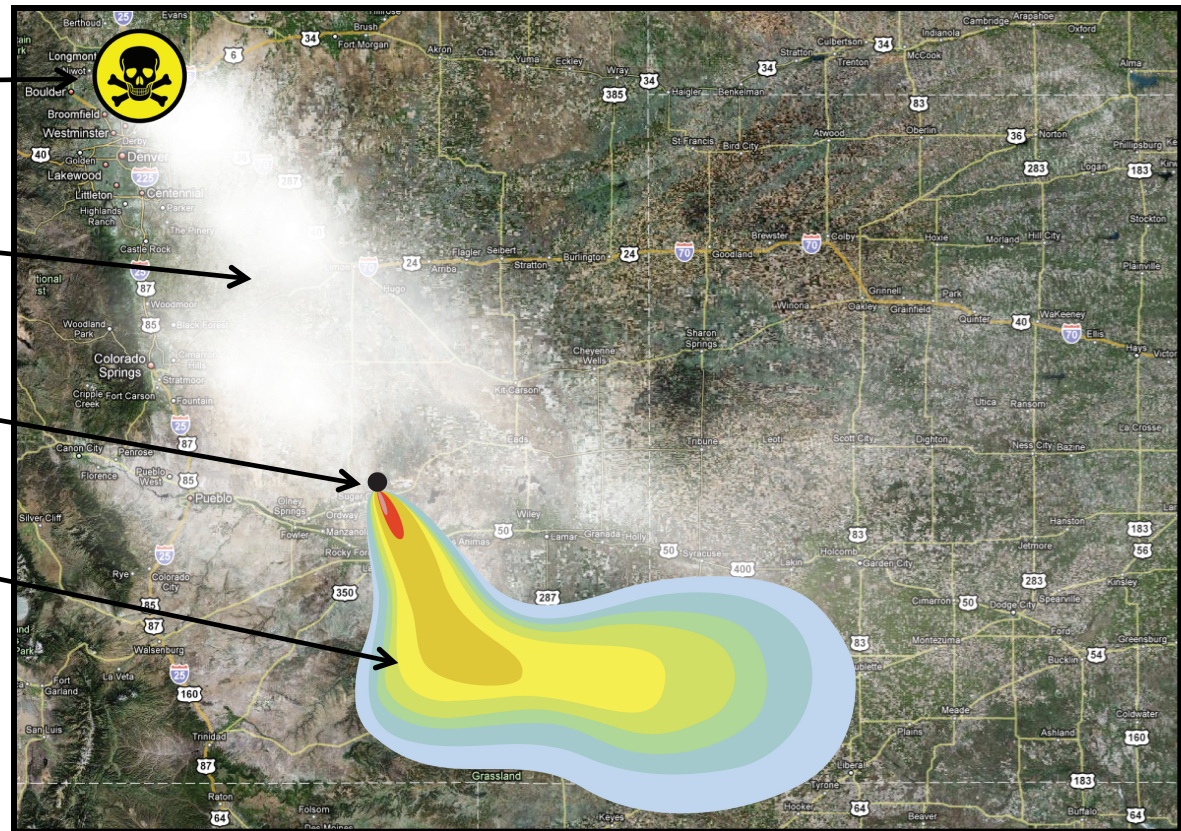
## *CBRNE Source Term Estimation*

**Actual Release Location**

**Actual Chem/Bio Plume**

**Chem/Bio Sensor Location**

**Sensor Detection Based Plume**

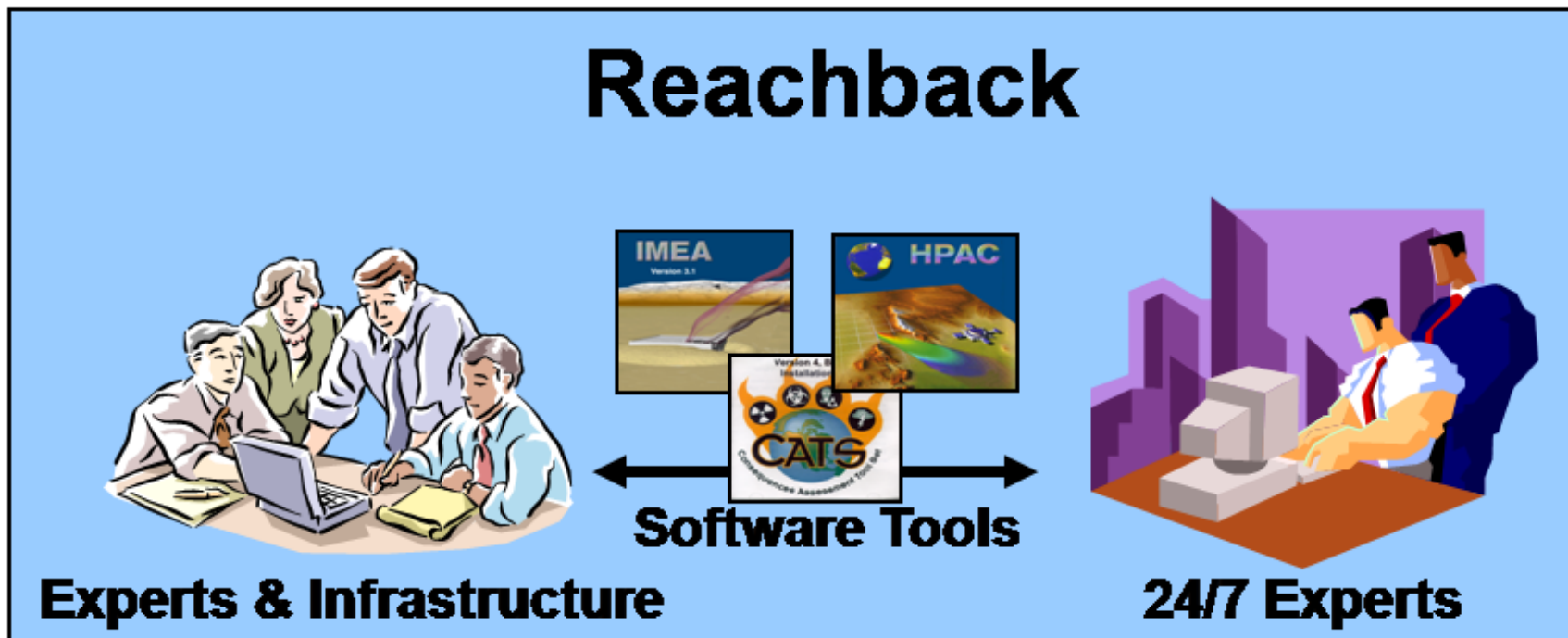


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# DTRA JSTO Atmospheric Dispersion Modeling S&T



## WMD Effects Prediction





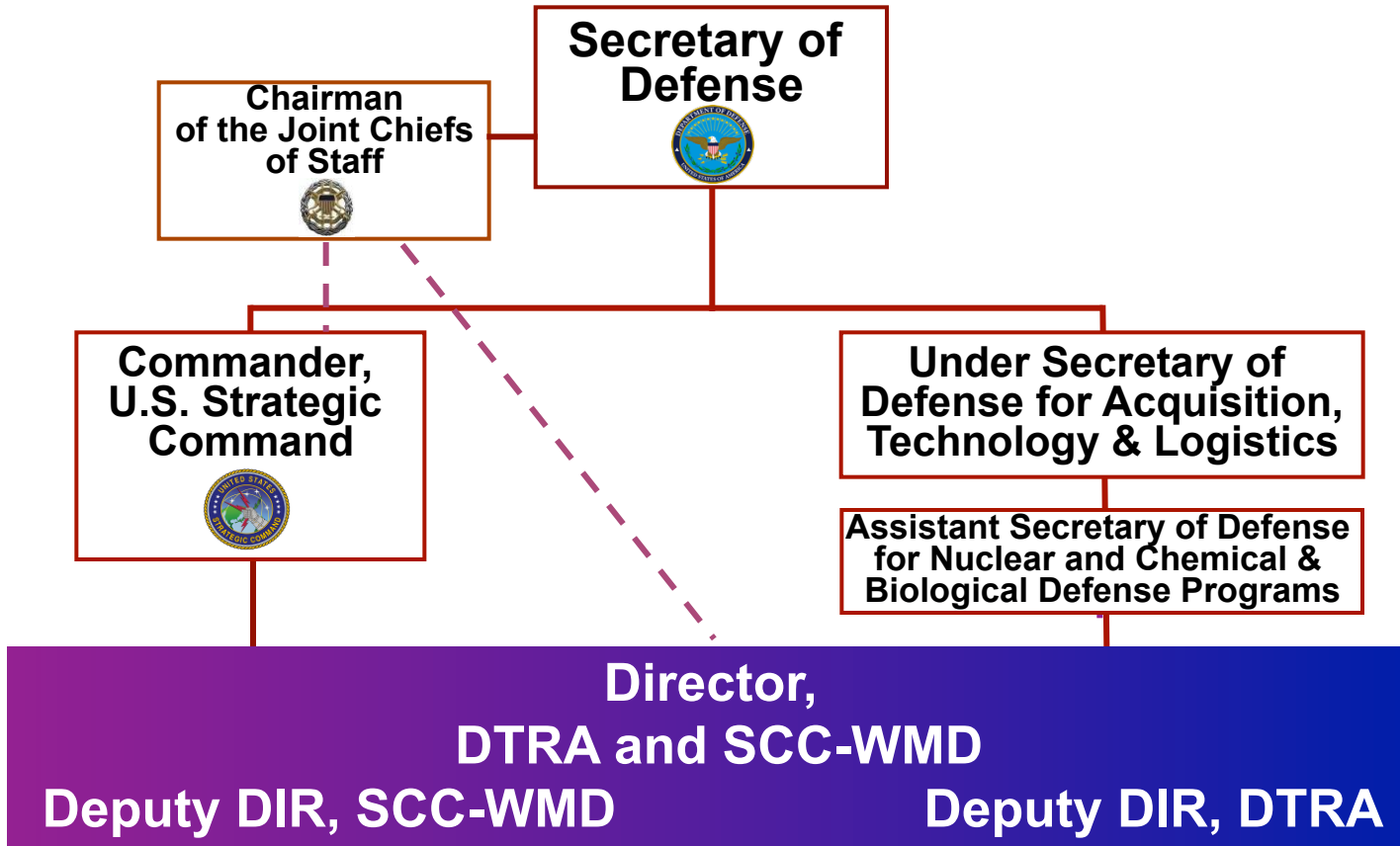
## Conclusion

***“The proliferation of weapons of mass destruction (WMD) continues to undermine global security, further complicating efforts to sustain peace and prevent harmful arms races. The instability or collapse of a WMD-armed state is among our most troubling concerns. Such an occurrence could lead to rapid proliferation of WMD material, weapons, and technology, and could quickly become a global crisis posing a direct physical threat to the United States and all other nations.”***

***2010 Quadrennial Defense Review, page iv***

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# Command Structure and Relationships



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# Evolution of Expertise and Capabilities



DTRA's lineage dates to WWII "Manhattan Project"

Arms Control



Synchronizing CWMD Plans and Advocating Capabilities

2006



Cooperative Threat Reduction



Nuclear Weapons Expertise



1998



1942

Combat Support



Chem-Bio Defense

2003



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