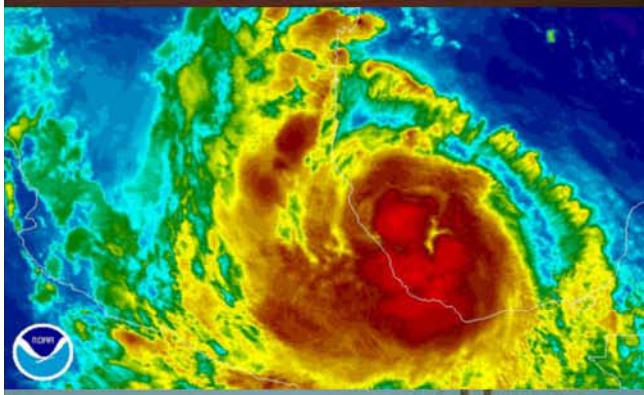
U.S. Department of Homeland Security

2007 U.S. Coast Guard Innovation Expo

October 30, 2007 • New Orleans, Louisiana



Presented by:

Jay M. Cohen
Under Secretary for Science and Technology
U.S. Department of Homeland Security

Homeland Security

Homeland Security

U.S. Coast Guard Cutter *Eagle*

Homeland Security

Homeland Security

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Homeland Security

One Year Ago

The Senate said:

“This component is a rudderless ship without a clear way to get back on course.”

“The Committee is extremely disappointed with the fiscal year 2007 President’s budget submission and accompanying Department congressional justification material.”

“Not being able to clearly articulate and justify the funding request is simply unacceptable.”

Homeland Security

S&T Goals

Consistent with the Homeland Security Act of 2002

- Accelerate delivery of enhanced technological capabilities to meet requirements and fill capability gaps to support DHS Agencies in accomplishing their mission
- Establish a lean and agile GS-manned, world-class S&T management team to deliver the technological advantage necessary to ensure DHS Agency mission success and prevent technology surprise
- Provide leadership, research and educational opportunities and resources to develop the necessary intellectual basis to enable a national S&T workforce to secure the homeland

DHS S&T Investment Portfolio

Balance of Risk, Cost, Impact, and Time to Delivery

Product Transition (0-3 yrs) ▪ Focused on delivering near-term products/enhancements to acquisition ▪ Customer IPT controlled ▪ Cost, schedule, capability metrics	**Innovative Capabilities (1-5 yrs)** ▪ High-risk/High payoff ▪ "Game changer/Leap ahead" ▪ Prototype, Test and Deploy ▪ HSARPA
Basic Research (>8 yrs) ▪ Enables future paradigm changes ▪ University fundamental research ▪ Government lab discovery and invention	**Other (0-8+ yrs)** ▪ Test & Evaluation and Standards ▪ Laboratory Operations & Construction ▪ Required by Administration (HSPDs) ▪ Congressional direction/law

Customer Focused, Output Oriented

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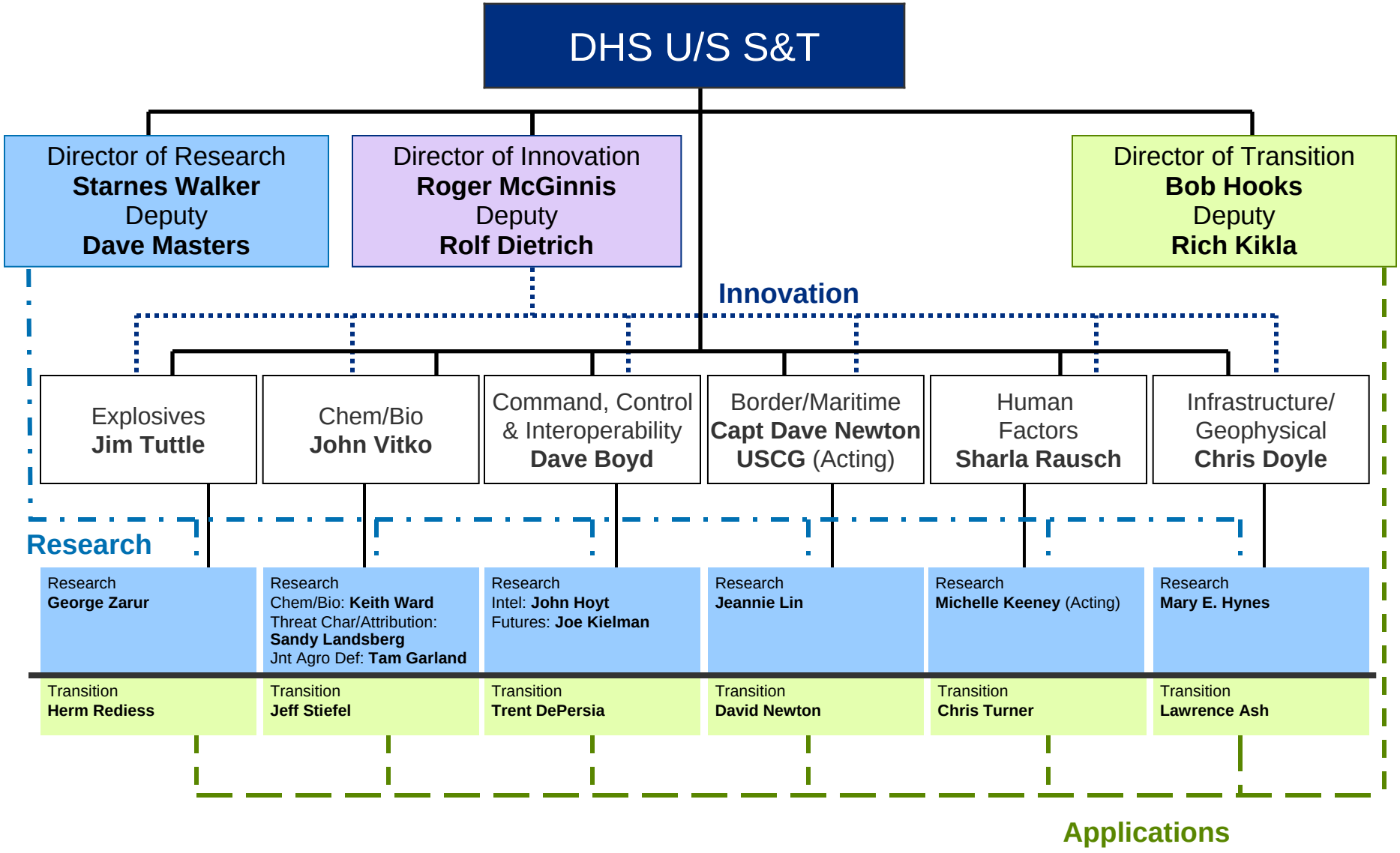
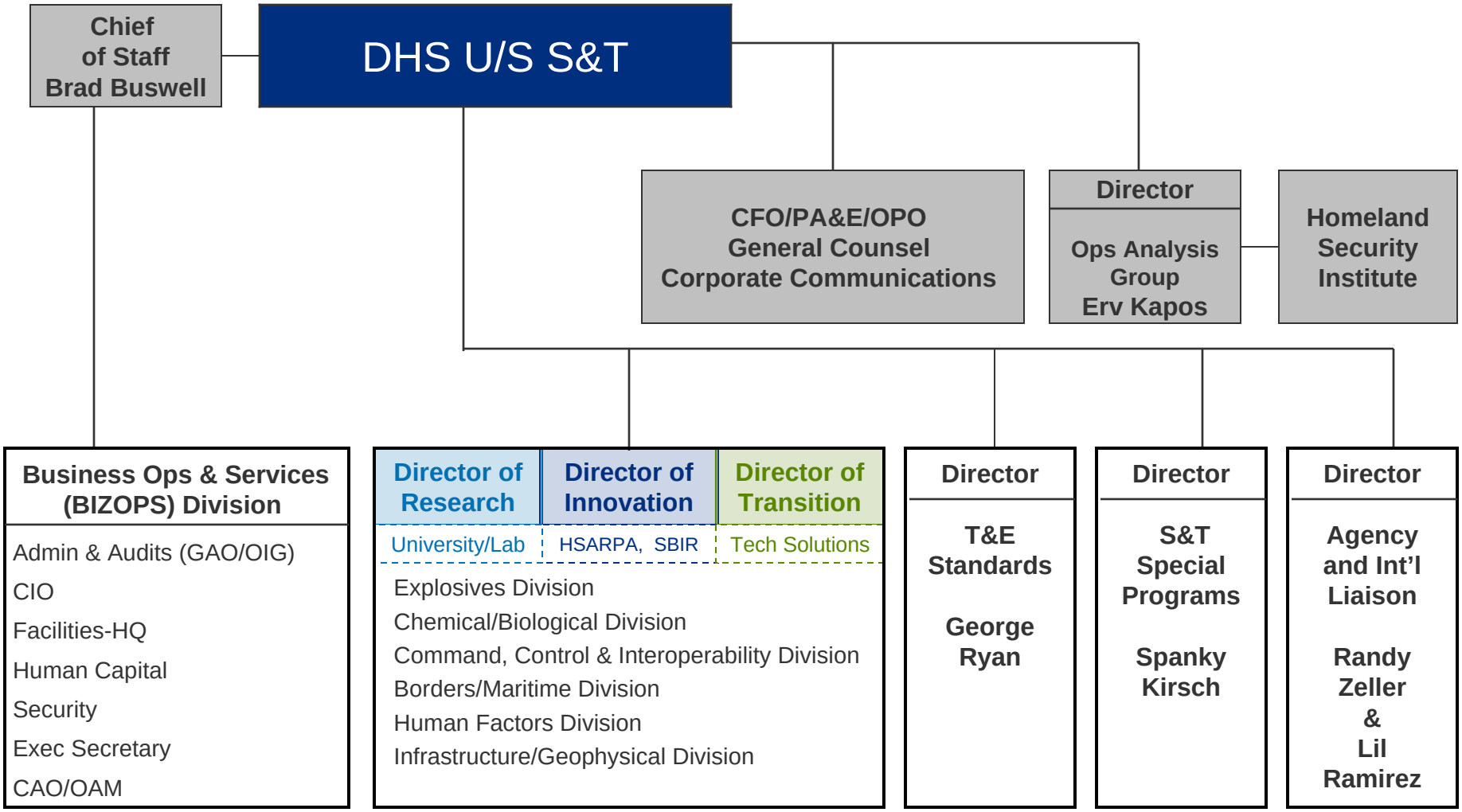
Bombs – Borders – Bugs – Business

S&T Organization



DHS S&T Directorate



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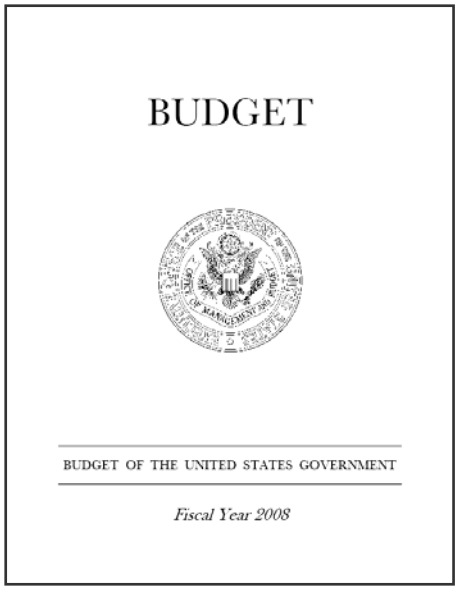
Timeline: Re-Org to Reprogramming Funds

- AUG/SEP/OCT 2006 - Briefed all six DHS House and Senate Oversight Committees on new DHS S&T organization and portfolio content



- Early OCT 06 - OMB directs PRESBUD FY08 that reflects revised S&T portfolio content

- Late OCT 06 House & Senate DHS Committees request DHS S&T submit an “omnibus reprogram” in order to reflect new DHS S&T portfolio content (submitted DEC 06) to “kickstart” S&T Innovation

- March 2007 - Congressional approval to reprogram S&T funds

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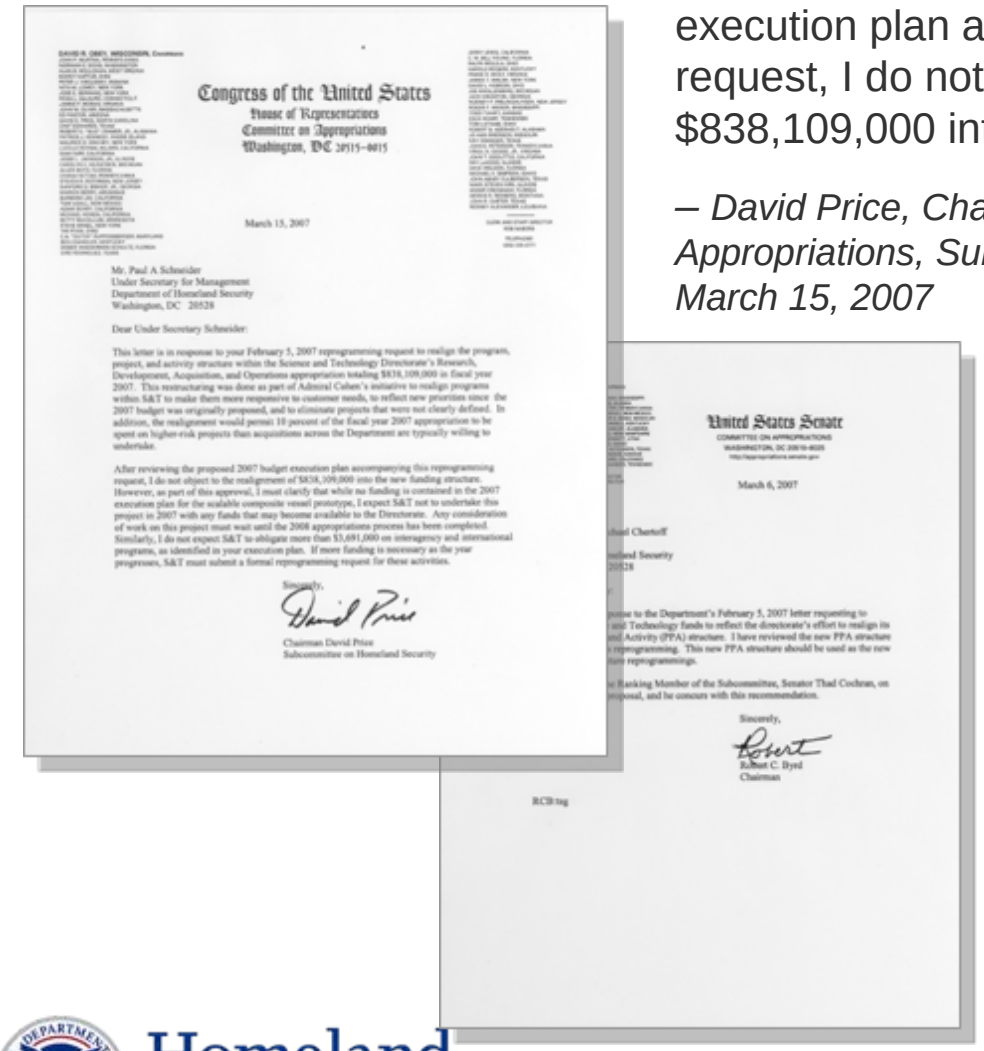
Bi-Partisan Congressional Leadership Reprogramming of DHS S&T FY07 Funds to "kickstart" effort to make the Nation safer before FY08!



Congress of the United States
House of Representatives
Committee on Appropriations
Washington, DC 20515–6015

March 15, 2007

Mr. Paul A Schneider
Under Secretary for Management
Department of Homeland Security
Washington, DC 20528

Dear Under Secretary Schneider:

This letter is in response to your February 5, 2007 reprogramming request to realign the program, project, and activity structure within the Science and Technology Directorate's Research, Development, Acquisition, and Operations appropriation totaling $838,109,000 in fiscal year 2007. This restructuring was done as part of Admiral Cohen's initiative to realign programs within S&T to make them more responsive to customer needs, to reflect new priorities since the 2007 budget was originally proposed, and to eliminate projects that were not clearly defined. In addition, the realignment would permit 10 percent of the fiscal year 2007 appropriation to be spent on higher-risk projects than acquisitions across the Department are typically willing to undertake.

After reviewing the proposed 2007 budget execution plan accompanying this reprogramming request, I do not object to the realignment of $838,109,000 into the new funding structure. However, as part of this approval, I must clarify that while no funding is contained in the 2007 execution plan for the scalable composite vessel prototype, I expect S&T not to undertake this project in 2007 with any funds that may become available to the Directorate. Any consideration of work on this project must wait until the 2008 appropriations process has been completed. Similarly, I do not expect S&T to obligate more than $3,691,000 on interagency and international programs, as identified in your execution plan. If more funding is necessary as the year progresses, S&T must submit a formal reprogramming request for these activities.

Sincerely,

David Price

Chairman David Price
Subcommittee on Homeland Security

United States Senate
COMMITTEE ON APPROPRIATIONS
WASHINGTON, DC 20510–6025
http://appropriations.senate.gov

March 6, 2007

[illegible] Chertoff
[illegible] Security
20528

[illegible] to the Department's February 5, 2007 letter requesting to [illegible] and Technology funds to reflect the directorate's effort to realign its [illegible] and Activity (PPA) structure. I have reviewed the new PPA structure [illegible] reprogramming. This new PPA structure should be used as the new [illegible] reprogrammings.

[illegible] Ranking Member of the Subcommittee, Senator Thad Cochran, on [illegible] proposal, and he concurs with this recommendation.

Sincerely,

Robert

Robert C. Byrd
Chairman

RCB:tag

"After reviewing the proposed 2007 budget execution plan accompanying this reprogramming request, I do not object to the realignment of $838,109,000 into the new funding structure."

– David Price, Chairman, House Committee on Appropriations, Subcommittee on Homeland Security, March 15, 2007

"I have reviewed the new Program, Project, and Activity (PPA) structure and approve of this reprogramming. This new PPA structure should be used as the new baseline for any future reprogrammings."

– Robert C. Byrd, Chairman, Senate Committee on Appropriations, March 6, 2007

Homeland Security

Today

The Senate says:

“The Committee is pleased with the rapid progress S&T appears to be making toward resolving past deficiencies.”

“The new Under Secretary has restructured the directorate’s programs, worked to obligate resources in a timely fashion, and instituted a capable budget office able to deliver timely, accurate, and comprehensible documents.”

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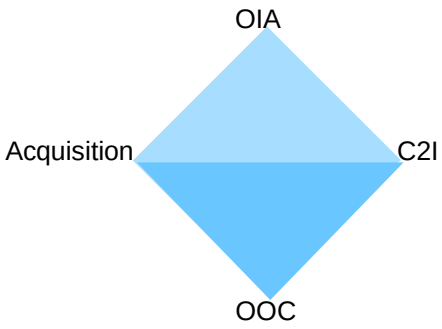
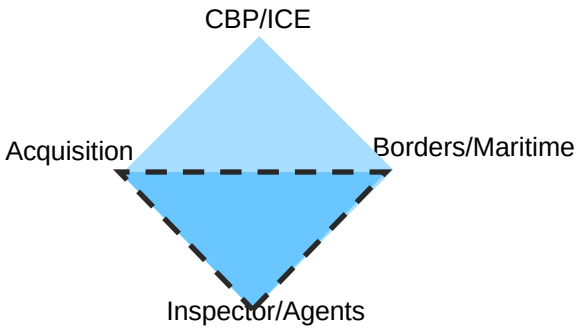
DHS Requirements/Capability Capstone Integrated Product Teams

DHS S&T Product – "Enabling Homeland Capabilities"

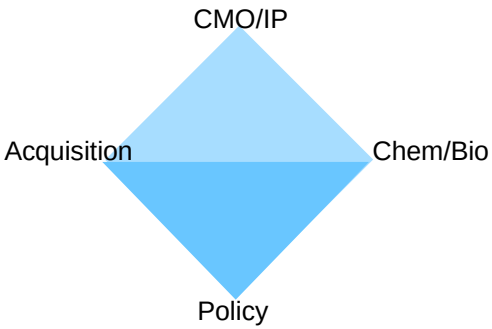
Information Sharing/Mgmt



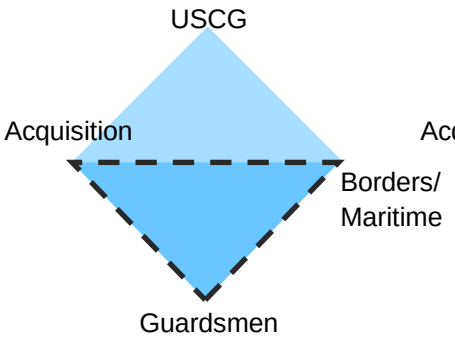
Border Security



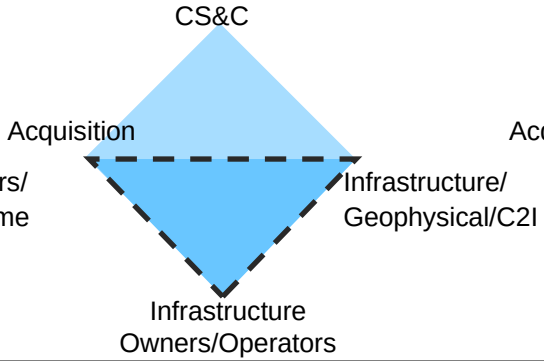
Chem/Bio Defense



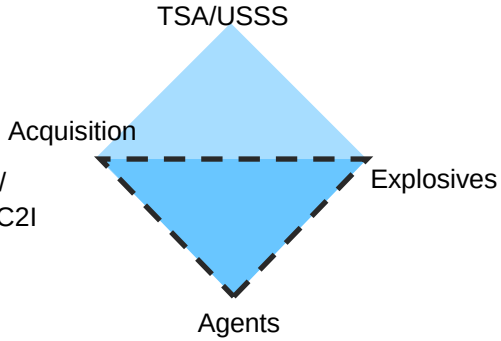
Maritime Security



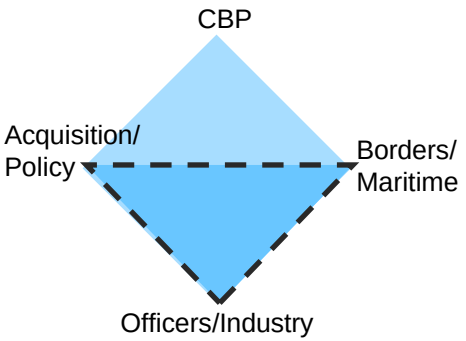
Cyber Security



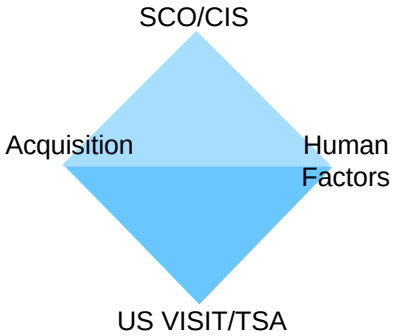
Explosive Prevention



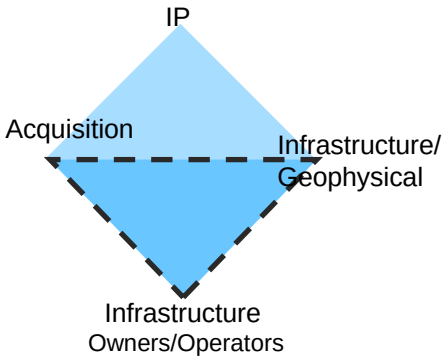
Cargo Security



People Screening

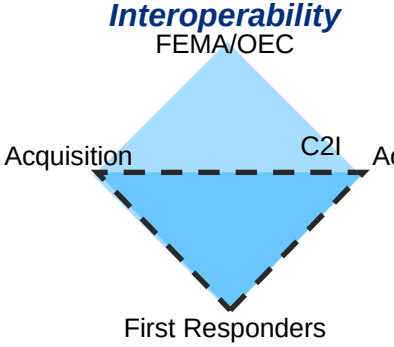


Infrastructure Protection

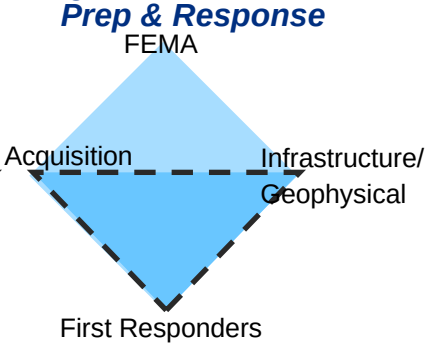


Incident Management

Interoperability



Prep & Response



Capstone IPTs defined requirements and customer capability gaps

NOW to Fill Those Gaps, Project IPTs Need to Engage

Information Sharing/Mgmt

- Information Fusion and Visualization to Support the Common Operating Picture (COP)
- Network Identity Management
- Cross-Agency Information Sharing

(19)

Border Security

- Border Officer Tools and Safety
- Sensor and Data Fusion
- Border / Maritime Domain Awareness Technologies

(50)

Chem/Bio Defense

- Agrodefense
- Biodefense
- Chemical Defense

(42)

Maritime Security

- Border Officer Tools and Safety
- Sensor and Data Fusion
- Border / Maritime Domain Awareness Technologies

(32)

Cyber Security

- Research Tools & Technology
- Information Infrastructure Protection
- Next Generation Technologies

(12)

Explosive Prevention

- Standoff Detection
- Homemade Explosives
- Checked Baggage
- Check Point
- Response
- Canine explosive detection
- Blast Mitigation
- Standoff Projectile Mitigation

(45)

Cargo Security

- Container Security
- Cargo Security
- Cargo Inspection

(15)

People Screening

- Biometrics
- Credentialing
- Hostile Intent
- Group Violent Intent Modeling

(10)

Infrastructure Protection

- Analysis & Decision Support Systems
- Advanced Infrastructure Architecture & Systems Design
- Detection & Sensor Systems
- Response, Recovery and Reconstitution

(10)

Incident Management

Interoperability

- Advanced communication
- Digital voice communication
- Seamless data exchange

(14)

Prep & Response

- First Responder Equipment
- Common Operating Picture & Situational Awareness
- Incident Modeling, Mapping & Simulation

(7)

•The Capstone Execution Arm

- Detailed Customer Schedule and Requirements
- Detailed S&T Performance Parameters
- Coordinated Programmatic Alignment
- Codified Technology Transition Agreements

Red number indicates # of projects reviewed

256 Total

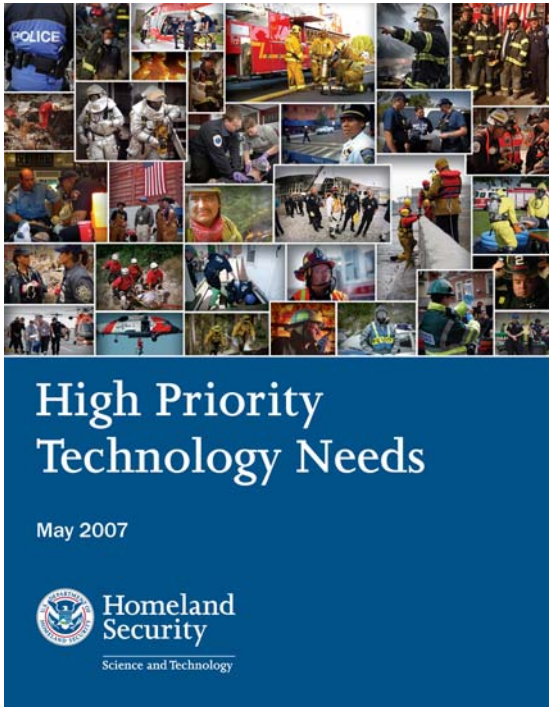
To Deliver Technology on Schedule with Requisite Performance

Rarely Seen Photo of a Capstone IPT Meeting

Inteegrated Product Team (IPT) Initial Outcome

High Priority Technology Needs

- 11 Capstone IPTs have identified 77 High Priority Technology Needs for DHS components and their customers
- Identified in brochure and posted at www.hsarpabaa.com
- Baseline established for conducting an iterative, dynamic IPT process on an annual cycle aligned with DHS funding and acquisition processes



IPT Next Steps:

- Focus on delivering product to customers
- Detail proposed technology solutions
- Clarify deliverable and transition plans
- Develop Technology Transition Agreements to establish customer requirements and technical specifications

Customer Focused…Output Oriented

Maritime Security IPT:
Representative Technology Needs

- Wide-area surveillance from the coast to beyond the horizon; port and inland waterways region - detect, ID, and track
- Data fusion and automated tools for command center operations
- Vessel compliance through non-lethal compliance methods
- Enhanced capability to continuously track contraband on ships or containers
- Improved ballistic personal protective equipment for officer safety
- Improved WMD detection equipment for officer safety; improved screening capability for WMD for maritime security checkpoints

S&T Lead Division: Border/Maritime

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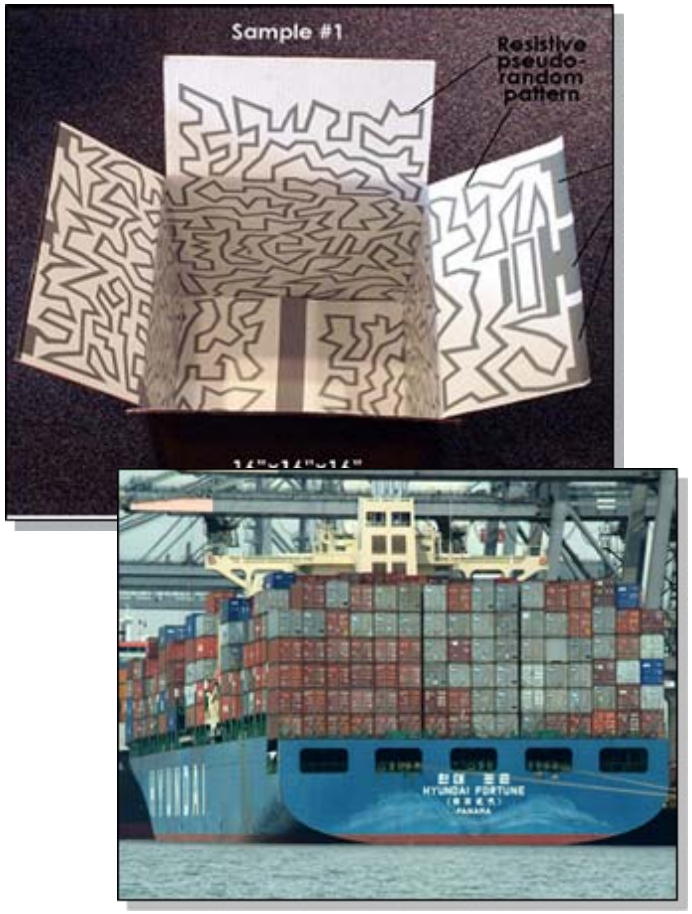
Cargo Security IPT:
Representative Technology Needs



- Enhanced screening and examination by non-intrusive inspection
- Increased information fusion, anomaly detection, Automatic Target Recognition capability
- Detect and identify WMD materials and contraband
- Capability to screen 100% of air cargo
- Test the feasibility of seal security; detection of intrusion
- Track domestic high-threat cargo
- Harden air cargo conveyances and containers
- Positive ID of cargo and detection of intrusion or unauthorized access

S&T Lead Division: Border/Maritime

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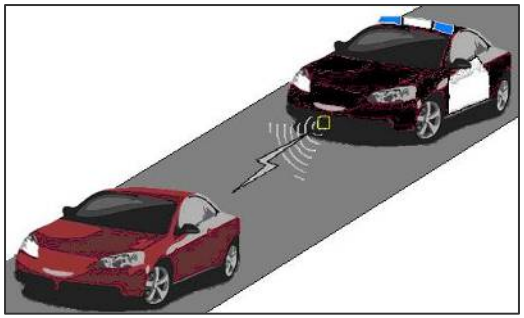
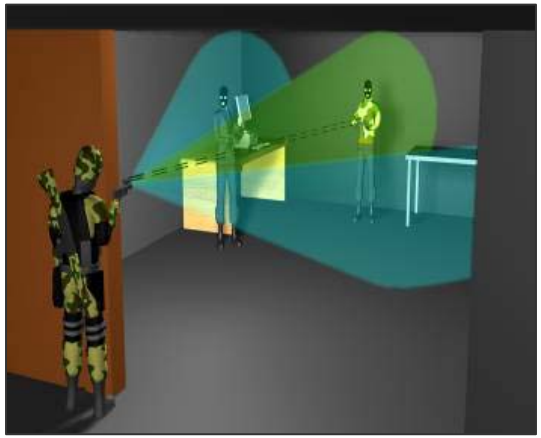
Border Officer Tools and Safety



Microwave Vehicle Stopper



Light Emitting Diode Incapacitator

Officer Safety Load Carriage System

Integration of Mobile Biometrics

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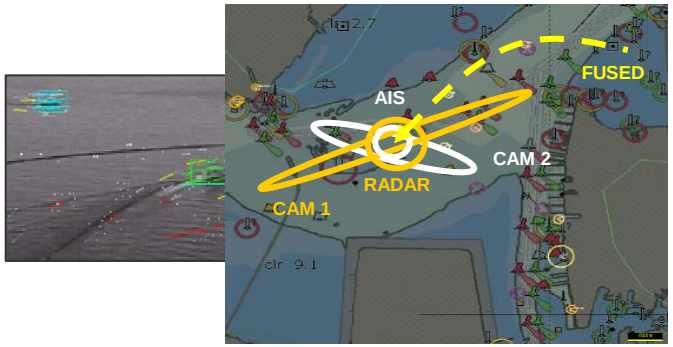
Maritime Security

Port and Coastal RADAR Improvement

Affordable Wide-Area Surveillance (WAS)

Vessel Stopping



Automated Scene Understanding

Boarding Team Communications

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Maritime Biometric Identification System:

Handheld Biometric System Pilot in the Mona Pass

Pilot Description

Real-world operational pilot of Coast Guard maritime mobile biometrics technologies in the Mona Pass. The pilot will identify strengths and shortfalls associated with the use of mobile biometrics. The pilot will:

- assess feasibility and utility of ship-to-shore communications for the biometric device,
- conduct operational testing and evaluation,
- collect performance metrics, and
- produce a technology development roadmap to guide procurement and acquisitions supporting Coast Guard operations.

Planned Pilot/Deliverables/Transitions

- Conduct program coordination and requirements gathering – Q2 FY08 to Q1 FY09
- Participate in relevant working groups – Q2 FY08 to Q1 FY09
- Report on selection criteria for 2 additional handheld biometric collection devices for field testing – Q2 FY08
- Deliver system performance reports on fielded devices – Q2 FY08 to Q1 FY09
- Deliver hand quality study – Q1 FY09
- Deliver detailed transition plan – Q1 FY09

S&T and Homeland Security Payoff

- Timely identification of interdicted immigrants to determine if they are on a watch or wanted list
- Results of pilot will inform S&T's FY09 Mobile Biometric transition project of specific real-world operational shortfalls that exist with the use of mobile biometrics devices
- Customer(s) – USCG with lessons learned for CBP, US-VISIT

	FY07	FY08	FY09	FY10	FY11	FY12	FY13
Total Funding ($K)	$ 723	$0	$0	$0	$0	$0	$0

Deliverables/Demos -

Transitions / TRL -

Cost
Sched
Tech

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Homeland Security Act of 2002

HSARPA will….

“Support basic and applied homeland Security research to promote *revolutionary* changes in technologies; advance the development, testing and evaluation, and deployment of critical homeland security technologies; and accelerate the prototyping and deployment of technologies that would address homeland security vulnerabilities.”

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HIPS and HITS

Homeland Innovative Prototypical Solutions (HIPS) are designed to deliver *prototype-level demonstrations* of game-changing technologies in two to five years. Projects are moderate to high risk, with high payoff

High Impact Technology Solutions (HITS) are designed to provide *proof-of-concept* answers within one to three years that could result in high-payoff technology breakthroughs. While these projects are at considerable risk for failure, they offer the potential for significant gains in capability

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Science and Technology

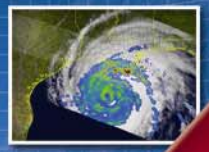
FY-08 Planned Demonstration Timeline

Homeland Innovative Prototypical Solutions (HIPS)

High Impact Technology Solutions (HITS)

HURRICANE & STORM SURGE MITIGATION

FY08 4Q – Storm surge mitigation system concept demonstration at the Army Corps of Engineers, Vicksburg, MS



LEVEE STRENGTHENING

FY08 4Q – New survey methods demonstration using a variety of geophysical sensors on multiple platforms and address weak levees at the Army Corps of Engineers, Vicksburg, MS

SENSIT

FY08 4Q – Liquid explosives field demonstration of a screening prototype for TSA 3-1-1 bags in a coin size tub at Los Alamos National Laboratory, NM

RESILIENT TUNNEL

FY08 3Q – Trial prototype inflatable plug device at the West Virginia Memorial Tunnel

REG

FY08 2&4Q – Laboratory demonstrations of fault limiting superconducting cable at Oak Ridge National Laboratory, TN

TUNNEL DETECT

FY08 3Q – Field experiments for improved airborne wide area surveillance system to increase the accuracy of detection

FAST M2

FY08 1Q – Non-invasive sensor demonstration, validation and metrics at MIT Draper Laboratory

CRITICAL INFRASTRUCTURE CHANGE DETECTION

FY08 1Q – Examine technical characteristics of a new ultra high resolution optical sensor in lower Manhattan in coordination with the New York Police Department

CHLOE

FY08 1Q – Live-Fire Counter-Manpads Detection demonstration at White Sands Missile Range

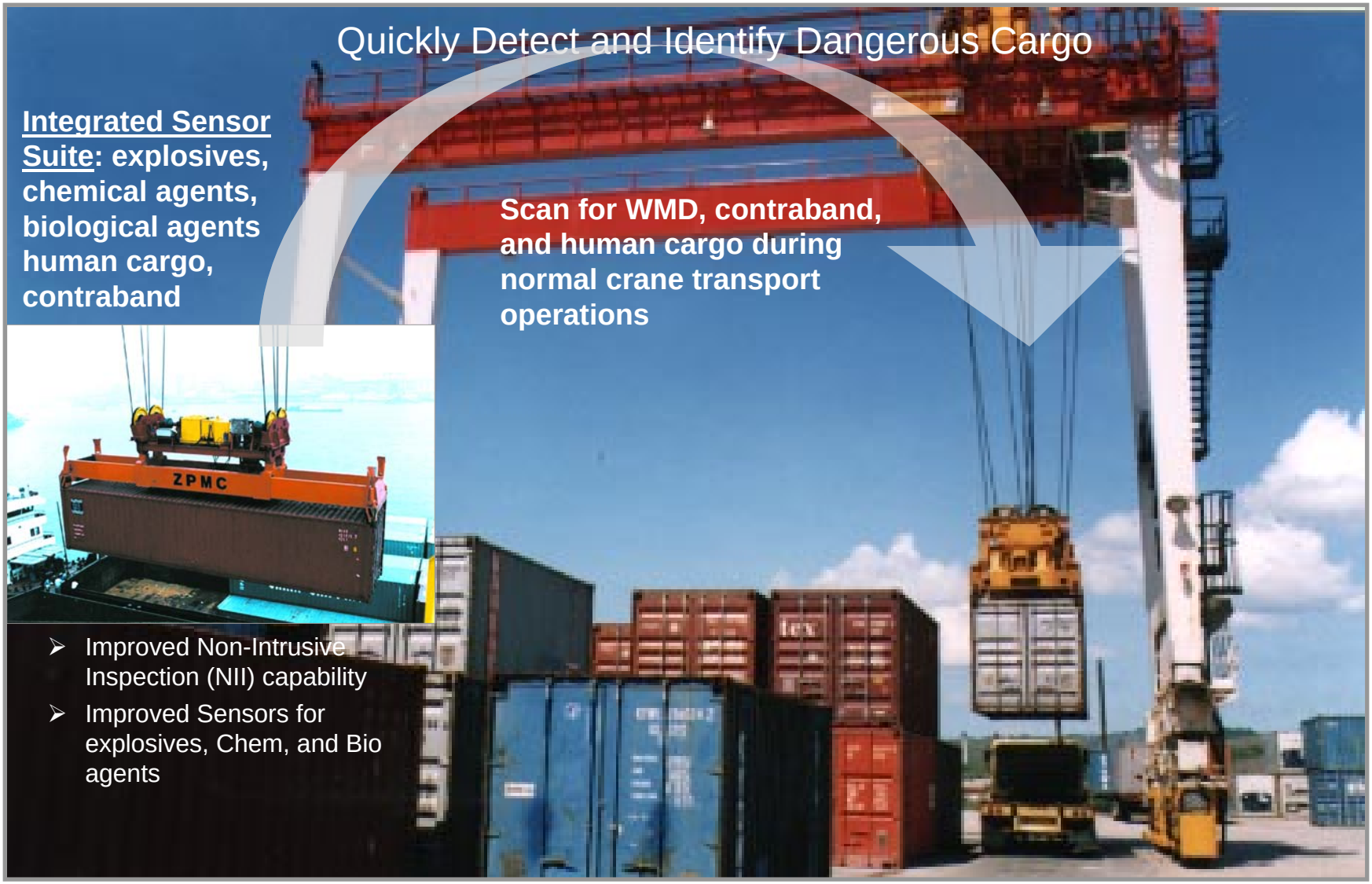
Science & Technology

Innovation Portfolio

HSARPA

SAFECON – Safe Container

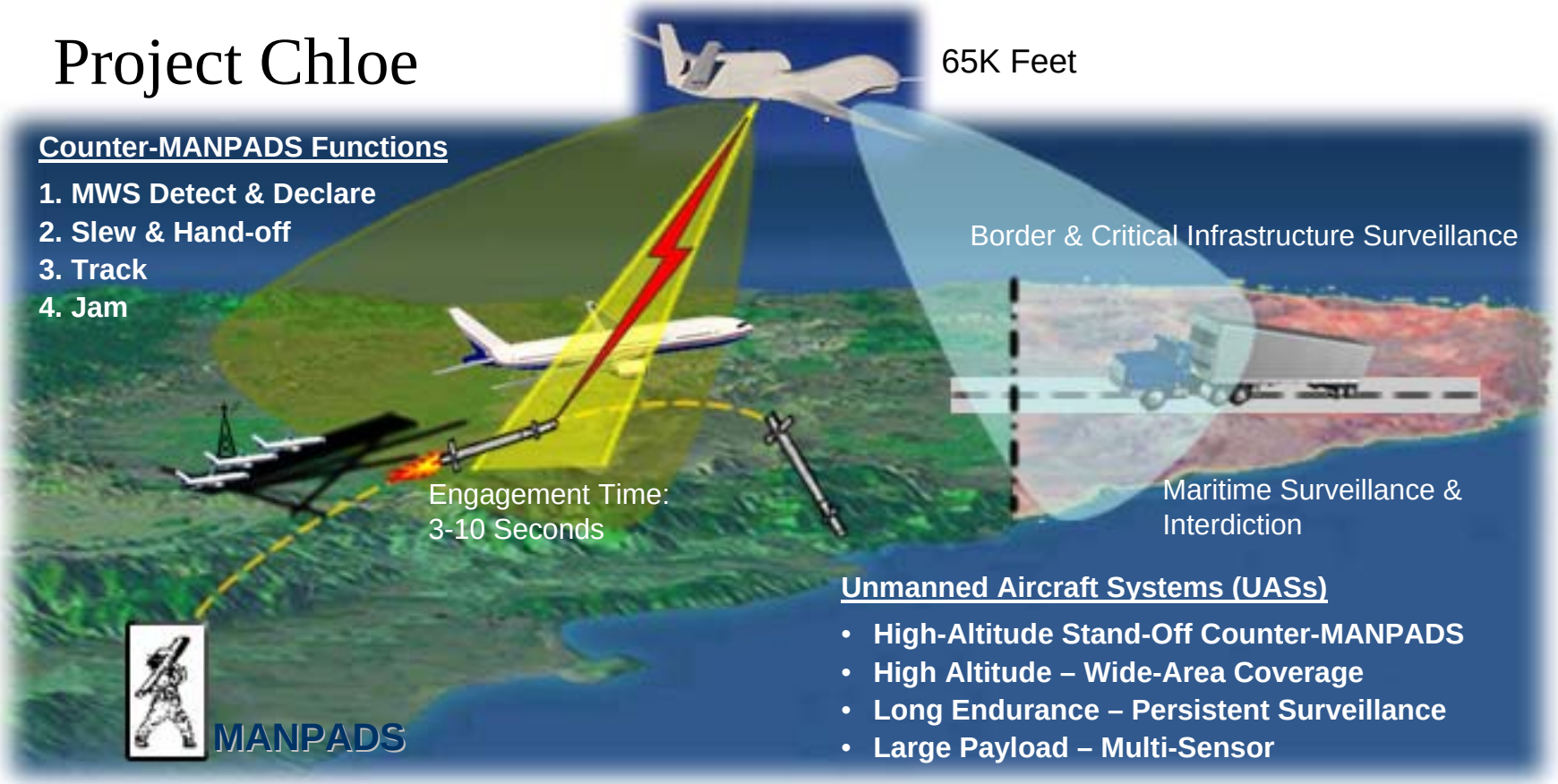
Office of Innovation - Homeland Innovative Prototypical Solutions



Counter-MANPADS/Persistent Surveillance

Office of Innovation - Homeland Innovative Prototypical Solutions

Project Chloe



Operational Characteristics

- Real-time sensor fusion/dissemination
- Multi-user / border surveillance requirements
- Commercial Aircraft MANPADS protection
- Automatic target detection/recognition
- Persistence (24/7, all-weather coverage)

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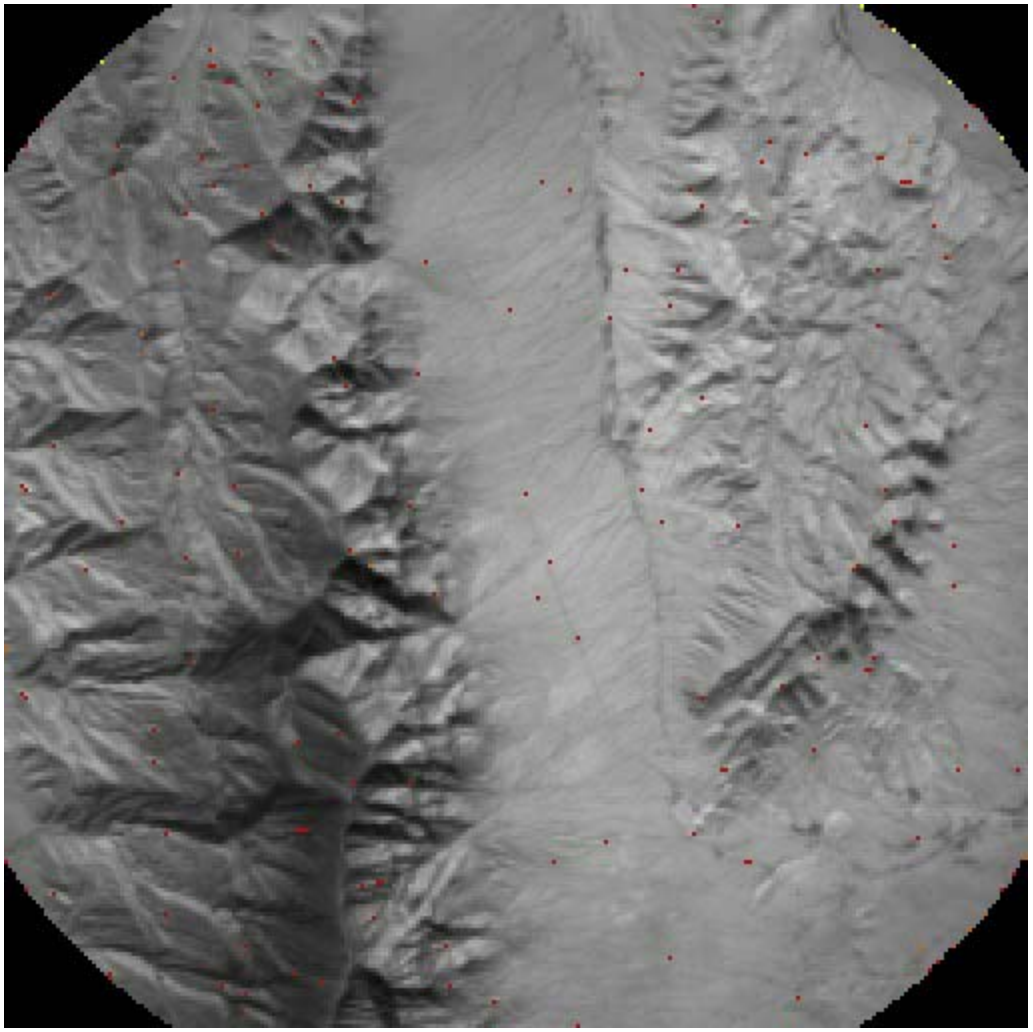
Chloe: Live Fire Missile Testing



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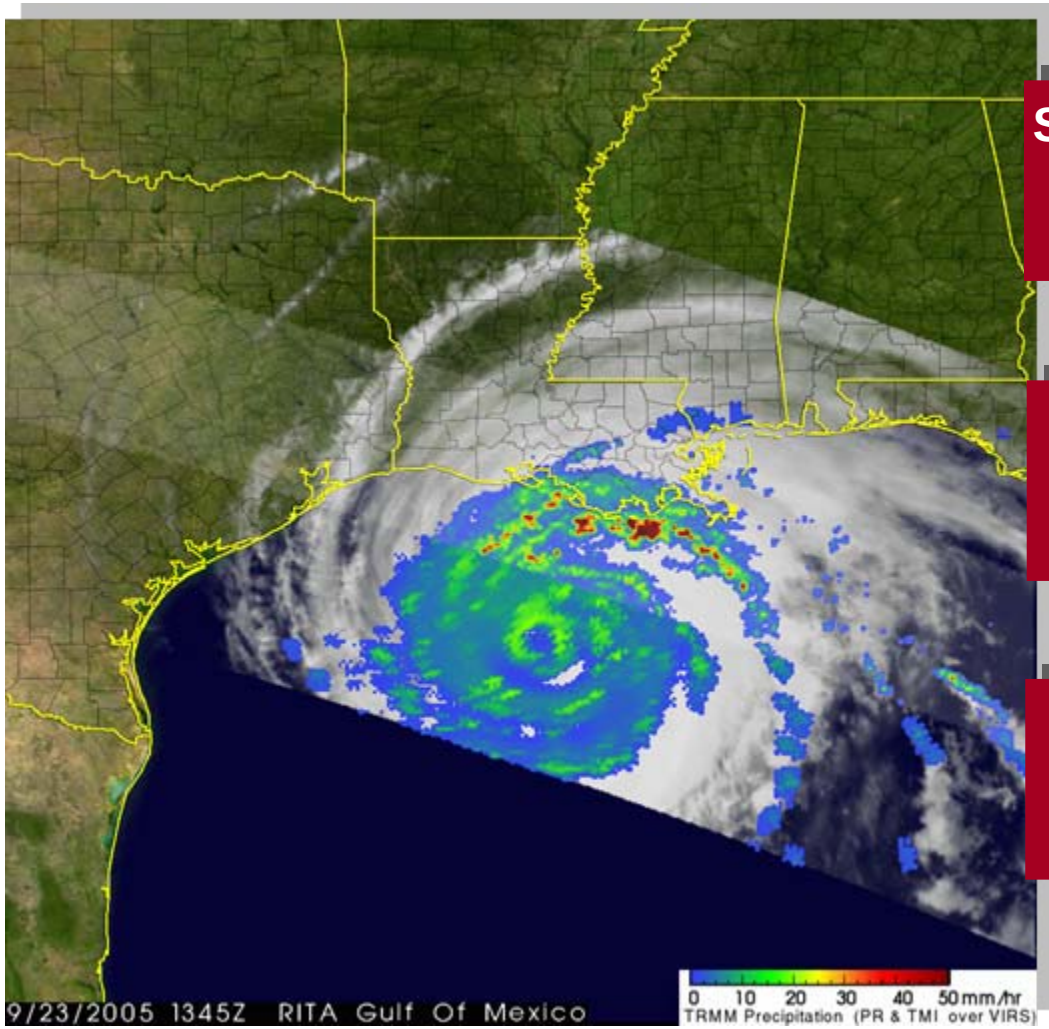
Homeland Innovative Prototypical Solutions

Storm Surge Mitigation (SSM)



Strategic use of underwater blasts to mitigate storm surge?

Use of drop-In structures to limit surge?

Rerouting of flood waters to limit damage to Critical infrastructure?

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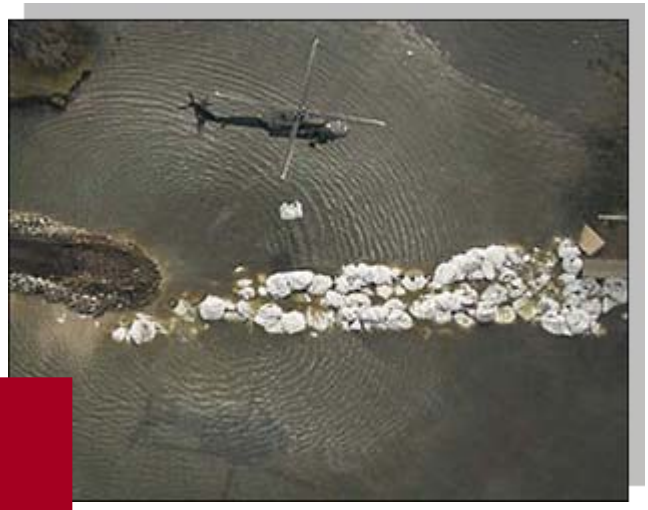
Homeland Innovative Prototypical Solutions

Levee Strengthening and Rapid Repair

Pre-emptive mapping of weak levees

Pre-Flood Deployment of Protective And Rapid Repair Supplies to Problem Locations



Drop-in structures lofted by aircraft

Float-in structure guided by cables

Explosively Emplaced Support Structures

Roll-out protective coverings such as articulated concrete mats

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The Washington Post

Sept. 30-Oct. 3, 2007

LEFT OF BOOM

THE STRUGGLE TO DEFEAT ROADSIDE BOMBS

'You can't armor your way out of this problem'

LEFT OF BOOM

THE STRUGGLE TO DEFEAT ROADSIDE BOMBS

'There was a two-year learning curve . . . and a lot of people died in those two years'

Spec. Luis Casas, right, an Army medic, tends to Pfc. Gonzales (f
shrapnel from an IED that exploded next to their Humvee during

LEFT OF BOOM

THE STRUGGLE TO DEFEAT ROADSIDE BOMBS

'The single most effective weapon against our deployed forces'

LEFT OF BOOM

THE STRUGGLE TO DEFEAT ROADSIDE BOMBS

'If you don't go after the network, you're never going to stop these guys. Never.'

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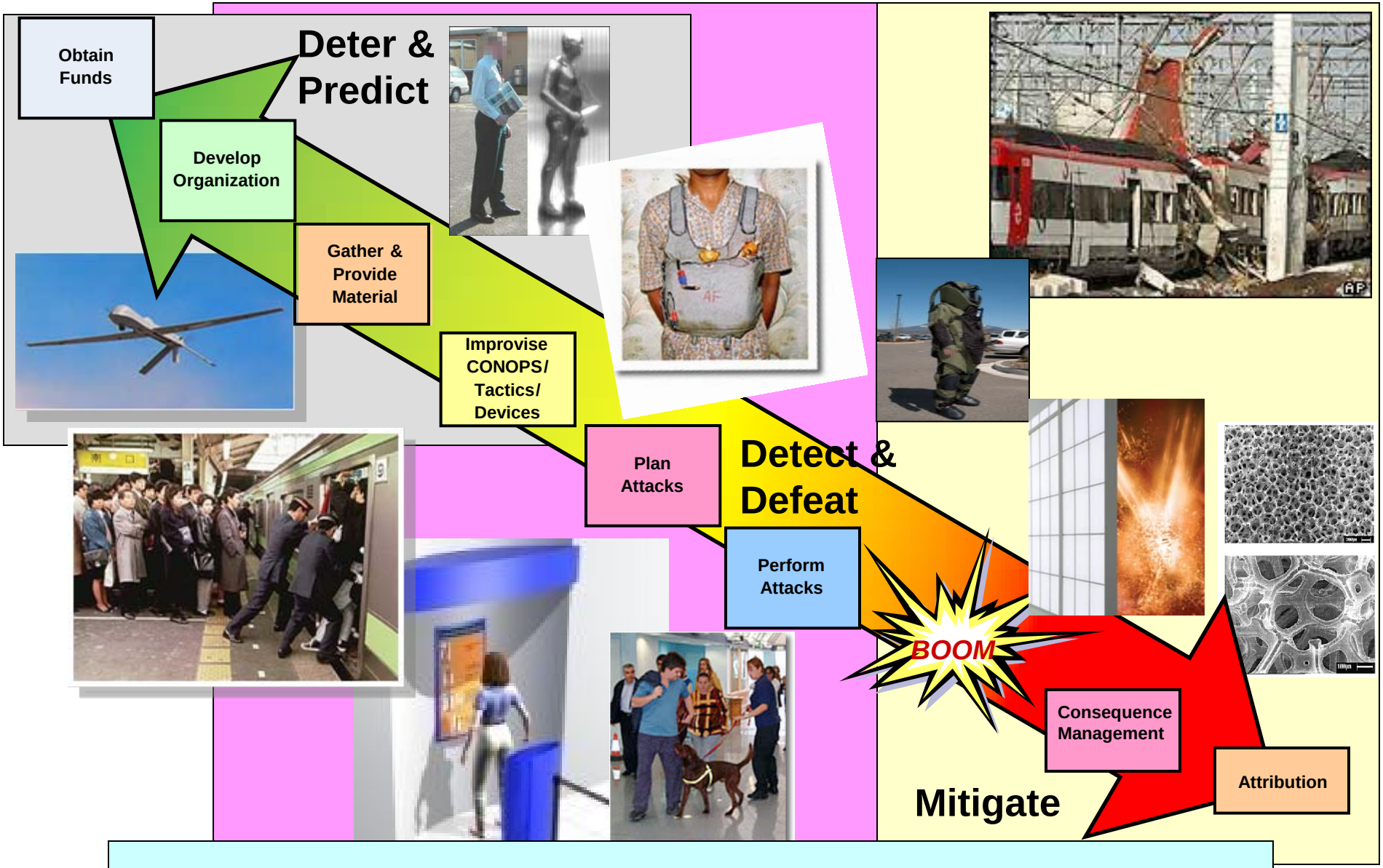
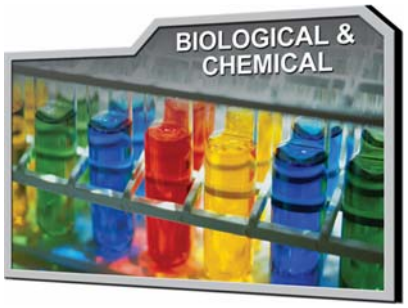
Countering the IED Threat



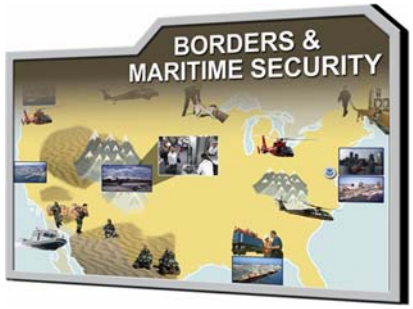
Breaking the links in the IED Delivery Chain

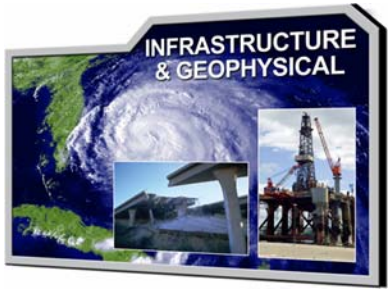
Basic Research Portfolio

Discovery and Invention to Enable Future Capabilities



- Brings the capabilities, talent and resources of the Homeland Security Centers of Excellence, DOE National Laboratories and DHS Labs to bear to address the long-term R&D needs for DHS in sciences of enduring relevance
- This type of focused, protracted research investment has potential to lead to paradigm shifts in the nation's homeland security capabilities





COE Alignment

S&T DIVISIONS

Explosives	Chemical/Biological	Command, Control & Interoperability	Borders/Maritime	Human Factors	Infrastructure/ Geophysical
NEW *National Center for Explosives Detection & Counter-measures*	National Center for Food Protection and Defense — A Homeland Security Center of Excellence FAZD Center — National Center for Foreign Animal and Zoonotic Disease Defense CAMRA — Center for Advancing Microbial Risk Assessment *Consolidated Chem/Bio Center*	IDS-UACs RVACs *Consolidated CCI Center*	**NEW** *National Center for Border Security & Immigration* **NEW** *National Center for Maritime Domain Awareness and Island & Remote/Extreme Environment*	START	PACER (Basic Research, Applied Science, Preparedness & Response, Education) **NEW** *National Center for Gulf Coast Natural Disaster & Port Security*

Operations & Analysis

Risk Sciences Branch & HSI Risk Determination

Homeland Security

CREATE Homeland Security Center

DHS / DOE Laboratory Alignment

	S&T DIVISIONS					
	Explosives	Chemical/Biological	Command, Control & Interoperability	Borders/Maritime	Human Factors	Infrastructure/ Geophysical
DOE	LANL PNNL SNL NTS INL	LLNL SNL ANL LANL PNNL LBNL SRNL	LANL LLNL PNNL ORNL NTS INL LBNL	LLNL SRNL BNL	ANL BNL ORNL SNL	ORNL ANL INL BNL LBNL
DHS		PIADC NBACC				
NASA			NASA	NASA	NASA	

Homeland Security

TSL / EML

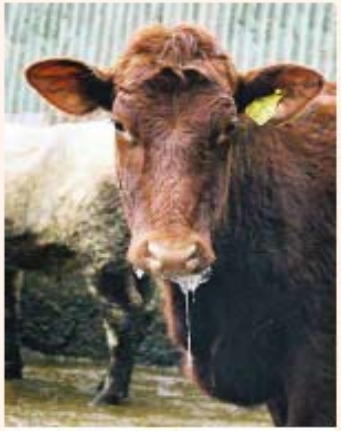
DHS S&T Laboratories

Environmental Measurements Laboratory

National Biodefense Analysis and Countermeasures Center (NBACC)

Transportation Security Laboratory

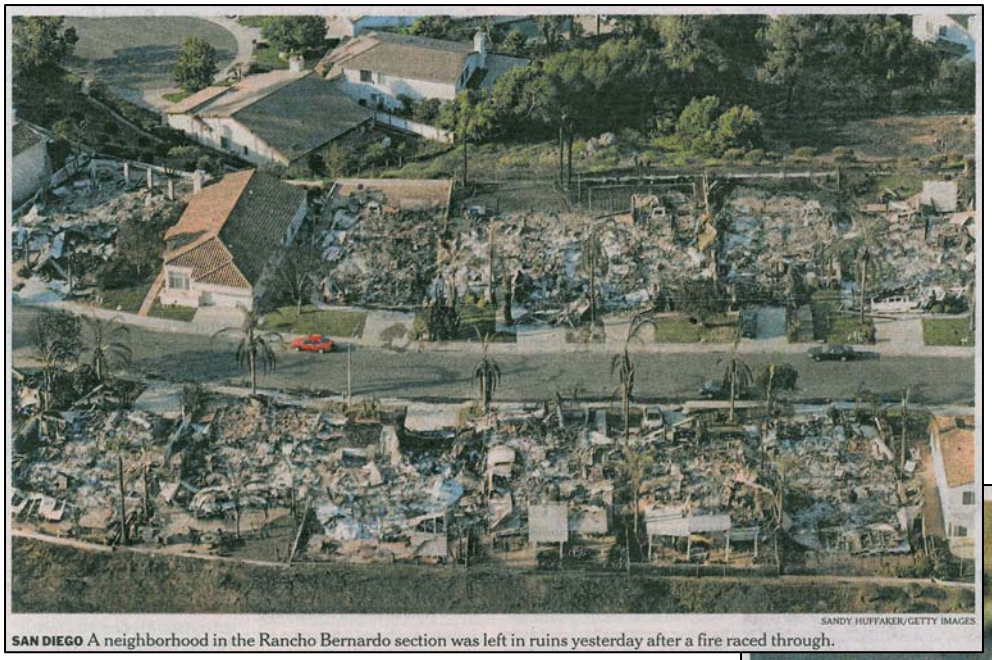
Plum Island Animal Disease Center



… DHS S&T has four Labs and access to 10 DOE National Labs

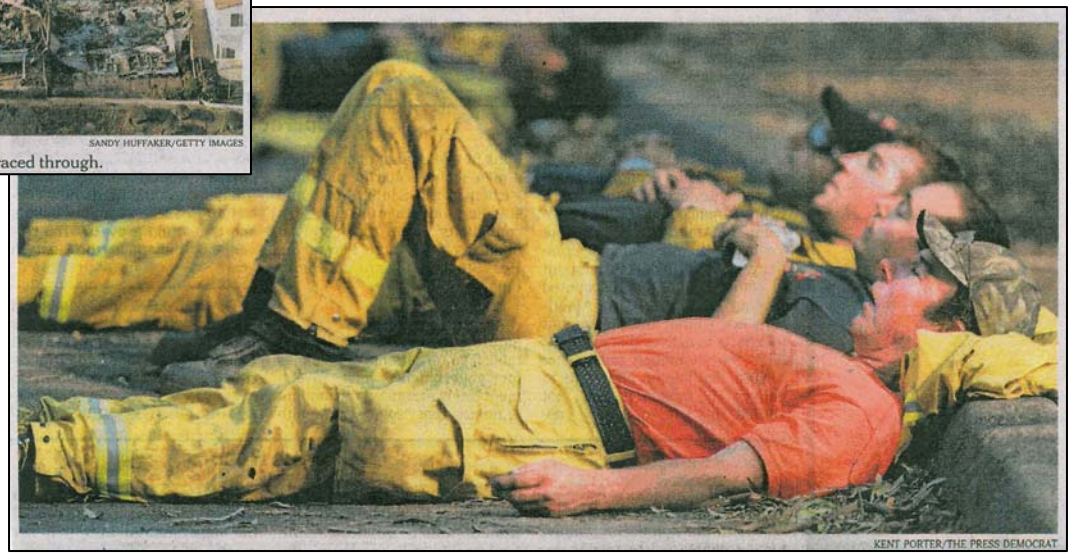
The New York Times

THURSDAY, OCTOBER 25, 2007



SANDY HUFFAKER/GETTY IMAGES

SAN DIEGO A neighborhood in the Rancho Bernardo section was left in ruins yesterday after a fire raced through.



KENT PORTER/THE PRESS DEMOCRAT

Homeland Security

Project SAFE:

Enabling Technology to Protect Communities from Catastrophic Fires

Doing Business with DHS S&T

Broad Agency Announcements

Current Solicitations

- Document validator
- Biometric detector
- Cyber Security R&D
- Unified Incident Command & Decision Support, Phase II
- RFI SAFE Container
- Home Made Explosives
- Emerging Counter-MANPADS Technologies Assessment

For more about BAAs, visit www.FedBizOpps.gov and www.hsarpabaa.com

Homeland Security

TECHSOLUTIONS

- Mission: rapidly address technology gaps identified by Federal, State, Local, and Tribal first responders
- Field prototypical solutions in 12 months
- Cost commensurate with proposal but less than $1M per project
- Solution should meet 80% of identified requirements
- Provide a web-based mechanism for Emergency Responders to relay their capability gaps (www.dhs.gov/techsolutions)
- Gaps addressed with existing technology, spiral development, rapid prototyping
- Emergency Responders partner with DHS from start to finish

Rapid Technology Development

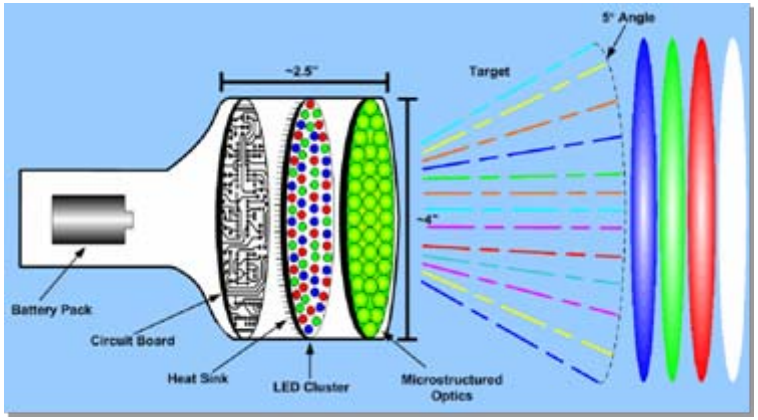
Target: Solutions Fielded within 1 year, at ~<$1M

Homeland Security

From "Don't TAZE me" *to*…"DAZE me."

LED Incapacitator: "The Dazzler"

- Light-emitting diode tool provides non-lethal means of subduing people who pose a security threat at ports of entry and other locations
- Emits colorful, ultra-bright pulsing light that disorients and temporarily blinds subjects with reactions that range from vertigo to nausea
- Customers and End Users: Border Patrol, Federal Protective Services, FAMs, USCG, ICE, State and local law enforcement, etc.
- Testing underway at Penn State
- A joint project of SBIR and Border/Maritime Security Division



Homeland Security

DHS S&T Stakeholders Conferences

- International Security and National Resilience (ISNR) conference, London, December 3-5, 2007. Visit www.isnrlondon.com
- S&T Stakeholders Conference West with first responder focus, Los Angeles, January 14-17, 2008
- Stakeholders Conference, Washington, DC, May 2008

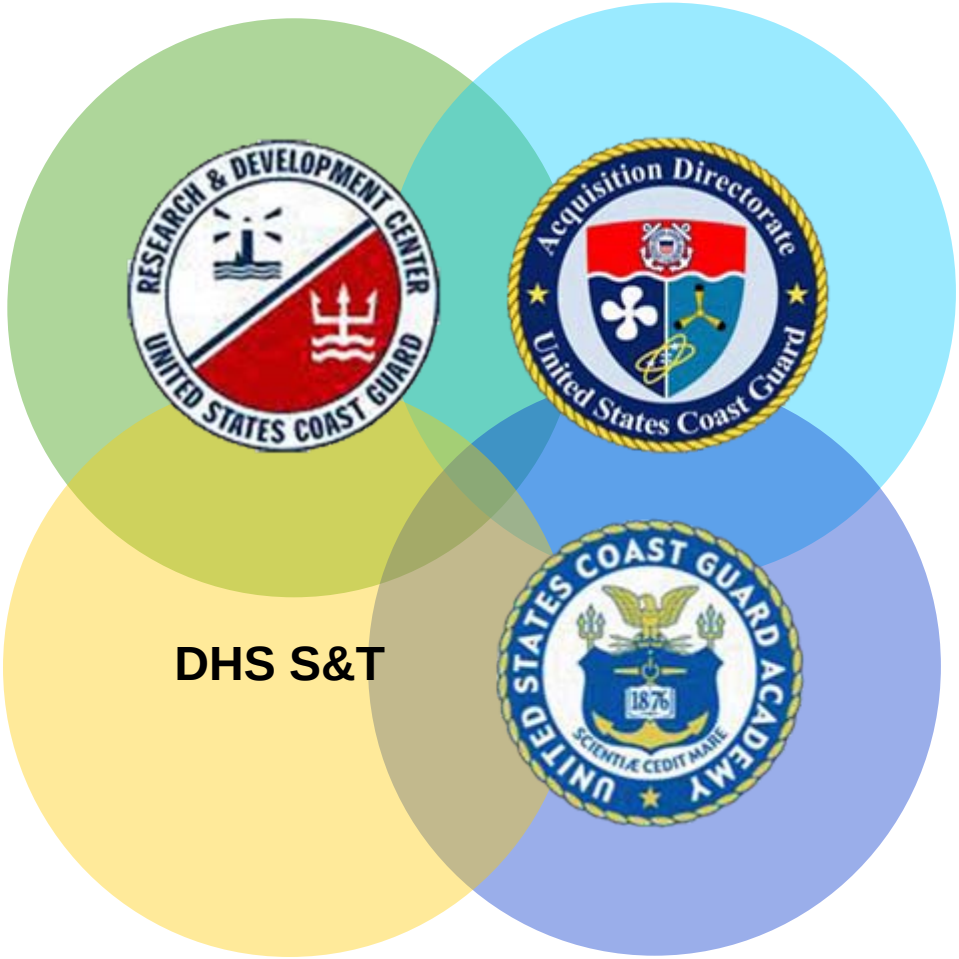
Homeland Security

DHS S&T Innovation in the News…

New brown-water Navy?

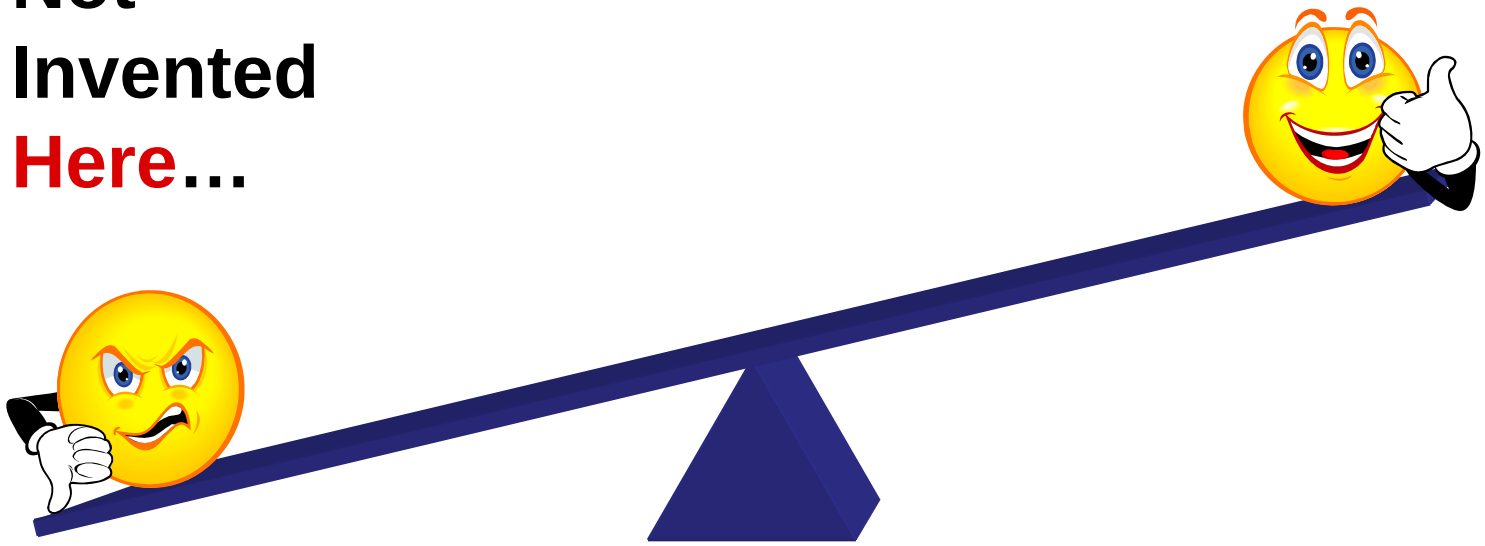
MC1 GEORGE LABIDOU/NAVY

"The competition between Littoral Combat Ship designs continues."


RESEARCH & DEVELOPMENT CENTER
UNITED STATES COAST GUARD
Acquisition Directorate
United States Coast Guard
UNITED STATES COAST GUARD ACADEMY
1876
SCIENTIÆ CEDIT MARE
DHS S&T

FROM
Not Invented Here…

…*TO* Not Invented YET



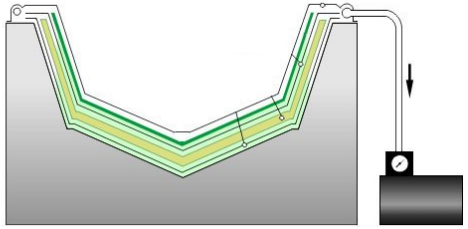

FSF
SEA FIGHTER


Sea Fighter
DRAFT
SEA FIGHTER FSF-1
Sea Fighter
DRAFT
REAR
ADMIRAL
COHEN

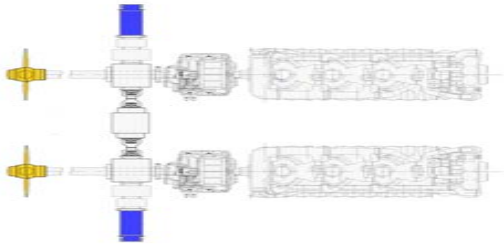
Homeland Security

Future Patrol Boat Technologies

Composite Materials

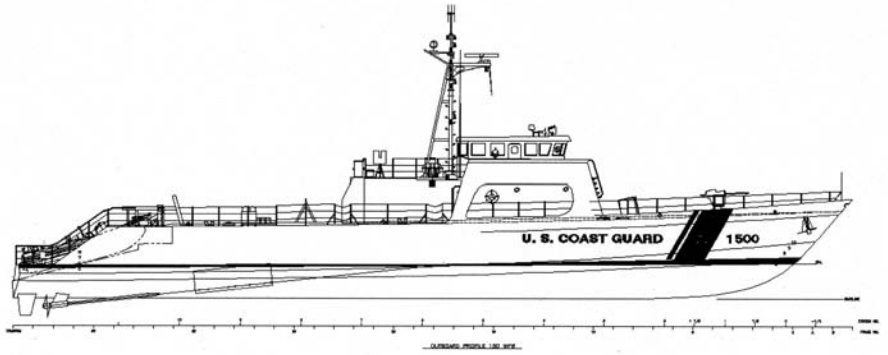


Hybrid Propulsion



Lifting Bodies

Scalable Composite Vessel Prototype



- Increased Efficiency
- Reduced Maintenance
- Extended Service Life
- Increased Effectiveness

Homeland Security

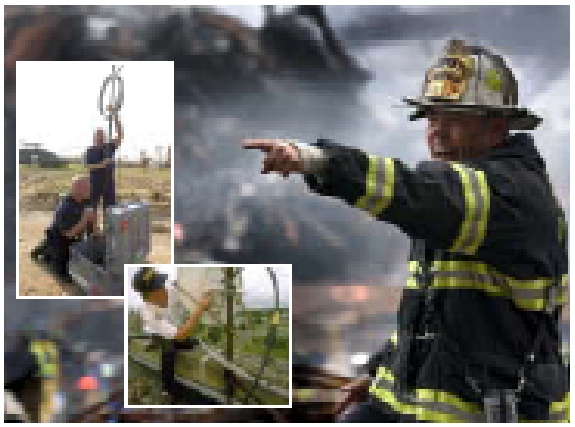
Homeland Security

FROM SCIENCE...SECURITY

Explosives

Chemical/Biological

Command, Control, & Interoperability



Borders/Maritime

Human Factors

Infrastructure/Geophysical

FROM TECHNOLOGY...TRUST

Back-Up Slides

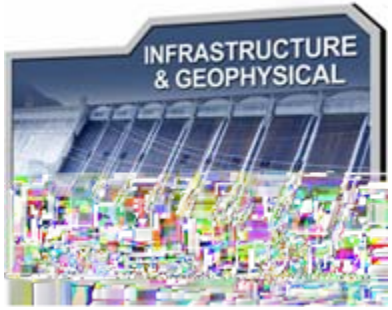
DEEPWATER

Product Transition Portfolio

Enabling Capabilities, Supporting Mission Critical Needs of DHS

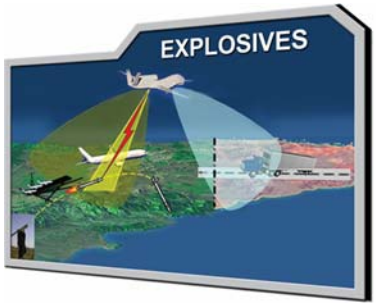
Integrated Product Teams (IPTs)

- 11 Capstone IPTs form the centerpiece of the S&T's customer-driven approach to product transition
- Engage DHS customers, acquisition partners, S&T technical division heads, and end users in product research, development, transition and acquisition activities
- Identify our customers' needs and enable and transition near-term capabilities for addressing them



Innovation Portfolio

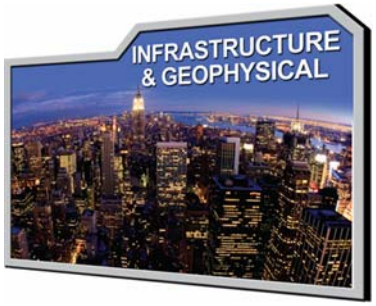
High Risk, High Gain, Game Changers for Leap-Ahead Results



- Promotes revolutionary changes in technology
- Focus on prototyping and deploying critical technologies

Includes:

- HSARPA – Homeland Security Advanced Research Projects Agency
- "Homeworks" – 1% of budget highest risk, highest pay-off
- Small Business Innovation Research program
- *Visit www.FedBizOpps.gov, www.hsarpabaa.com and www.sbir.dhs.gov*



Are You Suffering from Not Invented Yet Syndrome?

Hurricane and Storm Surge Mitigation

Research Program Objectives:

- Produce methods that minimize the damage potential and threat to human safety associated with storm surge and wave events
- Provide guidance on and demonstrate surge and wave attenuation techniques on both the regional and local scale
- Develop improved tools and application approaches that enable better disaster preparedness, planning, and risk management.

Homeland Security

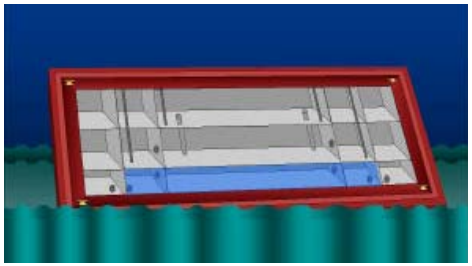
Hurricane and Storm Surge Mitigation

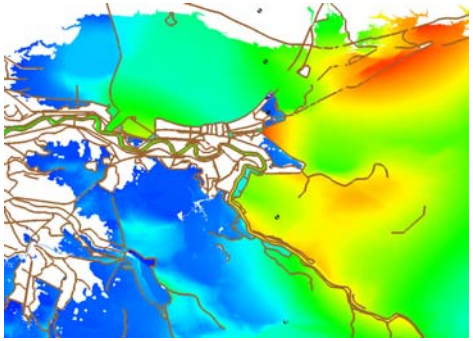
Surge and wave reduction at the regional scale using natural landscape features to reduce and redistribute surge. Develop guidance on:

- Landscape planning and utilizing engineered structures in combination with wetlands, barrier islands, lakes and other natural features for maximum surge and wave reduction benefit.
- Vegetation cover with greatest surge reduction potential and assess survivability of various types to determine possible range of application

Homeland Security

Hurricane and Storm Surge Mitigation





Surge and wave interdiction at the local scale using innovative engineered structures placed in a strategic location (i.e. navigation channel, river, or other natural constriction) to reduce storm surge from entering vulnerable areas.

- Inflatable of water filled schemes for rapid deployment

Reduce risk through improved tools and applications that enable better disaster preparedness, planning, and risk management

- Advance numerical modeling capabilities to predict surge, waves, flooding
- Surge interdiction decision support system

Homeland Security

Plumbing the ocean depths for approaches to mitigating the impacts of hurricanes…

bbc.co.uk

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Last Updated: Wednesday, 26 September 2007, 17:01 GMT 18:01 UK

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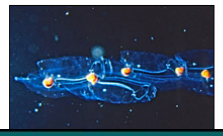
Lovelock urges ocean climate fix

By Richard Black
Environment correspondent, BBC News website

Two of Britain's leading environmental thinkers say it is time to develop a quick technical fix for climate change.



Writing in the journal Nature, Science Museum h… Rapley and Gaia th… James Lovelock su… looking at boosting… take-up of CO2.

Their idea, already… huge flotillas of ve…

The two scientists… curbing carbon em…

"We are taking the… line that we are n… save the planet by… approaches like th… Protocol or renewa… Professor Lovelock… News.

"What we have to… Gaian sense, and s…

VIDEO AND AUDIO NEWS
Animation of ideas aiming to cut global pollution
WATCH

CLIMATE CHANGE
Animated guide
Find out how the greenhouse effect works and more...

GLOBAL POLITICS

HOW THE PUMPS MIGHT WORK

1. Buoy: Helps hold the pump in position
2. Pump: James Lovelock believes the tubes would be about 100m long to access deep cold water, and 10m wide; Phil Kithil thinks 200m long and 3m wide could be optimum
3. Valve: Could be at the top or bottom of the pipe; top perhaps preferable for maintenance. Water is drawn through the open valve on wave down slopes; no external power needed
4. Cold water: On wave up slopes, cool water spills out of the pump
5. Pump sites: Locations could also be chosen to reduce hurricane risk by cooling surface waters

Telegraph.co.uk

James Lovelock's plan to pump ocean water to stop climate change

By Roger Highfield, Science Editor
Last Updated: 6:01pm BST 26/09/2007

Have your say | Read comments

A plan to save our world from extreme climate change by pumping cold water fr… depths of the oceans is outlined today by James Lovelock, the scientis… greens.

James Lovelock is best known for his id… that portray Earth as a living … organism - named G… Earth goddess - in w… and water interact in … the environment rema…

Today Lovelock, of Gre… University, outlines an e… stimulate the Earth to c… Rapley, former head of th… Survey who is now the di… Science Museum, London.

They believe the answer lie… which transport much more … atmosphere and, covering m… cent of the Earth's surface.

They propose that vertical pip… metres across be placed in the … that wave motion would pump … from 100-200 metres depth to t… moving nutrient-rich waters in th… mix with the relatively barren wa… the ocean surface.

This would fertilise algae in the surf… waters and encourage them to bloo… absorbing carbon dioxide greenhouse… sulphide that is know to seed sunligh…

N.J. scientists eye method for reducing hurricane power

By Mike Derer, AP

Enlarge

Professor Alan F. Blumberg of Stevens Institute of Technology, stands in the under-renovation research wave pool on the campus in Hoboken, N.J., Tuesday. Blumberg, along with Princeton University Professor George L. Mellor, are investigating whether hurricanes can be modified by using millions of portable water pumps to bring cooler water to the surface of the ocean, thereby reducing the severity of the hurricane.

Homeland Security

Future Attribute Screening Technology Mobile Module (FAST M2)

Office of Innovation - Homeland Innovative Prototypical Solutions

Systems
- Queue management
- Behavioral profiling
- Rapid risk assessment
- Screening methodologies

Operational Characteristics
- Discover screening methods for intent
- Privacy protection for all participants
- Simple to operate and use

Functions
- Identity verification
- Attribute measurement
- Risk determination
- Behavior focused screening

Homeland Security

Scalable Composite Vessel Prototype (SCVP)

Project Description:

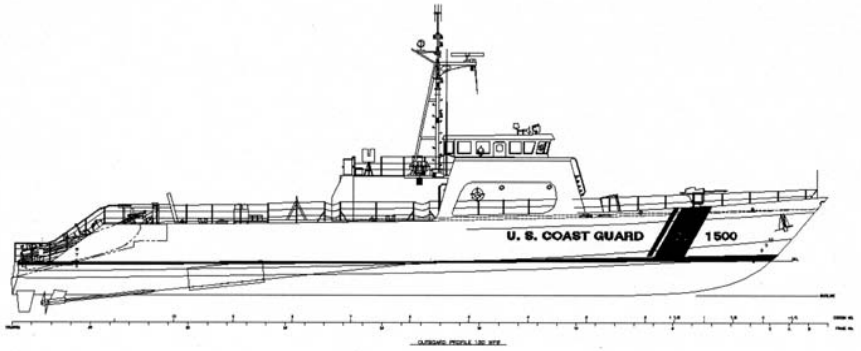
~150' Scalable Composite Vessel Prototype

30+kts	Stern Launched 7m RHIB
25mm Gun	5+ day endurance

Advanced Composite Construction

Goals:

- Mitigate production risk of monolithic adv. composite hull
- Develop and certify production procedures / cost data
- Demonstrate emerging stability/propulsion technologies
- Optimization of stern launch and recovery design
- Potential for immediate transition into FRC production line



Technical Information and Challenges:

Advanced composite production process overcomes many of the past drawbacks of composite ship construction (inconsistent material properties, high material waste, long production time, environmental hazards) but, advanced process has yet to be developed/demonstrated on this scale.

Provider:

Competitive BAA

Payoff:

- Strength/Weight/Durability: Extremely high strength to weight ratio. Advanced process provides consistent material properties and high durability.
- Reduced Life-cycle Costs: No corrosion. Reduced cost/manpower for dry-docking and preservation.
- Reduced Production Cost: Re-usable mold accelerates series production and could yield reduced unit cost.

Intended Customer for transition:

US Coast Guard

		FY08	FY09	FY10
Funding ($M)	DHS (S&T)	$8	$8	$0
	USCG	$8	$8	$0

Deliverables/Demos -

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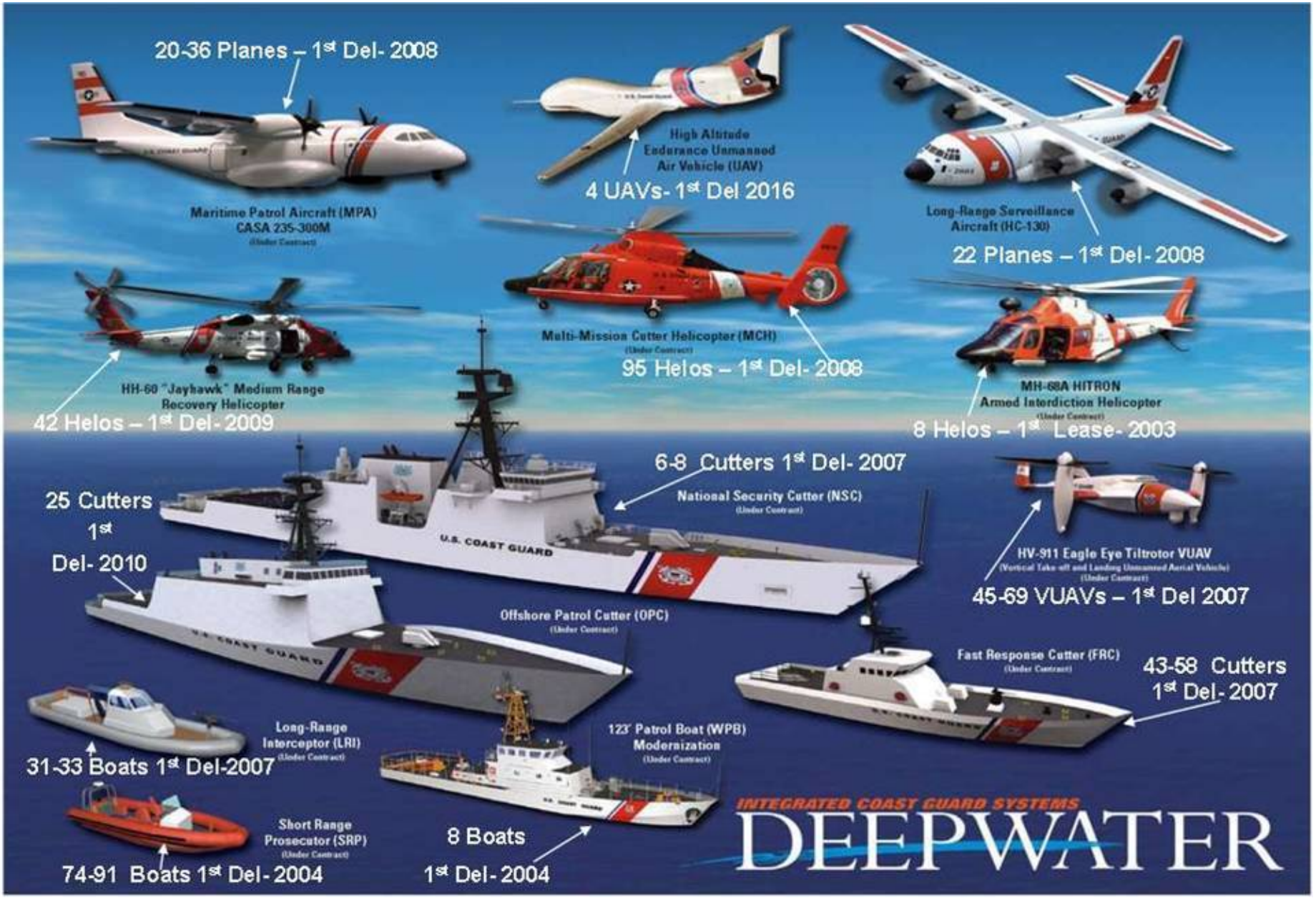
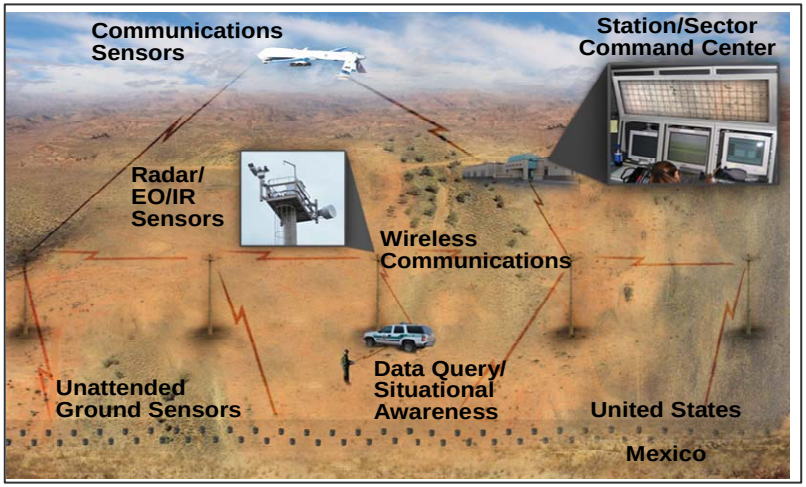

20-36 Planes – 1st Del- 2008
Maritime Patrol Aircraft (MPA)
CASA 235-300M
(Under Contract)
High Altitude
Endurance Unmanned
Air Vehicle (UAV)
4 UAVs- 1st Del 2016
Long-Range Surveillance
Aircraft (HC-130)
22 Planes – 1st Del- 2008
Multi-Mission Cutter Helicopter (MCH)
(Under Contract)
95 Helos – 1st Del- 2008
HH-60 "Jayhawk" Medium Range
Recovery Helicopter
42 Helos – 1st Del- 2009
MH-68A HITRON
Armed Interdiction Helicopter
(Under Contract)
8 Helos – 1st Lease- 2003
6-8 Cutters 1st Del- 2007
National Security Cutter (NSC)
(Under Contract)
25 Cutters
1st
Del- 2010
U.S. COAST GUARD
HV-911 Eagle Eye Tiltrotor VUAV
(Vertical Take-off and Landing Unmanned Aerial Vehicle)
(Under Contract)
45-69 VUAVs – 1st Del 2007
Offshore Patrol Cutter (OPC)
(Under Contract)
Fast Response Cutter (FRC)
(Under Contract)
43-58 Cutters
1st Del- 2007
Long-Range
Interceptor (LRI)
(Under Contract)
31-33 Boats 1st Del-2007
123' Patrol Boat (WPB)
Modernization
(Under Contract)
Short Range
Prosecutor (SRP)
(Under Contract)
74-91 Boats 1st Del- 2004
8 Boats
1st Del- 2004
INTEGRATED COAST GUARD SYSTEMS
DEEPWATER

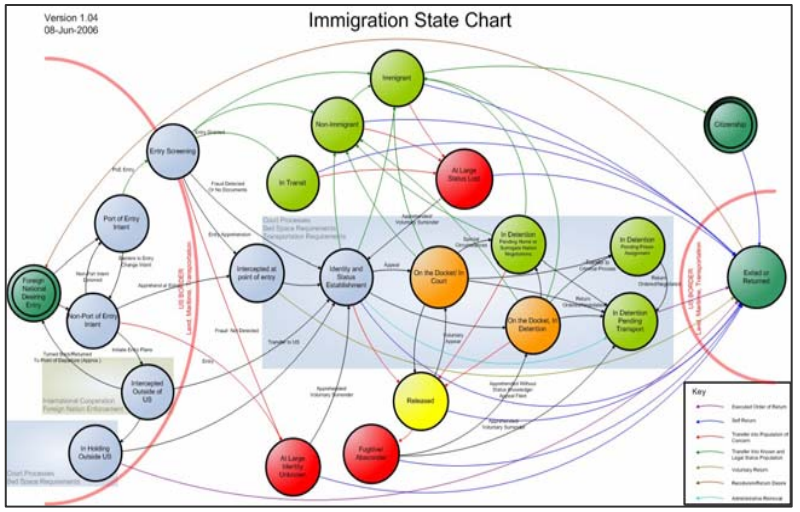
BorderWatch



Border Net

Border Detection Grid

Sensor/Data Fusion and Decision Aids



Secure Border Initiative (SBI) Systems Engineering and Modeling & Simulation

Homeland Security